

The Arcati Mainframe Yearbook 2023



The independent annual guide for users of IBM mainframe systems

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Contents

Welcome to the Arcati Mainframe Yearbook 2023..... 3
The NeverEnding Story: Optimizing and Securing the Modern Mainframe 6
Bigger Together: How to Maximize Mainframe’s Value 10

The 2023 Mainframe User Survey 14
An analysis of the profile, plans, and priorities of mainframe users

Vendor Directory 33
Vendors, consultants, and service providers in the z/OS environment

A guide to sources of information for IBM mainframers113
Information resources, publications, social media, and user groups for the z/OS environment

Glossary of Terminology118
Definitions of some mainframe-related terms

Mainframe evolution..... 151
Mainframe hardware timeline 1952-2022; mainframe operating system development

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Group Inc (ASPG)	38	Information Technology	
Baer Consulting	41, 42	Company	68, 69
Broadcom Mainframe		Key Resources Inc	74, 75
Software Division	10, 46	Planet Mainframe	13, 89, 90
DataKinetics	32, 53	Vertali	6, 108

Welcome to the Arcati Mainframe Yearbook 2023

We are very grateful – as always – to all those who have contributed this year by writing articles, taking part in our annual user survey, or updating their company profiles. In particular, I must thank the sponsors and advertisers, without whose support this Yearbook would not be possible.

2022 was the year when people made the decision whether they wanted to go back to working in an office environment, or whether they preferred to work from home. If your house was big enough to accommodate perhaps two adults working almost fulltime from home, then it was an easy choice. No need to drive through traffic and battle over parking spaces, you could get up, and be going through your emails thirty minutes later. On the other hand, where people didn't really have room to work, or had young children noisily playing around the house, working from home was less ideal. Plus, it's easier to get stuff done when all you have to do is walk over to someone else's desk and ask them. At some organizations, management feared that they would lose control of employees that they couldn't see all day. Other companies trusted their staff to complete tasks at times that suited them. It was just important to get the job done to a suitable high standard. There was also talk of the Great Resignation as many people decided either that the company they were with wasn't right for them, or that still going to work wasn't right for them.



Looking at the word of the year can often help sum up a year. Collins Dictionary's word of the year was 'Permacrisis', which, they said, described the feeling of living through a period of war, inflation, and political instability. Taking a more jovial view, the Cambridge Dictionary's word of the year was 'homer', caused by Wordle players looking up five-letter words, especially those that non-American players were less familiar with.

In the first quarter of the year, IBM announced IBM Wazi as a Service (Wazi aaS), which makes z/OS capabilities available to IBM Cloud. This, they said, reduced the time it takes to access z/OS development and test environments from days to minutes – around six minutes. They also said that IBM Cloud for z/OS development is 15 times faster than using an x86 environment. In effect, IBM is offering virtual machines that people can use as mainframe test and development environments with the intention of creating cloud-based virtual production environments. Users get on-demand access to z/OS and can develop and test applications that they are working on.

In April, IBM unveiled its much-trailed new mainframe, the z16, its next-generation system with an integrated on-chip AI accelerator, which delivers latency-optimized inferencing. The accelerator is designed to enable clients to analyse real-time transactions, at scale. So, it is ideal for mission-critical workloads such as credit

The Arcati Mainframe Yearbook 2023

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card, healthcare, and financial transactions. The z16 is also specifically designed to help protect against near-future threats that might be used to crack today's encryption technologies. The z16, with its pre-announced 7nm Telum processor provides the much needed on-chip AI inferencing, and the rest of the mainframe (like earlier models) provides highly secured and reliable high-volume transaction processing. Banks are now able to analyse for fraud during transactions on a massive scale. IBM asserts that the z16 can process 300 billion inference requests per day with just one millisecond of latency. Users of the z16 will be able to reduce the time and energy required to handle fraudulent transactions on their credit card. For both merchants and card issuers, this could mean a reduction in revenue loss because consumers could avoid the frustration associated with false declines where they might turn to other cards for future transactions.

The IBM z16 is underpinned by lattice-based cryptography, an approach for constructing security primitives that helps protect data and systems against current and future threats. With IBM z16 quantum-safe cryptography, businesses can future-ready their applications and data today. With secure boot (meaning that bad actors cannot inject malware into the boot process to take over the system during start-up), IBM z16 clients can strengthen their cyber resiliency posture and retain control of their system. The secure boot and quantum-safe cryptography (mentioned above) can help clients address future quantum-computing-related threats including harvest now, decrypt later attacks, which can lead to extortion, loss of intellectual property, and disclosure of other sensitive data.

There's been a nagging worry about quantum computing for a little while now. Quantum computing is fast – a whole quantum leap faster than today's technology. Rather than using 0s and 1s, quantum computers work at the quantum level (hence their name!), ie at the atomic or subatomic level, and information can be encoded in more than one place. And that's what makes them so fast. The worry is that large organizations and nation states will use the speed of a quantum computer to break the algorithms used to encode data and then be able to access the previously-encoded information. The z16 supports the Crypto Express8S adapter, which is designed to deliver quantum-safe APIs, letting enterprises start developing quantum-safe cryptography along with classical cryptography and to modernize existing applications and build new applications. In September, IBM added the four National Institute of Standards and Technology (NIST) algorithms that were chosen in August to create a post-quantum cryptography (PQC) standard built on encryption algorithms that can protect against future quantum processor-based attacks. The NIST algorithms are designed for two of the main tasks for which public-key cryptography is typically used: public key encapsulation, which is used for public-key encryption and key establishment; and digital signatures, which are used for identity authentication and non-repudiation. The algorithms used are: CRYSTALS-Kyber for the key encapsulation mechanism (KEM) for public-key encryption and key-establishment; CRYSTALS-Dilithium, which is the primary algorithm in the signature category; FALCON; and SPHINCS+. CRYSTALS-Kyber and CRYSTALS-Dilithium form the basis of its key encapsulation and digital signature capabilities.

Security is an on-going issue for every IT platform. IBM's [Cost of a Data Breach Report 2022](#) found that the current average cost of a data breach is \$4.35 million. The average time to identify and contain a data breach is 277 days – 207 days to identify the breach and 70 days to contain the breach. In term of ransomware: for organizations that didn't pay the ransom the average cost of the breach was US\$5.12 million; and for organizations that did pay the ransom, the cost of the breach was US\$4.49 million plus the cost of the ransom. The biggest problems were phishing attacks, stolen credentials, cloud misconfiguration, and compromised business partners. And those are people problems not software or hardware. And that doesn't include problems associated with disgruntled staff or ex-staff.

IBM Security X-Force, IBM's in-house team of cybersecurity experts and remediators, [report](#) found that manufacturing outpaced finance and insurance in the number of cyberattacks levied against

these industries, extending global supply chain woes. The report said that manufacturers have a low tolerance for downtime, and ransomware actors are capitalizing on operational stressors exacerbated by the pandemic. About 1 in 4 attacks on this sector were from ransomware. In terms of statistics, 47% of attacks were vulnerability exploitation, 40% phishing, 7% removable media, and brute force and stolen credentials were both at 3%. The report goes on to suggest that as defences grow stronger, malware gets more innovative. Attackers are increasingly using cloud-based messaging and storage services to blend into legitimate traffic. And some groups are experimenting with new techniques in encryption and code obfuscation to go unnoticed.

In a relatively quiet year, IBM has acquired Neudesic, a cloud services consultancy specializing primarily in the Microsoft Azure platform. It also acquired Databand, a provider of data observability software, and Dialexa, which offers digital product engineering services.

When it comes to looking forward to 2023, it's always interesting to see what Gartner's Top Strategic Technology Trends for the year are. This time they include:

- 1 Digital Immune System – “By 2025, organizations that invest in building digital immunity will increase customer satisfaction by decreasing downtime by 80%”.
- 2 Applied Observability – “By 2026, 70% of organizations that successfully applied observability will achieve shorter latency for decision making, enabling competitive advantage for target business or IT processes”.
- 3 AI Trust, Risk and Security Management (AI TRiSM) – “By 2026, organizations that operationalize AI transparency, trust, and security will see their AI models achieve a 50% result improvement in terms of adoption, business goals, and user acceptance”.
- 4 Industry Cloud Platforms – “By 2027, more than 50% of enterprises will use industry cloud platforms to accelerate their business initiatives”.
- 5 Platform Engineering – “By 2026, 80% of software engineering organizations will establish platform teams as internal providers of reusable services, components, and tools for application delivery”.
- 6 Wireless-Value Realization – “By 2025, 50% of enterprise wireless endpoints will use networking services that deliver additional capabilities beyond communication, up from less than 15%”.
- 7 Superapps – “By 2027, more than 50% of the global population will be daily active users of multiple superapps. A superapp is an app that provides end users (eg customers, partners, or employees) with a set of core features, along with access to independently created miniapps.”
- 8 Adaptive AI – “By 2026, enterprises that have adopted AI engineering practices to build and manage adaptive AI systems will outperform their peers in the operationalizing AI models by at least 25%”.
- 9 Metaverse – “By 2027, over 40% of large organizations worldwide will be using a combination of Web3, spatial computing, and digital twins in metaverse-based projects aimed at increasing revenue. Metaverse is a combinatorial innovation made up of multiple technology themes and trends.”
- 10 Sustainable Technology – “By 2025, 50% of CIOs will have performance metrics tied to the sustainability of the IT organization. Sustainable technology is a framework of solutions that increases the energy and material efficiency of IT services; enables enterprise sustainability through technologies like traceability, analytics, renewable energy and others; and helps customers become more sustainable through apps, software, marketplaces, and more.

So, it looks like the mainframe industry is an exciting place to work. And, I can confidently predict that 2023 will be an interesting year, and that the mainframe will continue to offer outstanding security, performance, and reliability, and be at the heart of the world's business-critical applications.

The NeverEnding Story: Optimizing and Securing the Modern Mainframe

The task list for mainframers is never ending, whether that means prioritizing cyber resilience, implementing data loss prevention, or optimizing project work and BAU activity. There's clearly a continuing demand for specialist skills and expertise.

2022 began with pandemic restrictions still in place and ended with a controversial World Cup. War came to Eastern Europe, precipitating an energy crisis. The UK had three different Prime Ministers in 50 days. A global recession may be imminent. And the mainframe has continued to do what it does: a strategic platform for the ages, the single answer to multiple questions, as relevant in the digital world as the analogue. Mainframes have traditionally accounted for up to two-thirds of the world's IT production workloads but well below 10% of IT spend. However, the mainframe is being modernized, upgraded, optimized and outsourced. And people want help to do that.

We launched Vertali in 2022 as a consulting and services business to help mainframe organizations to navigate change, mitigate risks, and achieve their technology, business and security objectives. There's clearly an appetite within organizations to achieve more, faster. Given our pedigree in IBM Z skills and resources, we saw a gap that our consultants could fill.

Talking to clients and partners has raised a myriad of issues: the continuing changes required by digital transformation, the role of the modern mainframe, and of course cyber security. Let's take a quick look at two topics we're asked about regularly. The first is reasonably specific: Data Loss Prevention (DLP). The second is wider ranging: how to build cyber resilience for mainframe infrastructure, data and processes.

Data Loss Prevention (DLP)

Mainframe data loss is fundamentally a business problem. Prevention is better than cure, which means focusing on the risk of exfiltration. DLP,

or data leakage mitigation, is about detecting, identifying and preventing potentially damaging data breaches, data exfiltration, and the unwanted destruction of sensitive data. Effective DLP means securing and protecting your data, complying with the necessary legislation and regulatory requirements. Gartner estimated that by 2021, 90% of organizations would have implemented at least one form of integrated DLP. But analysts also say the market has reached maturity, with competitive solutions difficult to distinguish from each other, with innovation in functionality stalling.

We should be doing everything in our power to prevent the unauthorized and illicit removal and transfer of data outside organizational boundaries, so avoiding the customer, financial and reputational damage that can result. Data loss may come through a ransomware attack or data exfiltration via malware, and can be the result of outside attacks or insider threats. There are many ways to get data off a mainframe: FTP, SMTP, NJE (Network Job Entry), IND\$FILE for mainframe to PC file transfers, commercial products like XCOM and Connect Direct, and what about HTTP and HTTPS in a connected world? And who believes READ access to data is a good idea, as a rule? If I can READ something then I can copy it.

We need to reframe DLP as a strategy, a journey, rather than a product-led approach. We should not look to DLP as a magic bullet to protect sensitive information. It requires a more informed approach. This often starts with a pen test or security assessment. And a DLP strategy has to extend in different ways across different domains: network, cloud, endpoints, and storage, ideally as part of a managed approach to security (and cyber resilience – see below). It means properly



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understanding our networks, and who or what is connecting to our mainframes, monitoring network activity in real-time. We can make much better use of tools already out there, using solutions that feed into a comprehensive DLP strategy.

You can start by asking a few searching questions:

- What do we define as sensitive information? (The types of data classified as sensitive need to be revisited frequently.)
- How do we currently track (and understand) data access, movement, and usage?
- In what ways do we restrict access to our data?

We also need to be able to automatically detect

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and respond to threats: connecting the mainframe to an Extended Detection and Response (XDR) approach. It's a very good idea to integrate the mainframe with third-party solutions such as tools for IP Filtering, Intrusion Detection Services, z/OS Encrypted Connection Monitoring (zERT), and Network Management APIs (NMIs) in IBM z/OS Communications Server.

Why risk being caught out? Vulnerabilities almost certainly exist, and you may be at risk of data loss. It could only be a matter of time before a bad actor gets in. Of course, there's much more you can do...

Cyber Resilience: anticipate, recover, adapt

It's been said that resilience ultimately comes from recovery. We live in a complex, ever-evolving world in which the very best cyber defense is not a guarantee against a successful attack.

Cyber resilience is about adapting fast and recovering fast as you respond to a disruptive event. Business continuity today is impossible without a strong cyber resilience plan. It's part-and-parcel of continuously protecting the business and maintaining a hardened security stance. How can you ensure this resilience, securing mainframe systems and data from attack and other threats and, crucially, resume operations quickly and effectively if a successful attack breaches your defenses?

The US National Institute of Standards and Technology (NIST) defines cyber resilience as "The ability to anticipate, withstand, recover from, and adapt to adverse conditions, stresses, attacks, or compromises on systems that use or are enabled by cyber resources." Noting that cyber resilience extends beyond deliberate attack, IBM describes says it "brings business continuity, information systems security and organizational resilience together... the ability to continue delivering intended outcomes despite experiencing challenging cyber events, such as cyberattacks, natural disasters or economic slumps."

The European Union is also proposing an EU Cyber Resilience Act (CRA), "the first horizontal regulation to introduce security requirements for connected devices and related services... Hardware and software products are increasingly subject to successful cyberattacks, leading to an estimated global annual cost of cybercrime of €5.5 trillion [in] 2021."

We are indeed seeing increasing demand from mainframe organizations who want to prepare, protect, detect, respond and recover from cyber threats, internal and external, intended or accidental. We recommend a two-pronged

approach: developing a tailored Cyber Resilience Strategy then building, executing and regularly updating a robust Cyber Resilience Plan based on that strategy.

From cyber resilience strategy to practical plan

A viable Cyber Resilience Strategy depends on the smooth collaboration of several preventative, detective, and responsive approaches, understanding the interrelationships between these elements and how each one complements the functions of the others. Creating your tailored strategy will therefore draw on existing operational disciplines such as Business Continuity (BC), Disaster Recovery (DR), Incident Response (IR), and Cybersecurity Planning. These elements already exist in most organizations but are siloed. We need to bring them together.

Your strategy defines how and what you will develop, and the priorities of your Cyber Resilience Plan. Developing plans, which are clearly documented, updated and regularly tested, is achieved through a balanced program of activities. These include cybersecurity planning, business continuity and disaster recovery (BCDR) plans, incident response plans, periodic Business Impact Analysis (BIA) and Risk Analysis, regular testing, and stakeholder engagement. An important part of the process is educating and updating the senior leadership team on the threat landscape, based on the assumption that a breach will take place. We need to explain the risks and impacts of not having a strong strategy and plan, quantifying benefits wherever possible in monetary terms. Cyber resilience can help to significantly reduce financial loss and reputational damage.

You can also explore and deploy tools to support cyber resilience that work for you. These might include IBM z Cyber Vault ("reduce time to recovery from days to minutes"), Dell's Data Protector for z Systems (zDP) which has been described as a "mainframe data recovery game changer", as well as tools from Maintegrity, Action Software, New Era, Vanguard, BMC, and others.

When it comes to effective cyber resilience, a flexible approach is required, one that may include: identifying and documenting the most critical elements to your business; input from diverse stakeholders; performing a risk analysis and risk rating of systems, applications and data (pen tests and security assessments may be part of this); ensuring your strategy and plan align with wider cyber related requirements e.g. GDPR, NIS Directive; and documenting, testing, refining and updating – and continuing to do so.

What's next on your task list?

When it comes to cyber security and optimizing mainframe operations in general, simply because the task is like painting the Forth Bridge – said to be never ending – doesn't mean we shouldn't be

constantly scrubbing away the old, reinforcing and repairing, and providing new layers of protection. With the continuing role of the mainframe, at the heart of so many organizations and activities, these aren't really technical issues or security problems anymore: they are business issues that go to the heart of successful operations, great customer service, and commercial resilience. ■

A global thought leader and international speaker in mainframe security and technology, and passionate advocate of all things Z, Mark Wilson is Vertali's Technical Director. He has more than 40 years' experience across numerous industries and diverse mainframe environments. Mark is also Region Manager for Guide Share Europe (GSE) UK. For more information email: info@vertali.com

Mainframe automation with Ansible

The basic concepts behind Ansible involve a control node or the machine from which you run the Ansible code, which could be a laptop, shared desktop, or server. This can then control databases, the back end, and the front end, using Python modules over a secure connection. There's no need to install Ansible on the target nodes.

The Ansible inventory identifies the nodes that are managed and categorizes them into different groups. Both nodes and groups can be assigned variables for use later during automation. The inventory can be static (using files) or can be provided dynamically.

The Ansible for IBM Z collection contains a powerful set of playbooks and modules that allow users to automate common z/OS tasks. There are also dedicated collections and samples for different IBM products such as IMS and CICS. These are available on Ansible Galaxy. The collections cover basic z/OS tasks and those needed for Db2, CICS and IMS.

Mainframe sites use Ansible to build and provision middleware, roll out fix packs to thousands of servers and for self-service provisioning of portals. Ansible can be used to configure middleware, networks and security.

Bigger Together: How to Maximize Mainframe's Value

Greg Lotko, SVP and General Manager, Mainframe Software Division, Broadcom Inc

The further we evolve as a digital society, the more proof we see of a basic truth: Mainframe systems play a central role in many of the most fundamental aspects of our lives and work. The platform underpins today's society.

The Mainframe is a modern marvel with state-of-the-art hardware and software that drive successful businesses on a global scale. Enterprises trust it and consumers transact on it every day with complete confidence. It's a true workhorse, found in nearly every industry—and for good reason. It has unmatched capability and value.

Beyond the Mainframe's impressive technological credentials, it's really the people—the community of developers, engineers, data scientists, and system programmers—who leverage it to power progress. Working together, the community's expertise, dedication, passion, and ingenuity are what bring this technology to life for businesses around the world.

A Business-Forward Mindset

Competitive forces are fiercer than ever. The ability to achieve and maintain leadership requires continuous transformation. Transformation of business models, processes, and services—and of the right technology stack to support it all. You'd better be transforming because you can bet everyone around you is. It's more than a choice. It's a necessity. And it's how you move forward. You have to be anticipating the future and thinking about what's next. That awareness is crucial.

The implications of transformation are different for every organization. This doesn't mean throwing away the technology investments you've made, but rather improving and building on them. Sometimes the key to moving forward is with new technologies. Sometimes it's with a tried-

and-true platform. Most often the right answer is a combination of both.

Opening the Mainframe to Growing Possibilities

As we surge toward the future, the need for increasing scale and speed will continue to drive change across all industries. Look at the finance, travel, and retail industries as examples. Customers demand faster, more connected experiences. The Mainframe is an essential part of that customer experience. Consider the Mainframe's role in processing nearly 90% of all credit card transactions, not to mention doing much of the heavy lifting for airline reservations, banking, healthcare and supply chain systems.

As [Mainframe expands its integration with Hybrid Cloud](#), the value of the platform expands as well. An open and connected Mainframe allows developers and IT of all generations to use common tools and strategies that allow visionary work in fields ranging from AI and machine learning to cyberthreat defense, data management, and much more. All while leveraging Mainframe's inherent strengths.

It's the People that Make It Possible

When most people think of the Mainframe, they concentrate on what's inside. But, the inherent strengths of the Mainframe include way more than the technology.

Yes, the Mainframe delivers unparalleled performance, scalability, efficiency, security, and reliability. More importantly, it's the people—those who develop the hardware, write the code for middleware, and develop the applications—who fuel business value.

Let's go bigger. Together.

How do we use the present to unlock the future?

By building on today's IT investments ... to deliver even more value tomorrow.

We see the bigger picture ... and share your bigger goals.

With Broadcom Mainframe Software, **we're bigger together.**



SEE HOW

Learn more at [WeAreBiggerTogether.com](https://www.broadcom.com/wearebiggertogether.com)

This community brings forth their know-how, experience, and commitment to continuously strengthen and evolve the IT backbone of our society. And these same people are sharing their knowledge, passing it forward to train the next generation of talent for tomorrow. These are Mainframers.

Being a Mainframer is more than working with the platform. It's knowing that the platform is bigger on the outside. That it's the hardware, software, and even more so the people—together—working to drive greater business value and meaningful impact on the world around us.

We're Bigger Together

Our full potential is realized when we work together towards a common business goal. It's being able to link the known with the new, so that we can build upon today's IT investments to create even greater value tomorrow. It's this kind of bigger, collaborative thinking that empowers businesses into the future.

Let's go BIGGER!

Mainframes, Git, and application development

Git can be used to develop new applications. Visual Studio Code (VS Code) is a popular application development environment. Programmers working collaboratively on source code use Git, and every Git-managed directory is a full-functioning repository (often called a repo). A repository contains all the files needed to compile and link an application. For mainframe applications, this could include source programs, copybooks, JCL or Rexx execs. It also usually includes a README file containing project instructions, documentation and any other useful information.

All Git instances or clones are equal. Developers use *pull* operations to integrate code from another developer into their repository and working directory. A *push* operation sends their code to a remote repository. Developers can also branch, switch branches, stash work, and perform other operations.

VS Code is probably the most popular editor these days, and it has built-in Git capabilities. Broadcom's free Code4z extension pack makes VS Code and similar tools usable by mainframe developers,

Git can be installed on a mainframe. IBM recommends Rocket Software's port of the Git client, which is usually installed in z/OS USS. It includes code page translation, which means that mainframe source code (in EBCDIC) can be stored and retrieved from Git (in ASCII). This allows developers to work on repositories stored on mainframes while working on a laptop. The `.gitattributes` file tells Git which files should be translated from ASCII to EBCDIC when working on z/OS.



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The 2023 Mainframe User Survey

An analysis of the profile, plans, and priorities of mainframe users.

Many thanks to all those who took part.

As usual, our annual mainframe survey provides a snapshot of the IBM Z user community's existing hardware and software configuration, and also their plans and concerns for 2023.

This year we have continued to track the growth of mainframe integration with mobile and cloud computing, and other areas of new development, as well as gauging the extent to which the API economy, DevOps, and ransomware are really impacting on the mainframe world. In addition, we have continued to explore relative costs in some details, asking respondents how fast their cloud computing costs are growing relative to the mainframe.

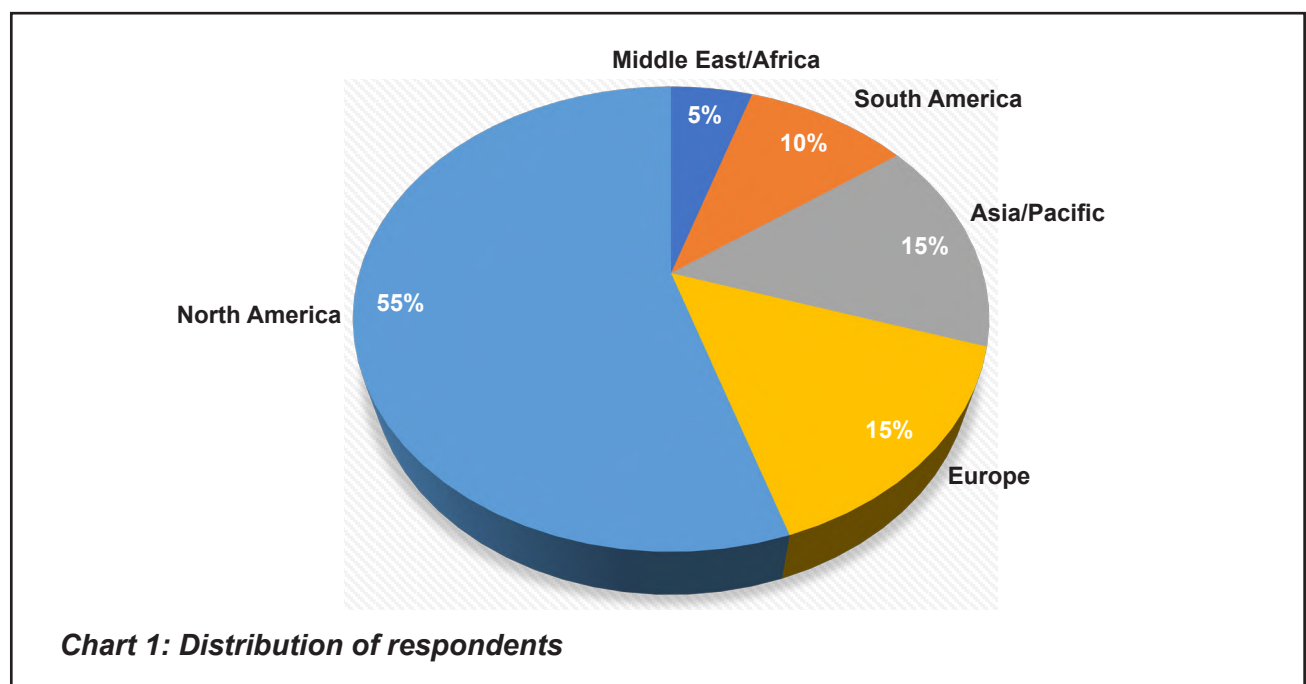
Profile of respondents

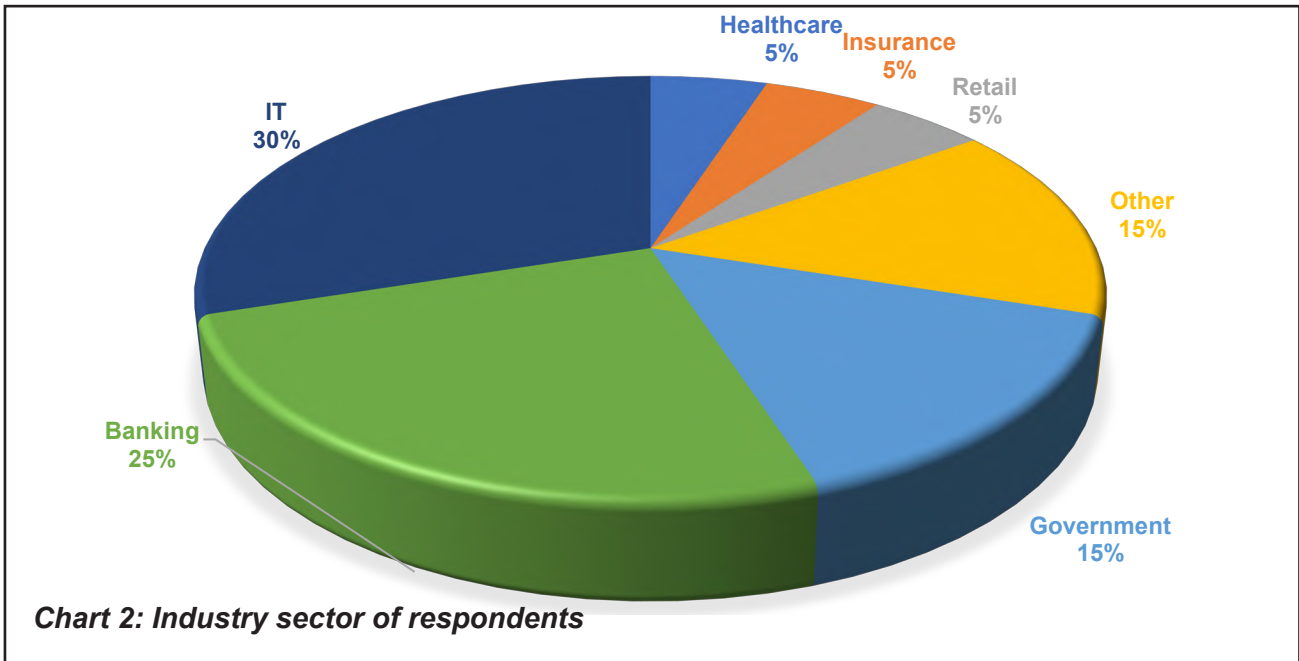
The mainframe user survey was completed by 100 individuals between the 21 October 2022 and the 25 November 2022. Survey respondents were either contacted directly by email or other online means and invited to complete the mainframe user

survey on the iTech-Ed Ltd website. Responses from large mainframe vendors and multiple entries from different people at the same site were excluded from the survey, as were largely incomplete responses.

The distribution of all respondents is shown in Chart 1. Just over half (55 percent) were from North America. 15 percent were from the Asia/Pacific region, and another 15 percent of respondents were from Europe. 10 percent were from South America. And five percent were from the Middle East/Africa.

As usual, a wide range of industry types are represented in our sample (Chart 2), with IT making up 30 percent of respondents. Banking made up a quarter of respondents. Government and the industries that didn't fit any of the categories offered each made up 15 percent of sites responding. Lastly, Healthcare, Insurance, and Retail are each five percent of the sample.



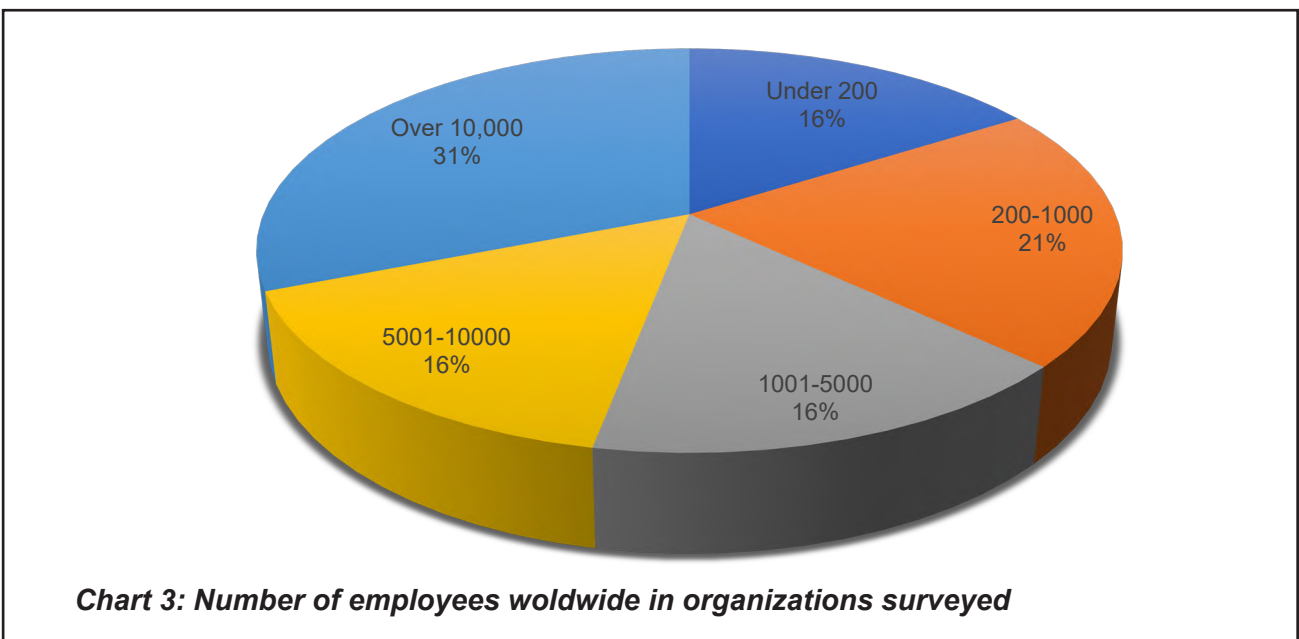


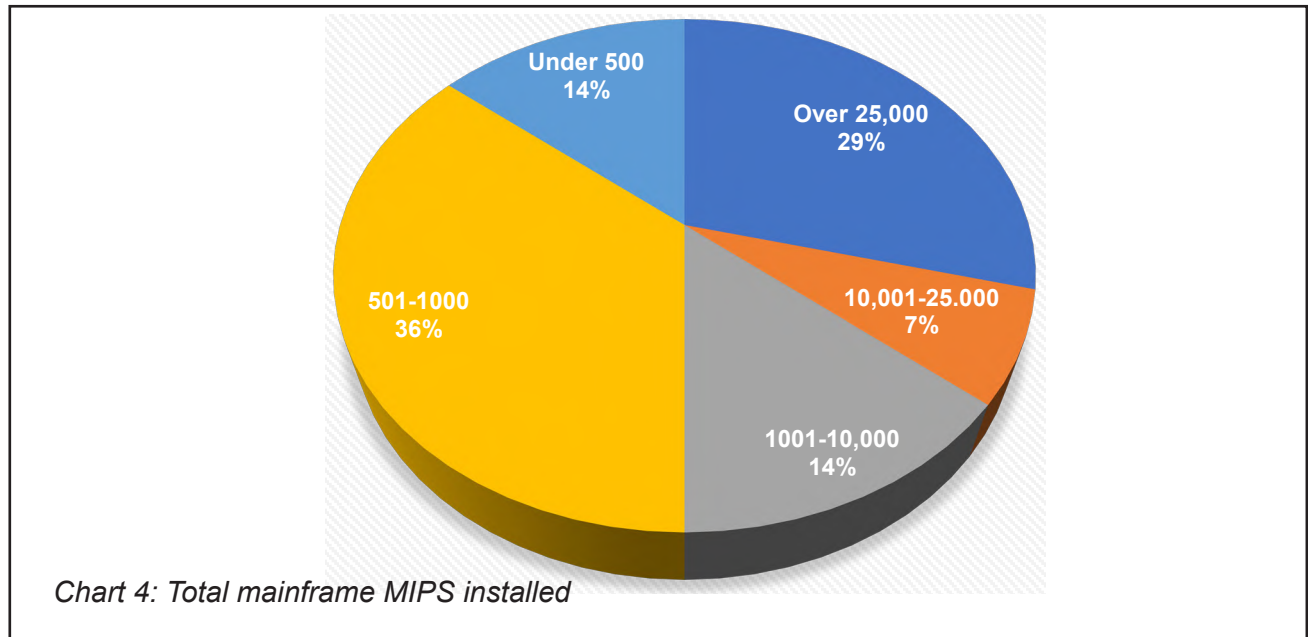
A third way to categorize respondents is to look at business size. As shown in Chart 3, the largest group of respondents are from companies with over 10,000 employees worldwide (31 percent). Just over a fifth (21 percent) had 200 to 1000 employees. And 16 percent of respondents were each from companies with under 200 staff, between a thousand and five thousand, and, lastly, between 5000 and 10,000 employees worldwide.

74 percent of our respondents were involved in running in-house data centres. 16 percent said that they were completely outsourced, and 10 percent were partially outsourced.

Installed MIPS and capacity growth

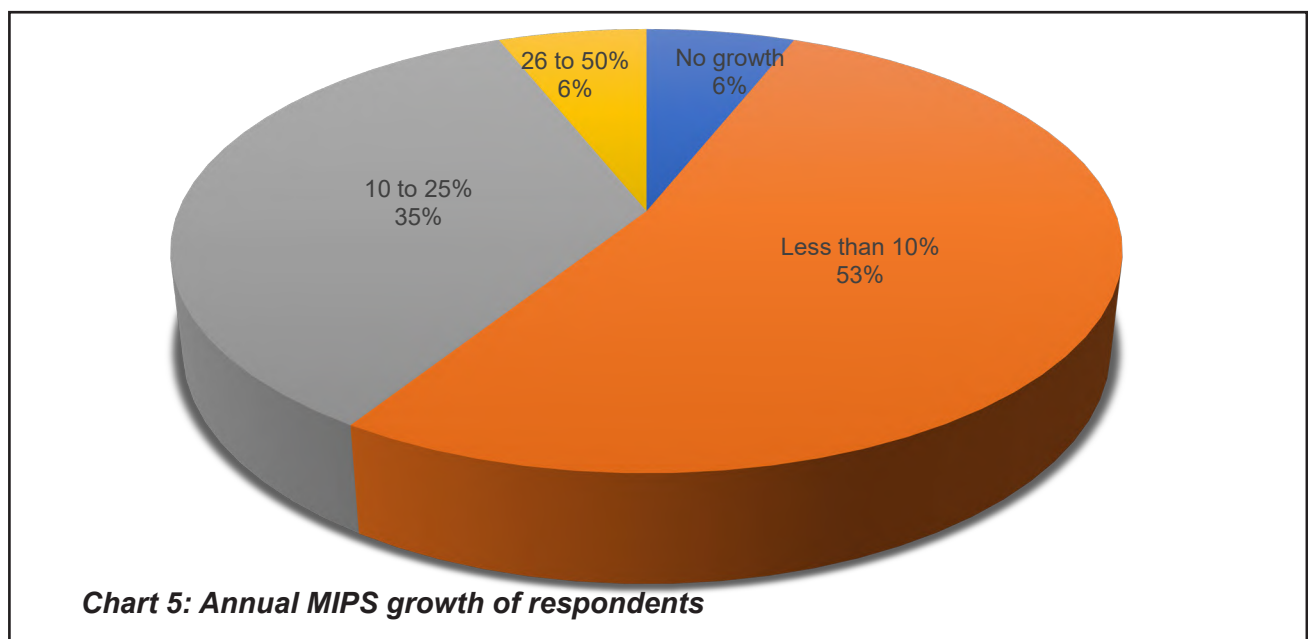
As in previous surveys, we have used MIPS as the principal measure of size. We asked respondents to indicate the total mainframe MIPS installed on





their systems, and the result is shown in Chart 4. 36 percent of respondents had 501 to 1000 MIPS (well up on last year's figure of 13 percent). 29 percent had over 25,000 MIPS (much the same as last year's figure of 31 percent). 14 percent of respondents had 1001 to 10,000 MIPS (well down from last year's value of 31 percent), and 14 percent had under 500 MIPS (also well down

from last year's figure of 25 percent). Lastly, seven percent of respondents reported having 10,001 to 25,000 MIPS (last year, none of our respondents reported that value for MIPS). And, as in previous years, we use installed MIPS later in the survey to identify differences between small, mid-sized, and larger users.



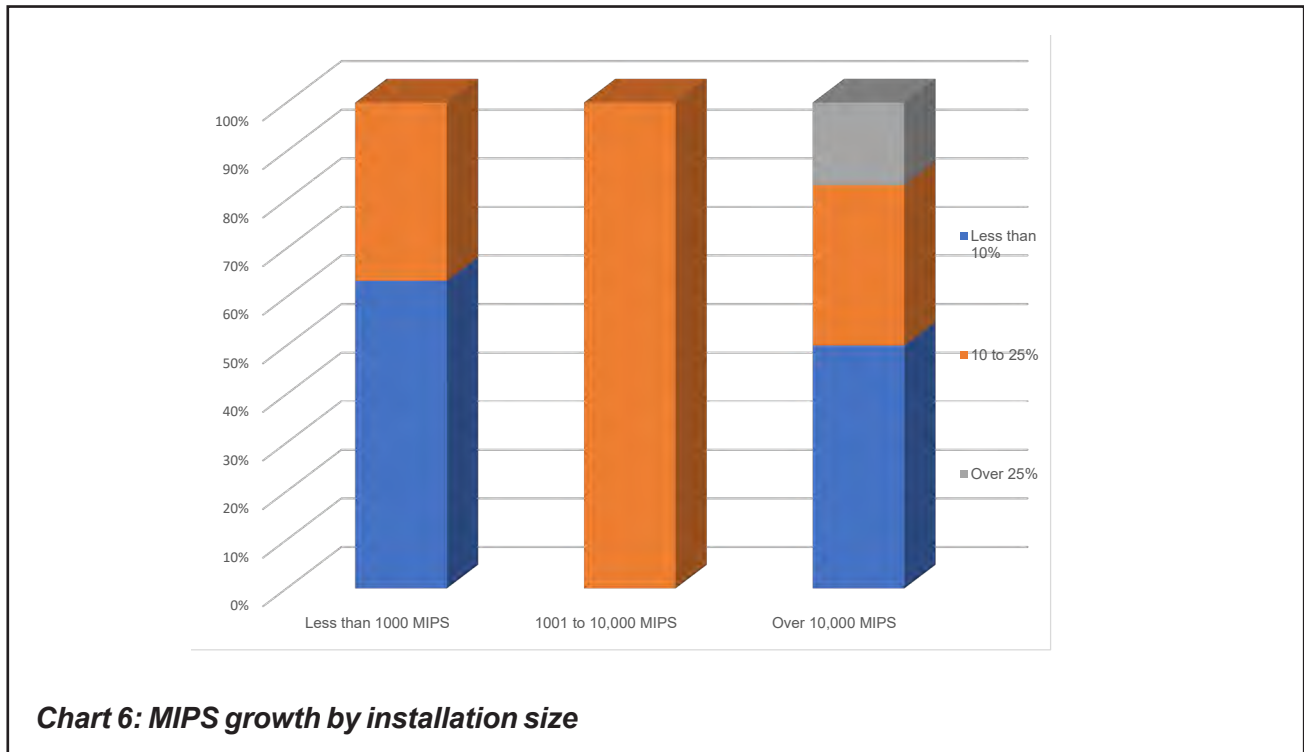
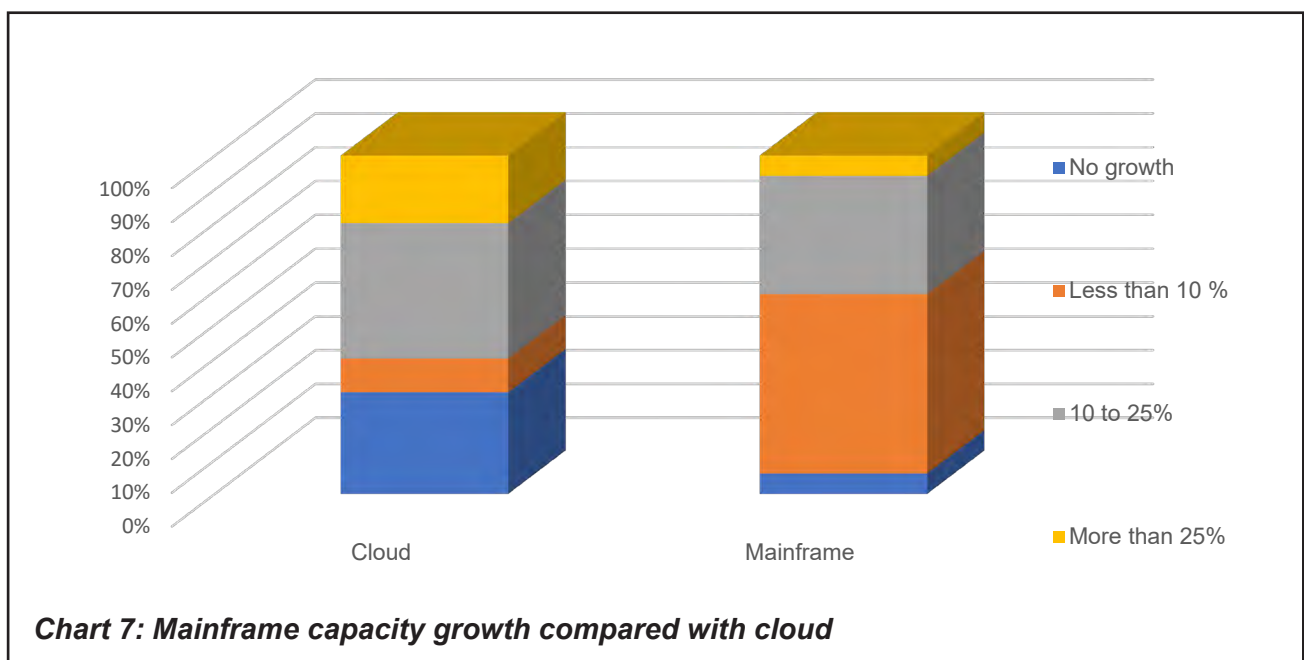


Chart 5 shows the annual MIPS growth of respondents. 94 percent of mainframe installations (well up on last year’s figure of 66 percent) are experiencing some growth, although 53 percent of sites (up from last year’s 41 percent) reporting that

growth, while occurring, is less than 10 percent. 35 percent of sites reported growth between 10 and 25 percent (up on last year’s figure of 25 percent). Only six percent of sites (well down from last year’s 17 percent) have not experienced any



kind of change in their MIPS this year. And no sites reported a decline in MIPS in the past year. Last year the figure was 17 percent. Hopefully, this means that organizations are moving the focus of their attention away from Covid and the impact that had, and the vast majority of sites are now seeing some kind of MIPS growth – which must be good for the industry.

Looking at Chart 6, we can see that the picture is fairly consistent across all MIPS values. All sizes of site are seeing growth in the 10 to 25 percent range. Some larger sites and some smaller sites are seeing growth below 10 percent, but some larger sites are seeing growth in excess of 25 percent. Again, a very positive picture.

We also compared the rate of growth of the mainframe with that of cloud. As shown in Chart 7, 30 percent of cloud sites are expecting no growth. 10 percent of respondents are expecting a growth of up to 10 percent, with 40 percent of sites expecting a growth in cloud platforms between 11 and 25 percent. And 20 percent of sites are expecting growth in excess of 26 percent. While the majority of mainframes expect growth to be

less than 10 percent, the majority of cloud users expect growth to exceed 10 percent.

Hardware and software currency

The IBM mainframe hardware range continues to receive a regular makeover, with new high-end and low-end systems generally being announced on alternative years (although that wasn't the case in 2021). 2022 saw the announcement of the z16 Model with its Telum processor, which is optimized for AI use. The IBM LinuxONE Emperor 4 systems were announced in September 2022. 2020 saw the announcement of the z15 Model T02 and LinuxONE III LT2 products. Delivery dates for each range of processor can be found in the *Mainframe evolution* section of the Yearbook.

Our research suggests that, typically, users have upgraded on a regular basis to the most recent hardware to take advantage of capacity increases and cost benefits. Chart 8 shows that the original z15 model is still the most popular model at 50 percent of sites surveyed. The z15 Model T02 was found at a quarter of the sites, as was the z14 Model ZR1. The original z14s are still in use at 20 percent of sites, and the original z13 model

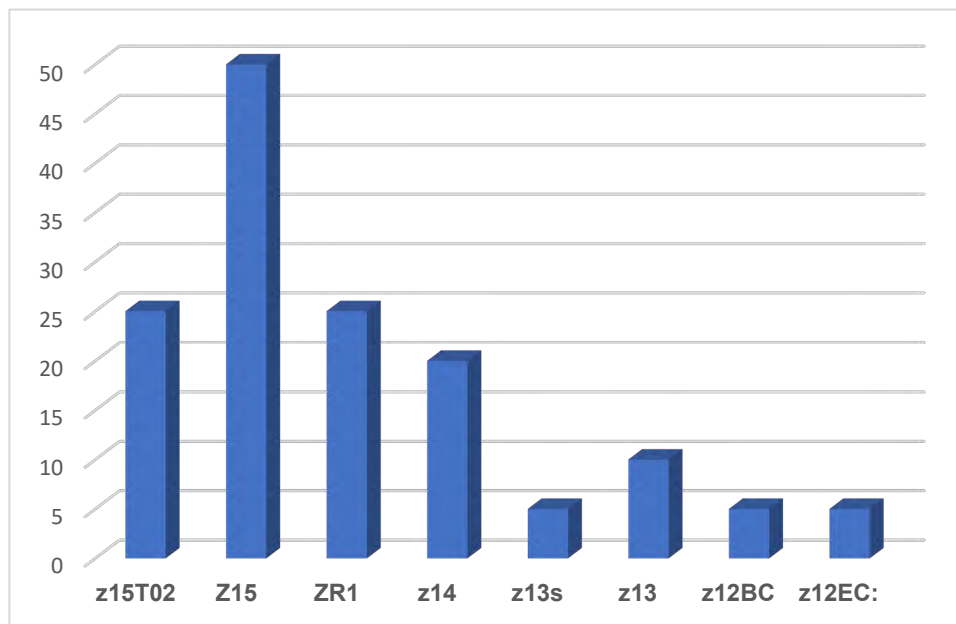


Chart 8: Mainframe processors installed

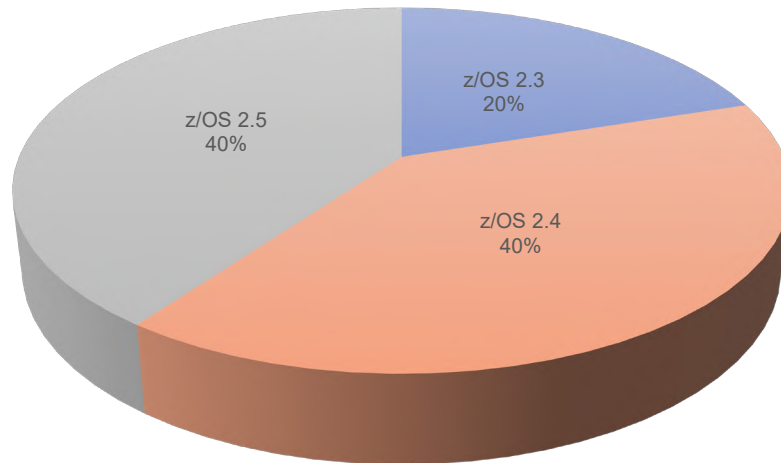


Chart 9: Primary mainframe operating system release in use

can be found at 10 percent of sites. Older models (z13s, z12 BC, and z12 EC) are still out there and still performing well. Other older models did get mentioned by some respondents, but were not statistically significant. It must be noted, when looking at these statistics, that many sites had more than one model of mainframe installed.

You may be wondering how many sites had z16s installed, which have been available since early summer. Unfortunately, although we asked the question, there was a problem with the software showing us the results.

We also took the opportunity to ask people whether they were interested in LinuxONE Linux mainframes and when they were likely to get one. With IBM's introduction of z/OS Container Extensions (IBM zCX), it's now possible to integrate Linux on Z applications with z/OS, perhaps reducing the need for Linux. Six percent of sites said that they already had one (last year, no-one reported having one), and 61 percent (down from last year's 77 percent) said they wouldn't get one in the foreseeable future. However, 11 percent expect to get one in the next six months, and 22 percent (up from 15 percent last year) of sites are expecting to get one at some time in the future.

Software currency (Chart 9) usually lags a little behind hardware. This year's survey found that 40 percent of respondents were using z/OS Version 2.5 (a huge increase on last year's figure of just seven percent). Another 40 percent of sites are using Version 2.4 (last year it was 57 percent). Lastly, 20 percent were using z/OS Version 2.3 (down from 29 percent last year). Those were the only versions captured by the survey results. No-one suggested Linux was their primary operating system. Clearly, sites are still migrating towards the latest versions of z/OS.

Mainframe strategy

We asked respondents what, in their opinion, are the main benefits to their organization of the mainframe over other platforms. This year's top of the list was availability, getting 85 percent of respondents voting for it (the figure was 95 percent last year). Security came next with 70 percent of respondents highlighting it as a benefit (last year the figure was 85 percent). It seems that mainframers are not recognizing just how secure mainframes are compared to other platforms. 65 percent of sites identified scalability (exactly the same as last year's figure) as a benefit, and 50 percent highlighted manageability (down slightly from last year's 55 percent). So, still plenty of

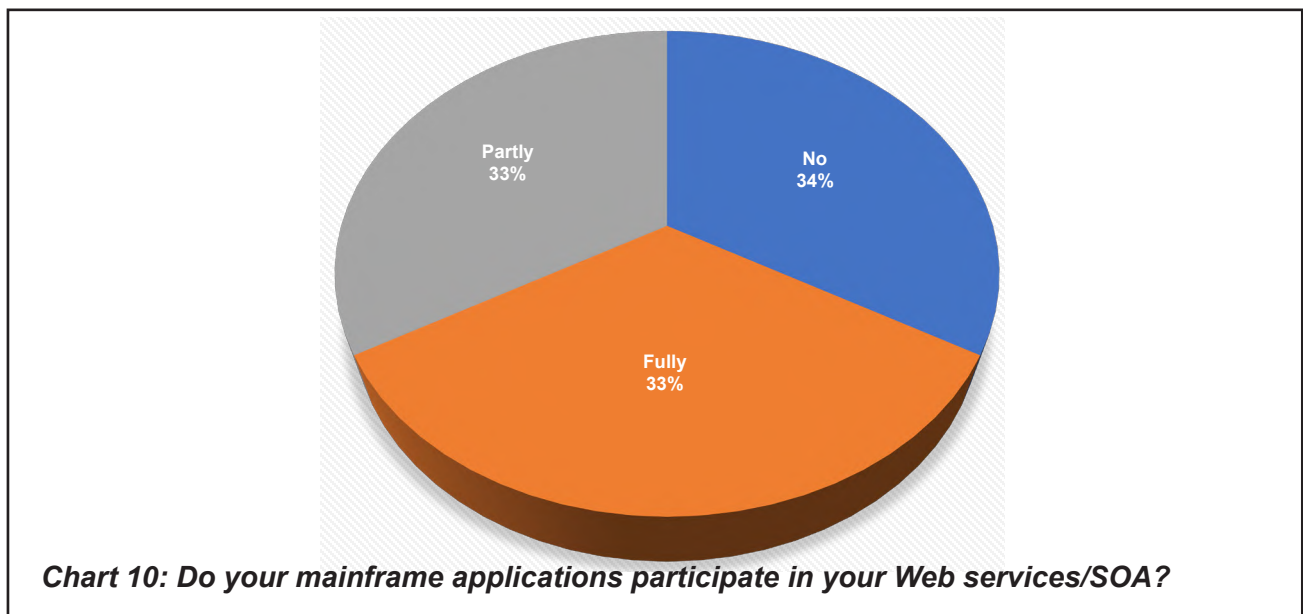
benefits from using a mainframe, although, perhaps, IBM needs to bang the drum about them a little more.

We also asked respondents what they thought were the main obstacles to mainframe acceptance within the enterprise. This year, 70 percent of sites thought that the biggest obstacles to mainframe acceptance within the enterprise was that it's too expensive (or appears to be). The figure was 55 percent last year. 50 percent of respondents (up from 30 percent last year) felt concerns about future availability/support of mainframe apps was an obstacle. Another 50 percent thought the cultural barrier between mainframe and other IT professionals was an obstacle (exactly the same figure as last year). 45 percent thought that difficulty in retaining the necessary skills (the figure was 85 percent last year) was an obstacle. And 35 percent of respondents thought that a barrier was the mainframe being too complex (or appearing to be too complex). This was up from 25 percent last year. Lastly, 10 percent of respondents didn't think that there were any barriers to mainframe acceptance, which was double last year's figure.

Within the industry as a whole, opinion is clearly divided over the role of the mainframe in new

applications. For some companies the mainframe remains a separate legacy environment, while others are leveraging the strengths of large systems by using them in cloud and mobile working. You hear mainframers talking about JSON and RESTful interfaces along with smartphone app designers. We found that 53 percent of sites viewed their mainframe as a legacy system (up from last year's 39 percent). Only 10 percent (down from last year's 17 percent and well down from the previous year's 40 percent) viewed mainframes as strategic. And 37 percent (down from 44 percent) viewed them as both strategic and legacy. It does feel as though many sites are failing to recognize the importance and strength of the mainframe as a computing platform.

We asked respondents whether their z/OS systems participate in Web services and SOA environments, and the results are shown in Chart 10. Unusually, we found a third of sites in each category. So, two thirds of organizations (down from 79 percent last year) said that their mainframes participate partly or fully in Web services. However, a third of sites said no they don't participate (up from 21 percent last year).



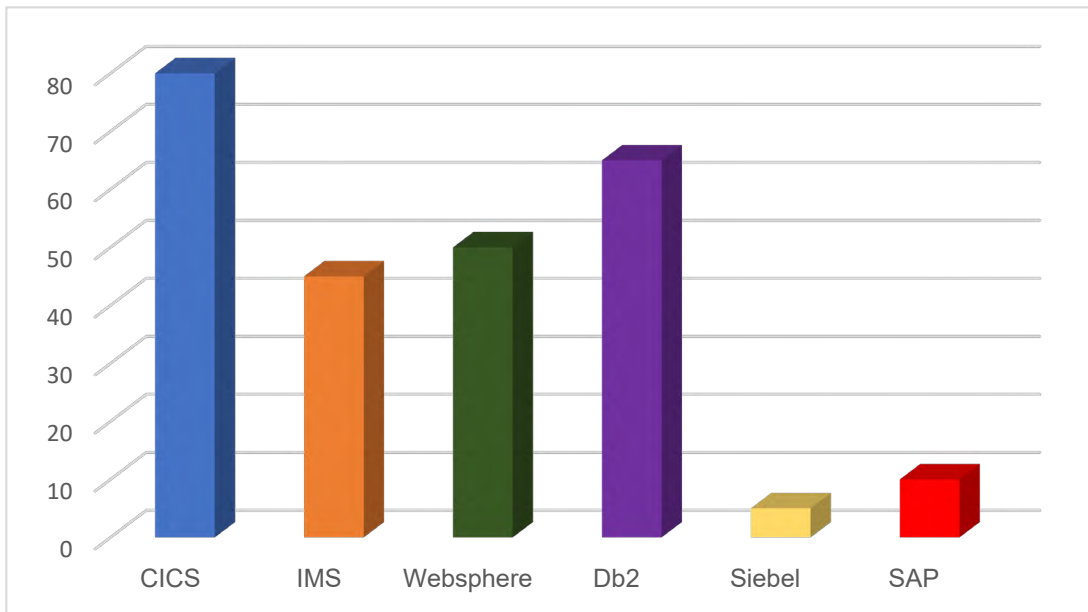


Chart 11: Which middleware have you, or do you plan to enable, with Web services?

44 percent (down from last year’s 56 percent) went on to say that they run Java-based applications on

the mainframe, with a further 17 percent (well up on last year’s figure of five percent) planning to.

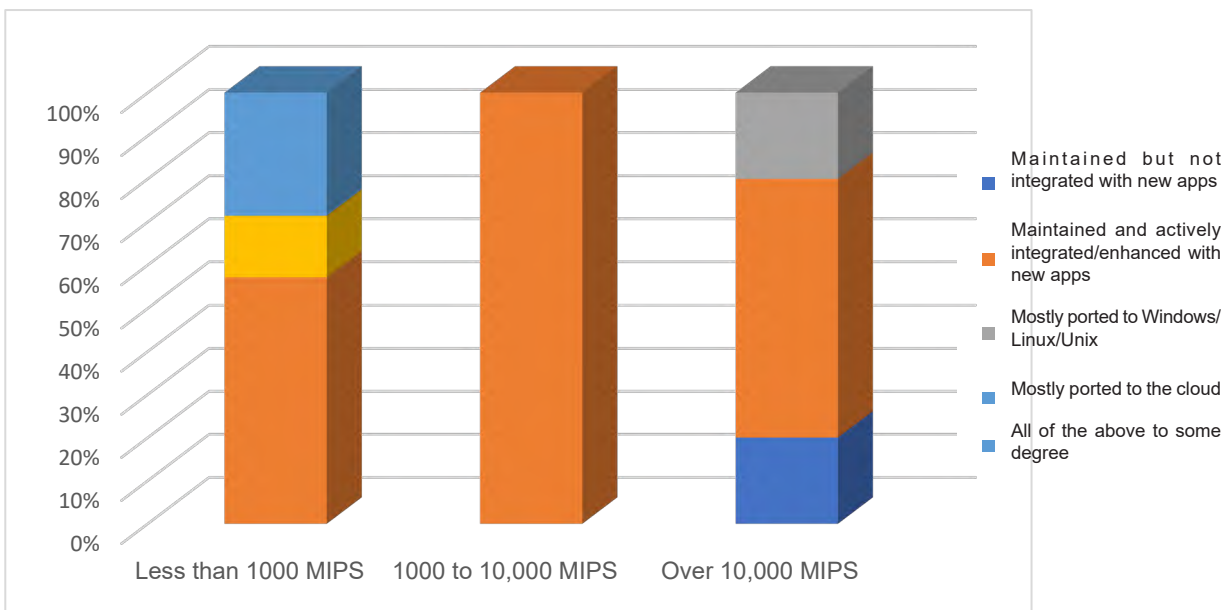


Chart 12: Legacy application plans over the next three years

31 percent of respondents (down from last year's 39 percent) said that they run Linux on IBM Z. 69 percent of respondents don't run Linux, and no-one said that they are planning to. There are considerable cost and management benefits of consolidating distributed Linux workloads onto the mainframe. IBM made the IFL (Integrated Facility for Linux) specialty processor available in 2001, and announced the LinuxONE in 2015, the Rockhopper II in 2018, the LinuxONE III Model LT2 in 2020, and the IBM LinuxONE Emperor 4 systems in 2022. Running Linux on a mainframe could so easily be a mainstream technology.

80 percent of organizations said that they are Web-enabling CICS (Chart 11), up from last year's value of 75 percent. 65 percent of sites are Web-enabling Db2, which is an increase on last year's figure of 50 percent. 45 percent of sites are Web-enabling IMS, which is the same as last year's figure. 50 percent (up from 30 percent last year) are Web-enabling WebSphere Application Server. 10 percent of respondents are Web-enabling SAP, and five percent are web-enabling Siebel and other software.

We asked mainframe sites whether they operate in a hybrid cloud environment. A hybrid cloud is, of course, a computing environment that integrates public and private cloud services with on-premises infrastructure with orchestration, management, and application portability across all three. 42 percent of respondents currently used their mainframe in a hybrid cloud environment (up from 21 percent last year). A further 16 percent think that they will run a hybrid cloud environment at some time in the future (down from 21 percent last year). A further 42 percent of the sites surveyed (down from slightly from 47 percent last year) don't use hybrid cloud and don't have any plans to do so.

In the past, the expected future of legacy systems often depended on the size and maturity of the installation. Interestingly, Chart 12 clearly shows that over half (58 percent) of smaller sites expect their legacy applications to be maintained and

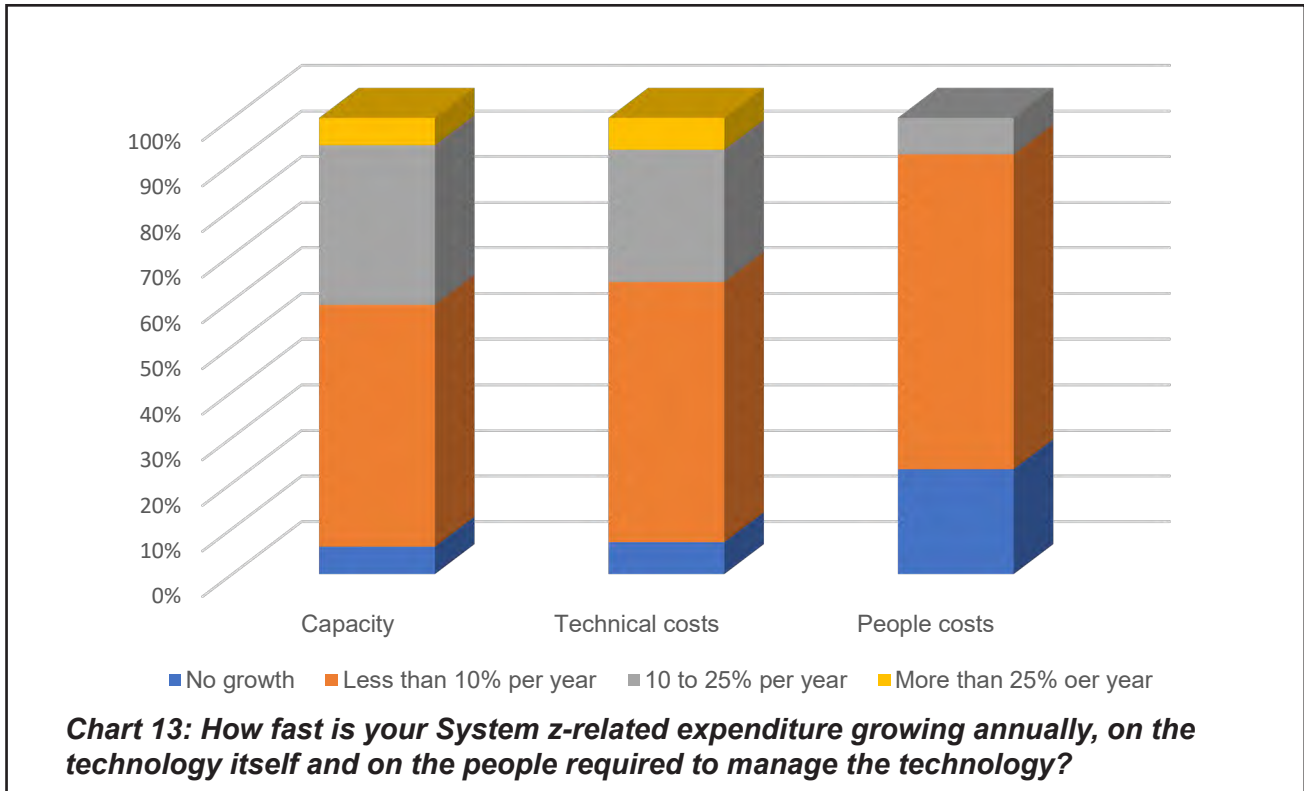
actively integrated/enhanced with new apps, but 14 percent of respondents in that category expect their applications will mostly be ported to Windows, Unix, or Linux. That leaves 29 percent of sites anticipating that anything could happen! Middle-sized sites all expect their legacy applications to be maintained and actively integrated/enhanced with new apps.

For the larger sites, 60 percent expect their legacy applications to be maintained and actively integrated/enhanced with new apps, but 20 percent think their legacy applications will be maintained but not integrated with new apps. That leaves 20 percent expecting their applications will mostly be ported to Windows, Unix, or Linux. So, that's quite a mixed set of results and a difficult one to draw any firm conclusions from.

When we asked whether application modernization was a priority, we found that 30 percent (well up on last year's 12 percent) thought they'd modernize a few applications here and there. A further 10 percent (well down on last year's 21 percent) had great plans for application modernization. And 10 percent suggested that at their site they had some plans to modernize applications. Another 10 percent anticipate that application modernization will be cloud based. However, 30 percent (down from last year's worrying 41 percent figure) still had no plans for any application modernization.

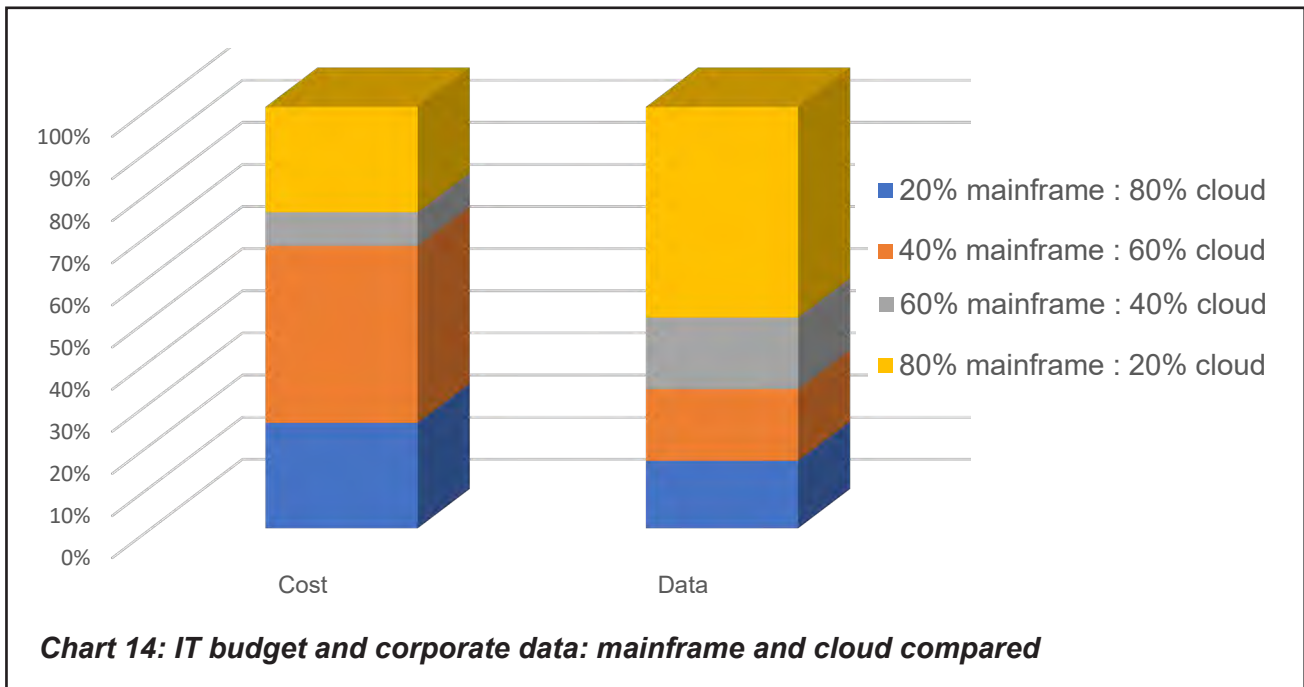
Relative cost

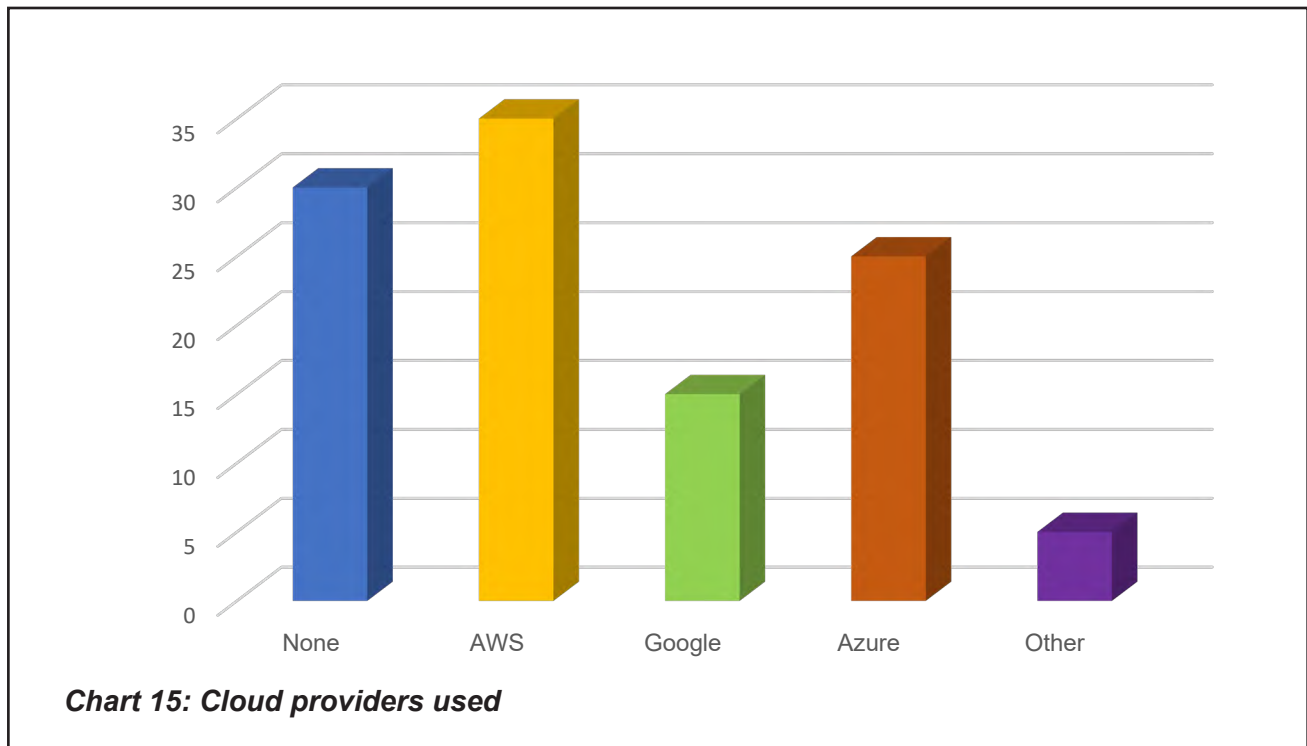
There are many ways of comparing the costs of mainframe systems with those of other platforms, but none of them are straightforward and few are meaningful. CIOs and finance directors all too often have little experience of the factors that contribute to mainframe total cost of ownership and there is still little published data available to help them make informed comparisons. It is beyond the scope of this short survey to go into detail on cost, but the following questions explore some areas where financial comparisons can be made between large centralized systems and cloud services.



We asked respondents how fast their IBM Z-related expenditure is increasing, in terms of the technology itself and the people needed to support

it. In Chart 13, we compare these results with the growth in mainframe capacity. From the graph, you can see that 94 percent of sites have seen some





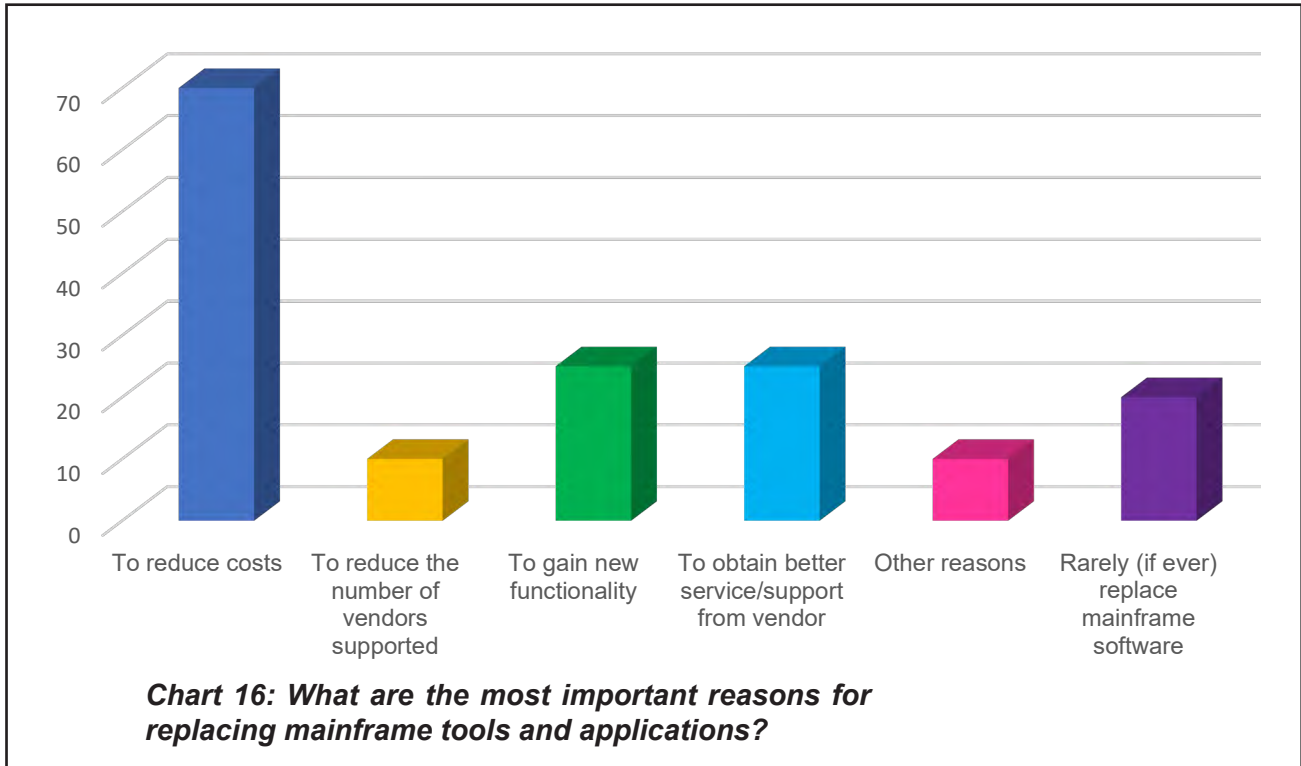
kind of increase in capacity and 93 percent have seen an increase in technology costs, but only 77 percent of sites believe their people costs have increased! In fact, 23 percent of sites have seen no change in their people costs. No-one reported seeing a decline in capacity or technology costs or people costs. While six percent of sites have seen a capacity growth of more than 25 percent, and seven percent of sites have seen technical costs rise by more than 25 percent, no-one has reported people cost increasing at that level. At some stage, management will have to realize that you can't always do more with less – no matter how good the technology is.

We went on to ask what proportion of the total IT budget is absorbed by mainframe-related costs and cloud computing (Chart 14). 67 percent of sites say that the bulk of their IT budget is spent on cloud (up from 56 percent last year), leaving 33 percent of sites where the majority of their expenditure is on the mainframe side. It will be interesting to see how that figure changes over the next few years. Chart 14 compares costs with

data storage. As can be seen, while two thirds of the spend is on cloud, only a third (33 percent) of the data is stored in the cloud, the bulk of it is still on the mainframe. It's worth noting that last year's figure was 16 percent for sites with more data in the cloud.

With flexibility, responsiveness, and cost fuelling the journey to cloud, we asked whether respondents use Red Hat OpenShift and/or IBM Cloud Paks on their mainframe. Only 12 percent of sites said yes (last year the figure was 13 percent), with nearly a quarter (23 percent) suggesting that they have plans to do so. That figure is down from a third of respondents last year. Nearly two thirds of respondents (65 percent) said no (which is up from last year's 56 percent).

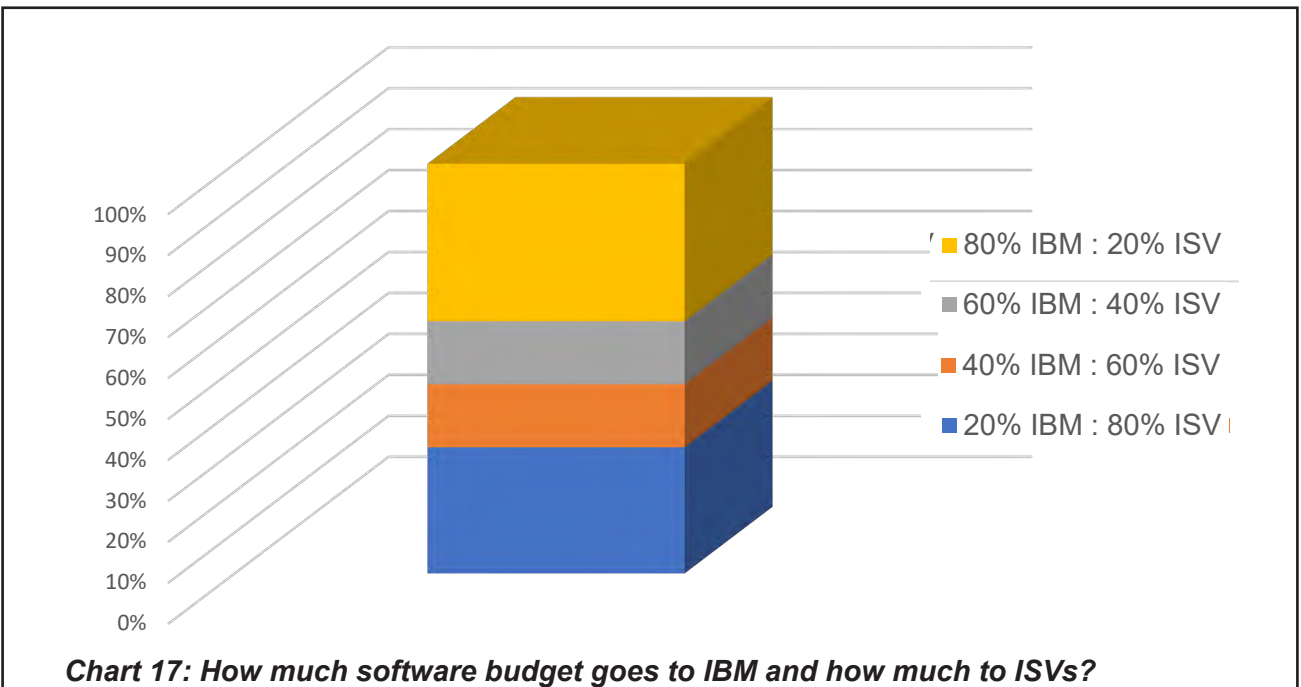
We also asked which cloud providers mainframe sites used (see Chart 15). Amazon Web Services (AWS) was, again, the most popular (used at 35 percent of sites), followed by Azure (used at 25 percent of sites). 30 percent of sites aren't using cloud yet, and some respondents are using more than one provider.



IBM versus the ISVs

The mainframe independent software vendor (ISV) business is continually evolving, and there

have been a number of small companies acquired by larger organizations, but, on the whole, not any obvious shifts in the landscape.



IBM regularly argues that some ISVs are too inflexible and need to change their software pricing strategies, while the third-party suppliers respond that IBM is placing excessive pressure on them by using its size and influence to win over their customers. Mainframe management is now sold as a way of allowing customers to maintain the quality of the service they get from the mainframe without the reliance on experienced mainframers. In other words, the software will identify a problem and, as well as informing a less-qualified human, will take the necessary steps to remediate the problem. In addition, vendors are beginning to use GUI-type screens, which younger IT people are more familiar with, to display important information. And much mainframe monitoring data can now be accessed from a browser.

What this doesn't do, of course, is develop new products. Experienced programmers are still needed for that to take place.

We asked respondents what makes them consider a change of vendor for their mainframe tools and utilities. It's clear from Chart 16 that

cost is by far the biggest driver, (70 percent of respondents) even though cheaper tools often offer less functionality, it may be the case that some customers feel the higher-priced software is filled with bloatware that they have to pay for, but will never use. ISVs may be pleased to know that 20 percent of sites said they rarely if ever change their software. These figures add up to more than a hundred because some people gave more than one reason.

We also asked how much of users' mainframe software budget is spent on IBM software, and how much on products from other vendors. Again this year (see Chart 17), we found that the majority, but only just, (54 percent) of respondents pay more to IBM for software than to other vendors.

Other issues

We asked about IBM's 'specialty' processors such as the Integrated Facility for Linux (IFL), the Application Assist Processor (zAAP) intended for Java applications, and the Integrated Information Processor (zIIP) intended primarily for Db2. We

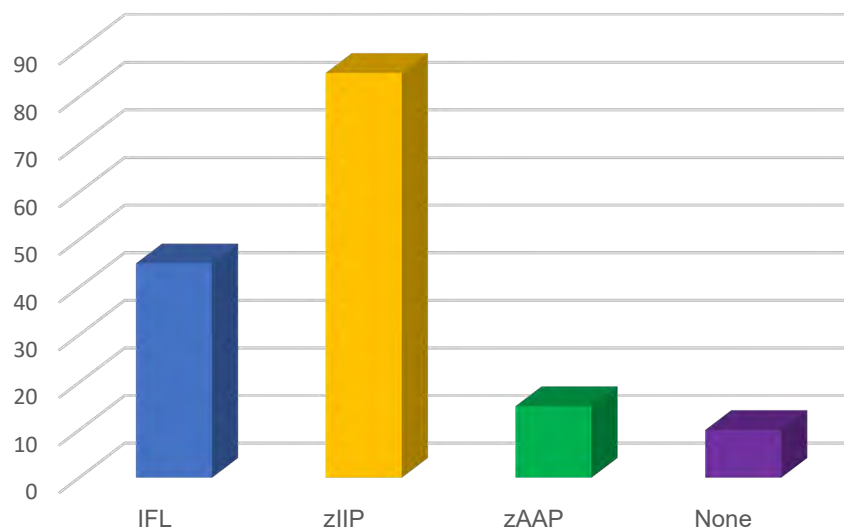
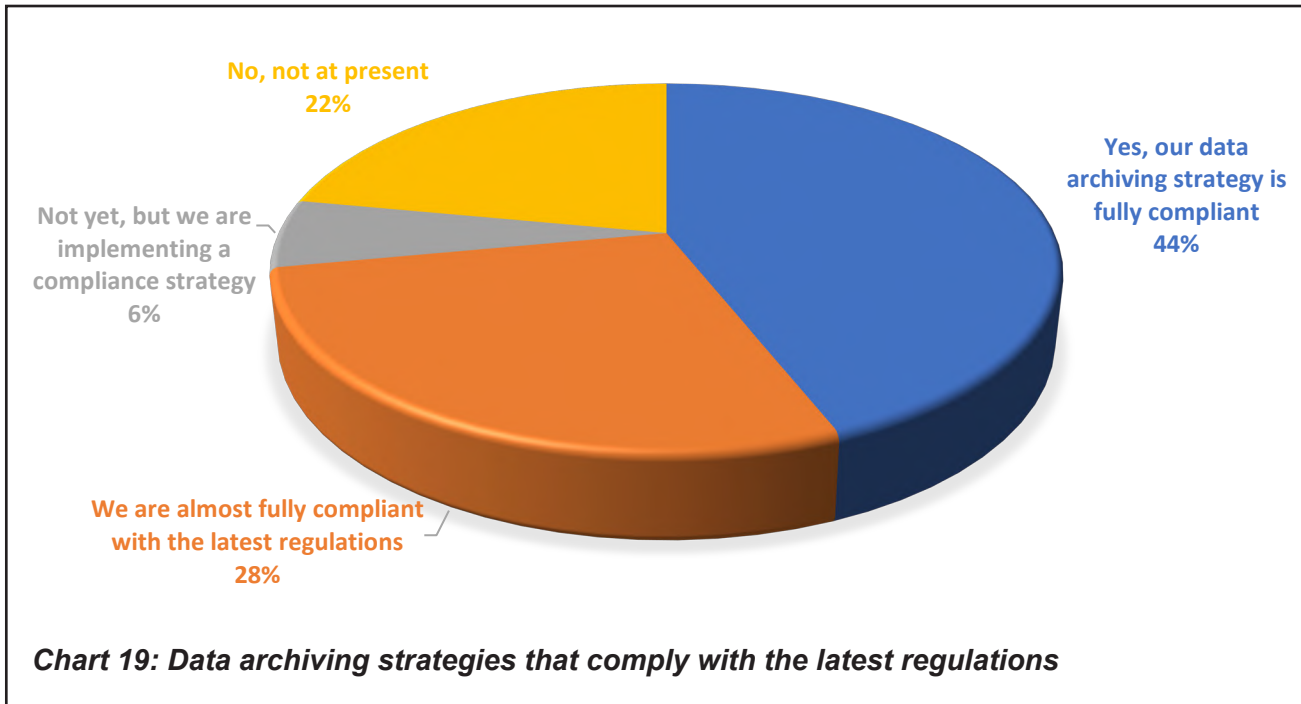


Chart 18: Specialty processors installed



asked respondents which specialty processors they had. This year, 95 percent of sites had a specialty processor installed. 85 percent of sites (the same figure as last year) had a zIIP processor. 15 percent of sites had all three specialty processors installed. Only 20 percent of sites had two specialty processors (the value was 60 percent last year). 45 percent up from last year's 20 percent) had IFL processors installed. The full results are shown in Chart 18.

In the USA, regulations such as Sarbanes-Oxley Act (SOX), HIPAA (Health Insurance Portability and Accountability Act), and BASEL II, plus what's estimated to be over 150 state and federal laws dictate the length of time that Electronically-Stored Information (ESI) needs to be retained. These regulations, and they do depend on the industry, have greatly increased data retention periods. The EU GDPR regulations came into force in back in May 2018. These affect any company in the world storing any data about EU citizens (airlines, car hire, banks, etc). Similarly, there's the California Consumer Privacy Act (CCPA), which came into force in January 2020.

In the light of this, we asked whether respondents had a data archiving strategy in place that was compliant with the latest regulations. 44 percent of sites (up from 33 percent last year) said they were fully compliant, with a further 28 percent (up slightly from last year's 25 percent) being nearly compliant with these regulations. The figure for sites not having an archiving strategy is 27 percent, a slight increase on last year's 25 percent. Clearly, compliance is an important issue and organizations are taking the matter seriously. It's worth recognizing that GDPR administrative fines for organizations that aren't compliant can be as much as 20 million Euros or four percent of annual global turnover, whichever is the highest. The full results are shown in Chart 19.

Social media is used by most people, and we wondered whether mainframers found social media (Facebook, Instagram, Twitter, YouTube, etc) useful for their work on the mainframe. Just over half (53 percent) of sites said that they did (down from last year's 69 percent), and the rest are not using it at all. IBM has Facebook pages and groups dedicated to IMS, CICS, and Db2,

it's good to see that social media is being used by some people.

With products like GateWAY z/OS from MainTegrity allowing mainframe access from a browser, and the growth in the number of software products that allow users to monitor the mainframe from a browser on a tablet or phone, we thought it would be interesting to see whether our survey respondents were using these devices to monitor or control their mainframe. 15 percent of sites said that they were (up from five percent last year). So, not a disruptive technology, yet!

A hot topic recently has been data analysis and all the things associated with that (such as Splunk). In particular, Splunk can be used to monitor log activity (as a SIEM), look for trends, and trigger alerts. We asked whether sites had any plans to use Splunk or its equivalents. 56 percent of sites said that they were already using Splunk (it was 31 percent last year). A further 12 percent said that they were planning to use Splunk or an equivalent.

DevOps (and DevSecOps) has also been talked about a lot for the past few years, and so we were interested to see whether sites were actually embracing the technology. The survey found that 67 percent of sites were already using DevOps (up from 44 percent last year), with a further 13 percent planning to use it (well down from last year's value of 39 percent).

Similarly, we asked whether sites had any plans to publish and reuse APIs to speed up application development. Using APIs means that organizations can re-use the best parts of their existing programs and new or updated applications can be created much faster by combining existing APIs. 62 percent of sites said that they were already using the technique (up from last year's value of 53 percent). And a further 19 percent of sites are planning to (up from 14 percent last year).

One way that CICS, IMS, and Db2 sites can easily allow their applications to link to mobile working is to use Liberty. Liberty is a JEE (Java

Enterprise Edition) application server based on WebSphere Application Server technology that can run stand-alone, on multi-platforms, or on z/OS. It dramatically simplifies the interaction with mainframe resources from Java applications. We asked whether people were making use of Liberty. 39 percent of sites already use Liberty (well up from 8 percent last year), with 15 percent (it was 18 percent last year) planning to install it.

Zowe was announced in 2018 as a way for non-mainframers to securely manage, control, script, and develop on the mainframe like any other cloud platform. 38 percent of sites said that they are already using this open-source technology (double last year's figure of 19 percent). With a further 31 percent of sites having plans to make use of it in the coming year (a decrease from 50 percent last year), which indicates how many sites actually did install it in the intervening year.

Blockchain is the cryptocurrency idea that can be used for securing and sharing ledgers and all sorts of information. Seven percent of sites reported already using it (last year no sites reported using it), with another seven percent planning to use it (similar to last year's figure of eight percent). We can conclude that blockchain isn't having a big impact at mainframe sites.

Docker is a way of containerizing applications – like little virtual machines – that allows an application to perform in the same way on any platform. 20 percent of respondents said they were already using Docker (up a little from 17 percent last year), with a further 47 percent (an increase from 33 percent last year) saying that they had plans to use it.

Robotic process automation (RPA) is a way of using software bots to automate repetitive or routine tasks that are usually performed by knowledge workers. Employees are then free to perform higher-value work. We asked whether sites were making use of RPA. 14 percent said that they were (down from 117 percent last year),

with further 14 percent (it was eight percent last year) at the planning stage.

Ansible, the open-source tool, can be used on mainframes as part of a provisioning and automation strategy, making life easier for systems programmers. We asked whether sites had any plans to use Ansible. 25 percent of the sites surveyed said that they are already using Ansible, and a further 17 percent said that they plan to use it.

The days of security by obscurity are long gone for mainframes and they have been the target of attacks by bad actors. With research conducted by the Ponemon Institute for IBM finding that the average cost of a data breach is \$4.35 million, we wondered how worried respondents were about ransomware on their mainframe. No-one reported having a solution in place. 53 percent of respondents (the figure was 33 percent last year) said that they were a little worried, and only 26 percent said that they were very worried (that figure was only six percent last year). However, 21 percent of respondents (well down from 61 percent last year) said that they were not worried at all, which must still be good news for criminal gangs and rogue nation state hackers.

We also asked about BYOD (Bring Your Own Device). We wanted to know how important respondents thought the idea of people using their own devices (BYOD) to access mainframes was at their site. 23 percent said it was very important to the way they work now (an increase on 13 percent in the previous two years). 18 percent are in the planning stages (up from none last year). But no-one had it as a future project (The figure was 27 percent last year). And 59 percent (much the same as last year's 60 percent) said it wasn't important.

Lastly, we asked the respondents how viable they saw mainframe computing at their site. 45 percent of sites thought it will continue much as it is (down from 58 percent last year), with 30 percent (up from 16 percent) suggesting they had positive plans for

the mainframe in the future, and 15 percent (sadly down from 21 percent) having great plans for the mainframe in the future. That left 10 percent of sites that didn't see their mainframe as viable, and are expecting it to be gone very soon. So, a slightly mixed picture, but nearly half of the sites surveyed (45 percent) were anticipating some growth. Perhaps, there are more positives than negatives to take from the results.

CONCLUSIONS

As always, it was an interesting survey this year, seeing how various sites are adopting the new technologies – although Java has been around for 25 years – and how the world of the mainframe seems to be integrating with cloud computing in a hybrid environment. Clearly, working with mainframes is an interesting way to spend your day – particularly as they are able to reach out to mobile devices and Internet of Things (IoT) devices, and the way DevOps practices can speed up what was a very slow process of application development. CICS, IMS, and Db2 continue to have quarterly updates that add value to the products.

In terms of what's new (or, perhaps more correctly, what appears on a lot of PowerPoint slides), the survey found that 56 percent of sites are already using Splunk or equivalent. And a further 12 percent said that they were planning to use it. The survey found that 67 percent of sites were already using DevOps (up from 44 percent last year), with a further 13 percent planning to use it. And 62 percent of all respondents (up from 53 percent last year) said that they were already reusing APIs to speed up application development, with a further 19 percent of sites planning to reuse APIs. Blockchain has been in the news a lot, but doesn't seem to be close to mainstream, yet. Seven percent of sites reported already using it (last year no-one did), and only seven percent are planning to use it. With Docker, we found that 20 percent of respondents were already using it (up from 17 percent last year) with 47 percent at the planning stage.

Zowe, the open-source way of accessing mainframes, was introduced in 2018. 38 percent of sites said that they are already using it (double last year's figure of 19 percent), with a massive 31 percent of sites having plans to make use of it in the coming year. Open-source technology is now becoming commonplace on mainframes.

When it comes to Web-enabling subsystems, we found that 80 percent of organizations were Web-enabling CICS. 65 percent of sites are Web-enabling Db2. 45 percent of sites are Web-enabling IMS. 50 percent are Web-enabling WebSphere Application Server. We also found that 39 percent of sites already use Liberty (well up from 8 percent last year), with 15 percent planning to install it.

Mainframes in an organization are just one of the computing platforms people use (along with phones, tablets, laptops, Power systems, etc), and, for a long time, there has been an issue, at many sites, with mainframes being accepted in the enterprise. The reason suggested by 85 percent of sites was that the biggest obstacle was the difficulty in retaining the necessary skills. And this, perhaps, highlights the need for a product like Zowe. 55 percent of sites thought that the biggest obstacles to mainframe acceptance within the enterprise was that it's too expensive (or appears to be). The figure was 90 percent last year. 50 percent thought the biggest obstacle was a cultural barrier between mainframe and other IT professionals (up from 40 percent last year). 30 percent felt concerns about future availability/support of mainframe apps was an obstacle. 25 percent of respondents thought that a barrier was the mainframe being too complex (or appearing to be too complex). And 10 percent of respondents didn't think that there were any barriers to mainframe acceptance. Let's hope that last figure rises in the future.

Reinforcing the value of the mainframe to organizations, the survey found that 94 percent

of sites have seen some kind of increase in capacity, and 93 percent have seen an increase in technology costs, but only 77 percent of sites believe their people costs have increased! Interestingly, 67 percent of sites say that the bulk of their IT budget is spent on cloud, leaving 33 percent of sites where the majority of their expenditure is on the mainframe. We'll track how those values change over the next few years.

But no organization is going to develop an asset unless they view it as having a future, and we all know the mindset that still exists about the mainframe, treating it as little more than your dad's technology. Unfortunately, the survey found that 53 percent of sites viewed their mainframe as a legacy system. Worryingly, only 10 percent (down from last year's figure of 17 percent) still viewed mainframes as strategic. 37 percent viewed mainframes as strategic and legacy!

When asked what, in their opinion, are the main benefits to their organization of the mainframe over other platforms, 85 percent of respondents highlighted the benefit of availability. 70 percent of respondents highlighted security. This figure is down from the 100 percent response last year, and yet breaches and ransomware still should be a major concern. 65 percent of respondents identified scalability, with 50 percent highlighting manageability as benefits.

This year's survey found that the z15 is the most popular model (at 50 percent of sites). The newer z15 Model T02 was found at a quarter of the sites, as was the z14 Model ZR1. The older models (z13s, z13, z12BC, z12 EC, and z114) are still out there and still performing well. It must be noted, when looking at these statistics, that many sites had more than one model of mainframe installed. We were, unfortunately, unable to collect information for z16 usage. In terms of operating system, 40 percent of respondents were using z/OS Version 2.5 (a huge increase on last year's figure of just seven percent). Another 40 percent

of sites are using Version 2.4 (last year it was 57 percent). Lastly, 20 percent were using z/OS Version 2.3.

We focused again on hybrid cloud computing. 42 percent of respondents currently used their mainframe in a hybrid cloud environment (up from 21 percent last year). A further 16 percent think that they will run a hybrid cloud environment at some time in the future, with 11 percent planning to run a hybrid cloud environment soon. A further 42 percent don't use hybrid cloud and don't have any plans to do so. We asked whether respondents use Red Hat OpenShift and/or IBM Cloud Paks on their mainframe. Only 12 percent of sites said yes, with nearly a quarter suggesting that they have plans to do so. We also asked which cloud providers mainframe sites used. Amazon Web Services (AWS) was the most popular at 35 percent, followed by Azure at 25 percent.

Linux is often in the news, so it was interesting to see what our respondents had to say about it. There are considerable cost and management benefits from consolidating distributed Linux workloads onto the mainframe. However, 61 percent of respondents weren't interested in LinuxONE mainframes. Six percent of sites said they already had one, with 22 percent expecting to get one at some time in the future, and 11 percent expecting to get one in the next year. No sites in the survey said their primary operating system was Linux. Having said that, around a third (31 percent) of respondents said that they run Linux on IBM Z.

The reported popularity of Java is reflected in the survey. 44 percent of sites (down from last year's 56 percent) said that they run Java-based applications on the mainframe, with a further five percent planning to.

Security breaches and ransomware are becoming a major issue – with the average breach costing

\$4.35 million. Perhaps worryingly, 21 percent of respondents said that they weren't worried about ransomware. No-one said they had a solution in place, although 79 percent were worried or very worried about it. So, still good news for criminal gangs and rogue nation state hackers.

When it comes to being compliant with regulations, eg PCI DSS, GDPR, and the California Consumer Privacy Act (CCPA), the survey found that 44 percent of sites were fully compliant, with a further 28 percent being nearly compliant with these regulations. However, the survey also found that the figure for sites not having an archiving strategy is 27 percent.

On the plus side, it seems lots of work has happened on mainframes since our previous survey, with a growth in the number of sites using newer technologies. In addition, nearly a third of sites (30 percent) suggested they had positive plans for the mainframe in the future, with a further 15 percent having great plans for the mainframe in the future. In addition, 94 percent of mainframe installations (well up on last year's figure of 66 percent) are experiencing some growth in MIPS. However, 10 percent of respondents didn't see their mainframe as viable, and are expecting it to be gone very soon. So, a slightly mixed picture.

Having said that, mainframe continues to offer a cost-effective, secure, and powerful platform for organizations with the necessary background and expertise in place to support it. It seems that non-mainframe IT staff and managers are not getting the opportunities to find out about the multitude of advantages that using a mainframe can bring to an organization – in terms of security, reliability, availability, flexibility, as well as understanding the true total cost of ownership figures for the platform. Perhaps Zowe will continue to help the mainframe to appear like any other server to a younger generation of programmers and managers.

IBM's Tailored Fit Pricing is only the start.

Reach the peak of cost savings by optimizing your applications.

With DataKinetics' tableBASE, get the most out of TFP while also increasing capacity and reducing CPU usage.



Learn more at dki.com/arcati



Vendor Directory

Vendors, consultants, and service providers working
in the z/OS environment

Details in this section are provided by the individual vendors and service providers, and The Arcati Mainframe Yearbook accepts no responsibility for their accuracy. We urge readers to contact the companies directly for the latest information. Please assume that all product and company names are the registered property of their owners.

If your company is not listed here and you would like a free entry in next year's edition, visit itech-ed.com/AMY23/vendorsentry/

MAINFRAME VENDORS LISTED IN THIS DIRECTORY

4bears Technologies	DataKinetics
ABIS	DDV technologies
Accelerated Outsourcing	Dell EMC
Action Software International	Dignus
Adaptigent	DINO-Software Corporation
Advanced Software Products Group, Inc. (ASPG)	Direct Computer Resources
Applied Software	DTS Software
Atos	EasiRun Europa GmbH
Axios Products	Eccox Technologies
Azamour Solutions	Enterprise Systems Associates, Inc. ("ESAI")
Baer Consulting	Epoka Group
Beta Systems Software	EPV Technologies
Black Hill Software	ERGO Soluciones SRL
Blenheim Software International Ltd	European Mainframe Academy
Blue Sea Technology	Fischer International Systems Corporation
BMC Software	Fitz Software & Co
Broadcom Mainframe Software Division	Flynet
Bsecure	Forecross Corporation
Can Do Systems	Fujitsu Technology Solutions GmbH
Canam Software	Gary Allardyce
Cartagena Software	H&W Computer Systems
CASI Software	Heitech Managed Services Sdn Bhd
CM First Group	Hexaware Technologies
Cobbs Mill Consulting	HORIZONT
Cole Software	I/S Management Strategies
Compute (Bridgend)	IBA Group
Computer Measurement Group	Ikan Development NV
Conexus Technologies	Illustro Systems International
ConicIT	Imperva
Connectivity Systems	Informatica
CPT Global Ltd	Information Technology Company LLC
Creative Data Movers Inc	Inspired Solutions (Software) Ltd

MAINFRAME VENDORS LISTED IN THIS DIRECTORY – continued

INTERCHIP AG	Qlik
IntelliMagic	QMSI-Quintessential Mailing
Interskill Learning	Software Incorporated
ISAM	Red Carpet IT Services
ISI Pty Ltd	Replatform Technologies
iTech-Ed	Rocket Software
ITMetrics	RSH Consulting
Jazz Software	RSM Technology
Key Resources Inc	Rulevolution
L3C Ltd	SAS Institute
Latuz	SMT Data
Legacy Software	SoftBase
Levi Ray & Shoup	Software AG
Logicalis UK	Software Diversified Services
Longpela Expertise	Software Engineering GmbH
Luminex	Solimar Systems
MacKinney Systems	SSH
Macro 4	SV Group
Mainstorconcept GmbH	Syspertec Communication
Maintec Technologies	Systemwerx
MainTegrity	Technical Storage SARL
Matter of Fact Software	The Source Recovery Company
Meerkat Computer Services Ltd	TONE Software
Micro Focus	Top Gun Technology
Model9	Trident Services
Modern Systems	Triton Consulting
MOST Technologies	UBS Hainer GmbH
MPI Tech	Value-4IT Limited
Mullins Consulting Inc	Vanguard
NewEra Software	Verhoef Training
Oh7FoxEasy LLC	Vertali
Onelidentity	VirtualZ Computing
Oracle	WDR
PerfTechPro	Web Age Solutions
Phase Change Software	Weintraub Systems
Phoenix Software Int	XStream
Planet Mainfrme	Zdevops
PIR Group	ZETO Katowice
PKWARE, Inc	zSoftware
Precisely Progress	

4bears Technologies

Address:

Alameda Mamorá, 503 - CJ 53, Barueri - São Paulo - SP, 06454-040, Brazil.

Phone: 5511997602242

Email: alexey@4bears.com.br

Web: www.4bears.com.br

Activity: Software vendor

Specialist areas: System management; storage management; security; web integration and legacy reengineering tools.

Mainframe platforms supported: z/OS,

Non-mainframe platforms supported: Windows

Pricing options: One-time charge, monthly/annual license.

Company profile

4bears is a company developing solutions and services for the IBM mainframe environment. Our products promote better governance, management and monitoring of the IBM environment, doing it efficiently, automated and not consuming machine resources.

We use an innovative and disruptive technology called NIMS (Non Intrusive Mainframe Software), a technology that does no I/O to get, in real-time, important information stored in mainframe logs..

ABIS

Address:

Diestsevest 32 bus 4b, 3000 Leuven, Belgium.

Phone: +32-16-245610

Email: aveugelen@abis.be

Web: https://www.abis.be

Activity: Education.

Specialist areas: Data management; programming/testing; Web integration and legacy reengineering tools.

Mainframe platforms supported: z/OS, Linux on IBM Z

Non-mainframe platforms supported: Unix, Linux

Company profile

ABIS Training & Consulting provides technological IT services, mainly for large and medium-sized enterprises.

These services are based on specialised ICT knowledge, which we wish to transfer to you, in the form of:

- Training & Coaching
- Consulting & Projects.

The scope of these services is based on:

- a high-level of technical knowledge and expertise;
- a profound commercial and technological relationship

with our customers - enabling us to provide you with a high level of qualitative support for your core business processes.

Knowledge, knowledge development and knowledge transfer are our core business!

Product/service information

Main course and knowledge domains are:

- z/OS-based technologies: z/OS, USS, Db2, IMS/DM, TSO, CICS/TS, IMS/TM, COBOL, PL/I, REXX, and also IBM Developer for System z (IDz)
- Linux and UNIX
- Databases and Big Data Infrastructure: DB2, Oracle, MySQL & MariaDB
- Websphere Application Server
- IBM MQ
- Networking and Internet Security: CISM, Ethical Hacking
- ITIL
- Programming languages: COBOL, PL/I, Java, Python...
- Artificial Intelligence (AI) and Machine Learning (ML)

Accelerated Outsourcing

Address:

39 Mountain St, Bristol, VT 05443, USA

Phone: +1 404-351-3382

Email: info@accelout.com

Web: www.accelout.com

Activity: Consultant

Specialist areas: System management; data management; storage management;

Mainframe platforms supported: z/OS, VM/VSE, Linux on System z

Non-mainframe platforms supported: IBM i

Company profile

Deciding if mainframe outsourcing is the right strategy for your organization is a difficult decision. It can be a complicated and time consuming task. Accelerated Outsourcing provides cost/benefit analysis and benchmarking services for companies that are exploring outsourcing. We help our clients to understand the potential savings/costs associated with outsourcing. We also help our clients find the best vendor to manage their systems should they decide to outsource. We have been in business over a decade and our clients include many well-known public and private organization.

Product/service information

Outsourcing Cost Analysis

When discussing mainframe outsourcing, costs is number one question executives want to know.

- 1 How much will outsourcing save/cost me?
- 2 How quickly can I realize the savings?
- 3 How can I quickly assess my environment to determine if outsourcing makes financial sense?

Until now, companies would have to go through a lengthy RFP process to obtain bids, and perform their own internal cost analysis. Our solution is to provide you with a cost/benefit analysis by bench-marking your in-house costs against current market pricing for outsourcing. This will give you the insight to see if outsourcing makes financial sense for you.

Vendor Selection Process

We can help you find the best vendor to manage your mainframe. We'll write a comprehensive RFP. We will then evaluate each vendor's response and provide a report that compares their offerings. We'll also coordinate Q&A calls, reference calls, set up site visits, and schedule vendor presentations. We will review the vendor contracts and give you insight into red-flags and provide you with negotiation points. We essentially manage each step of the RFP process and give you the peace of mind that you have found the best vendor at the best cost.

Action Software International

Address:

107-20 Valleywood Drive, Markham, Ontario L3R 6G1, Canada

Phone: +1 (800) 821-4551

Email: sales@actionsoftware.com

Web: www.actionsoftware.com

Sales contacts:

EMEA +41 41 748 6266, email: Marketing@actionsoftware.ch.

Activity: Software vendor

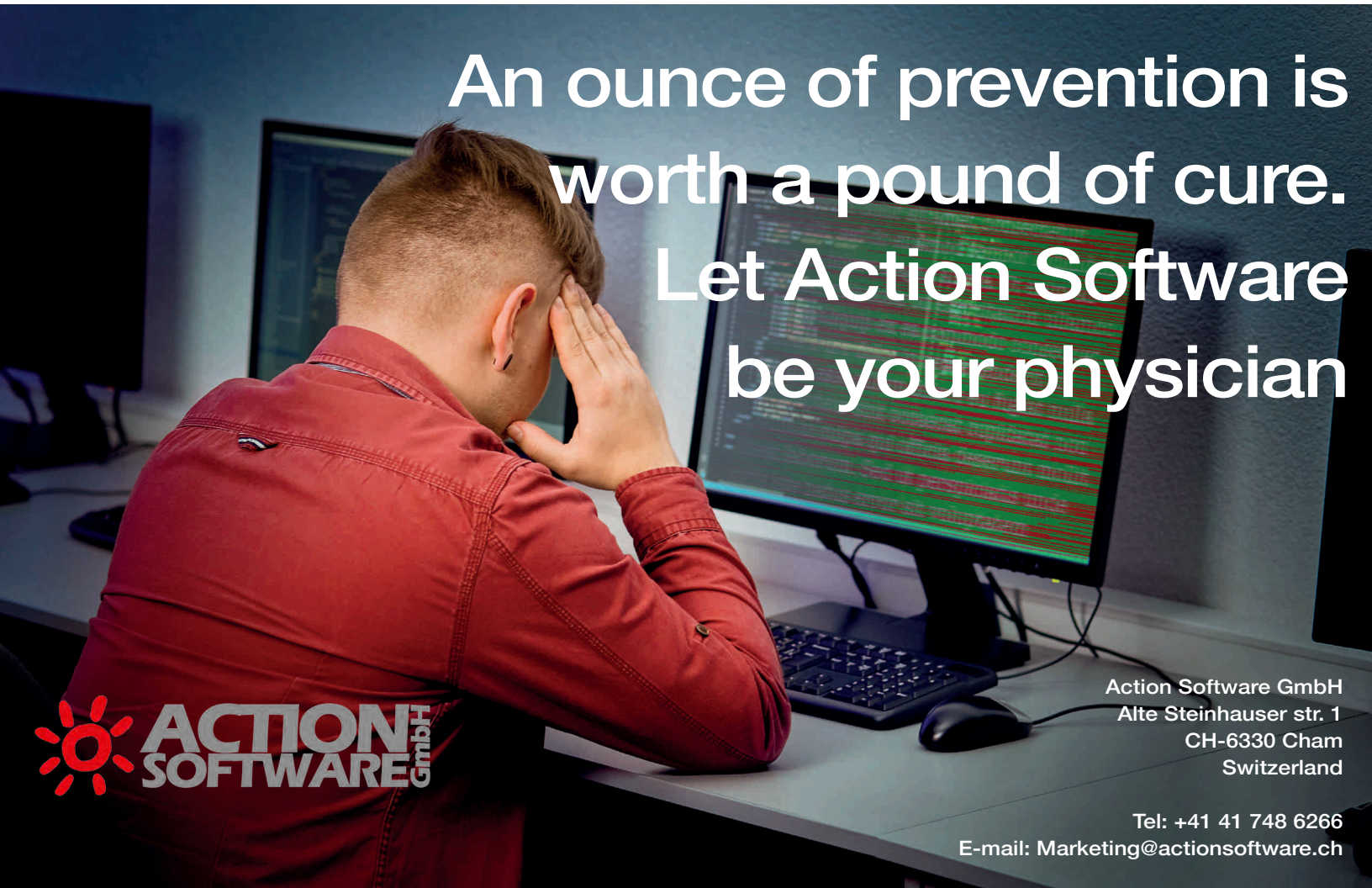
Specialist areas: System management; storage management; asset and change management; security; programming/testing.

Mainframe platforms supported: z/OS

Pricing options: Monthly/annual license, processor/capacity-based, other

Company profile

Action Software International is a division of Mazda Computer Corporation. Located in Toronto, Canada,



An ounce of prevention is worth a pound of cure. Let Action Software be your physician



Action Software GmbH
Alte Steinhauser str. 1
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Switzerland

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E-mail: Marketing@actionsoftware.ch

Mazda Computer Corporation has been producing superior systems and network management software since 1980. The Company's products are widely deployed within Global 2000 companies, as well as numerous government and institutional sites. Mazda Computer Corporation's mission is to provide easy to use high performance systems management solutions to the IBM z/OS system user community, based on highly functional products and exceptional customer service.

Action Software GmbH is a reseller for Action Software Intl.

Product/service information

Specialist areas: z/OS System Management, proactive real-time Change Management, Compliance – SOX, CoBIT, ITIL, EU-GDPR etc., Software Asset Management, system problem resolution and speedy recovery to the point-of-impact.

Achievable Improvements: In z/OS in the areas of Security, Availability, Recovery, Auditability, Change Control and the removal of old code/programs that present a danger to the stability of the systems.

These unique z/OS offerings are designed both for MVS and USS (UNIX System Services). Action Software GmbH supports the whole of Europe, Middle East and Africa and our personnel speak both fluent English and German.

Our products eventACTION and ussACTION provide the following:

- Event tracking helps localise the cause of problems
- Change tracking and controls prevent unauthorised and undocumented changes
- Change controls potentially reduce system centric problems
- Enforce SAM (Software Asset Management)
- Reduce risks
- Improve security
- Provide an accurate audit trail
- Provide transparent compliance to SOX, CoBIT, ITIL, EU-GDPR and worldwide equivalents
- Potentially reduced costs for both internal and external z/OS audits
- Free trial and free Webinars

Up to date information on our products can be found on our shared Web-Site: (<http://www.actionsoftware.com>).

Adaptigent

Address:
6255 Barfield Rd NE, Suite 200, Atlanta, GA 30328, USA
Phone: +1 404-253-1300

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Email: info@adaptigent.com
Web: <https://www.adaptigent.com/>

Activity: Software vendor
Specialist areas: Web integration and legacy reengineering tools; other
Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z
Non-mainframe platforms supported: IBM i, AIX, other Unix, Linux, Windows
Pricing options: Other

Company profile

Founded in 1982, Adaptigent's heritage of application modernization began with the mainframe and now continues through today's modern technologies. Our enterprise software solutions revolutionize data, process and transaction access to optimize business information across mainframe, distributed and cloud platforms. Adaptigent has unsurpassed expertise in mainframe technology and helps companies easily overcome the challenges associated with accessing mainframe data and applications with no additional coding required.

Globally, more than 2,500 organizations trust Adaptigent to help improve mainframe modernization initiatives, including business intelligence, workforce productivity, customer experience and mobility. Adaptigent's solutions are found at some of the world's largest banks and financial institutions, insurance companies, state and local governments, as well as in retail, manufacturing and energy companies.

Headquartered in Atlanta, Georgia, Adaptigent is a privately held company that is currently represented in the USA, Canada, Asia, Europe, Australia, Africa and South America.

Product/service information

GT Software offers a variety of mainframe integration and data access solutions that simplify access to legacy applications and mission-critical data via robust Web services with no additional coding required.

Adaptigent's integration solutions help businesses empower customers and employees with easy access to the information and applications they need to be successful. Whether you want to improve business performance with easy mobile access to key business applications, feed business intelligence initiatives, create robust Web and mobile experiences for customers or explore the power of cognitive computing, Adaptigent can help you accomplish your objectives.

Adaptigent's integration solutions include the Ivory® Suite, featuring solutions that allow users to quickly and seamlessly integrate the mainframe with other technologies such as mobile and Web applications,

packaged applications, business intelligence and cloud initiatives.

Adaptigent Key Differentiators:

- Over 30 years of mainframe expertise
- Speed and ease of delivering massive amounts of data to external solutions
- Requires no skillsets for writing code with “drag-and-drop” tools
- Easy to install with minimal or no training
- Integrates all mainframe assets, regardless of underlying platforms, languages and data formats
- Requires no additional mainframe resource usage
- Low total cost of ownership (TCO)

Advanced Software Products Group Inc (ASPG)

Address:

3185 Horseshoe Drive, South Naples, FL 34104, USA.

Phone: 239 649 1548 or (800) 662-6090

Email: aspgsales@aspg.com.

Web: www.aspg.com.

Activity: Software vendor.

Specialist areas: System management; storage management; security; other

Mainframe platforms supported: z/OS, VM/VSE

Non-mainframe platforms supported: IBM i, AIX, Other Unix. Linux, Windows, Other

Pricing options: Monthly/annual license, other

Company profile

Headquartered in Naples, Florida, Advanced Software Products Group, Inc. has provided the IT community with cutting edge software solutions, support, and services since 1986. With a worldwide network of support, including active roles as an IBM Partner in Development and Microsoft Certified Partner, ASPG remains a leader in the optimization of data center performance. ASPG offers innovative software solutions for Data Security, Storage Administration, Capacity Planning, System Productivity, and CICS Productivity. Data centers worldwide have made ASPG software solutions their products of choice.



Trusted Mainframe Security Software



z/OS Encryption and Cryptography Toolkit



z/OS Cryptography Reporting and Administration Tool



RACF Security Assessment and Reporting



RACF Administration, Reporting and Custom Programming

Product/service information.

Product/Service Information:

- Mainframe Data Encryption [MegaCryption]
- IDMS Data Encryption [MegaCryption IDMS]
- IMS Data Encryption [MegaCryption IMS]
- Password Reset & Synchronization [ReACT]
- RACF Administration & Reporting [ERQ]
- DB2 Encryption [MegaCryption DB2]
- Cryptography Management [CryptoZ]
- SMF Data Management [SMFUTIL]
- ICF Catalog Management [CIM]
- On-line CICS Help [Help/Key]
- RACF Auditing & Reporting [ERA]
- User Provisioning [ProACT]
- Offline Access Recovery [OAR].

Applied Software Inc

Address:

737 Sandy Point Lane, Palm Beach Gardens, FL 33410, USA

Phone: +1 215-297-9441**Email:** janis@appliedsoftware.com**Web:** asisoft.com/**Activity:** Software vendor.**Specialist areas:** Data management; security; programming/testing; other**Mainframe platforms supported:** z/OS, VM/VSE**Non-mainframe platforms supported:** Windows**Pricing options:** One-time charge, monthly/annual license, processor/capacity-based.**Company profile**

Providing solutions for data transfer and data security in the z/OS environment is our mission. The integrity and security of the data is critical whether data is stored on the network, during the file transfer process, or off-site. We provide solutions which include user-friendly tools for file transfer and data encryption using AES 128 encryption, DES, Triple DES and DESX.

Product/service information

SSR Client/Server: superset replacement for IBM's IND\$FILE. Unlike IND\$FILE, SSR is fully supported, improves file transfer performance up to 50% or more, and is available for TSO and VTAM, CICS MVS Services, and CICS.

Data Encryption Facility: Applied Software's mainframe encryption application that supports AES 128 encryption, DES, Triple DES (3DES) and DESX encryption and provides for management of encryption keys. DEF supports IBM and plug-compatible CPUs with the z/OS operating systems. CICS currently supported.

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VTAM Multi-User Platform (VTAM MUP) supports SSR and FSE+. VTAM MUP provides program services for multiple users per address space and multiple address spaces in a native MVS VTAM environment. Automatic SAF calls provide security processing at the same level as TSO. Provides TSO-like environment without TSO's high overhead.

FSE+ a high performance editor, data set manager, and job output previewer. Supports sequential files, PDS, and PDS/E members with LRECLs up to 32760 all while using up to 50% less overhead than ISPF/PDF. Operates under TSO and VTAM MUP.

TSO Superset Utilities: group of nine TSO commands providing functions unavailable in the standard TSO environment. Commands include COMPARE, COPY, FORMAT, FSHELP, LIST, LISTJES, MERGE, PRINTDS and TSOSORT. Commands written in re-entrant Assembler Language.

Atos

Address:

80 Quai Voltaire, 95877 Bezons, Paris, France.

Phone: + 33 1 73 26 00 00**Email:** mainframe.services@atos.net**Web:** atos.net/**Activity:** Integrator**Specialist areas:** System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management; other**Mainframe platforms supported:** z/OS, VM/VSE, Linux on Z,**Non-mainframe platforms supported:** IBM i, AIX, other Unix, Linux, Windows, Cloud, other**Pricing options:** One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other.**Company Profile**

Atos is a global leader in digital transformation with 112,000 employees and annual revenue of c. € 11 billion. European number one in cybersecurity, cloud and high-performance computing, the Group provides tailored end-to-end solutions for all industries in 71 countries. A pioneer in decarbonization services and products, Atos is committed to a secure and decarbonized digital for its clients. Atos is a SE (Societas Europaea) and listed on Euronext Paris.

The purpose of Atos is to help design the future of the information space. Its expertise and services support the development of knowledge, education and research in a multicultural approach and contribute to the development of scientific and technological excellence. Across the world, the Group enables its customers and employees, and members of societies at large to live, work and develop sustainably, in a safe and secure information space.

For an overview of the strategic alliances, see <https://atos.net/en/about-us/partners-and-alliances>.

Product/service information

Atos Global Mainframe Services' solutions enable enterprises to realize the true potential of mainframe platforms by bringing efficiencies to our customer's businesses. Whether committed to staying on the mainframe or ready to "pull the plug", we offer options that reduce risk, improve efficiency, and enable you to modernize your enterprise at a pace that is right for you. Our service portfolio is bundled in the Mainframe MIII (Manage, Migrate, Modernize) offering, fully integrated in the "Atos OneCloud" initiative:

Manage:

Streamline your IT operations with intelligent automation and proactive maintenance. The goal is to achieve an "always-on" infrastructure and lower the TCO.

Migrate:

For companies committed to mainframes, our Mainframe as a Service (MFaaS) migrates your infrastructure to an Atos Mainframe Hub (NAM, EU, APAC) to achieve elastic datacentre operations, tactical work-load reduction, mainframe DevOps, performance optimization and cost savings based on economies of scale.

Modernize:

Incrementally modernize mainframe applications to a cloud-native, microservices-based architecture to achieve truly digital operations that will become the backbone for your transformation and growth initiatives. This can either be achieved on, off the mainframe platform or truly place the mainframe in the hybrid cloud as part of Atos OneCloud – "Building your cloud forward future".

Axios Products Inc

Address:

353 Veterans Highway, Suite 204, Commack, NY 11725, USA.

Phone: 800-877-0990.

Email: info@axiosproducts.com

Web: www.axiosproducts.com

Activity: Software vendor

Specialist areas: System management; data management

Mainframe platforms supported: z/OS

Pricing options: Processor/capacity-based

Company profile

Axios Products develops, distributes, and supports mainframe performance enhancement and management software for z/OS, and MVS environments. For over 30 years, we have dedicated ourselves to providing customers with useful, reliable, and cost-effective software along with responsive technical support. Our strong customer commitment to providing quality software products and service is the driving force behind the continuing growth of our mainframe customer base.

Product/service information

RefWiz is a powerful analysis and documentation tool that provides, in one place, comprehensive data about application element interrelationships for mainframe batch and CICS applications, including whether or not the element is being used. This information is available for immediate access in a variety of standard or customized forms to suit your specific needs. *RefWiz* is used for conversions, upgrades, audits, migrations, daily maintenance, documentation, mergers, operations management (including failure analysis), disaster recovery, change scope analysis, and much more.

ROPES (Remote Online Print Executive System) is a comprehensive CICS print spooling and transmission software for IBM mainframe-based systems. *ROPES* provides complete facilities for generating, retrieving, browsing, distributing and printing reports from online transactions, batch jobs, or the operating system spool. Its versatile set of capabilities allows you to place report data on the *ROPES* queue concurrent with online printing operations. A comprehensive command structure allows any authorized terminal operator to effectively control *ROPES*, eliminating the need for dedicated control terminals.

The *SPI-TAB+* table management system provides one simple product that will manage your tables using the same standards for all applications, eliminating the need to write programs for this process. *SPI-TAB+* lets you quickly and easily update, customize and maintain your tables, and get your new applications on line faster, with less effort. Plus, the same tool can be used on line or in batch. In addition, the new *SPI-TAB+* web interface component allows you to list and update *SPI-TAB+* tables via a web browser, eliminating the need for traditional mainframe access and ultimately expanding your user base by providing access for less technical end users who may not have CICS knowledge.

Azamour Solutions

Address:

E8 Ascot Business Park, Lyndhurst Road, Ascot, Berks, SL5 9FE, UK.

Phone: +44 (0) 1344 280 280.

Email: enquiries@azamour-solutions.co.uk

Web: www.azamoursolutions.com

Activity: Hardware

Specialist areas: System management; storage management; security; programming/testing

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z

Non-mainframe platforms supported: System i, AIX, Linux

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other.

Company profile

Azamour Solutions were established in March 2001 to enable users to have a real alternative choice to IBM. Today Azamour operate from three strategic locations in the UK

- Ascot, Berkshire as its Head Office & Service Centre
- Bracknell, Berkshire for its Data Centre Location
- Basingstoke, Hampshire for Warehousing & Distribution

Our vision is to continue to be one of the most respected IT solutions providers that can offer users A SMART Alternative To IBM.

Product/service information

Azamour Solutions have been providing hardware and hardware maintenance services to customers throughout the world since 2001.

Azamour focus their business in three distinctive areas.

Mainframe Hardware

The supply and installation of IBM Mainframes & Storage covering all generations of products. Offering advice and assistance with configurations, cost of ownership and finance options.

Mainframe Hardware Maintenance

24/7 365 Hardware Maintenance contracts with complete flexibility, cost competitive along with a guarantee of hardware spares and skilled trained engineers.

Mainframe Business Continuity & Disaster Recovery

A comprehensive business offering from a state of the art data centre located on the out skirts of London. Contracts from 6 months to many years are available at very

competitive pricing using latest generation technology to asset users operating mainframe services.

Baer Consulting

Address:

28154 Meadow Trail, Conifer, CO 80433, USA

Phone: +1 303 838-3374

Email: contactbci@baer-consulting.com

Web: www.Baer-Consulting.com

Activity: Mainframe Managed Services Provider, Consulting

Specialist areas: System management; mainframe hosting; modernization; outsourcing; disaster recovery

Mainframe platforms supported: z/OS, VM/VSE, Linux on Z

Non-mainframe platforms supported: IBM i, Linux, Unix, AIX, Linux, Windows

Company profile

Founded in 1982, Baer Consulting Inc. (BCI) is a Managed Solutions Provider of IBM Mainframe services and support. BCI helps mainframe decision makers avoid the hassle and complexity of planning, managing, and deploying On-Premise / Off-Premise Private Cloud services to meet today's business demands. We deliver solutions that provide greater security of a private cloud with reduced investment cost and faster time-to-value from a public cloud.

BCI handles day-to-day infrastructure services and data center Operational tasks, i.e. managing and scheduling mainframe Workloads and providing traditional IT support for systems / hardware maintenance, ISV Software Support and 24x7 Client Call Center for technical assistance.

Baer Consulting will help you deliver on your initiative to find skilled and experienced technical staff needed to maintain your critical systems and software. BCI support offerings range from a basic staff augmentation to full service in-source/co-source support. By utilizing our 24x7x365 Help Desk/Operations Support Center, subject matter experts, senior system programmers, project and account management teams, BCI provides an unparalleled support system to bring continued service availability to your customer.

Product/service information

zManaged Mainframe Services

Baer Consulting can help you deliver on SME support services needed to maintain your critical systems



Support for your System Z mainframe environment on-premise, Cloud, and Disaster Recovery

Baer Consulting
INCORPORATED

and software. Baer Consulting managed services for mainframes are designed to address the disruptive change and modernization challenges IT departments face today

Mainframe Hosting

BCI Hosting provides clients a flexible choice between managing their IT services and hardware on-premise at their own site or using a BCI-supplied computing platform hosted remotely. BCI Hosting Services features an IBM Z multi-tenant CP supporting our networked co-locations. Baer Consulting owns and operates our own IBM mainframe environments (CPU, DASD, TAPE) in all datacenters (Tier-III facilities).

BCI Hosting also offers a fail-safe, effective Disaster Recovery Service(zSDR), one that is documented and tested regularly. This is essential for limiting downtime,

avoiding lost revenue, ensuring speedy recovery and allowing your organization to restore services to clients quickly.

zManaged Storage-as-a-Service

BCI's Storage-as-a-Service offers an agile alternative to on-premise storage management. The deliverables include an All-inclusive service that alleviates data center overhead, hardware purchases and eliminate day-to-day maintenance and troubleshooting.

zSystem Service and Support Agreements

BCI offers retainer and project support service agreements (zSSA) to assist your in-house technical teams. Staff Augmentation is available to supplement daily work efforts, vacation schedules or special assignments at the project level or through our longer-term zSSA retainer offering.

BCI consistently delivers high quality solutions to our clients, while dramatically increasing the effectiveness of their IT Systems Management Teams, project management for Enterprise strategies and Enterprise systems support.

Beta Systems Software AG

Address:

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Phone: +49 (0)30 726 118 0.

Email: info@betasystems.com

Web: www.betasystems-dci.com

Sales contacts:

America +1 (571) 348-4450

EMEA +33 (0) 1 43 90 17 40

Activity: Software vendor

Specialist areas: System management; security; programming/testing; web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, Linux on Z

Non-mainframe platforms supported: IBM i, AIX, other Unix, Linux, Windows

Pricing options: one-time charge, monthly/annual license, workload/usage based.

Company profile

Beta Systems Software AG - A Mid-sized, independent software provider

Founded in 1983, listed on the stock exchange since 1997 For more than 30 years, Beta Systems has been developing high-quality software products that bring security and transparency to IT processes and help to automate bulk data and document processing. Based in Germany, Beta Systems group is one of Europe's leading mid-sized independent software solution providers. Beta Systems' German sites include the Berlin head office and development centers in Cologne, Neustadt and Munich. Internationally, there are 18 subsidiaries and numerous partner companies which form a network of excellence across the globe. Beta Systems generates about half of its turnover abroad.

Beta Systems DCI Software AG provides high-quality infrastructure software products for the secure and efficient processing of large volumes of data to ensure compliance with all regulatory and corporate requirements. The multiplatform software solutions for z/OS, Unix, Linux and Windows environments automate, document and analyze business-critical IT processes in the datacenters of large enterprises, IT service providers, public authorities and mid-sized companies.

Beta Systems datacenter intelligence portfolio focuses on areas including output management and archiving, log/security information management, workload automation and job management. Beta Systems DCI Software AG is a 100% subsidiary of Beta Systems Software AG.

Product/service information

Output Management and Document Archiving

These products enable bulk processing of documents and print data, deliver various post-processing options and conversions, store and archive data quickly and reliably, and allow users to search data rapidly and flexibly across the entire data pool.

Workload Automation

These products help control and monitor automated IT processes across all leading system platforms.

Log Management

These products deliver functions for the recording, archiving and provisioning of log and job output data generated by your IT systems. User-friendly interfaces and an intelligent indexing scheme allow you to quickly identify critical events hidden in your log data, search and select the data with ease, and further process the resulting information.

Quality Management

Tools to secure and verify your automated IT processes. The products connect with existing workload automation solutions (job schedulers) to identify and prevent errors, thus improving the quality of your IT production.

z/OS Access Rights Management Suite

This suite for RACF combines administration, auditing, reporting, compliance management, analysis, monitoring and self-service on the z/OS platform in a comprehensive product family. When it comes to company-wide identity access management across the entire system landscape, the IAM Garancy Suite offers all you need.

Black Hill Software

Address

211 Dana St, Ballarat VIC 3350, Australia

Phone: +61 3 5331 8201

Email: info@blackhillsoftware.com

Web: www.blackhillsoftware.com

Activity: Software Vendor

Specialist areas: System management

Mainframe platforms supported: z/OS
Non- mainframe platforms supported: Windows
Pricing options: Monthly/annual license

Company Profile

Black Hill Software was established in 2006 in Ballarat, Australia.

We started with the objective of creating a simple to use SMF reporting tool for z/OS Systems Programmers to use for reporting and problem investigation.

EasySMF went on sale in 2010 and we now have customers around the world

Product/service information

EasySMF is a Windows based tool for z/OS SMF reporting. It provides a suite of built in reports. You can zoom in on areas of interest, click through for more information and switch between reports to relate data from different record types.

EasySMF:JE is a Java extension for EasySMF. It provides a Java API for SMF records, based on the work done developing EasySMF. Java classes map SMF records and sections. SMF fields are converted to standard Java datatypes, so you don't need to e.g. keep track of the many different time units in SMF.

EasySMF:JE allows you to create your own custom SMF reports. It can run on z/OS (zIIP eligible) or other Java platforms..

Blenheim Software International Ltd

Address

11 Hollycombe, Englefield Green, Surrey TW20 0LQ, UK
Phone: +44-1784-437404
Email: blenheim@blenheimintl.co.uk
Web: www.blenheimintl.co.uk

Activity: Software Vendor

Specialist areas: Data management; storage management; security; programming/testing

Mainframe platforms supported: z/OS, VM/VSE, Linux, other

Non- mainframe platforms supported: IBM i, AIX, other Unix, Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Company Profile

Blenheim, based near Heathrow in the Thames Valley, was established over 15 years ago with a focus on the ADABAS market in the UK mainframe community. Today almost all active UK ADABAS sites use our software services.

We are also World-Wide distributors for "PEEK" our ADABAS File Browser/Editor from ByteZone, Australia for which we boast customers across Europe, The Americas and elsewhere.

In addition, we are the UK Agent for Advanced Software Products Group, Inc. who have provided the z/OS & OS/390 Mainframe community with cutting edge Enterprise Cryptography and Security Management software solutions, support and services since 1986.

Product/service information

ADABAS/Natural Database Utilities:

ADAMAGIC - ADABAS C Files to UNIX Conversion

ADAREORG - ADABAS File Restructuring with minimum risk and computer resource usage

ADASTRIP - ADABAS File Data Extraction Utility

DBAUDIT - ADABAS Database Logical Integrity Verification

PEEK - ADABAS File Browser & Editor in use at over 60 sites world-wide

NIM - Purpose built TP Monitor for the Natural and ADABAS environments as an alternative to CICS

Enterprise Cryptography and Security Management:

MEGACRYPTION - Enterprise Cryptography for z/OS, WIN, UNIX & LINUX

CRYPTOMON - ISPF Cryptographic Key Manager

ReACT - Enterprise Password Reset & Synchronization

ERQ - Easy RACF Query, Automated RACF Administration and Reporting

Generic Systems Management Software Offerings:

Providing a global view of your resource performance and utilisation.

SMFUTIL / SMFVIEW — SMF Data Management can reduce the dump & clear time by up to 70%

The Info Suite: Info/CPU - Info/DASD – InfoTAPE

As a suite or individually, the Info products provide a global view of your resource performance and utilization.

Blue Sea Technology

Address

Beckumer Str. 152, Germany

Phone: +49 (0) 2382 966225

Email: helpdesk@blueseasoft.de

Web: www.blue-sea-technology.de/

Activity: Software vendor

Specialist areas: System management; data management; storage management; asset and change

management; security; programming/testing; network performance/management

Mainframe Platforms supported: z/OS, VM/VSE, Linux, other

Non-mainframe platforms supported: IBM i, other Unix, Linux, Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based

Company Profile

Blue Sea Technology is privately held software development, technical support, consulting and training company. Company supports over 30 multiplatform, MVS and VSE mainframe systems products, which are used by data centers of all sizes and configurations worldwide. With our security solutions, large companies can manage their security infrastructure. We are proudly distributing software solutions from our Partners. Software Sales, Licensing, and Technical Support are our priority. Our loyalty and 100% dedication to our Customers and Partners are well known .

The philosophy of Blue Sea Technology is based on the following: the simple ideology that Information Technology must be developed and delivered for the end user. This must serve both the company concerned and its staff. The goals of this specialist company are to bring to the users, software of the highest quality, coupled closely with its professionally supported technical department and documentation.

As would be expected this dependable consultancy unit is well placed to assist its customer base, to attain maximum ease of use of its preferred software packages.

Our company has gained invaluable close support contact with its customer base. It can assist in your technical and IT based needs. This will enable its customers to make clear and concise decisions based on the highly sort after software it supplies.

Product/service information

Our mainframe solutions for the areas of Performance Monitoring Software, CICS Utilities, Report & Backup, Session & Print Management, File Transfer & Compression, Multiplatform Scheduling, and Remote Print Management are known for the highest quality software, documentation and technical support in the business.

Our customers can rely on the quality software from our partner, like Software Diversified Services (SDS), a leading provider of enterprise software. We are proud to present this high quality Software like VIP - VitalSigns for IP the complete monitoring, alerting, diagnosis, and repair for IP Networks on z/OS, or VitalSigns for FTP, Snap-in security and encryption for FTP file transfer jobs on z/OS. With Vanguard Security Solutions large companies

can manage their security infrastructure. The software products are designed to meet today's unprecedented security challenges. The products bring together formerly separate functions of security administration, access and authentication, reporting and analysis, and policy compliance.

Our professionals assist our clients through consultancy, development, project delivery and training. By out-tasking to our company our clients not only saving time and money, but they get top technologies delivery and still continuing its overall control. By that way of working, we do not replace the customer's teams and work places, but helping them to be more competitive on the market, to be able to react faster for the real time technological and business development demands.

BMC Software

Address:

2103 Citywest Blvd, Houston, TX 77042, USA.

Phone: +1 855 834-7487

Email: customer_support@bmc.com.

Web: www.bmc.com

Activity: Software vendor.

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; network performance/management.

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z

Non-mainframe platforms supported: Other Unix, Linux, Windows, Cloud, other

Pricing options: Monthly/annual license, processor/capacity-based, workload/usage based, other.

Company profile

MC works with 86% of the Forbes Global 50 and customers and partners around the world to create their future. With our history of innovation, industry-leading automation, operations, and service management solutions, combined with unmatched flexibility, we help organizations free up time and space to become an Autonomous Digital Enterprise that conquers the opportunities ahead.

Product/service information

BMC enables customers to automate more of their mainframe environment, get insights critical to protecting availability, and share data across the enterprise for greater collaboration and context. We provide solutions in

these key areas: systems monitoring; observability, AIOps, cybersecurity, service management; DevOps; automation; application and mainframe performance; storage resource management; cost analysis; performance and capacity planning; transaction management and data management optimization; mainframe continuous integration/continuous delivery.

Broadcom Mainframe Software Division

Address:

1320 Ridder Park Drive, San Jose, CA US 95131, USA.
Phone: +1 408-433-8000
Web: mainframe.broadcom.com/.

Sales contacts:

America: +1 408-433-8000.
EMEA: +49 6085 98713-21.
AsiaPac: + 86-10-8477 6300.

Activity: Software vendor.

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; network performance/management

Mainframe platforms supported: z/OS, VM/VSE,
Non-mainframe platforms supported: IBM i, AIX, Unix, Linux, Windows

Pricing options: Monthly/annual license, processor/capacity-based, workload/usage based, other

Company profile

Broadcom's Mainframe Software Division empowers customers to amplify the value of their mainframe investments. Our commitment to partnership is grounded in delivering to customers greater success with the platform. It starts with embracing open technologies in ways that unite the mainframe and hybrid cloud environments. Our leading DevOps, AIOps, Security, and Infrastructure Management software solutions and innovative value programs go beyond code to unlock the platform's full potential

Product/service information

The power of the IBM® z14™ creates a digital trust that is essential to enable enterprises to verify people, protect data and assure app integrity and performance. CIOs can deliver better economics and TCO. IT operations teams can enable self-driving mainframe data centers to deliver 100% SLAs. CISOs and auditors can protect sensitive data to avoid fines tied to GDPR and regulations. Enterprise Architects and Developers can use the same open, modern DevSecOps toolset, mobile-to-mainframe.

Through A.I. and machine-learning powered intelligent automation, Broadcom's mainframe solutions enable increased insights across broader sets of data. This will help businesses manage retiring skills through intelligent automation, while increasing security, scalability and flexibility on their current platforms, including IBM Z, in a secure and trusted environment.

Broadcom continues to keep the mainframe platform vibrant and help ensure that new workloads, new developers and new mainframers continue to help drive the future: going from being a supporting platform of transaction revenue to becoming a source of revenue growth and innovation.

Bsecure

Address:

Paseo de la Castellana, 200, 28046 - Madrid - Spain.
Phone: +34 91 005 3089.
Email: hablamos@go2bsecure.com.
Web: www.go2bsecure.com.

Activity: Consultant

Specialist areas: Security

Mainframe platforms supported: z/OS.

Non-mainframe platforms supported: Linux; Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based

Company profile

We help you to cover the lack of experience and knowledge in security and audit environments in infrastructure based on Mainframe, protect sensitive data of your company and your work performance.

We are the maximum reference in services around security and auditing in mainframe environments in Spanish-speaking and one of the most significant worldwide exponents in English-speaking.

VA060.-MAINFRAME HACKING & AUDITING MASTER 2020

Product/service information

We deliver our ONLINE SECURITY training worldwide: VA060.-MAINFRAME HACKING & AUDITING MASTER 2020.

- Forensic Incident Analysis.
- Hardening of Mainframe Environments.
- Deep Technical Security Audits.

- Security Architectures Consulting.
- Cleaning of RACF Environments.
- Consulting on Regulatory Compliance Controls.
- Automation of Regulatory Compliance Audits.
- Technical Support Services.
- Implementation of Anti-fraud Systems.
- Red & Blue Teams.
- Teaching Online and Face-to-face Hacking, Auditing, and Security Administration Courses.
- We Distribute and Support our Own and International Software Solutions.

Can Do Systems

Address:

3 Germay Drive, Suite 4 # 1292 Wilmington DE 19804-1127, USA .

Phone: +1 646 340 9144

Email: sales@candosys.com

Web: www.candosys.com

Activity: Software vendor.

Specialist areas: Programming/testing, other

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license, other

Company profile

Can Do Systems develops top-notch software products for IBM's z/OS operating system. The first Y2K software testing solution in the world, TICTOC, our date and time simulation product, was developed by Can Do back in 1992.

Can Do Systems' staff consists of people who have been in the z/OS, and MVS systems software development field for a combined total of more than fifty years. We've kept up with the times, though, and are committed to using the latest technologies to provide our customers with products that support the latest z/OS hardware and software.

Product/service information

TICTOC for z/OS® and CICS® is date and time simulation software for IBM Z™. It helps software development teams ensure that their software performs as intended with virtual date and time testing. It may also be used to simulate multiple time zones and to trigger date and time sensitive applications in both test and production program environments. TICTOC's date and time simulation supports numerous IBM and vendor products, including DB2, LE, IMS, and many other software products.

Canam Software Labs, Inc

Address:

5770 Hurontario Street Suite 310, Mississauga, ON LR 3G5 Canada

Phone: +1 905 712 3840

Email: info@canamsoftware.com

Web: www.canamsoftware.com

Activity: Software vendor

Specialist areas: Programming/testing; web integration and legacy reengineering tools

Mainframe Platforms supported: z/OS, VM/VSE, Linux on IBM Z, Other

Non-mainframe platforms supported: AIX, other Unix, Linux

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Company profile

Canam Software Labs, Inc. is a Canadian global supplier of automated software development and integration solutions in the areas of XML, SOAP, JSON processing with COBOL or C. With customers in over 50 countries the company has a history of understanding and satisfying technology needs and gaps for the Global 2000 community. With extreme customer focus, aggressive execution and a dynamic work force Canam has enjoyed long term successful relationships with its customers in the areas of banking and finance, transportation, retail, defense, telecommunications and other fields.

Product/service information

Canam Software Labs, Inc. (Canam) is the developer and manufacturer of XML Thunder, an automated XML, SOAP and JSON software integration solution for COBOL and C language applications.

Cartagena Software

Address:

101 Drawbridge Drive, Markham, Ontario L6C 2N5, Canada

Phone: +1 905-887-0755.

Email: info@cartagena.com

Web: https://cartagena.com

Activity: Software vendor.

Specialist areas: System management; storage management; security

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license

Company profile

Founded in 1991, Cartagena Software develops and delivers targeted solutions to reduce risk and exploit new technologies, which are easy-to-use, flexible, and efficient. We continue the legacy of experience in storage (StorageTek), automation (Cybermation), and security (Rubin services).

Cartagena is a member of IBM PartnerWorld, SHARE, and participates in IBM's z Systems Technical Disclosure Meetings. We are partners with EMC, Fujitsu, IBM, and Oracle.

Service partners include Kofill (Asia), 4Bears and StorageD (Brazil), GlassHouse Systems and Eclipsys Solutions (Canada), Bayshore (China), Rubin (Germany), SoftPlex (Japan), Trident Services (USA).

Our head office is in the Greater Toronto Area, Canada.

Product/service information

Tape migration: TelTape z/OS migrated millions of volumes since 1998. TelTape's high speed copy engines nondisruptively move data between Dell EMC, Fujitsu, IBM, Luminex, Optica, and Oracle libraries, supporting all tape management systems, plus USERTMS, "No TMS". "Clone" volumes to same volume serial, load balancing, automatic comparison, statistics spreadsheet.

Backup VTL: TelTape's 30+ selection criteria to regularly backup virtual tape data.

Media Refresh: TelTape stacking consolidates 64K datasets per volume, continues stacking to active volumes.

zFS Security Administration: Superuser, a powerful tool for zFS file systems of Unix System Services, enabling system programmers to make small to large file permission changes, in ISPF/RACF terms. Automatically generates UNIX change commands, run in ISPF/batch. Change objects in a directory plus all related subdirectories. Supports Access Control Lists. Pre-defined and user-created reports.

Automation: Co-Pilot z/OS replaces expensive console automation, consolidates controls to table-driven tool. Responds to console messages, date, time, enforcing rules to issue commands, submit jobs, execute REXX. Restart applications. Customize console message attributes.

Report management: Speedview z/OS replaces expensive products. Automatically extract from SPOOL, filing based

on output group, dataset, or job into VSAM database. Reports indexed by folders, view and manage in ISPF. E-Mail reports to distribution lists. Archive/delete expired reports.

Print Management: Speedview z/OS routes reports to TCP/IP printers, can control e.g. restart.

CASI Software

Address:

10231 Slater Avenue, Suite 117 Fountain Valley, CA 92708, USA.

Phone: +1 800 378 1109.

Email: info@casisoft.com

Web: www.casisoft.com

Activity: Software vendor.

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other.

Company profile

CASI Software is a provider of software solutions to transform and deliver z/OS print content.

Product/service information

CASI Software has three main product lines:

JES2Mail/JES2FTP – transforms z/OS report content into PDF, HTML, RTF, .CSV, and XML, files and securely delivers results to users via email, FTP, and RSS web feeds. JES2Mail/JES2FTP's report content processing and PDF overlay capabilities enable creation of advanced, final-form PDF output to replace printing and other information delivery methods.

CICS2PDF/zOS2PDF – transforms real-time CICS information into PDFs and delivers that information to users via email or directly to users via web-enabled CICS application.

Mail2ZOS / FTPSweeper – is mainframe software that receives email contents and attachments or retrieves files from designated servers or FTP sites; decodes, processes and stores these emails, attachments and files into MVS datasets; dynamically composes job streams for execution; and sends email or text message notifications regarding mainframe processing status.

CM First Group

Address:

7000 North Mopac Expressway, Suite #200, Austin, TX 78731, USA.

Phone: +1 888-866-6179

Web: cmfirstgroup.com

Sales Contacts

America: +1 801 652 6486

Activity: Software vendor

Specialist areas: Security; programming/testing; web integration and legacy reengineering tools

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: IBM i

Pricing options: Monthly/annual license,

Company profile

At CM First Group, we've walked in your shoes. We were there when so-called legacy apps were developed and we have helped more than 400 customers maintain, update and re-platform them over the last twenty years. In that time, we have seen just about everything and learned a lot. We have applied this knowledge in creating advanced software analysis, documentation and translation tools that accelerate and de-risk application modernization projects. With decades of hands-on experience, we become a trusted partner to high-performing and agile development organizations.

Product/service information

CM EvolveIT

Maintenance analytics software uniquely created for enterprise application modernization, CM evolveIT reduces discovery time by 80% through compiler technology that automatically finds and documents business rules and system interactions.

CM evolveIT analyzes mainframe applications to identify where and how sensitive data is processed – in screens, reports, files and databases. Its fast and complete analyses help application owners determine what code changes must be made to ensure all instances of data use are known, appropriate and secure!

Cobbs Mill Consulting

Address:

129 Coachmans Trail, Asheville, NC 28803, USA.

Phone: +1 828 299 4649

Email: johnm@cobbsmill.com

Web: www.cobbsmill.com

Activity: Consultant

Specialist areas: Data management; asset and change management; programming/testing

Mainframe platforms supported: z/OS, VM/VSE

Company profile

Cobbs Mill Consulting specializes in support for Phoenix Software's Key/101 data entry software (formerly Key/Master from Mercator and TSI). We provide training courses, implementation and conversion services for Key/101. We have extensive experience with the Aperture range of data center documentation tools. Our COBOL dump debugging courses are popular with programmers as they teach a lot of shortcuts in solving COBOL dumps. We also work closely with Fantom Systems, CSI and DPI Software to help develop their software in Assembler.

Cole Software LLC

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736 Fox Hollow Road, Afton, VA 22920, USA

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Email: bshimizu@colesoft.com.

Web: www.colesoft.com.

Sales Contacts

America: 1 800 XDC 5150

EMEA: +1-928-771-2003.

AsiaPac: +1-928-771-2003.

Activity: Software vendor.

Specialist areas: Programming/testing.

Mainframe platforms supported: z/OS.

Pricing options: Workload/usage based.

Company profile

Cole Software is dedicated to the continued development of powerful software for sophisticated mainframe programmers. Many of the industry's foremost programmers use Cole Software's core product, z/XDC, the indispensable debugging tool for Assembler programs. Cole Software is an Advanced Business Partner in the IBM PartnerWorld program.

Product/service information

Cole Software announced the availability of a beta test program for z/XDC release z1.10 in August 2008. This latest beta version of z/XDC includes support for IBM System z10 processor machine instructions and "A La Carte" configuration options. A major enhancement available with z/XDC z1.10 is the support for displaying and debugging IBM C/C++ programs with the new c/XDC Feature. This feature is seamlessly integrated into the existing z/XDC technology.

Compute (Bridgend)

Address:

8, Merthyr Mawr Road, Bridgend CF31 3NH, UK

Phone: +44 (0)1656 652222.

Email: admin@cbl.com

Web: www.cbl.com

Activity : Software vendor.

Specialist areas: System management; data management; storage management; programming/testing; other

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z, other

Non-mainframe platforms supported: System i, AIX, Unix, Linux, Windows, other

Pricing options: Monthly/annual license, processor/capacity-based, other

Company profile

Since its inception in 1970, Compute (Bridgend) Ltd has become respected internationally for its commitment to the production of system software, mainly for IBM Mainframe Computers.

CBL's objective is to continue to produce software for the user which is easy to use yet provides fast and powerful data handling.

Product/service information

The SELCOPY Product Suite includes the powerful SELCOPY batch utility language in which new applications can be developed more easily than using compiled languages such as Cobol but executing at comparable speeds.

Complementing the SELCOPY batch utility programming tool is SELCOPYi which offers a modern windows style interface providing multiple edit sessions supporting both ISPF and Xedit features.

SELCOPYi takes advantage of large 3270 screen sizes and provides an integrated structured data editor supporting displays of multiple record types, COBOL and PL/1 copybook record mapping and sophisticated VSAM support. There is also an FSU (file, search and update) feature which makes it easy for a developer to identify global changes that would occur before actioning them.

SELCOPYi allows for DB/2 table editing using multiple views. SQL-style SELECT/WHERE commands are supported also.

To aid debugging of the batch SELCOPY, it can be run interactively under SELCOPYi where breakpoints can be applied to the SELCOPY control statements and changes in the values of defined fields can be seen.

Also available is the CBLVCAT tool which allows the user to generate reports of VTOC/Catalog contents and IDCAMS tuning recommendations for VSAM data sets.

Computer Measurement Group (CMG)

Address:

151 Fries Mill Road, Suite 104, Turnersville, NJ 08012, USA

Phone: +1 800 436 7264

Email: cmghq@cmg.org

Web (US): www.cmg.org

Activity: Education.

Specialist areas: System management; data management; storage management; programming/testing; network performance/management.

Mainframe platforms supported: z/OS, VM/VSE, Linux, other

Non-mainframe platforms supported: i5, AIX, other Unix, Linux, Windows, other

Company profile

The Computer Measurement Group, commonly called CMG, is a not for profit, worldwide organization of data processing professionals committed to the measurement and management of computer systems.

Product/service information

CMG in the USA hosts an annual conference the first week of December every year. This conference provides approximately 120 educational sessions covering all aspects of computer measurement, performance and capacity planning. All computing platforms are included. CMG also supports many regional groups which meet throughout the year, providing an opportunity for the computer performance professional to gain knowledge and share experiences. Information on the international network of CMG groups can be found on the CMG website.

Conexus Technologies Inc

Address:

8081 Twin Creek Trace, West Chester, OH 45069, USA

Phone: +1 513 779 5448.

Email: info@conexus-technologies.com.

Web: www.conexus-technologies.com.

Activity: Consultant.

Specialist areas: Asset and change management; other

Mainframe platforms supported: z/OS

Company profile

Conexus provides structured cabling solutions for the raised-floor, data center environment. The company's core competency is in the design, provisioning, installation, testing and documentation of physical cabling infrastructure for the ESCON, FICON and Fibre Channel architectures. Our services are available to *Fortune 1000* corporations throughout North America.

Product/service information

Conexus provides fiber-optic trunk cabling, jumper cables, patch panels, distribution cabinetry and conveyance/tray systems for the raised-floor environment. The company provides turnkey cabling solutions to provide physical connectivity for data center moves, consolidations, new data center construction, push-pull project initiatives and technology refresh projects.

monitors. By utilizing proprietary mathematical models and self-learning algorithms, ConicIT provides real time tracking of critical resource behavioral patterns and predicts abnormal behavior of these resources before it occurs. ConicIT also analyzes composite relations between physical and logical resources.

Based on this information ConicIT provides meaningful alerts aimed at reducing re-occurrence of performance-related malfunctions. No matter where they were when the problem occurred, IT managers and performance administrators have all the information needed to find the root cause of problems, enabling IT staff to solve the actual cause of the incident and not spend valuable time and resources trying to battle the symptoms. By quickly getting to the root of the problem after its first occurrence, IT staff can now provide first fault problem resolution.

ConicIT

Address:

4 Derech Hashalom st, Israel

Phone: +972 546263343.

Email: eli.hizkiyev@conicit.biz.

Web: www.conicit.biz.

Activity: Software vendor.

Specialist areas: Systems management; network performance/management.

Mainframe platforms supported: z/OS, Linux

Non-mainframe platforms supported: AIX, other Unix, Linux

Pricing options: Monthly/annual license, processor/capacity-based

Company profile

ConicIT was founded by Yoram Kariv (the founder of ConicIT is a software vendor specializing in the development of a unique self learning behavioral analysis technology for optimizing mainframe performance. By employing sophisticated mathematical tools and data from existing monitors, ConicIT predicts performance problems, helps solve them the first time they occur, as well as prevent their re occurrence.

Our mission is to help IT Operations Managers control their z/OS Mainframe environments by enhancing IT productivity and performance, and proactively optimize SLA costs, while reducing monthly license fees and operational costs (overhead?).

Product/service information

ConicIT is an out of band, Linux-based production solution that constantly analyzes mainframe system and application performance information provided by existing mainframe

Connectivity Systems Inc

Address:

8120 State Route 138, Williamsport, OH 43164, USA

Phone: +1 740 420 5400.

Email: sales@CSI-International.com.

Web: www.csi-international.com.

Sales contacts:

America 740 420 5400.

EMEA 1 800 795 4914.

Activity: Software vendor.

Specialist areas: Systems management; data management; storage management; security; web integration and legacy reengineering tools; network performance/management.

Mainframe platforms supported: z/OS, VM/VSE

Pricing options: One-time charge, monthly/annual license, processor/capacity-based.

Company profile

CSI International was founded in 1995 to provide TCP/IP connectivity for the VSE environment. From a single employee and a \$20,000 capitalization, CSI has grown to a \$12 million per year company, employing more than 40 people, and serving more than 2000 VSE sites worldwide. CSI products are sold directly in North America and through distributors and IBM to the rest of the world. In early 2002, CSI acquired B I Moyle Associates in a cash transaction. Contrary to modern acquisition processes, all BIM offices remain open, and all BIM employees have been retained. Three additional senior product developers have been hired and a number of high-profile products are under development. It is the CSI mission to ensure a long and successful experience for those who select and use the VSE operating environment.

Product/service information

CSI International is the major provider of TCP/IP products for the VSE platform. Additionally CSI provides a wide range of VSE system and security products through our subsidiary company, BI Moyle Associates. We are certain that if you have a VSE communications or systems requirement, we have a solution for you. TCP/IP for VSE provides a complete solution for connecting the mainframe to the Internet.

CPT Global Ltd

Address:

Level 3, 818 Bourke Street, Docklands, Melbourne, VIC 3008, Australia.

Phone +61 3 9684 7900 .

Email info@cptglobal.com.

Web: www.cptglobal.com.

Sales contacts:

America +1 416 642 2886.

EMEA Milan - +39 020 02 4991 Munich - +49 899 040 5955 London - +44 20 8334 8085 Paris - +33 17 038 2321.

AsiaPac +65 6226 2555

Activity: Consultant.

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management.

Mainframe platforms supported: z/OS, VM/VSE, Linux on z/OS

Non-mainframe platforms supported: IBMi, AIX, Unix, Linux, Windows, Cloud, other

Pricing options: Other.

Company profile

CPT Global is a specialist IT consulting services firm. For nearly 30 years, CPT Global has been committed to helping customers improve their technology delivery, performance, and capabilities.

Consulting in all areas of mainframe optimization and modernization, CPT Global draws on a pool of close to 140 global experts, with decades of experience. CPT Global stands out by serving as an independent partner, focusing on finding gaps, issues, and more cost-effective approaches for our clients.

Headquartered in Melbourne, Australia, we solve complex business problems for many Fortune 500 companies and 80% of the world's largest banks making them more resilient, reliable, and connected. CPT Global has experience working for federal and state government

in Australia as well as banking, finance, insurance, telecommunications, retail, and manufacturing sectors in both Australia, as well as globally.

Product/service information

CPT is a world leader in the provisioning of mainframe tuning, cost reduction and modernization services. Our consultants mainframe experience averages 20 years and covers all mainframe disciplines: Operations, Database, System Programming, Development, Test Environments, Data and Testing.

Our key services for the mainframe consist of:

- Resource usage optimisation
- Software license cost rationalisation
- Monitoring optimisation
- Mainframe system setup reviews and recommendations
- Batch Job scheduling streamlining and optimisation

CPT's innovative mainframe cost reduction service leverages our automated tools, our proven processes, and our expert consultants. The CPT services delivers rapid results, with savings typically averaging 15%. CPT offers our clients a "Risk Reward" model, amongst other options, banking on our expertise and proven delivery record. CPT brings a holistic approach examining the consumption drivers, the MLC to understand how we can improve the customers mainframe experience and reduce the platform costs.

CPT's consultant expertise covers all common mainframe technologies, application languages, databases, middleware and spans all IBM Mainframe platforms: z/OS, VM/VSE and Linux on IBM Z.

CPT's consultants, are familiar and experts in the IBM and the major mainframe vendor solutions (IBM, BMC/Compuware and CA). CPT maintains a long standing partnership with BMC/Compuware..

Creative Data Movers Inc

Address:

28 West 38th Street #4W, New York, NY 10018, USA

Phone: 212-730-5245

Email: mabdill@nyc.rr.com

Web: https://www.creativedatamovers.com

Activity: Consultant

Specialist areas: Programming/testing; other

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Unix, Linux, Windows,

Pricing options: One-time charge

Company profile

Creative Data Movers, Inc. provides technical training for corporate employees. Our state-of-the-art instructor-led classroom and virtual classroom courses teach employees basic and advanced technologies needed to develop business applications that run on Mainframe, Web, Unix, and Windows platforms. We specialize in extended “bootcamp” courses for application developers and systems support personnel. Courses include Java, COBOL, PL/I, Assembler, JCL, Utilities, HTML, XML, CSS, JavaScript, REXX, TSO/ISPF, Db2, WebSphere MQ, CICS, USS, Unix, Shell programming, IMS, VSAM, z/OS, etc. We customize our courses to our client’s requirements, and our training builds on the student’s existing knowledge.

Product/service information

Creative data Movers, Inc. provides training and courseware for the z/OS mainframe. Courses and courseware focus on developer training in the following areas: COBOL, PL/I, Assembler, JCL, Utilities, HTML, XML, CSS, JavaScript, REXX, TSO/ISPF, Db2, WebSphere MQ, CICS, batch mainframe Java, USS, Unix, Shell programming, IMS, VSAM, z/OS concepts, etc.

DataKinetics Ltd

Address:

50 Hines Rd, Ottawa, K2K-2M5, Canada.

Phone: 613-523-5500

Email: info@dki.com

Web: https://dki.com.

Sales contacts:

America +1-800-267-0730

Activity: Software vendor.

Specialist areas: Data management

Mainframe platforms supported: z/OS, VM/VSE, Linux

Non-mainframe platforms supported: Linux, Windows,

Pricing options: One-time charge; monthly/annual license; processor/capacity-based

Company profile

As the global leader in Mainframe Performance and Optimization Solutions, DataKinetics is relied upon by the world’s largest banks, credit card, brokerage, insurance, healthcare, retail and telecommunication organizations to dramatically improve their mainframe data throughput and processing. Fortune 500 companies trust DataKinetics.

With 45 years of experience in the field of Mainframe Performance and Optimization, we continually help our clients leverage existing systems, resolving issues through optimization that hold them back, and enabling plans

to propel them forward. Leveraging the experience and success of working with our global clients, we deliver proven solutions with worldwide success.

We continue to work with:

- 3 of the top 5 global banks
- 3 of the top 5 global credit card companies
- 3 of the top 5 American property and casualty insurance companies
- 2 of the top 5 American health insurance companies.

Product/service information

This is high-performance in-memory technology for mainframes that can solve batch processing, throughput capacity, mobile traffic, resource usage, rules processing and other challenges IT organizations face in their mainframe datacenters. tableBASE accelerates Db2 applications, improves mainframe application performance, makes Db2 data more accessible, reduces CPU and MSU usage, and helps to reduce operational expense. All this without the need to make changes to your Db2 database or your application logic.

Preparing for IBM’s Tailored Fit Pricing (TFP): TFP brings cost certainty to mainframe shops interested in controlling their yearly mainframe spend. By first lowering your R4HA usage baseline with tableBASE, you can get the most out of TFP. Using tableBASE will lower the resource usage baseline—allowing you to benefit more from future growth pricing (which comes at a sharply reduced rate; much lower than your committed MSU rate). Combining tableBASE and TFP is a sure-fire way to control costs, and to find more capacity for your growing workloads.

DDV technologies

Address:

17B / 818 Pittwater Road (PO Box 1155), Dee Why, NSW 2099, Australia.

Phone: +61 (0)2 8213 9207

Email: sales@ddvtechnologies.com

Web: www.ddvtechnologies.com
dateandtimesimulationsoftware.com.

Activity: Software vendor.

Specialist areas: Programming/testing; web integration and legacy reengineering tools; other

Mainframe platforms supported: z/OS

Pricing options: One-time charge; monthly/annual license; processor/capacity-based, workload/usage based, other

Company profile

DDV is a privately owned company developing an Australian z/OS-based product SoftDate and marketing

overseas solutions that directly resolve your often troublesome and expensive overheads in IT, business development and crisis management. Our solutions span the IBM mainframe through Internet platforms and are targeted primarily at speeding your business development cycle.

Product/service information

SoftDate is a z/OS-based product for Date & Time Simulation (DTS) Testing of applications, prior to Production and Global Time Zone Virtualization of Production applications (to reduce LPARs that are dedicated to single Time Zones).

SoftDate is an SOA DTS product with many unique and exclusive features not found in other DTS products such as Parallel Sysplex, CICS MRO (multiregion operations), 64-bit support (for data above the 2-gig bar), WebSphere Application Server & Java Language for z support for all execution environments (e.g. batch, CICS, IMS).

Softdate contains every feature of every other DTS product, is fully backward compliant, and can reside in the same LPAR to make exchange easy.

Dell EMC

Address:

Hopkinton, Massachusetts and Round Rock, Texas, USA
Web: www.delltechnologies.com

Activity: Hardware.

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management; other

Non-mainframe platforms supported: AIX, other Unix, Linux, Windows

Company profile

EMC was acquired by Dell in 2016.

Product/service information

Dell EMC sells data storage, information security, virtualization, analytics, cloud computing and other products and services that enable organizations to store, manage, protect, and analyze data.

Dignus LLC

Address:

8378-203 Six Forks Road, Raleigh, NC 27615.

Phone: +1 919 676 0847.

Email: sales@dignus.com.

Web: <http://www.dignus.com>.

Activity: Software vendor.

Specialist areas: Programming/testing

Mainframe platforms supported: z/OS, VM/VSE, linux on z System

Non-mainframe platforms supported: Other Unix, Linux, Windows

Pricing options: Monthly/annual license, processor/capacity-based

Company profile

Providers of mainframe compilers (C/C++) and assemblers for z/OS, z/VM, z/TPF and z/Linux.

We want to be your go-to partner in mainframe software development..

Product/service information

Systems/C and Systems/C++ are world-class compilers generating code for 370, ESA/390 and z/Arch environments. Systems/ASM is a HLASM-compatible assembler. All of these are available in cross-platform environments to take advantage of cutting-edge build tools and save mainframe cycles.

DINO-Software Corporation

Address:

P.O. Box 7105, Alexandria, VA 22307, USA.

Phone: +1 703 768 2610

Email: sales@dino-software.com

Web: <https://dino-software.com>

Activity: Software vendor

Specialist areas: System management; data management; storage management; other.

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Windows

Pricing options: Monthly/annual license, processor/capacity-based, other

Company profile

Dino-Software Corporation (DINO) develops enterprise-wide solutions for the management, analysis, protection, and repair of complex z/OS mainframe environments. DINO has long been acknowledged for its superiority in ICF catalog management and technical support, helping organizations ensure their business-critical assets remain online and recoverable in a disaster. Their flagship product, T-REX, incorporates over two decades of experience gained from the original Softworks® developers who devised the Mechanic® and later Catalog Solution®, and it rapidly became the fastest selling ICF catalog management and recovery tool ever released. This formula of producing superior products, at a reasonable cost, all backed up by first class support from industry experts, has allowed DINO to enjoy unprecedented growth and rapidly establish DINO technology as the gold standard in enterprise-wide z/OS management solutions. Learn more about Dino-Software and its z/OS mainframe storage solutions at <https://www.dino-software.com>.

Product/service information

T-REX is the fastest and most comprehensive ICF catalog management product available to analyze, diagnose, report, backup, repair, reorganize, recover, and assist with the overall maintenance and ensure continuous operational capabilities of the ICF catalog environment. T-REX prevents downtime, improves throughput, automates recovery & repair in record speed, REORGs catalogs while OPEN, and pays for itself with just one broken object. GUI optionally available.

DINO's other innovative and intuitive storage management, optimization, and performance tuning products include,

- Universal Data Manager (UDM) is a z/OS based solution providing a consolidated global view via a GUI of the Enterprise storage environment, extending Automation, Auditing, Monitoring, Reporting and Control Functions of data and related storage objects with a mouse click. No distributed servers required.
- VELOCI-Raptor (VR) reduces application overhead by continuously and dynamically optimizing the VSAM batch buffering strategy, eliminating redundant requests and increasing throughput.
- HSM Adminisaurus (HSA) is a consolidated management tool providing extensive reporting, fast & comprehensive auditing, in-depth processing analysis, and simplified administrative functions to help establish and maintain a healthy HSM environment.
- TERADON delivers Fast REPRO Mergecat for closed or open Datasets.
- XTINCT provides permanent DASD and Tape data erasure and meets federal and international regulatory requirements.

Direct Computer Resources Inc

Address; 21 Valley Drive, Huntington, NY 11743, USA
Phone: +1 877-704-0077; International: 1+888-245-5477
Email: wvitiello@datavantage.com
Web: datavantage.com

Sales contacts:

America Dan Hay; 1+ 972.422.0190; Dan.Hay@DataVantage.com
EMEA William Vitiello; wvitiello@DataVantage.com; 1.888.245.5477

Activity: Software vendor

Specialist areas: Data management, security, programming/testing

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Linux, Windows, other

Pricing options: Monthly/annual license

Company profile

During a period where more people than ever are working from home, Direct Computer Resources' mainframe software products allow you to mask, edit, and manage your data safely, efficiently and affordably.

DataVantage software products create production-like data for non-production uses such as DevOps, testing, analyses, and more. Data Masking functionality protects sensitive information enabling compliance with corporate policies and government regulations including GDPR, HIPAA, and CCPA (among others) while reducing the risks of data breaches.

Mainframe products include:

- DataVantage® Data Masking Express™: Buy only Data Masking
- DataVantage® for IMS: Release 5.1 users are eligible for free upgrade to 7.1 plus support
- DataVantage® Db2 for z/OS: Fast, affordable, reliable..

Product/service information

DataVantage® Data Masking Express™

Data Masking-Only: DataVantage® Data Masking Express™ is an affordable z/OS data masking-only software that creates production-like data for non-production uses, enabling compliance with corporate policies and government regulations. It runs alongside current data management software, and installs as an application program in less than four hours. A single installation can mask any one or all combinations of z/OS data such as Db2 or IMS, or Db2 plus IMS, VSAM, and

Sequential files. Competitively-priced subscriptions are CPU-based regardless of processing capacity. Contact us for an instant price quote.

Features:

- Buy only data masking
- Affordable annual subscription with no upgrade fees
- Multiple data masking methods

DataVantage® for Db2 for z/OS & DataVantage® for IMS DataVantage® software for z/OS provides data management capabilities including browsing, editing and copying. Data masking functionality creates production-like data for non-production uses such as DevOps, training, testing, and more, while enabling compliance with corporate policies and government privacy regulations.

Features:

- Data Masking masking protects sensitive information
- Logical compare highlights differences between two database tables
- Creates smaller test databases that reflect production conditions to explore multiple logic paths
- Provides easy before-and-after testing reports for internal audits
- Multiple reloads enable customization of test databases
- DataVantage for IMS 5.1 users get free upgrade to 7.1 with support

DTS Software

Address:

4350 Lassiter at North Hills Ave, Suite 230, Raleigh, NC 27609, USA

Phone: +1 919 833 8426

Email: support@dtssoftware.com

Web: www.dtssoftware.com

Sales contacts:

America +1 770 922 2444

Activity: Software vendor.

Specialist areas: System management; storage management

Mainframe platforms supported: z/OS

Pricing options: Monthly/annual license, processor/capacity-based, other

Company profile

DTS Software is recognized worldwide as the leader in enterprise storage management software. Our integrated suite of software products helps our customers to monitor, manage, and control their storage subsystems.

We specialize in storage software tools and solutions developed for the IBM z/OS, Hitachi VOS3, and Fujitsu MSP operating systems. With a deep understanding of DFSMS and disk and tape storage systems, DTS Software provides products and support that allow mainframe installations to manage their storage and system environments in the most effective manner.

Product/service information

Space Recovery System (SRS) is the world's most widely-used disk space error-prevention system, virtually eliminating production space errors in z/OS. ACC Monarch provides full policy rules-based standards enforcement and resource management, while Easy-Exit replaces complex z/OS assembler routines with simple policy rules. SMSDebug and SMSAudit provide testing, tracing, and auditing capabilities for the SMS environment. Optica Technologies uses DTS Software's ZCC product to provide migration and management services for zVT virtual tape systems.

EasiRun Europa GmbH

Address:

Stockheimer Weg 9, 61250 Usingen, Germany

Phone: +49 6081 9160 30

Email: vertrieb@easirun.de

Web: www.easirun.de

Activity: Integrator

Specialist areas: System management; data management; storage management; security; web integration and legacy reengineering tools; other

Mainframe platforms supported: z/OS, VM/VSE, Linux

Non-mainframe platforms supported: IBM i, AIX, Unix, Linux, Windows, Cloud, other

Pricing options: One-time charge, monthly/annual license, workload/usage based

Company profile

EasiRun is a European supplier of project proven tools for all aspects of software development, testing, quality control, application deployment, output management, automation and execution in production environments. With expertise in the areas of IBM and FUJITSU Mainframe, Open Source, Java, .NET and COBOL (Linux, UNIX, Windows) the company focuses on Eclipse IDEs, COBOL cross compilers, data management, application integration & transformation and web browser solutions. These solutions are relevant to very specific niches, enabling complex IT modernization and reducing and further minimizing technical debt. Developed to ensure the sustainability and reusability of legacy applications, the project proven modern tools implemented by EasiRun

aim to make IT landscapes independent and cost-effective across platforms, technologies, applications and human resources. The wide range of consulting services cover the entire spectrum of the modernization of applications and application development. We are members of the Bonede and P3 Alliances.

Product/service information

Classes under z/OS or LINUX for Z. COBOL and Java Code analysis, instrumentation and execution tracing for comprehensive and deep-learning understanding of Application logic flow at application execution time. Integration of REST/SOAP services in "direct call" mode to IBM CICS and IMS programs, including integration of UI and workflow processes in RPA solutions such as UIPath. Comprehensive monitoring of system resources and bottlenecks providing data to Enterprise Solutions such as Elastic or Dynatrace. Automated conversion of Software AG solutions like Adabas and Natural to DB2 and Java.

Eccox Technologies

Address:

Av. Sagitário, 138 - 2º Floor - Alphaville, Barueri - SP 06473-073, Brazil

Phone: +55 11 975143240

Email: eccox@eccox.com.br

Web: www.eccoxapt.com

Activity: Software vendor.

Specialist areas: Programming/testing tools

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license, processor/capacity-based

Company profile

Eccox is a fully mainframe-focused organization with three decades of expertise delivering distinguished technologies to optimize the z/OS software development lifecycle. Our mission is to bring new value to your mainframe for greater efficiency, quality and agility. Eccox Application Parallel Testing (APT) innovations deliver automated environment provisioning and management of isolated testing ecosystems to test end-to-end z/OS applications changes. Accelerate delivery TTM, achieve higher release frequencies and increase software quality by achieving Continuous Testing.

Product/service information

Eccox APT is a DevOps-ready testing platform that automates test operations and infrastructure preparation processes for end-to-end test-runs. It enables reprocessing of a given test scenario and allows the creation and execution of isolated parallel tests ecosystems using DB2, VSAM, Sequential, and IMS/DB databases, CICS

and IMS/TM for online, and Batch jobs on z/OS systems. It provides granular test control by cloning each system component to be isolated, and allows users to create their unique testing ecosystem in minutes and run on z/OS in parallel, consuming cloned and original components and data masses in isolation for right tests that meets what they need.

Enterprise Systems Associates, Inc (ESAI)

Address:

1340 Tuskawilla Rd, Suite 106, Winter Springs, FL 32708, USA

Phone: +1-866-GO-4-ESAI (866-464-3724)

Email: sales@esaigroup.com

Web: www.ESAIGroup.com

Activity: Software vendor.

Specialist areas: System management; data management; asset and change management; programming/testing

Mainframe platforms supported: z/OS, VM/VSE, Linux on Z

Non-mainframe platforms supported: Unix, Linux, Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Company profile

ESAI is a vendor that provides mainframe cost optimization solutions, database productivity tools and professional services for enterprise customers. Our mission is to help IT get the job done while realizing operational savings. Qualified database and IT staff resources are in short supply, workloads are increasing, and there are still only 24 hours in a day. The economic pressures of today are forcing IT to do more with less. ESAI can help with innovative solutions that save time, money, CPU and staff resources.

Product/service information

DBARS™ access recording services for Db2® records all accesses to the sensitive Db2 tables selected - read, write and data definition. The product gives database audit and protection (DAP) and database activity monitoring (DAM) in one solution. DBARS unique intercept technology does not depend on Db2 tracing or log records. Efficient, flexible recording and auditing is now possible with optional alerting and blocking to protect against corporate data breaches..

BCV5™ is a high speed copy/migrate/refresh tool that checks, automates copies/refreshes of Db2® target

GOT PROBLEMS?**WE HAVE SOLUTIONS!****DBARS™**

Records all accesses to Db2® tables selected. No trace or log records needed. Audit, alert, and protect sensitive corporate data.

BCV5™ / BCV4™ / XDM™

Fast, Automated Copy/Migrate/Cloning tools with Data Masking & Test Data Management for Db2®, Db2® LUW, Oracle®, SQL Server®, VSAM, etc.

BPA4DB2™ / SQLQC™

Performance tuning & alerting is easy, IF you use the right tools. Db2 z/OS® Buffer Pool tuning & SQL performance tools from ESAI.

ICPU™ ANY Programmer can easily find and improve code to lower costs and solve CICS® performance issues.

Learn more about our Highly Rated Tools and Outstanding Support
Call (866)464-ESAI ▪ www.ESAIGroup.com



environments with less effort and in a fraction of time/CPU when compared to other ISV solutions. The BCV5 Masking Tool™ option adds powerful masking of sensitive data during the copy or in-place.

XDM™ is a premier Test Data Management tool for fast automated data provisioning, data masking, and cloning. Supports DB2, Oracle, SQL Server, PostgreSQL, VSAM, IMS, et.al.

BCV4™ is a Db2® and/or IMS® subsystem cloning tool that reduces cloning from hours/days down to minutes. SAP and PeopleSoft users can have clones and system copies in record time.

BPA4DB2™ is a buffer pool product has replaced the old, dated vendor solutions with a new level of expert analysis that easily identifies, recommends, and performs ongoing

monitoring to ensure optimum performance and more responsive Db2 systems.

SQLQC™ easily identifies and analyzes problem SQL from mainframe or distributed systems and offers improvements, simulation and advise.

ULT™ is a log tracker/analyzer for Db2 answers the question "Why is a good, reasonably priced log analyzer so hard to find?" Functions include Undo/Redo, identify, audit, and data propagate. A faster, better, more economical alternative.

ICPU™ gives programmers the ability to easily identify code causing CICS® application performance problems. Its very low overhead allows use in production or test environments.

Epoka Group A/S

Address:

Hjulgagervej 21, DK-9490 Pandrup, Denmark

Phone: +45 96 730 800.

Email: epoka@epoka.com.

Web: www.epoka.com.

Activity: Hardware vendor.

Specialist areas: Other

Mainframe platforms supported: z/OS, VM/VSE, Linux, other

Non-mainframe platforms supported: IBM i, AIX

Pricing options: Other

Company profile

Epoka Group A/S is an innovative supplier of pre-owned, high-performance enterprise computer solutions. Our extensive range of blue-chip brands extends from mainframes, NAS and SAN solutions to best-of-breed networking equipment.

Epoka is a reliable, triple-A rated company that offers customers around the world quick access to quality solutions at competitive prices. Based in Denmark since 1991, Epoka is committed to providing real value, world-class service and continued expansion. Please browse through our website to learn more about our products, services and job opportunities.

Product/service information

IBM: zSeries 800, 890, 900, 990 • CMOS(9672) G2 - G6 • Storage & Peripherals.

EPV Technologies

Address:

Viale Luigi Mancinelli 106, 00199 Rome, Italy

Phone: +39 0686399398.

Email: epv.info@epvtech.com.

Web: epvtech.com.

Activity: Software vendor.

Specialist areas: System management

Mainframe platforms supported: z/OS, Linux on Z

Non-mainframe platforms supported: AIX, other Unix, Linux

Pricing options: One-time charge, monthly/annual license

Company profile

EPV Technologies partners:

- Benny Tal Marketing Software Solutions in Israel and Benelux
- EPV Americas in Canada and USA
- Inspired Solutions in UK and Ireland

- JVL in France
- Senmesoft in Canada
- SoftPlex Inc. in Japan
- TPS Data in DACH.

Product/service information

EPV products have been designed to help system analysts in Performance and Capacity Planning activities. EPV for z/OS, EPV zParser, EPV for Db2, EPV for CICS, EPV for MQ, EPV for Linux on Z, EPV for Unix (including Linux), and EPV for VMware are the main products. Same products developed in two lines: SAS-based and PERL/SQL-based.

EPV zParser is written in PERL; it parses SMF, IMS, z/VM monitor records, etc loading them in a SQL DB. It provides input to EPV products.

ERGO Soluciones SRL

Address:

Ciudad de la Paz 1965, piso 4, oficina D, C1428CPE

Ciudad de Buenos Aires, Argentina

Phone: +54 11 5927-6032

Email: Ezequiel.Ares@ErgoSoluciones.com

Web: www.ErgoSoluciones.com

Activity: Consultant

Specialist areas: Programming/testing; web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, VM/VSE

Non-mainframe platforms supported: Windows

Pricing options: One-time charge, monthly/annual license

Company profile

ERGO Soluciones SRL is providing the IT market with its services, products and solutions, offering the support that each situation needs and better fits customer's requirements.

A team of professionals with broad experience in the field of Information Technology, both in modern techniques and mainframe custom systems, have shaped our organization. Our Company offers Professional Services, Systems Integration, Solutions Development and Products for environments on multiple architectures like mainframes, minicomputers, client/server and personal computers. With offices in the City of Buenos Aires, Argentina, we also represent products of international renowned companies in the region.

Product/service information

Our highly skilled professionals in several proprietary and open tools, such as Assembler, COBOL, CICS, Natural,

Power Builder, Visual Basic, Java, etc., and RDBMS like Oracle, SQL Server, SyBase, DB2, Adabas, among others, can develop from a simple requirement of a program to an entire complex "tailor made" solution or system, technology migrations, customizations and documentation, GUIs and manuals translation, etc.

We are always evolving matching technology changes with methods to protect and leverage our customer's investment.

European Mainframe Academy

Address:

Obergass 23, 8260 Stein am Rhein, Switzerland

Phone: +41-52-5582040

Email: wolfram.greis@mainframe-academy.de

Web: mainframe-academy.de.

Activity: Education

Specialist areas: System management; data management; storage management; security; programming/testing; web integration and legacy reengineering tools; network performance/management.

Mainframe platforms supported: z/OS, VM/VSE, Linux

Non-mainframe platforms supported: IBM i, Linux

Pricing options: other

Company profile

Education of new mainframers. Advanced training for existing mainframers. Support of academic institutions.

Product/service information

Basic blended learning course for system administrator (24 month)

Basic blended learning course for operator (18 month)

Special blended learning modules concerning storage management, performance management, mainframe security & RACF, z/VM and Linux and many more.

Fischer International Systems Corporation

Address:

3520 Kraft Road Suite 100, Naples, FL 34105, USA

Phone: 239-643-1500

Email: Contact@FISC.com.

Web: www.FISC.com.

Activity: Software vendor.

Specialist areas: System management; data management; storage management; security; other

Mainframe platforms supported: z/OS, VM/VSE

Non-mainframe platforms supported: Windows

Pricing options: One-time charge, monthly/annual license, other

Company profile

Accelerate time to productivity with Fischer multiplatform solutions for security, operations, communication and identity management.

At its heart, Fischer International Systems Corporation is a technology company, founded by security visionary Addison Fischer in 1982, which focuses on unparalleled value to our customers.

Fischer's vision for software development for over the last 30 years has been to provide innovative solutions designed to leverage and enhance the mainframe's place in the enterprise at all levels. Contact Fischer for more about IOF, QuickSelect for Db2, VTFM-NewGen®, and Fischer Identity.

Product/service information

Better IOF JES2 Management tools, better function. Complete JES2 Management with a powerful toolset: IOF includes the ultimate job summary screen with online help on each display panel for easy access to better function. IOFSend, a popular tool, delivers batch job information in HTML form directly to a designated and authorized email. IOF training includes a functionality site (fisc.com/support/ioffunctionality/) to access IOF tips and tricks with training videos. IOF is the user's choice for JES2 management in many Fortune 500 data centers. Visit: fisc.com/products/aboutiofvideo/

Through a partnership with LogOn Software, Fischer offers VTFM-New Gen and QuickSelect for Db2. Take backup directly to the cloud with a software-only z/OS Virtual Tape that operates on your mainframe. Visit: fisc.com/products/vtfm-ng/

Use QuickSelect for Db2 for plug and play performance gains, no JCL or Db2 changes required. Minimize static SQL: Visit: fisc.com/products/quickselect/

Enterprise Software: A Zero Trust Platform makes Fischer Identity stand out among its competitors. Fischer Identity simplifies the complex and expensive task of managing

access across on-premises and cloud systems with their breakthrough identity and access management solution. Fischer Identity has been named 1 of 10 fastest growing digital identity management for 2023 to watch by CIOCoverage. Visit: www.FischerIdentity.com.

Fitz Software & Co

Address:

Kilcolta House, Crosshaven, Cork, Ireland

Phone: +353-21-4832131

Email: sales@fitzsoftware.com.

Web: www.fitzsoftware.com.

Activity: Software vendor.

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; network performance/management

Mainframe platforms supported: z/OS, VM/VSE, Linux on Z

Non-mainframe platforms supported: Linux, Windows

Pricing options: Monthly/annual license, processor/capacity-based, workload/usage based

Company profile

Fitz Software & Co., established in 1991, provides z/OS users with innovative and niche products that benefit their evolving systems at justifiable prices. Our primary expertise lies in:

- Change, Risk, Audit, Security & Compliance Management
- Change management, audit and security improvement with system integrity in z/OS, JES, VTAM, TCP/IP, CICS, IODF, DB2 and SAF/ESM. Detect the risks to availability while also ensuring secure change management and notifications across administration functions (Operator commands, Administrator edit/batch changes, Security policies, ..).
- Test Data Management & Database Productivity
- Test data generation (Selection, Changes (rules), Inserts, Modifications (Time, Anonymization)); Reduce CPU service costs and service delivery times: Fastest cloning of pre-production and test DBMS (DB2 for LUW, DB2 for z/OS, ORACLE, MSSQL, IMS) sub-systems, databases and tables with also masking and data reduction; Automated DB maintenance enhancing existing utilities; Bufferpool optimization; Exception Master to determine problems before they hit the systems; ...
- Application Life-Cycle & z/OS enhancement Operating System Software
- File encryption and archiving, test data generation, naming standards and audit; identifying the business-

critical files; integrated recovery management solution designed to deliver a global view of your critical data-as well as that data's backups at the application level.

Real recovery if your batch explodes; Monitor, Manage & Control JESplex jobs, spools & resources; Space Management;

- Software Asset Management & z Cost Reduction
- Who's using what and when in the z/OS software portfolio – IBM and ISV products and inhouse applications including also 4GL, Interpreter languages, ISPF, JCL, ..; Automated Software Capping (aWLC & CPM); Offloading audit functions; Capacity Planning.

Product/service information

Some products:

P-Tracker collects usage information on all program and subprogram calls under z/OS including Batch, IMS/DC, CICS, TSO and other sub-system environments. Using P-Tracker, one can focus in on usage of modules, datasets, applications and products/licenses; and with inhouse applications determine the chained calls at sub-program level.

Integrity Control Environment (ICE) manages and detects changes, points of failure, and risks to the integrity of the z/OS systems. ICE helps systems staff to examine the system and document for management, security and audit teams, that their job is being done correctly, has been verified and does not have unintentional adverse impact. TCP, SSL, DNS and IPV6 Problem Finders

XDM (CROSS DATABASE MOVER) quickly and efficiently copies, refreshes and replicates databases, tables, views, etc. within the same or to different DBMS systems. A XDM copy task integrates both, the physical data movement and the appropriate DDL treatment. It copies tables and databases and XDM creates the data objects at the target if they are not yet present. XDM always chooses the fastest and most efficient method to move the data. Hence copy jobs executions are completed in record time.

ASC (AutoSoftCapping) optimizes the performance of your system while controlling your Workload License Charges (aWLC & CMP). ASC safeguards the right MSUs are in the right place, at the right time and for the right cost.

Dino Explorer Suite is a set of non-intrusive software for analysis and support decision of IBM mainframe SMF logs which are collected in real time and stored in a relational database platform (Microsoft SQL Server). Can reduce overall CPU processing by 7%.

ZIP/390-MP is an enterprise zip and Multi-Platform Integration utility for simplifying the efficient and secure trafficking of data across divergent platforms.

Flynet Limited**Address:**

King William House, Burwell, Cambs CB25 0DU, UK

Phone: +44 1638 611111

Email: Sales@FlynetViewer.com.

Web: www.flynetviewer.com.

Activity: Software vendor.

Specialist areas: Web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z

Non-mainframe platforms supported: IBM i, AIX, Unix, Linux, Windows, other

Pricing options: Monthly/annual license

Company profile

Since 1994 Flynet has been supporting a global and varied customer base supporting solutions with 10 to 10,000+ users.

Flynet is committed to empowering organisations to utilise the mainframe in the modern digital agenda.

Agility and security are the cornerstones of Flynet's success. Using Flynet's no-code tools, organisations can confidently unlock the power of their mainframe applications, opening up to a wider user base, integrating them with other applications and making them as intuitive and attractive as any other web application.

Improve security and agility- harness your mainframe's power today.

Product/service information

Flynet provides pure web, zero client terminal emulation. There is no software, applets or plugins required on the access devices; simple browse to the URL and start using your mainframe applications.

Flynet Viewer can then be used to enhance your access experience, using the no-code toolset you can modernise each screen to look indistinguishable from your modern web apps in under five minutes. You can also easily concatenate screens, while preserving logic.

Flynet Viewer can also be used to automate the flow through applications with the use of web services. Using Flynet Viewer web services can be built against mainframe applications in under twenty minutes per service, without hand writing any code.

Try Flynet Viewer for days.

Forecross Corporation**Address:**

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Phone: +1 (415) 543-1515

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Web: www.forecross.com.

Sales contacts:

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EMEA info-EMEA@forecross.com

AsiaPac info-AP@forecross.com

Activity: Software vendor

Specialist areas: Data management; Web integration and legacy reengineering tools, other

Mainframe platforms supported: z/OS, VM/VSE, Linux on Z

Non-mainframe platforms supported: Cloud

Pricing options: One-time charge,

Company profile

<https://www.forecross.com/history.html>

Founded in 1982, Forecross Corporation started as a high-technology company developing innovative software to accelerate the creation of business programs for the financial services industry. Over time, Forecross added products to support database transformations from non-relational databases into DB2 and most relational databases in use today. Although early clients were primarily large financial corporations and government agencies, we gained an excellent reputation by also developing language translation software for technology companies such as IBM, Cincom Systems and Fujitsu, and partnering with systems integrators such as Accenture and Price Waterhouse Coopers. In 1982, our goal was to create the best automated migration software possible and we accomplished that goal many years ago. But our story isn't over as we continue to learn from our completed projects and the special requests of our clients, creating sophisticated, automated solutions that are custom-tailored to fit each client's unique situation and goals.

Product/service information

Forecross Corporation is a leading authority on the development and use of automated legacy modernization software and services for Enterprise computing. Our legacy-to-web solutions protect the value of existing applications, leverage the business intelligence those applications contain, and promote their evolution to future-ready platforms and technologies.

The Convert product line includes:

Database Platforms:

- Convert/IDMS-DB to DB2, Oracle or MS SQL Server
- Convert/VSAM to DB2, Oracle or MS SQL Server

Languages:

- Convert/ADSO to COBOL
- Convert/CSP to COBOL
- Convert/UFO to COBOL

User Interfaces:

- Convert/IDMS-DC to CICS

Partnerships with Systems Integrators:

Forecross works directly with our clients and with systems integrators to provide the most complete solutions available. We have partnered with Accenture, PWC and IBM Global Services among others.

Custom Translator Development:

Forecross has the expertise to develop custom solutions to address the needs of our clients, even when it includes modernizing unusual legacy languages.

Forecross clients include Fortune 500 companies in industries such as banking, finance, publishing and higher education, as well as government agencies, in the United States and worldwide..

Fujitsu Technology Solutions GmbH

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Phone: +49-(0)89 62060-0.

Email: bs2marketing@ts.fujitsu.com.

Web: <https://www.fujitsu.com/emeia/BS2000>

Activity: Hardware vendor.

Specialist areas: System management; data management; storage management; asset and change management; security; web integration and legacy reengineering tools; network performance/management, other.

Mainframe platforms supported: z/OS, VM/VSE, Linux on Z

Non-mainframe platforms supported: IBM i, AIX

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Company profile

Fujitsu's purpose is to make the world more sustainable by building trust in society through innovation. To fulfill the Fujitsu Group Purpose, we will enhance our ability to stay in tune with global society, while continuing to make agile changes, and creating value. We offer a broad range of

products, services and solutions, and have approximately 130,000 employees supporting customers in 180 countries. Fujitsu Limited (TSE:6702) reported consolidated revenues of 3.6 trillion yen (US\$34 billion) for the fiscal year ended March 31, 2021. For more information, please see www.fujitsu.com

Product/service information

The BS2000 SE Infrastructure combines standard mainframe technology with the technology of the open world. This makes the SE Series the optimal platform for running business-critical applications both on /390 and x86 technology. Customers can select the optimal platform for each application and will thus get the most out of their mainframe investments. With its comprehensive set of functions, the BS2000 mainframe operating system provides the best possible support for existing and new IT infrastructures, enabling the integration of latest technologies, as e.g. Cloud Computing, AI, Edge Computing, Blockchain and DCMA. With its open interfaces it offers future-proof integration into modern application architectures. The extensive scalability of the BS2000 platform reaches into the very highest performance bands. BS2000 services offer uncompromising availability and operational security for BS2000 systems with utmost profitability and cost transparency. Your IT infrastructure is designed more efficiently and becomes more sustainable for the future as we design and implement intelligent solutions in partnership with you. Fujitsu's Third Party Mainframe Services is specialized in providing a Mainframe Managed Service offering positioned around the support of IBM Enterprise z and i platforms to customers across North West Europe and North America. We are a key provider in the provision of Third Party IBM Mainframe Managed Services and provide end-to end PaaS, in addition to tailored mainframe professional services designed around client TCO improvements. We support customer requests for digital transformation – also supported by our departments "EPS Co-Creation projects", "Application Modernization Services" and our "Fujitsu Training Academy".

Gary Allardyce

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Activity: Consultant

Specialist areas: Programming/testing; web integration and legacy reengineering tools;

Mainframe platforms supported: z/OS, VM/VSE, Linux on Z

Non-mainframe platforms supported: Windows

Pricing options: Other

Company profile

Mainframe software development and re-engineering.

Product/service information

Mainframe software development and re-engineering.

Cobol, Assembler, JCL, CICS, DB2, VSAM.

H&W Computer Systems

Address:

6154 N Meeker Place, Suite 100, Boise, ID 83713, USA

Phone: 800-338-6692

Email: webtrack@hwcs.com

Web: www.hwcs.com

Activity: Software vendor

Specialist areas: System management

Mainframe platforms supported: z/OS, VM/VSE

Non-mainframe platforms supported: Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based.

Company profile

Founded in 1979 in the northwestern United States, H&W Computer Systems started with one product and a driving philosophy of customer satisfaction. Today, H&W provides business software solutions to customers worldwide, including many Global 500 companies. These companies trust H&W to solve both business problems and meet IT needs so they can meet objectives, grow, and better serve their own customers.

Product/service information

H&W's industry-leading SYSB-II is a cost-effective way to use existing VSAM-reliant CICS applications to accommodate business growth without downtime due to batch.

- SYSB-II allows CICS and batch to have concurrent access to VSAM files, so users have full read/write access to CICS 24/y, even during batch.
- Users have access to VSAM data being updated closer to real time, so they don't have to wait for overnight changes or rely on "point in time" data, and they can finish crucial tasks sooner.

SYSB-II doesn't require application source-code changes, data migration, or rearchitecting the existing IT infrastructure.

H&W has also recently announced the BoxScore II capacity assessment software developed with mainframe expert Cheryl Watson. It's the only independent solution capacity and performance planners can use to:

- Verify the value of new hardware and software against an actual workload mix, ensuring correct usage calculations and resulting in significant potential savings.
- Review performance weekly to find issues configuration changes caused before they result in a premature need for capacity or excess charges on workload-licensing bills.
- Compare performance of actual workload mixes on a new and old CPU to calculate fair normalization for chargeback.

BoxScore II finds steadily growing performance issues, which performance management and capacity management solutions can't.

Heitech Managed Services Sdn Bhd

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40150 Shah Alam, Selngor Darul Ehsan, Malaysia

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Activity: System integrator

Specialist areas: System management; data management; storage management; programming/testing; web integration and legacy reengineering tools; network performance/management

Mainframe platforms supported: z/OS, VM/VSE, zLinux

Non-mainframe platforms supported: IBM i, AIX, other Unix, Linux, Windows

Pricing options: One-time charge, processor/capacity-based, workload/usage based.

Company profile

HeiTech Managed Services, a subsidiary of a HeiTech Padu Berhad (public listed), is providing services in area of Data Centre, Network, Disaster Recovery and Cloud Computing. We have a Call Centre that complement our offering. HeiTech Padu itself (parent company) is focusing on System Integration business, developing applications on COBOL, C/C++, Java, on mainframe and non-mainframe platform.

We have been the IBM Mainframe market leader since the 80's. Our major customers ranges from Financial and Government such as National Unit Trust Board, Inland Revenue Board, Immigration, Road Transport, National Registration.

We are also a Strategic and Authorized Service Partner to most mainframe vendors such as EMC, Hitachi, Oracle, IBM, Novell, CA Technologies and Red Hat.

Product/service information

We have established a pool of experienced engineers to support the mainframe. We provide services in areas of:

- Sizing and Designing a Mainframe setup
- Operating System upgrades and maintenance (z/OS, z/VM, zLinux)
- Storage Management
- Disaster Recovery
- Database Management
- Operation and Workload Automation
- L1 & L2 Mainframe support.

Hexaware Technologies

Address:

H5, Sipcot IT Park, Navallur Post, Kancheepuram District Chennai, Tamil Nadu 603103, India

Phone: 044 4745 1000

Web: hexaware.com

Activity: Consultancy

Specialist areas: System management; data management; programming/testing; other

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: AIX, other Unix, Linux

Pricing options: Other

Company profile

Hexaware is a global provider of IT and Process outsourcing services. We focus exclusively on maximizing client returns from outsourcing and off-shoring. We have extensive experience in managing large IT applications in real time as well as in providing high value services around packaged enterprise applications such as SAP and PeopleSoft.

I/S Management Strategies

Address:

4942 N Hollywood Avenue, Whitefish Bay, WI 53217, USA

Phone: +1 414 332-3062

Email: al@sherkow.com

Web: www.sherkow.com

Activity: Consultant

Specialist areas: System management

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license, other

Company profile

Al Sherkow is a capacity planning and performance consultant at I/S Management Strategies and author of the LPAR Capacity and Software Usage Analysis Tool (LCS). Al is a recognized industry expert regarding the configuration and planning of processors and PR/SM and IBM mainframe Workload License Charges, and has worked with many companies around the globe to help them reduce mainframe costs through efficient capacity and licensing strategies. As principal of I/S Management Strategies, Al has been helping clients since 1988 and is a regular presenter at industry conferences. I/S Management Strategies is a System z Development Partner of IBM and we are also affiliated with IBM's IT Analyst Relations.

Product/service information

The LPAR Capacity and Software Usage Analysis (LCS) Software is the only tool available to assist installations in planning for, implementing, monitoring and leveraging IBM's Workload License Charges (WLC). LCS reads your SMF data and prepares interactive reports that can help you decrease your IBM software charges month after month. LCS is truly unique. No other tool is available that combines information about your licensed software products, analysis of utilization data, and prices to provide near real-time estimates of your software charges. LCS allows sites to "tune" their IBM monthly software invoices!

Large and small sites have licensed LCS throughout the USA and the world (Australia, Canada, the Netherlands, Switzerland, Turkey, and the United Kingdom).

IBA Group

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Web: www.ibagroupit.com

Sales contacts:

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EMEA: aburak@ibagroup.eu

Activity: Software vendor.

Specialist areas: Data management; storage management; asset and change management; programming/testing; web integration and legacy reengineering tools.

Mainframe platforms supported: z/OS, VM/VSE, Linux
Non-mainframe platforms supported: i5, AIX, other Unix, Linux, Windows
Pricing options: Other

Company profile

IBA Group is one of the largest IT service providers in Eastern Europe, performing software development, migration, maintenance, support, and IT consulting services with 3,000 IT and business professionals.

Headquartered in Prague, Czech Republic, IBA Group has offices and development centers in the United States, Germany, Czech Republic, Belarus, South Africa, Cyprus, Russia, Ukraine, Kazakhstan, Slovakia, and Bulgaria. IBA Group focuses on mainframe systems, enterprise and web applications, SAP solutions, and intelligent automation, as well as IoT and RPA / ML / AI technologies.

IAOP recognizes IBA Group as one of The Global Outsourcing 100 in the Leaders category.

IBA Group is a winner of IT Europa's European IT & Software Excellence Awards and of GSA Awards by the Global Sourcing Association.

For more information, visit <http://ibagroupit.com>.

Product/service information

SERVICES

- Full-cycle system installation, configuration, and administration
- Remote production support, 24/7, and disaster recovery
- System, database, and application performance optimization
- Development of multiplatform enterprise solutions
- Data integration, warehousing, and ETL
- Migration of business applications and databases
- Transformation of Green screen applications to web GUI
- SOA, BPM, and Cloud enablement

SOFTWARE EXPERTISE

- z/OS, z/Linux, BS2000/OSD
- SMP/E, TWS, SCLM, IMS, CICS, IBM GDPS
- Assembler, PL/X, PL/I, Cobol
- DB2, OMEGAMON XE
- IBM InfoSphere DataStage
- IBM WebSphere AS, MQ
- IDz, CA Gen, EGL
- HATS, JavaScript, HTML
- Java, C/C++, IBM BPM

TEAM

- 400+ mainframe specialists
- 50+ mainframe-related certificates.

Ikan Development NV

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Phone: +3215797306

Email: rene.devleeschauwer@ikan.be

Web: <https://www.ikanalm.com/>

Activity: Software vendor.

Specialist areas: Other.

Mainframe platforms supported: z/OS, Linux

Non-mainframe platforms supported: i5, AIX, other Unix, Linux, Windows, Other

Pricing options: Monthly/annual license, other

Company profile

We are a Belgian company, originated in 1989, with a focus on software development tools. In 2004 we started developing IKAN ALM, a DevOps framework aimed at software development companies looking for a highly customizable and platform-independent DevOps solution.

Our clients are mainly enterprises who need a solution to control multiple programming environments, which supports a wide range of tools and which is able to standardize the workflow of their different teams. Their complex development processes require a single point of control, toolchain orchestration and transparency.

With our expertise (we're a development company ourselves!) and framework we have helped various companies to automate and control anything they want.

Our goal is to make releasing software a worry-free experience for everyone.

Product/service information

Modernization for z/OS mainframes (DevOps, CI/CD) Mainframes are a vital part of today's software ecosystem, alongside mobile -and web applications. The digital world expects agility, Continuous Integration and Continuous Deployment. IKAN ALM brings the same agility to the mainframe while leaving the vital z/OS compile and promote processes intact.

Contemporary versioning with Git or Subversion, safeguards your code and makes parallel development and the use of modern IDE's possible Automated Compile JCL's are generated. We run the job, collect the compile listing and load modules in an archive. Automated Promote (Deploy) JCL's are generated. JCL steps are available for DB2 binds, running test software,

CICS updates,...

Optional approvals can be added Promote (Deploy) jobs.

Languages support:
Assembler, COBOL, PL/1, 4GL's, IDMS ADSO.

Databases support:
vsam, ims, db2, Datacom, IDMS,...

Tools support:
BMC, Compuware, IBM, ASG,...

Illustro Systems International

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75207, USA.

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Email: info@illustro.com

Web: www.illustro.com

Activity: Software vendor.

Specialist areas: Web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, VM/VSE

Pricing options: One-time charge, monthly/annual license, workload/usage-based

Company profile

illustro Systems focus on delivering software solutions that empower today's mainframe customer to lead the way with innovation.

We believe that web-enabling mainframe applications should mean return on investment in hours, not months. And our z/Web-Host product provides just that. And with the rapidly emerging standard of SOA and using Web Services and XML as the method of exchanging data between computers, our z/XML-Host product delivers a powerful yet simple solution. Our customers have their Internet-enabling projects in production in the same time it takes just to evaluate competitive solutions.

Product/service information

illustro's z/Ware family of products have earned the reputation of being easy. The z/Web-Host product transforms any 3270 application, whether CICS or non-CICS, directly into a fully functional, web-based interface that anyone can use – all without touching the original application. And with z/XML-Host, mainframe data can be automatically converted into XML documents and accessed via Web Services using SOAP, meaning your data and business-critical logic can be shared with any platform or application. This includes languages like Java

and .Net, or Web-Services-enabled platforms including IBM's WebSphere and Microsoft Office.

What's more, both z/Web-Host and z/XML-Host run directly on either z/OS (OS/390) or z/VSE (VSE/ESA), so there's no need to add cost and complexity to the process by using a different, less reliable platform just to Internet-enable your mainframe.

And now that your mainframe data can easily be made available on the 'Net, security is an important issue. That's where our iCYA network appliance comes in. The iCYA delivers full Secure Sockets Layer (SSL) protection so your data is encrypted until it reaches a trusted source.

Imperva

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Web: imperva.com

Sales contacts:

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EMEA: +44 (0)1628 511311

Activity: Software vendor.

Specialist areas: Security

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license, processor/capacity-based

Informatica Corporation

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Email: ukinfo@informatica.com

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Sales contacts:

America: +1 (888) 635-0899

EMEA: +44 (0)1628 511311

Activity: Software vendor.

Specialist areas: Data Integration; web integration and legacy reengineering tools; Data Privacy; other

Mainframe platforms supported: z/OS, Linux on IBM Z
Non-mainframe platforms supported: AIX, other Unix, Linux, Windows, IBM i
Pricing options: One-time charge, monthly/annual license

Company profile

Informatica Corporation (NASDAQ: INFA) is the world's number one independent provider of data integration software. With over 3,000 employees distributed in over 28 countries around the globe, Organisations can rely on Informatica to realise their information potential and drive top business imperatives. Worldwide over 5,000 Enterprises already depend on Informatica to fully leverage their information assets from devices to mobile to social to big data residing on-premise, in the Cloud and across social networks.

Product/service information

Informatica's PowerExchange products enable data connectivity to many of the commonly used mainframe (z/OS & iSeries) data sources e.g. DB2, IMS, Adabas etc. Data can be delivered according to the demands of the consuming applications; offering data extractions in either complete batch-type accesses or "delta" updates from previous extractions delivered in Real-Time. Couple the connectivity to Informatica's world renowned data integration products and Enterprises will quickly see reward from any Informatica deployments.

With Informatica's PowerCenter ability to run on the IBM mainframe Linux on IBM Z platform Enterprises can, if required, build fully centric, mainframe based data integration environments, on possibly the world's most resilient and reliable data processing architecture. PowerCenter for z/Linux leverages the business-critical aspects of mainframe computing while providing the same time-to-value and cost-of-ownership advantages that PowerCenter brings to non-mainframe environments via its inherent "Map-Once deploy anywhere" Vibe powered architecture. Informatica also integrally supports the needs of the modern Enterprise by providing other industry recognised (Forrester, Gartner etc.) technology products used for Data Masking, Application Life Cycle Data Management, Data Quality, Data Replication as well as a complete and comprehensive Master Data Management capability. Using Informatica can help enterprises extend the value of their mainframe investments with near-universal mainframe access and a holistic view of enterprise information, while maximizing the reliability and reducing the costs of data integration processing.

Informatica not only enables a performing and cost effective data integration platform but can also help architect and implement an Enterprises solution by providing skilled resources either via its own highly skilled and trained Professional Services network or via its ECO

system of Systems Integrators and Partners. Whatever the need for Data Integration, Informatica has both the solution and the skill to help Enterprises succeed. For more information around the Informatica products portfolio please refer to the Informatica Website.

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Email: sales@itconline.com

Web: www.itconline.com

Sales contacts:

AsiaPac: Contactname: Stan H King

Contactemail: sking@itconline.com

Activity: Hardware

Specialist areas: Pogramming/testing; web integration and legacy reengineering tools; other.

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z

Non-mainframe platforms supported: IBM i

Pricing options: One-time charge, other

Company profile

ITC has been an IBM Business Partner and OEM since 1993 and has two main divisions: Technology and Cyber Security.

ITC has offices in the USA, UK, and Germany, and supports a customer base that includes International, US Federal, Municipal and Commercial industries. ITC is a Federal 8(a) Stars program participant, and a FedRAMP/ StateRAMP certified 3PAO.

Our Technology Division supports a full range of Z emulation products and services. Beginning with the IBM P370 and P390 technologies and now using IBM zPDT and zDT, our fully supported Z customized servers are available worldwide for Application Development, Testing and Training. Our zPDT, uPDT and zKey products our installed at over 400 organizations.

The Cyber Security Division provides IT security analysis and certification services that include FISMA, FedRAMP and StateRAMP segments. Our Cloud support encompasses the Federal and State Cloud space with a full-range of Third-Party Accreditation and consulting services.

Turn your legacy into a legend™



ff

Founded in 1993, ITC is the exclusive solution leader for IBM Z Emulation, with over three decades of expertise and 430+ installations worldwide. As a dedicated IBM Business Partner, ITC is the only zPDT/zDT vendor delivering complete solutions for on-premises servers, cloud ready-to-run images, or hosting in our new Tier III dedicated datacenter.

Our lab facility includes multiple Z mainframes, Z emulation servers, and an extensive selection of Z peripherals for customer demos, testing, and performance modeling.

ITC is a certified FedRAMP 3PAO providing cyber security services focusing on Z.

ITC offices are located in the US, UK, and Germany. ITC has an export license and can ship worldwide.



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SBA 8(a) Certified, FedRAMP 3PAO, ISO/IEC 17020:2012 Accredited, CMMC RPO, StateRAMP Registered Assessor, 8(a) STARS III Industry Partner



Product/service information

ITC offers a full-range of hardware and software solutions for the IBM Z Application Development community. Based on the IBM zPDT and zDT technology our highly-customized servers provide mainframe similar RAS features for ISV and commercial developers. As the exclusive worldwide distributor of zPDT for the ISV community we offer developers fully configured, ready-to-run out of the box solutions for zOS, zVM, zVSE, zTPF and zLinux. Covered by world-class hardware field service and comprehensive 24x7 Technical Support in all geographies.

The ITC Ultimate Personal Development Tool (uPDT) product line offers a rack-mount solution that provides up to 400TB of all-SSD Z logical volume storage with up to

500GB of Z memory, multiple network stacks, fiber channel connections for 3592 legacy tape support, complete remote-control capabilities, CallHome™ diagnostics, and a user-friendly GUI desktop with Service Element Tools & Utilities.

In addition to offering on-prem solutions for APPDEV, ITC also offers Cloud images for AWS, Azure and Google environments that have the same look and feel as the ITC uPDT servers GUI desktop, with consistent user-friendly operation. As a companion to cloud implementations ITC offers zKEY™, a small License Key Server that provides geographically agnostic zPDT/zDT license administration for multiple cloud instances.

Inspired Solutions (Software) Ltd**Address:**

208, Moor Lane, Salford M7 3PZ, UK.

Phone:+44 (0) 161 7926540

Email: info@inspired-solutions.co.uk

Web: inspired-solutions.co.uk

Activity: Software vendor

Specialist areas: System management; data management; asset and change management; other

Mainframe platforms supported: z/OS ,VM/VSE, Linux

Non-mainframe platforms supported: Other Unix, Linux, Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other

Company profile

Save Money on the Mainframe

Inspired Solutions and Blenheim Software work together to distribute software in the UK and Ireland. Our cost-effective software covers many of the most important areas in the data centre for both mainframe and distributed platforms.

Several of the tools and software we supply are either the *de facto* standard for their area, or soon will be.

Product/service information

As well as performance management and capacity planning tools, we also provide XINFO, the data centre repository; tools for TWS for zOS (OPC) and Distributed ; JCL Checking; CICS, VSAM, VTAM, and developers' tools, DB2 tools, utilities and tuning for zOS & distributed.

More details at our partners websites:

Enterprise Performance Vision for Performance & Capacity Planning - www.epvtech.com

Horizont GmbH for TWS Products - www.horizont-it.com

MacKinney for CICS, VSAM, VTAM Products - www.mackinney.com

Responsive Systems for DB2 Buffer Pool Tuning - www.responsivesystems.com

Relational Architects International and Insoft Software for DB2 tools - www.relarc.com

ITGain for UDB DB2 products - www.itgain.de

InSoft for DB2 tools - www.insoft-software.de.

IntelliMagic**Address:**

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2311 SZ Leiden, The Netherlands

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Email: info@intellimagic.com

Web: www.intellimagic.com

Sales contacts:

America: +1-214-432-7920.

EMEA: +49-821-660-118-118

Activity: Software vendor

Specialist areas: System management; storage management; network performance/management.

Mainframe platforms supported: z/OS

Pricing options: Monthly/annual license, workload/usage based

Company profile

IntelliMagic delivers its solutions to Fortune 500 companies and some of the world's largest IT datacenters. IntelliMagic Vision for z/OS unlocks the full potential of mainframe infrastructure performance and configuration data by automatically applying z/OS-aware expert knowledge. Its modernized, intelligent interpretation detects risks before they impact production, uncovers true root causes, and identifies optimization opportunities. Ultimately, this enables a higher level of application service reliability at optimal cost.

Product/service information

IntelliMagic Vision's AI-driven analytics enables z/OS experts to proactively monitor and manage their end-to-end z/OS environment, prevent disruptions, optimize performance, improve support for new applications, reduce software costs, eliminate unnecessary hardware purchases, and preserve the reliability and availability that mainframes are known for.

IntelliMagic Vision enhances the RMF and SMF data and applies its built-in knowledge to understand how the z/OS architecture handles workloads. This helps to tune z/OS to improve performance and protect availability, and can also help tuning the processor configuration to increase the MIPS of the mainframe hardware.

Using its expert built-in analytics, IntelliMagic Vision provides an early warning system that automatically identifies issues to service availability before they occur, so performance analysts can quickly and easily prevent performance issues

INTERCHIP AG**Address:**

Elektrastrasse 6, 81925 Munich, Germany.

Phone: +49 89 991 4990

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Web: www.interchip-software.com/.

Sales contacts:

Worldwide: +49 89 991 4990

Activity: Software vendor.

Specialist areas: Storage management.

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Company profile

INTERCHIP AG, with international headquarters based in Munich, Germany, was founded in 1987.

The company is privately held and provides enterprise-wide, multi-platform solutions for the optimization of complex IT environments.

In addition to representing selected software companies in Germany, Switzerland and Austria, INTERCHIP AG develops its own market-leading products. INTERCHIP AG's flagship product suite, RealTime Defrag (RTD), is currently in daily use at many of the largest banks, insurance companies, industries and government agencies worldwide.

INTERCHIP AG products are marketed by an international network of qualified business partners.

Product/service information

RealTime Defrag (RTD) is a proven product suite in use since 1995 that eliminates DASD fragmentation and the need for over-allocation of disk space thereby avoiding x37 abends and out-of-space conditions. Running continuously and efficiently 24x7 in the background, RTD quickly reorganizes disk volumes, recovering available storage space and eliminating file and DASD fragmentation. Unlike standard operating system utilities, no batch or weekend maintenance jobs are needed.

Disk storage waste caused by over-allocation is eliminated since volumes are continuously and automatically groomed. RTD can be customized to meet your defragmentation needs through a variety of parameters that take effect immediately. RTD includes full support for the latest level of the operating system (z/OS) and DASD hardware environments. Additional options are available to support FlashCopy Version 2, Preserve Mirror (Remote Pair FlashCopy) as well as Remote Pair FlashCopy for zGlobal Mirror (zGM or XRC).

The RTD Suite currently includes the following software solutions:

- RealTime Defrag for z/OS (RTD/zOS) for processing non-Db2 volumes under z/OS
- RealTime Defrag for Db2 (RTD/Db2) for processing Db2 volumes under z/OS .

Interskill Learning**Address:**

11770 Haynes Bridge Road, Suite 205 PMB 526, Alpharetta, GA 30009-1970, USA.

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Web: www.interskill.com

Sales contacts:

EMEA: +44 1625 441120

AsiaPac: +61 3 8796 8400,

Activity: Education

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management; other

Mainframe platforms supported: z/OS ,VM/VSE, Linux on System z

Non-mainframe platforms supported: IBM i, AIX, Unix, Linux

Pricing options: Monthly/annual license

Company profile

Interskill Learning develops and delivers the global Mainframe Computing Industry's ONLY comprehensive curriculum of self-paced elearning! Our learning designs are informed by contemporary learning theory and are interactive, contextualized and responsive to diverse learning styles. We believe in immersing learners in relevant authentic activities designed to motivate, engage, and produce quantifiable change. Utilized by Thousands of Mainframe Computing Organizations. Over a Million Mainframers Trained!

Product/service information

Interskill's broad spectrum, Mainframe Specific curriculum of self-paced elearning courses gives your Mainframe Computing Workforce 12 months unlimited access to over 250 online IBM z Systems and Power Systems courses, to mainframe job-role based Learning Road Maps, to Mainframe Skills Assessments, to Training Analytics & Reporting, and to Tools for quick & easy development of your own in-house mainframe Classes/Webinars. This

21st century mainframe training solution delivers superior quality training and dramatically cuts training costs for the world's premier mainframe computing organizations! Over a Million Mainframers Trained! Hundreds of Millions of Dollars Saved!

ISAM (Information Systems Asset Management)

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Phone: +1 952 322 4726

Email: mswanson@isamgroup.com

Web: www.isamgroup.com

Activity: Consultant.

Specialist areas: Other

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Windows

Pricing options: Other,

Company profile

Founded in 1996, ISAM specializes in helping procurement, vendor management, and data center managers manage software expenses and license compliance risk. GreenBook, the software industry's largest and most comprehensive database by ISAM contains more than 100 million software cost, product usage and categorization data points from over 900 software vendors across 1,000 data centers worldwide. Armed with the knowledge of industry software benchmarks, GreenBookSM provides the backbone for numerous applications to guide data centers to best in class software licensing and costs.

Product/service information

IBM Audit support, Software Cost Benchmarks, Vendor Negotiation support, Data Center Optimization.

ISI Pty Ltd

Address:

Level 1, 645 Harris Street, Ultimo, New South Wales 2007, Australia

Phone: +61 2 8905 8900

Email: info@isi.com.au

Web: www.isi.com.au

Activity: Integrator

Specialist areas: System management; storage management

Mainframe platforms supported: z/OS, Linux on IBM Z

Non-mainframe platforms supported: AIX, distributed Linux, Windows

Company profile

ISI is one of the most successful and enduring IT players in the Australian business sector. With a focus on outcomes, our success stems from a company-wide commitment to fulfilling customer needs and leveraging new technologies.

In 1995, ISI became the first IBM zSeries reseller in Australia and New Zealand. Today we remain the only IBM Premier Partner operating in the System z market and is at the forefront of the next wave of 'Large Scale Server Deployments' utilising Open Systems on System z – the most reliable, scalable and cost effective 'Business Class' computing platform in the world. ISI also sells and supports the complete range of IBM products including Power and System x Servers, software, storage and support services.

iTech-Ed Ltd

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Phone: +44 1249 443256.

Email: trevor@itech-ed.com.

Web: itech-ed.com.

Activity: Consultant.

Specialist areas: System management; data management; storage management; asset and change management; security; web integration and legacy reengineering tools; network performance/management; other

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Windows

Company profile

iTech-Ed Ltd provides specialist IT consultancy, writing, and editing services. In addition it can provide technical education and training, Web design, social media expertise, as well as personal development sessions. We have experience with SharePoint and Microsoft 365, communications, as well as mainframes..

CEO Trevor Eddolls' work in the mainframe community has been recognized and was awarded the prestigious title of IBM Champion every year between 2009 and 2021.

ITMetrics Ltd

Address:

45 Lynwood Grove, Orpington, Kent, BR6 0BQ UK

Phone: +44 (0) 203 289 8773**Email:** support@itmetrics.com**Web:** www.itmetrics.com**Activity:** Consultant**Specialist areas:** System management; data management; asset and change management; programming/testing.**Mainframe platforms supported:** z/OS**Non-mainframe platforms supported:** Linux, Windows**Pricing options:** Other**Company profile**

TMetrics has provided z/OS technical development, systems programming and application support to Sites worldwide since 1992.

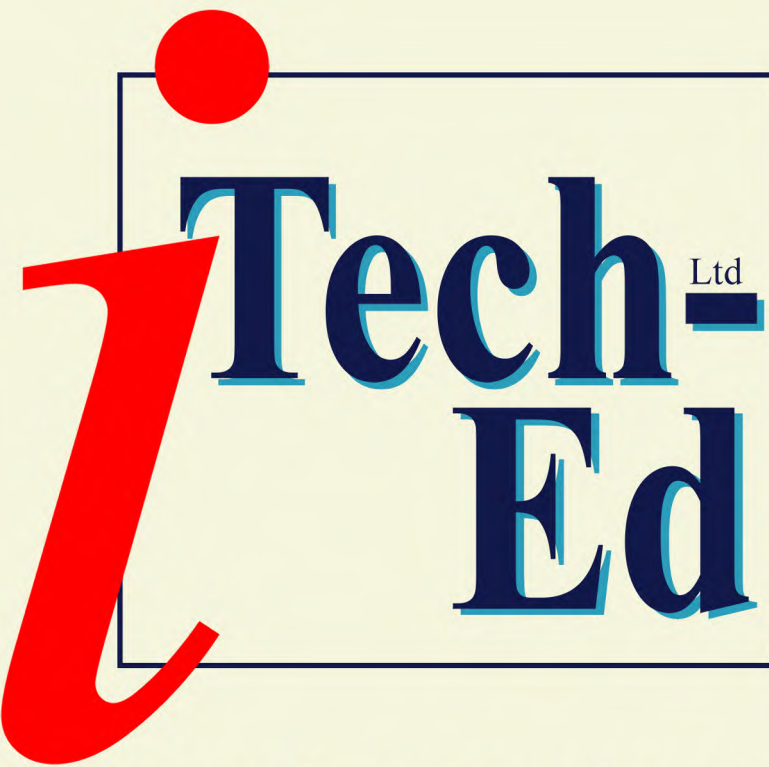
We have 30 years of experience to exploit to help z/OS Sites, using our proprietary tools, to discover and quantify the use of SAS Software to support initiatives to reduce operating and license costs, increase operational efficiencies, optimise the environment, migrate to other compatible products such as WPS/SLC, migrate to other operating system platforms or languages such as Python. We are certified WPS Consultants, have products listed in IBM's Global Solutions Directory, have worked with Kyndryl, are experienced with MXG and MICS and have presented at conferences/user groups on these subjects.

Product/service information

TMetrics provides services such as:

"Discovery" - we determine, using our proprietary tools, all the resources and components that make up a z/OS SAS "estate"; such as Workloads, Applications, Users, JCL, SAS programs, z/OS data/DBMS, SAS product/language usage, SAS data/objects and resource usage (CPU, I/Os etc).

"Analysis" - we analyse all the discovery data to create detailed recommendations and plans for optimisation, cost reduction or migration to other software or operating platforms.



Specialist for IT consultancy, analysis, writing, editing, and social media services.

<https://itech-ed.com>

Popular articles and blogs can be found at <https://mainframeupdate.blogspot.com/>. Others can be found on the TechChannel website and Planet Mainframe.

In 2021 and 2022, Trevor spoke at the GSE UK Conference on mainframe security and ransomware.

iTech-Ed Ltd produces the Arcati Mainframe Yearbook. Trevor also runs and chairs the Virtual IMS user group, the Virtual CICS user group, and the Virtual Db2 user group.

"Delivery" - we can deliver all the recommendations and migrations, according to the plans to support the initiatives.

"Development" - we can develop and support programs (in SAS, REXX, Assembler, ISPF and Python) to support Applications, z/OS System exits and SAS/WPS functionality.

"Consultancy" - we can discuss, guide and assist you in the delivery of your projects to achieve your objectives.

Jazz Software

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Email: Robert@jazzsoftware.co.nz

Web: <https://jazzsoftware.co.nz>

Activity: Software vendor

Specialist areas: Programming/testing

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license

Company profile

Jazz Software Ltd develops and markets MANASYS Jazz, an advanced programming system described below. Our objective is to create a strong market for this unique product, through both direct marketing and agency relationships around the world.

Product/service information

MANASYS Jazz is an advanced programming system that generates COBOL programs - batch, classical CICS, and CICS Web Services - for mainframes (actual zOS and Micro Focus), and related C# client interfaces. Programs are easily generated from data definitions and dialogs, with loc productivity ratios from 20:1 to 100:1.

Key Resources Inc

Address:

36467 S. Nathan Hale Drive, Lake Villa, IL 60046, USA

Phone: 800-574-1339

Email: cynthia.overby@krisecurity.com

Web: www.krisecurity.com

Activity: Software vendor

Specialist areas: Security

Mainframe platforms supported: z/OS

Pricing options: Monthly/annual license

Company profile

KRI was founded in 1988 to provide mainframe security consulting services to Fortune 500 and government institutions.

KRI is a leading provider of mainframe information security services and software. We have the highest levels of expertise in consulting with clients on how to apply and implement security standards and best practices for z/OS Security Server, as well as in evaluating operational security policies.

The benefit to KRI clients is maximized by the profound technical knowledge and long-standing IT security background of our team. Our team is comprised of individuals who know z/OS. We are technologists with years of experience in mainframe operating system internals, enterprise architecture, and we have extensive experience with mainframe ESMs (RACF, CA ACF2, and CA Top Secret). The Key Resources Team understands how hackers think, we understand the security risks that threaten z Systems, and we know how to mitigate those risks at in-depth levels of the operating system using our knowledge and our sophisticated software to find zero-day vulnerabilities.

Product/service information

z/Assure® Vulnerability Analysis Program (VAP) is the only security software product that scans for and identifies zero-day vulnerabilities in mainframe operating system (OS) code. z/Assure® VAP is a crucial component to a complete mainframe risk mitigation program.

z/Assure® Compliance Assessment Manager (CAM) automates the review of z/OS Security Server configurations against global standards and organizational internal policies. CAM enables an organization to demonstrate compliance to their security policy through baselining.

z/Assure® SCU4ACF2 and SCU4TSS provide migration automation from CA ACF2 and CA Top Secret to RACF. Using proprietary algorithms and a flexible methodology KRI provides complete migration services from assessments, planning, to migrating each LPAR or SYSPLEX from CA ACF2 or CA TSS to RACF.

STRENGTHEN YOUR MAINFRAME SECURITY STRATEGY

Mainframe vulnerability scanning gives your business the added layer of protection it deserves. Stand up to cybersecurity threats with a modern mainframe strategy that won't let you down. Keep your most important IT systems safe with Key Resources.

LEARN MORE AT KRISecurity.com



KRI's Integrity Assessment Services (IAS) focus on the vulnerability of the mainframe operating system. z/Assure VAP is the primary vehicle for this type of assessment. Our services help companies rapidly identify and remediate critical zero-day vulnerabilities and build disconnected security processes into ongoing, policy-based governance.

KRI's Compliance Assessment Services (CAS) provide a proven and tested methodology for assessing ESM environments against current security standards and internal security policies. This service focuses on the security of the ESM and the security configuration parameters.

L3C Ltd

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25 Sackville Street, London W1S 3AX, UK

Phone: +44 0203 542 0870.

Email: info@l3c.co.uk

Web: l3c.cloud

Activity: Outsourcer

Specialist areas: Web integration and legacy reengineering tools; other

Mainframe platforms supported: Linux
Non-mainframe platforms supported: IBM i, AIX, distributed Unix, Linux, Windows

Company profile

L3C Limited specialise in cloud/hosting AIX, Unix (Solaris, HPUX), Linux and Linux on Z environments from our UK data centres. We can provide short term solutions for PoCs as well as dev/test. DR and production environments all supported by strong SLAs and 24x7 service desk. We connect to public clouds such as AWS and Azure giving you a hybrid solution. Our blockchain and Linux experience makes us an ideal choice to deploy your blockchain network on LinuxOne systems in our data centres while our heritage in MQ and broker means we can support complex deployments with upgrades, redesign or ongoing maintenance. We are an official IBM Power Cloud partner.

Product/service information

Linux on Z offers significant licence savings for SW with core based pricing methodology such as Oracle DB and IBM Middleware. We can:

- Plan & implement z/VM installations to host Linux on Z
- Plan & implement Linux on Z installations on bare IFLs
- Monitor z/VM and Linux on Z 24x7

IBM MQ and Integration Bus (Message Broker)
 We can design, implement, deploy and maintain Enterprise Service Bus systems based on IBM MQ and IBM Integration Bus (Message Broker).

- Planning and creating an architecture and design of an ESB, from single Queue Manager installation to large heterogeneous systems that include multiple IBM Integration Bus installations, protocols and systems distributed across different locations.
- Implementation of new IBM Integration Bus and IBM MQ installations. Building Highly Available installations using different cluster technologies including Microsoft Cluster Services, Power HA, Linux clustering solutions, and different solutions for Linux on Z.
- Redesign and upgrade of existing IBM Integration Bus and IBM MQ installations including version upgrade of 24x7 production systems and retrofitting DR and HA capabilities.
- Monitoring and maintenance of 24x7 production installations
- Design and development of new Message Flows. Maintenance, redesign, and upgrade of existing Message Flows.

Latuz

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Email: latuz@latuz.com

Web: www.latuz.com

Activity: Consultant

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management.

Mainframe platforms supported: z/OS, VM/VSE, Linux, other

Non-mainframe platforms supported: IBM i, Linux

Pricing options: One-time charge, monthly/annual license

Company profile

We are a mainframe consulting company with headquarters in Miami, FL to provide mainframe services to customers in Latinamerica. We leverage mainframe specialists and skills throughout the region to perform mainframe consulting services as well as hands on software services in our customer's local language. Our offering portfolio covers every and any IBM mainframe operating system, subsystem and application, as our team has over 30 years of experience in this beloved platform.

Product/service information

We provide mainframe consulting and services in the areas of IT architecture, infrastructure management, software deployment and tuning, performance, migrations, application development, DevOps, modernization and digital transformation.

Legacy Software

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Email: sales@legacysoftware.co.uk

Web: https://www.legacysoftware.co.uk/

Sales contacts:**America:** 781-455-0949.**Activity:** Software vendor**Specialist areas:** System management; data management; asset and change management; web integration and legacy reengineering tools.**Mainframe platforms supported:** z/OS**Pricing options:** One-time charge, monthly/annual license**Company profile**

Our history and experience is from the “software bill-of-materials” of a central data dictionary. Objective is to rapidly load the “Directory” with pointers to software artifacts and the relationships across the artifacts. A primary benefit is to scan an entire z/OS software estate into the Q&A Directory.

Product/service information

We extract a “Directory” of software artifacts (programs, COPYbooks, JCL, etc), across an entire z/OS estate, recognizing the relationships across artifacts of 55+ different software languages. Load modules are simply another form of source code to our scanners.

The directory then enables answering impact analysis & provenance questions about relationships & connections across applications.

- “What is this connected to?”
- “What are the artifacts in this application?”
- “What are the boundaries of this application?”

Levi Ray & Shoup Inc

Address:

2401 West Monroe Street, Springfield, Illinois, USA

Phone: 217 793 3800.**Email:** asklrs@lrs.com**Web:** www.lrs.com**Sales contacts:****EMEA:** +44 1242 537500, lrsuk@lrs.com, Regent House, Rodney Road, Cheltenham, Glos, GL50 1HX, UK.**AsiaPac:** lrsjapan@lrs.com.**Activity:** Software vendor**Specialist areas:** System management; security**Mainframe platforms supported:** z/OS, VM/VSE, Linux, other**Non-mainframe platforms supported:** OS/400, AIX, other Unix, Linux, Windows**Pricing options:** One-time charge, monthly/annual license, processor/capacity based, workload/usage based**Company profile**

Since 1981, Levi, Ray & Shoup, Inc. has been providing software solutions that help customers save money, improve business productivity, and provide assured delivery of business-critical documents. Ninety-five percent of the Fortune 100 companies trust LRS solutions to deliver their most critical documents.

Product/service information

VPS and VPS/TCPIP. The VPS software suite manages, monitors and delivers documents to network destinations through the organization. Originally designed for VTAM-controlled SNA networks, LRS added TCP/IP functionality and pioneered the migration of enterprise printing to the TCP/IP network protocol. The VPS solution offers web-based monitoring and control, enabling administrators, operators and end users to control production printing.

VPS/Secure. VPS/Secure offer encrypted distribution of confidential documents from host to printer or host to host. It uses the Advanced Encryption Standard (AES), supporting the exchange of encrypted data between Windows, Unix and z/OS mainframes.

VPS/E Mail. This expands the print distribution channel to include direct email delivery from the host.

VPS/PDF. VPS/PDF provides dynamic conversion of AFP documents to Portable Document Format (PDF) for delivery via email, web or file.

DRS captures, manages and controls documents originating from any platform via the LRS Enterprise Output Server.

DRS/Output Manager. With DRS/Output Manager, SAP R/3 users gain full control over document printing, along with feedback on print status, without leaving the SAP app.

PageCenter. PageCenter archives documents received from VPS for secure viewing with web browsers on multiple platforms.

Logicalis UK

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110 Buckingham Avenue, Slough, Berks SL1 4PF, UK

Phone: +44 (0) 01753 777200**Email:** info@logicalis.com**Web:** www.logicalis.com

Activity: Integrator

Specialist areas: System management; data management; storage management; asset and change management; security; web integration and legacy reengineering tools; network performance/management
Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z

Non-mainframe platforms supported: System i, AIX, other Unix, Linux, Windows

Pricing options: One-time charge, monthly/annual licence, processor/capacity based, workload/usage based

Company profile

Logicalis is an international IT solutions and managed services provider with a breadth of knowledge and expertise in communications and collaboration; data centre and cloud services; and managed services.

Logicalis employs nearly 3,700 people worldwide, including highly trained service specialists who design, specify, deploy and manage complex ICT infrastructures to meet the needs of almost 6,000 corporate and public sector customers. To achieve this, Logicalis maintains strong partnerships with technology leaders such as Cisco, HP, IBM, CA Technologies, NetApp, Microsoft, VMware and ServiceNow.

The Logicalis Group has annualised revenues of \$1.6 billion, from operations in Europe, North America, Latin America and Asia Pacific, and is fast establishing itself as one of the leading IT and Communications solution integrators, specialising in the areas of advanced technologies and services.

The Logicalis Group is a division of Datatec Limited, listed on the Johannesburg and London AIM Stock Exchanges, with revenues of over \$5 billion.

Product/service information

Logicalis are skilled in infrastructure and new workload planning, Linux and Websphere implementations, software migrations, performance and capacity assessments, systems programming, security audits and sub-capacity Workload License Charge (WLC) management. We also provide customised briefings for System z clients. Our pro-active approach to managing risk improves the efficiency of any deployment. Post-implementation, we continue our involvement with customised lifecycle and managed services support.

We assist you in procuring the best in class IBM mainframe hardware and software solutions, and then provide the integration services to roll these into your existing environments and provide insight for future IT planning.

Longpela Expertise

Address:

1 Lilly Street, South Fremantle WA 6162, Australia

Phone: +61 404 757 821

Email: info@longpelaexpertise.com.au

Web: www.longpelaexpertise.com.au

Activity: Consultant

Specialist areas: System management; programming/testing

Mainframe platforms supported: z/OS

Pricing options: Other

Company profile

We have provided mainframe technical and systems programming services since 1992. We help companies with mainframe problems, projects and plans throughout Australia and South Asia. We have over 20 years experience in System z mainframes and related systems software including z/OS, CICS, and IMS.

We also contribute to the mainframe community with free articles on our website, our book "What On Earth is a Mainframe", and the mainframe software website www.lookupmainframesoftware.com.

Product/service information

Longpela Expertise offer three service 'streams':

- 1 Systems services. Our consultants can cover for systems programmers on leave, perform Assembler programming projects, assist with skills such as dump reading and performance analysis, or simply add an extra resource to get a project moving.
- 2 Mainframe Consulting. General Mainframe technical advice to groups such as auditors, managers, and non-mainframe technical people. We can answer your Mainframe questions, provide advice on the mainframe sector, and help you control your project. From a one hour phone call to longer term on-site projects, we can provide an expert to use when and where you need.
- 3 Training. We can provide a mentor for junior systems programmers, perform fast 'Mainframes for Beginners' briefings, or provide other training and assistance you require.

Luminex Software Inc

Address:

871 Marlborough Avenue, Suite 100, Riverside, CA 92507, USA

Phone: +1 951 781 4100.

Email: info@luminex.com

Web: www.luminex.com

Activity: Software vendor.

Specialist areas: System management; storage management; security; programming/testing; network performance/management

Mainframe platforms supported: z/OS, VM/VSE,

Pricing options: One-time charge, monthly/annual license,

Company profile

Luminex serves as a trusted advocate helping enterprise customers protect, manage, and leverage corporate data assets by developing and delivering high quality, innovative technology solutions.

Product/service information

Luminex's focus on the mainframe has led to groundbreaking virtual tape innovations such as VOLSER-level replication monitoring (RepMon™), Push Button DR, CloudTAPE™ and Synchronous Tape Matrix™ (STM) for continuous availability for tape, as well as a comprehensive family of Mainframe Data Integration (MDI) solutions. Luminex MDI is an extensible, profile-based platform that uses trusted, highly available FICON I/O channels to communicate and move data between mainframes and distributed systems including Big Data (data lakes, analytics), NFS storage, SFTP targets, and coprocessors for SAS, MXG, ETL and more. Mainframes can now use the same mainframe I/O channel technology as DASD and tape systems to transfer data more securely, efficiently and faster than TCP/IP-based approaches, while consuming significantly fewer CPU resources and reducing costs. MDI also enables bidirectional workflows to strategically reduce the impacts of "heavy hitter" applications, including the cost of MSUs, licensing and DASD storage, all while maintaining mainframe-centric security and job control.

MackKinney Systems Inc

Address:

4411 East State Highway D, Suite F, Springfield, MO 65809, USA

Phone: +1 417 882 8012

Email: rjenkins@mackinney.com.

Web: www.mackinney.com.

Activity: Software vendor

Specialist areas: System management; data management; asset and change management; security; web integration and legacy reengineering tools; other

Mainframe platforms supported: z/OS, VM/VSE

Pricing options: Monthly/annual license, processor/capacity-based,

Company profile

Since 1980 MacKinney Systems, a member of IBM PartnerWorld and SHARE have been the industry leader in top-quality, low-cost mainframe software. MacKinney products are compatible with all IBM-supported releases of z/OS, VSE, and CICS.

MacKinney Systems have competitively priced software to replace many competitors' software. In addition, our highly applauded support is second to none, delivered by individuals who know the code and have worked in the production environment. 417 882 8012 is answered 24/7 by a live person.

We participate in IBM's Early Test Programs and Technical Disclosure Meetings to ensure our products are compatible with new versions of z/OS, VSE, and CICS as they become generally available from IBM.

Product/service information

CICS upgrade assistance:

- VS/Cobol Interpreter allows programs written and compiled with OS/VS COBOL to execute in CICS Transaction Server 3.1 and above.
- Macro Level Interpreter allows running macro-level code in z/OS or VSE versions of CICS TS environments without coding changes.

Cost-effective printing solutions:

- JES Report Broker manages reports' access, distribution, and archival. Archive reports for viewing via a web browser. Email and FTP reports securely.
- MacKinney Print Transform is a server product that provides document transformation services for client products.
- JES Queue for Printers prints any report from the system spool to printers defined to VTAM or TCP/IP. Supports LPD and Direct Socket. Interfaces with Solimar Systems and Xerox.
- VTAM Virtual Printer captures existing VTAM applications (CICS, IMS, etc.), prints, and creates a report in the system spool without any programming changes.

Simplified program testing and debugging:

- Track is an online testing and debugging product for CICS application programs. Detects and corrects

- multiple errors in a single debugging session.
- XRAY provides the same capabilities for batch applications.
- Dump Detective solves program abends by automatically formatting and analyzing CICS dumps.

Productivity-enhancing tools:

- MacKinney Batch to CICS gets your batch processing on the fast track! Close and open files, dynamically allocate and unallocate files, and send CEMT commands.
- CICS File Availability 24/7 reduces the time VSAM files are unavailable to CICS, providing virtually 24/7 file availability.
- SimpList is a powerful and highly productive mainframe interface that makes ISPF much easier to learn and use.
- VTAM/Switch allows users to switch between VTAM applications without logging on and off and provides single sign-on to applications.

Macro 4

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Web: www.macro4.com

Sales contacts:

America: +1-973-526-3900 market.usa@macro4.com

Activity: Software vendor

Specialist areas: System management; data management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; other..

Mainframe platforms supported: z/OS, VM/VSE,

Non-mainframe platforms supported: IBM i, AIX, Unix, Linux, Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other

Company profile

Macro 4, a division of UNICOM Global, develops software solutions that accelerate business transformation. Our solutions for application lifecycle management, session management, performance optimization and mobile enablement are used by many of the world's largest enterprises to modernize their mainframe applications and development processes.

Our cross-platform enterprise information management solutions make it easy for companies to go digital, personalize customer communications and unlock the value of their corporate content.

With over fifty years' experience in mainframe software development, Macro 4 helps IBM mainframe users to:

- Deliver fast, seamless and secure web and mobile access to mainframe and non-mainframe applications
- Analyze and fix failures in mission-critical applications, quickly and efficiently
- Develop software, troubleshoot problems and resolve program errors with unprecedented speed
- Create a secure testing and debugging environment using accurate test data
- Measure and report on application performance, quickly identifying opportunities for performance improvement
- Assure printing and digital delivery of business documents to support key business processes

Product/service information

Macro 4 is a developer of software solutions that increase operational efficiency in IBM's mainframe environments and enable rapid modernization of mainframe applications and development processes. Today, these solutions are delivering significant cost savings as well as assuring the reliability of core applications in thousands of IT departments globally. Eclipse, web, mobile, VS Code and 3270 interfaces meet the access needs of every user.

Modernization, analytics, AI, integrated user authentication:

- UNICOM Universal Gateway (UniGW®) – cross-platform systems access, mobile enablement and digital transformation

Fault analysis:

- DumpMaster – high performance fault diagnosis of mainframe application failures
- TraceMaster – source level interactive program testing and debugging
- TraceMaster CodeTrack – CICS code path analysis and pre-emptive storage violation detection

Application performance management:

- FreezeFrame – comprehensive, yet easy-to-use application performance measurement
- ExpeTune – performance tuning for z/OS applications and subsystems
- ExpeTune DB – Db2 performance management, with a strong focus on dynamic Db2 workloads

Data Manipulation:

- InSync – simplified data management and secure test data creation

Session management:

- Tubes – secure access to multiple mainframe, IBM i and UNIX VT220 applications from a single menu, with optional web enablement of any application

Enterprise information management:

- Columbus suite – content management, multi-channel customer communications and document workflow..

Mainstorconcept GmbH

Address:

Carl-Metz-Straße 15, 76275 Ettlingen, Germany

Phone: +49 721 790 760

Email: info@mainstorconcept.de

Web: www.mainstorconcept.de

Activity: Consultant

Specialist areas: Storage management; security; programming/testing; web integration and legacy reengineering tools; other.

Mainframe platforms supported: z/OS, VM/VSE

Non-mainframe platforms supported: Unix, Linux

Pricing options: Monthly/annual license, processor/capacity-based, other.

Company profile

mainstorconcept (msc) is an industry-independent solution and integration specialist for mainframes and open-systems, across industries. Our services scale to your IT, whether it be modestly sized environments or large enterprise-level requirements. We support customers with primary and secondary storage acquisition, migration and management, backup and archive concepts as well as inhouse software solutions.

Product/service information

Mainframe services:

- Cloud Backup concepts
- Virtual Tape Library (VTL) Solutions
- z/OS and z/VSE Profesional Services
- Managed Mainframe
- Used Hardware and Maintenance

Mainframe Software:

- z/IRIS - provide mainframe observability support in 3rd party APM tools
- z/RTD - copies virtual tape library data onto physical LTO tapes using NetWorker/DPS

Custom software and system development

Maintec Technologies

Address:

8311 Brier Creek Pkwy, Suite 105 – 513, Raleigh, NC 27617, USA

Phone: +919916707599

Email: rajni.d@maintec.com.

Web: www.maintec.com.

Activity: Outsourcer

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management.

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z

Non-mainframe platforms supported: IBM i, AIX, Linux

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based.

Company profile

Maintec Technologies offers globally compliant IT solutions that empower businesses to become more competitive by leveraging both onsite and offshore capabilities. Based in Raleigh, NC, Maintec Technologies operates Offshore Development Center from Bangalore, India to provide comprehensive Mainframe outsourcing advantages to its clients.

Maintec Technologies works with their clients across the globe to provide cost effective services of the highest quality in the following areas.

- Mainframe Data Center Management
 - Mainframe System Software Support
 - Mainframe Operations Support
 - Mainframe and Mid-Range Services (AIX and iSeries (AS/400) environments)
- Mainframe Application Testing
- Application Maintenance and Development Support
- For sun setting Mainframe
 - Hosting services for running application
 - Mainframe environment can be leveraged for the data repository.
- Mainframe on Demand (Access on Pay-per-use model)
- Mainframe Hosting Services
- Strategic IT Staffing

Maintec's key focus is to help their clients optimize their operational budget, reduce risks associated with the hardware environment and better utilize the latest technologies available.

MainTegrity

Address:

2716 Signal Ridge View SW Calgary, Alberta Canada T3H 2J6

Phone: +1 (403) 818-8625

Email: info@maintegrity.com.

Web: www.maintegrity.com.

Activity: Software vendor

Specialist areas: System management; data management; storage management; asset and change management; security; forensics; compliance.

Mainframe platforms supported: z/OS

Company profile

MainTegrity is an innovator, delivering file integrity monitoring software (FIM+) to improve IBM mainframe cybersecurity. FIM+ strengthens customer defenses in ways never before possible, while interoperating with existing security tools. It provides whitelists, backup verification, and automated forensics to combat ransomware and other malicious attacks. FIM+ delivers improved compliance with NIST, PCI, GDPR, and bank resiliency requirements. FIM+ also provides deploy audit and integration with the DevOps toolchain.

Product/service information

MainTegrity FIM+ is the only product that provides full-function File Integrity Monitoring (FIM) for IBM mainframes.

FIM+ integrates with your existing enterprise security tools to remove gaps that hackers can exploit. FIM+ creates a comprehensive solution to:

- * Combat Ransomware attacks
- * Detect malicious Internal Threats that bypass other tools
- * Enable fast incident response
- * Comply with PCI/DSS, NIST, GDPR and banking resiliency
- * Audit deployments and align with Agile / DevOps processes
- * Modernize your mainframe, enabling Generational Change.

In the IBM mainframe world, these leading-edge capabilities have simply never existed before. Now you can make revolutionary improvements in just a few hours, yet in an evolutionary manner.

GateWAY z/OS allows multi-factor authentication of users, offers mainframe website hosting and client-side scripting and comes with development services.

Matter of Fact Software

Address:

60 Old Town, Peebles, EH45 8JE, UK

Phone: +447770381623

Email: enquiries@matteroffactsoftware.com

Web: www.plexspy.co.uk

Activity: Software vendor.

Specialist areas: Systems management; web integration and legacy reengineering tools

Mainframe platforms supported: z/OS

Pricing options: Monthly/annual license

Company profile

We create and market innovative software solutions that address business challenges. We are specialists in IBM's CICS on z/OS and provide consulting services in addition to our software.

We seek partnerships and collaborators to use, market and support our software solutions.

Product/service information

CICS Content Delivery Server makes intergating CICS applications with the web easy and quick. It will simplify and reduce the costs of innovation on the platform.

PlexSpy will reduce the time it takes to understand your technical infrastructure and what is happening with it during service impacting incidents - Speeding up time to problem resolution.

Meerkat Computer Services Ltd

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Phone: +44 1388 609124

Email: contactus@meerkatcomputerservices.com

Web: www.meerkatcomputerservices.com

Activity: Consultant

Specialist areas: System management; storage management; security; programming/testing; network performance/management, other.

Mainframe platforms supported: z/OS, Linux

Non-mainframe platforms supported: Unix, Linux, Windows, other

Pricing options: One-time charge, monthly/annual license, workload/usage based, other

Company profile

Meerkat Computer Services Limited are providers of Mainframe services in the UK and Europe. We provide general Mainframe support and services including hardware management, software management, support contracts and specialist migration.

We also provide a number of bespoke special services related to Mainframe software.

Product/service information

Main areas of interest are:

- * Storage Management
- * File Transfer
- * Software migration
- * Assembler programming
- * Installation and upgrades of Operating System and ISV products.

Micro Focus

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AsiaPac: UKSales@microfocus.com / +65 6510 4200

Activity: Software vendor

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management; other

Mainframe platforms supported: z/OS, VM/VSE, Linux

Non-mainframe platforms supported: IBM i, AIX, other Unix, Linux, Windows, Cloud, other

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other

Company profile

Micro Focus is one of the world's largest enterprise software providers, focused on solving your IT dilemma—how to balance today's needs with tomorrow's

opportunities. We deliver mission-critical technology that helps tens of thousands of customers worldwide manage core IT elements of their business. Strengthened by our strategic services and support organizations, and an extensive partner net-work, our broad set of technologies for security, IT operations, application delivery, governance, application modernization, and analytics provide the innovative solutions you need to run and transform—at the same time.

Micro Focus helps you solve the digital dilemma of how to run and transform at the same time. Run your core operations confidently in any market conditions using the technology investments you've already made. We offer a broad range of products for modernizing and managing mainframe and PL/I COBOL applications, both on premises and in the cloud.

Product/service information

Our comprehensive portfolio helps you build on proven IT investments you rely on. From COBOL to mainframe, deliver continuous value while managing an ever-changing IT landscape.

Our host connectivity solutions include desktop terminal emulation, with secure host application access including multi-factor authentication (MFA). Secure, zero footprint web-based host access for the cloud and on-premises. Automation tools to integrate mainframe data into robotic process automation (RPA).

Our COBOL solutions for building, compiling, testing, deploying and modernizing core business applications on distributed, virtual, and cloud platforms using modern IDEs. Transform existing COBOL programs using the latest technologies and practices such as Agile, CI/CD and DevOps while enabling your modernization journey to new architectures such containers and the cloud.

Our Enterprise Suite tackles the application modernization needs of IBM mainframe development and delivery teams. Our application knowledge, development, test and workload deployment tools significantly improve the efficiency of business application delivery and help IT leaders to transform their z System environment.

Our ChangeMan products enable secure software change, configuration, release management, compliance and governance for z/OS. Our Verstream family of products extends your z/OS, CICS and host applications in new and meaningful ways such as mobile applications, cloud and process automation.

Model9

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Web: model9.io

Sales contacts:

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EMEA: sales@model9.io

AsiaPac: sales@model9.io

Activity: Software vendor

Specialist areas: System management; data management; storage management

Mainframe platforms supported: z/OS

Pricing options: Monthly/annual license, processor/capacity-based

Company profile

Reimagine Mainframe Data Management in the Cloud

Model9 accelerates the adoption of hybrid cloud by enabling enterprises to efficiently transfer mainframe data between their mainframe and cloud or on-premise object storage. Model9's award winning and patented technology delivers mainframe data in a very efficient and secure manner with minimal overhead and MIPS consumption on IBM zSystems. Once mainframe data is in the cloud or on an on-premise object storage that data can be used for backup/restore purposes, 3rd data copies for ransomware protection or data can be transformed into open systems formats to be ingested by Artificial Intelligence and Machine Learning algorithms.

Benefits of the Model9 solution include the elimination of costly and complex tape and virtual tape systems, reduction of required backup or ETL software products, improved data management performance in the cloud and accelerated cloud adoption without having to perform risky, costly, and large-scale application migration projects.

Modern Systems

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Email: ricko@modernsystems.com

Web: modernsystems.com/.

Activity: Software vendor

Specialist areas: System management; data management; web integration and legacy reengineering tools

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Linux, Windows

Pricing options: One-time charge, monthly/annual license

Company profile

Modern Systems offers products and services to help customers transition from legacy systems to modern platforms. What makes us different is that we take a "lifecycle" approach, enabling customers take a phased approach to modernization that meets their business needs.

Product/service information

Our Legacy Forensics service enables deep inventory and assessment of Z/OS mainframe applications written in COBOL, Natural, CA GEN and more. Our Mainframe DataShare service enables integration of nonrelational mainframe databases like IDMS, ADABAS, VSAM and more with relational databases like SQL Server, DB2 and Oracle Database, empowering true data warehousing and holistic business intelligence. Our automated conversion technology enables COBOL, Natural and CA GEN apps to be converted to Java or C# for use in open systems or on the mainframe.

MOST Technologies

Address:

4, Haharash str., Hod-Hasharon 45244, Israel

Phone: +972-3-9115511.

Email: info@mosttechnologies.com.

Web: www.mosttechnologies.com.

Sales contacts:

America: MOST Technologies, Inc, 400 Northridge Road, Suite 250, Atlanta, GA 30350, USA, Tel: (678) 420-7470.

AsiaPac: MOST Technologies Japan K.K.#301 1-14-16 Nishiazabu, Minato-ku, Tokyo, Japan, 106-0031, Tel: (81) 3 5412-8662, Fax: (81) 3 5412-8664, Email: info@mosttechnologies.co.jp.

Activity: Software vendor

Specialist areas: Programming/testing; web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z, other

Non-mainframe platforms supported: i5, AIX, other Unix, Linux, Windows, other

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other

Company profile

MOST Technologies, a global leader in legacy modernization, is in a unique position to address the needs of organizations with investment in mainframe application assets.

MOST's legacy modernization offering provide the customer with following benefits:

- Reduction in total cost of ownership related to the operation of legacy applications
- Renew the value of legacy applications and data in new services
- Improve accessibility to these application assets real time so as to support business intelligence and customer service initiatives
- Increased flexibility and interoperability with internal and external services
- Tighter control over budget through reducing scope of change

MOST Technologies offering to mainframe customers with investment in Legacy Applications include:

- Solutions
- Expertise
- Services.

Product/service information

MF-Test is a leading testing solution from MOST Technologies that was developed specifically for testing mainframe applications, databases and their supporting environments. It provides automatic execution of the application testing scenarios as well as advanced reporting mechanism to allow multiple tests on parallel testing environments.

MF-Test is a mature technology that is helping various mainframe customers around the world to test their mainframe applications in a low risk, low cost environment. Using MF-Test can reduce the burden out of the testing phase, so resources can focus on keep developing the applications.

MF-Test capabilities:

- Multiple isolated test environments – Enable parallel testing for a larger number of testing scenarios
- Smart and flexible pre/post change comparisons – Ensuring that the application outcome remains exactly the same after the application modifications, unless a change is expected
- Test results collection – All results are collected and kept in a central location, for comparison and tracking purposes

- Test auditing, control and security – For management of larger testing teams, located in different locations and testing different applications
- Central user interface – Windows based graphical user interface for tests' creation, execution and track
- Ease of use and scalability – Using standards languages for external functionality additions.

MPI Tech

Address:

Anchor House, 50 High Street, Bagshot, Surrey GU19 5AW, UK

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Email: sco@mpitech.com.

Web: www.mpitech.com.

Activity: Software vendor

Specialist areas: Web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z

Non-mainframe platforms supported: i5, AIX, other Unix, Linux, Windows, other

Pricing options: One-time charge, monthly/annual license

Company profile

The MPI Tech Group is a leading provider of document management and document output solutions that put the customer in charge for over 30 years. With our software and hardware solutions we enable customers to create, print, secure, transform, distribute and archive their information.

Our services run on multiple operating systems making it possible for our customers to manage all their paper and electronic output through a coherent software and hardware platform.

Product/service information

MPI Tech is a manufacturer and developer of mainframe data stream conversion software and hardware solutions with over thirty years of pedigree. MPI Tech's products enable a complete end to end solution for mainframe output offering a myriad of delivery options, in addition to printing. These include seamless interaction with existing emailing, faxing, archive, print costs accounting and secure print solutions, all without any changes to the host application. MPI Tech's products can be tailored to suit your organisations exact requirements delivering a robust, feature rich and cost effective solution for company wide output.

For more information on our latest solutions including MPI Tech's print transform for z/Linux and integrating host application printing into an enterprise secure printing structure please visit contact MPI Tech on 0044 844 800 9803, email sales.uk@mpitech.com, or visit our website www.mpitech.com.

Mullins Consulting Inc

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Phone: +1-281-494-6153.

Email: craig@craigsmullins.com.

Web: mullinsconsulting.com.

Activity: Consultant

Specialist areas: System management; data management

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Other

Pricing options: Other

Company profile

Mullins Consulting focuses on delivering services that improve application and database performance, deliver higher availability, and better protect and secure your vital corporate data. Services include consulting, writing, education, speaking, and more.

Product/service information

Craig S. Mullins, principal consultant of Mullins Consulting, has been working with IBM mainframes his entire career; and with Db2 since Version 1. The primary focus of service delivery is to improve and optimize the performance and management of Db2 for z/OS systems.

NewEra Software Inc

Address:

18625 Sutter Boulevard, Suite 950, Morgan Hill CA 95037, USA

Phone: +1 408 201 7000 (or 800 421 5035 toll-free in North America).

Email: info@newera.com.

Web: www.newera.com.

Sales contacts:

EMEA: +353 21 4832131 sales@fitzsoftware.com.

Activity: Software vendor.

Specialist areas: Asset and change management; security.

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license, processor/capacity-based

Company profile

NewEra Software, Inc., an IBM Business Partner, was founded in 1989 with the specific goal of developing, marketing and supporting innovative system management software tools and services. Thanks to the continued support of thousands of systems professionals worldwide that have come to depend on NewEra, the company has become an industry leader and its products the industry standard for repair, recovery, data erasure, enhanced system configuration control, and integrity of large systems.

Product/service information

The **Integrity Controls Environment (ICE)** is a collection of integrated applications - Image FOCUS, The Control Editor and IPLCheck - that are used to validate the ongoing integrity of the z/OS Image/Sysplex Configuration, their major subsystems and operational components, document configuration access and changes and/or control/limit access to MVS and/or UNIX system configuration elements and provide a global access point from which insight can be gained into the operational integrity of the Sysplex and its Images.

Image FOCUS provides inspection and baseline services to users of z/OS. It performs a "Virtual IPL" of each Image, validating the IPL Unit Address, LOADPARM, PARMLIB and PROCLIB, checking members for syntactical correctness and related datasets for referential integrity, thereby alerting staff to future IPL failures. The Control Editor (TCE) compensates for the control and productivity gap that exists between a site's External Security Manager (ESM) and its Change Management System. TCE/RBAC defines, assigns and enforces roles by enhancing role based access control already in place by the ESM. ICE/OPER provides a secondary level of control over the use of Operator Commands and ESM Commands, thereby allowing for the establishment of higher level standards over individual users.

IPLCheck is designed to help users of z/OS to manage and protect the integrity and security of their operating system environment and critical business applications. IPLCheck works under the control of the IBM Health Checker for z/OS. It performs a detailed inspection of an LPAR's IPL status, reporting discovered weaknesses and/or structural risk in IPL components or pathing to the Health Checker.

Stand Alone Environment (SAE) is a self-contained, self-loading system software utility. It provides immediate access to system datasets through an ISPF-like editor

without an active MVS system. One of its tools is fast DASD Erase, which allows users to erase mission-critical and/or personal data at the end of a Disaster Recovery test or when decommissioning DASD.

Oh7FoxEasy LLC

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Phone: +1 770 712 9887.

Email: jimr@oh7foxeasy.com.

Web: www.oh7foxeasy.com.

Activity: Software vendor.

Specialist areas: Asset and change management; programming/testing.

Mainframe platforms supported: z/OS

Pricing options: One-time charge.

Company profile

Oh7FoxEasy is a software developer enhancing, supporting and marketing the Executable Portfolio Analyzer. Our focus is on IBM mainframe development efforts recognizing that application SMEs are in short supply and the effort to maintain, enhance and understand the application landscape is a growing issue.

Product/service information

The Executable Portfolio Analyzer (EPA) reads and interprets executable libraries providing a wealth of information about each executable so that the application development team can understand the makeup of any given application. This information is tremendously valuable during any migration, modernization or operating system upgrade such as updating to the latest compiler version. The real truth is in the executable.

OneIdentity

Address:

4 Polaris Way Aliso Viejo, CA 92656, USA

Phone: +1-800-306-9329.

Email: info@oneidentity.com.

Web: www.oneidentity.com.

Activity: Software vendor.

Specialist areas: System management; security.

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Linux, Windows, Cloud

Pricing options: One-time charge, processor/capacity-based

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Company profile

OneIdentity is an Identity management company. Part of their platform coverage includes the IBM mainframe platform.

Product/service information

Session manager - NC-Access

Password synchronisation - NC-Syncom

2FA - NC-Pass

VTAM toolkit - NCI/XF.

Oracle

Address:

500 Oracle Parkway, Redwood Shores, CA, USA

Phone: +1 603-502-7635

Web: www.oracle.com

Activity: Software vendor.

Specialist areas: System management; data management; programming/testing; web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, Linux, other

Non-mainframe platforms supported: Unix, Linux, Windows, other

Pricing options: Workload/usage based, other

Company profile

Oracle has a worldwide team dedicated to modernization and migration projects – the Platform Migrations Group. This team is part of Oracle Server Technologies (Oracle Development) and has over 300 resources worldwide. These resources are knowledgeable in legacy systems and modernization, Oracle Grid Database, Oracle Fusion Middleware, Oracle Development tools and Oracle Modernization Alliance partners' tools and products. Each modernization project is assigned an Oracle lead from the Oracle Modernization Solutions team. The team has direct linkage into Oracle development, and has close relationships with Oracle Product Managers.

Oracle's PTS Modernization Solutions team has been a key member for hundreds of modernization projects over the past four years. The team has engaged at a number of levels including: architecture design, modernization tools selection, modernization assessments, evaluation and portfolio analysis, project scoping and estimating, proof of concepts, project advisor, hands on technical enablement, and trusted technical advisor. The projects have been for other Oracle customers, Oracle System Integrator partners, Oracle Independent Software Vendor partners, and Oracle modernization partners.

The projects have spanned many industries and utilized a variety of modernization approaches. The projects have

also encompassed many source technologies from DB2, IMS, COBOL, RPG, Adabas to PL/I, Sybase, Informix, Powerbuilder and Assembler.

Oracle has also been involved with 150 customer mainframe modernization projects where Oracle BEA Tuxedo is the application server and transaction processing platform for legacy COBOL, CICS and JCL/batch systems.

Product/service information

Oracle offers the only open systems active/active grid database platform. Oracle's Database Real Application Clusters (RAC) running on clusters provides Oracle's highest level of capability in terms of availability, scalability, and low-cost computing. Oracle Database RAC supports the transparent deployment of a single database across a cluster of servers, providing fault tolerance from hardware failures or planned outages. RAC provides scalability using any hardware, regardless if you prefer small systems or large boxes.

For application reliability, scalability and availability, Oracle offers the Oracle WebLogic Application Grid. Oracle WebLogic Application Grid works with any application server – including Oracle WebLogic Server, IBM WebSphere Application Server, and JBoss Application Server – or in a pure grid environment without an application server

PerfTechPro

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AsiaPac: info@PerfTechPro.com.

Activity: Software vendor.

Specialist areas: System management.

Mainframe platforms supported: z/OS.

Pricing options: Monthly/annual license.

Company profile

Our aim is to make capacity and performance management tools for the 21st Century. Then, make it easy for you to do business with us.

Product/service information

PerfTechPro zAnalytics® is an IT capacity and

performance management tool designed specifically for 21st Century data centers and cost-conscious IT management professionals. PerfTechPro is Windows-based software providing automated data collection, analysis, reporting and simulation modeling.

Phase Change Software

Address:

651 Corporate Circle #209 Golden, CO 80401, USA.

Phone: +1 303 882 5571

Email: info@phasechange.ai

Web: phasechange.ai

Activity: Software vendor

Specialist areas: Programming/testing; web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, VM/VSE, Linux

Non-mainframe platforms supported: Unix, Linux, Windows

Pricing options: Monthly/annual license, workload/usage based, other

Company profile

Phase Change is a startup company in Golden, Colorado, with a product to revolutionize how developers interact with large-scale applications; to understand them and to change them. The company's objective is to mitigate risk for large-scale businesses that are losing their mainframe developer talent, struggling to shore-up and to transform their legacy applications.

Phase Change is an IBM partner, also engaged with the top mainframe maintenance and modernization companies worldwide, proving Colleague's capabilities and deepening its viability.

Product/service information

COBOL Colleague is an AI engine that can understand mainframe applications at scale, and translate them for people at machine-speed. Colleague can work with a developer of any level of expertise to enact change with confidence – in millions of lines of code.

Colleague's Agent knows the boundaries and constraints in millions of lines of code, across modules and languages. It does not require a runtime environment nor input data; to know way more than any static or dynamic code analyzer. Its analysis, its code comprehension is different, its knowledge of code more like that of a developer than of an amalgam of code-slices found with pattern-matching.

What can be done with Colleague? Developers will be a minimum of 700% more productive.

Phoenix Software International

Address:

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Phone: +1 310 338 0400

Email: sales@phoenixsoftware.com

Web: phoenixsoftware.com

Activity: Software vendor

Specialist areas: System management; programming/testing, other

Mainframe platforms supported: z/OS, VM/VSE

Non-mainframe platforms supported: Linux, Windows

Pricing options: Monthly/annual license, processor/capacity-based

Company profile

Phoenix has been providing enterprise software solutions around the globe since 1979. As a privately held corporation not required to provide shareholders with quarterly profits, Phoenix can focus on long-range, customer-oriented projects and goals. Phoenix prides itself in being nimble, able to quickly capitalize on new hardware and software technology with a focus on software modernization, and providing the best possible user experience.

Phoenix Software's customers range from small entrepreneurial companies to federal and state agencies including law enforcement and defense, to Fortune 500 leaders in the automotive, financial, healthcare, telecommunications, and insurance industries.

Product/service information

CONDOR®: A command-driven on-line library management and a program development system in one convenient package.

CYGNET®: A self-contained fourth-generation language/compiler designed for application development.

(E)JES®: A modern tool for managing your z/OS® JESplex. (E)JES includes cutting-edge components such as a browser based interface, Zowe conformant API and CLI, and guided z/OSMF installation.

FALCON®: An on-line, menu-driven data entry system for entering data, managing batches, and managing jobs in a secure, user-friendly environment.

JES3plus®: A fully supported derivative work leveraging IBM's JES3 licensed source code. Created with customers in mind, JES3plus™ is a solution to a costly JES2 conversion which provides for a trivial migration to a fully supported product with a road map for enhancements and no end of life.

zHISR®: A z/OS application profiler that generates reports to help tune applications by locating specific sections of your code that are the biggest CPU consumers.

Planet Mainframe

Address:

USA.

Email: info@planetmainframe.com

Web: https://planetmainframe.com

Activity: Information

Specialist areas: Other

Mainframe platforms supported: z/OS

Pricing options: Other

Company profile

At Planet Mainframe, we aim to share and nurture the ideas of mainframe experts and enthusiasts. It is a vendor-neutral publication where differing opinions about 21st-century data centers and personal perspectives on new technologies are welcome. What is the future of mainframe? Also, what do you think is missing? Our contributors open the door to dialogue within the industry. We recognize the importance of sustaining this community not only for mainframe virtuosos whose much-valued experience is a continuum. We believe it is essential to entice those who are juniors within the field or considering it to continue the conversation.

What is the Planet Mainframe ethos? We are value driven. We respect the expertise of our contributors and the value that these perspectives encompass. We are your go-to source when a conversation is needed. Do you have something you would like to share? People are looking forward to reading what is on your mind..

PIR Group, Inc

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The IBM Mainframe: The most powerful and cost-effective computing platform for business

Many of we mainframe pundits have written about the robustness, power, perseverance, capacity and more importantly, the cost-effectiveness of the mainframe. But, outside the mainframe sphere, people say things like “Other platforms are cheaper...” This is the basic claim for most people interested in dumping mainframe systems in favor of commodity servers. Let’s face it, Google, Amazon and Microsoft don’t use mainframe systems at their back end, so why should anyone? That’s a great point, but let’s look at the premise first—are server farms less costly than the mainframe? The truth is that the facts support the notion that the mainframe is the most powerful and cost-effective computing platform for large businesses with a need for high-intensity transaction processing. Claims to the contrary are typically either as a result of simple lack of knowledge on the subject (or the platform), or a biased unwillingness to look objectively at the facts.

Best Practices for Closing the Mainframe Security Gap

You could argue that mainframes are inherently more secure than commodity servers because there are fewer variables at play on mainframe systems, making them easier to secure in some ways. The fact that mainframes account for a relatively small portion of the overall computing market is also a security benefit because it means mainframes are a less common target for attackers.

Tell them about mainframes

One of the greatest problems many mainframe-using organizations face is finding young staff who understand the mainframe and can take over from those experts who have been around for a while, seen it all, and now want to slip quietly into retirement. Too many colleges teach computing courses focused on a narrow range of programming languages. So, students graduate into an overpopulated workplace with little or no knowledge of COBOL and mainframes.

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Activity: Software

Specialist areas: Programming/testing; web integration and legacy reengineering tools; other

Mainframe platforms supported: z/OS, VM/VSE

Non-mainframe platforms supported: IBM i

Pricing options: One-time charge, processor/capacity-based, other

Company profile

PIR Group provides migration tools for legacy COBOL and RPG applications. We move legacy custom systems that reside on the IBM mainframe and zOS systems to the more cost effective and Power i. The average migration project takes less than six months and the customer first year ROI is often in the millions of dollars. PIR Group has been an IBM business partner migrating IBM mainframe customers since 1998.

Product/service information

COBOL KeePIR for the AS/400 automates the conversion of legacy applications. Mainframe CICS online / batch programs are converted into native ILE COBOL, DDS and CLP. MVS/VSE JCL is converted into CL. The mainframe database is duplicated under DB2/400.

COBOL KeePIR guarantees identical functioning of the interactive screen and online processes. Automated conversion options can enhance the look of screens. Batch program processing time is reduced. The batch programs/reports function and look the same. The JCL is converted one for one into CL.

COBOL KeePIR is designed to comment out the mainframe source replacing with the appropriate ILE COBOL code and subroutines. The resulting documented source code changes assist the supporting resources in maintaining the converted application.

COBOL KeePIR duplicates the databases under DB2/400.

Activity: Software vendor.

Specialist areas: Security

Mainframe platforms supported: z/OS, Linux

Non-mainframe platforms supported: System i, AIX, other Unix, Linux, Windows, others

Pricing options: Processor/capacity-based, other

Company profile

The PKWARE Solution is the only complete solution for reducing, securing, moving and storing data across the extended enterprise, both internally and externally, from mainframes to servers to desktops and into the cloud. PKWARE offers software solutions to critical IT problems, namely the explosive growth of data, the need to secure data, and the emergence of data in the cloud. PKWARE offers the only total solution for reducing and securing data in motion or at rest, so data can be securely moved or stored anywhere. The PKWARE Solution is used billions of times each day to manage risks associated with data security breaches while avoiding increased storage costs with data reduction of up to 95% and improving service delivery. PKWARE is a privately-held company based in Milwaukee, WI with additional offices in New York, Ohio and the United Kingdom.

Product/service information

Files that contain sensitive data, whether stored or being transmitted, need to be protected. SecureZIP® makes securing these files an effortless task. SecureZIP is the industry leading security and compression utility that greatly reduces transmission times and required storage space while securely protecting data, in transit and at rest. The combination of application, system, and ICSF integration make SecureZIP® for z/OS® an optimal solution for reducing processing times, increasing operational efficiencies, and leveraging existing investments within the mainframe environment. SecureZIP for z/OS includes OpenPGP support enabling enterprises to encrypt and decrypt using OpenPGP keys in both ZIP and OpenPGP formats.

PKWARE

Address:

201 E. Pittsburgh Ave, Suite 400, Milwaukee, WI 53204, USA.

Phone: +1 414 289 9788

Email: sales@pkware.com

Web: www.pkware.com

Sales contacts:

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EMEA: +44 (0) 208 899 6060

AsiaPac: +81 3 5456 5599

Precisely

Address:

2 Blue Hill Plaza, #1563, Pearl River, NY 10965, USA

Phone: +1 (877) 700-0970

Email: iinfo@precisely.com

Web: www.precisely.com

Activity: Software vendor.

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management.

Mainframe platforms supported: z/OS, VM/VSE, Linux on Z

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other

Company profile

Syncsort re-branded as Precisely following its acquisition of the Pitney Bowes software and data business in 2019. Precisely is a global software company specializing in Big Data, high speed sorting products, and data integration software and services, for Hadoop, Microsoft Windows, UNIX, Linux, and mainframe systems.

Product/service information

Syncsort MFX, DMX/DMExpress, DMX-h, Ironcluster, DL/2, VS/2, Ironstream, ZPSaver Suite, ZEN Suite, and CilaSoft. In 2019 it acquired SQData.

Progress

Address:

3005 Carrington Mill Boulevard, Suite 400, Morrisville, NC 27560, USA

Phone: +1 800 876 3101

Email: insidesales@datadirect.com

Web: www.progress.com

Sales contacts:

America: 800 876 3101

EMEA: 0800 169 1907

AsiaPac: 0120 209 613

Activity: Software vendor

Specialist areas: Web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, Linux

Non-mainframe platforms supported: Linux, Windows

Pricing options: Monthly/annual license

Company profile

Progress DataDirect is a leader in data connectivity and mainframe integration software for corporate enterprises and independent software vendors, including IBM.

Progress DataDirect Shadow is the industry's only unified integration platform for mainframe data access and SOA enablement. Shadow delivers secure, high performance and scalable access to a broad range of mainframe data

and application environments – with unique capabilities to extend System z specialty engine exploitation beyond DB2 for dramatically lower mainframe TCO.

Progress Software Corporation (Nasdaq: PRGS) is a global software company that enables enterprises to be operationally responsive to changing conditions and customer interactions as they occur – to capitalize on new opportunities, drive greater efficiencies and reduce risk. The company offers a comprehensive portfolio of best-in-class infrastructure software spanning event-driven visibility and real-time response, open integration, data access and integration, and application development and deployment – all supporting on-premises and SaaS/Cloud deployments.

Product/service information

Shadow is the industry's only single, unified platform for mainframe SOA enablement and data connectivity. From this single integration architecture, Shadow supports a full range of standards-based mainframe integration products:

- Shadow z/Services comprehensive, bi-directional mainframe Web services to support SOA and Orchestration, including transformation of business logic and/or 3270 screens into reusable Web services, or data via SOAP interface, as well as support for mainframe consumption of external, distributed Web services.
- Shadow z/Events - a comprehensive facility for real-time mainframe data change capture, transformation, and publishing in support of event driven integration, BI and data warehousing.
- Shadow z/Direct - high performance data connectivity APIs (ODBC, JDBC, ADO.NET) to enable direct, SQL access and transactional support to a broad range of mainframe datasources.
- Shadow z/Presentation - supports automatic presentation layer generation for extending screen-based applications to the Web.

Shadow's unique exploitation of IBM's new mainframe specialty engines allows customers who have purchased the System z Integration Information Processor (zIIP) and System z Application Assist Processor (zAAP), the added benefit of diverting workloads to these unmeasured environments, which has the proven ability to dramatically lower Total Cost of Ownership by up to 99% and improve performance.

Qlik

Address:

40 Audubon Road, Wakefield, MA, 1880, USA.

Phone: 781-213-5200.

Email: attunity@attunity.com.

Web: www.qlik.com/us/products/data-integration-products.

Activity: Software vendor

Specialist areas; Web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, VMVSE, Linux,
Non-mainframe platforms supported: i5, AIX, other Unix, Linux, Windows, other.

Pricing options: One-time charge

Company profile

Attunity is a division of Qlik. Using Attunity's products, companies can seamlessly connect to mainframe data sources, stream data changes across the enterprise, and federate heterogeneous information to achieve a single view of their business. Attunity Mainframe Integration Products enable companies to accelerate the integration initiatives that require interaction with mainframe systems, while dramatically reducing the cost of building and maintaining such solutions.

Product/service information

Attunity provides remote access, open interfaces, secure and highly reliable integration to all the major mainframe information systems including CICS, IMS/TM, IMS-DB, VSAM, DB2, Adabas and Natural:

- Attunity Connect allows seamless access to relational and non-relational legacy data for business intelligence and enterprise portals, and helps users to build .NET and J2EE applications that interoperate with legacy systems and accelerate EAI initiatives with certified adapters.
- Attunity Stream, allows users to move mainframe and enterprise operational data in real-time to data warehouses and data marts, dramatically improving the efficiency of ETL processes, synchronizing data sources, and enabling event-driven business activity monitoring and processing.
- Attunity Federate allows heterogeneous data sources to be joined, to make them available as a virtual data layer. The product employs distributed query optimization and processing engines that reside natively on enterprise data servers. Federate provides superior performance, security, and transaction management, and leverages Attunity Connect adapters to access any data source in the enterprise.

QMSI-Quintessential Mailing Software Incorporated

Address:

5800 Ager Beswick Road, Montague, CA 96064-9423, USA

Phone: +1.866.284.1001

Email: info@qmsi.software

Web: www.qmsi.software

Activity: Software vendor.

Specialist areas: Other.

Mainframe platforms supported: z/OS

Pricing options: Monthly/annual license

Company profile

QMSI's charter is to significantly reduce the cost of postal processing for mainframe mailers. QMSI software is exclusively IBM Mainframe. QMSI's principals, developers - and customers - are accessible to anyone who sees the value in - and wants to learn about - lowering CPU overhead, I/O resource utilization and overall processing time ... with the guarantee of saving money!

Our customers will tell you "QMSI prices are not based on MIPS or MSUs and QMSI never increases costs for licensed CPUs; so there is no renegotiating - ever!" Adding a CPU is easy and inexpensive.

Product information

QCODE is the only modern USPS CASS-Certified software that takes full advantage of IBM's zSystem hardware and software. QCODE can run on a zIIP (eliminating IBM's MSU charges!) and QCODE's unique DataSpaceDataBase (DSDB) is a significant reason for QCODE's great performance. Placing your page data sets on SSD (Solid State DASD) devices, makes QCODE's performance "amazing!" All while utilizing less CPU and I/O resources, and running faster than all other CASS products.

QSORT is the only single-purpose presort for First Class Mail (cards, letters and flats) that does not contain all the extra code and overhead found in other multi-purpose products. It's the perfect complement to QCODE and ready for the USPS Full Service requirements.

QVIEW is a sub-second response time, online query tool for USPS Zip4 database look-ups. It is a complementary component of QCODE, and runs under CICS, IMS or CA's IDMS.

Together or individually, these products provide the most cost-effective, resource-efficient Postal Processing software available on IBM Mainframes. How is this possible? Because this entire software application suite was designed by system-level software architects.

QMOVE is coming soon!

Red Carpet IT Services

Address:

Stroombaan 10, 1181VX Amstelveen, The Netherlands

Phone: +31207230900

Email: info@redcarpetit.com

Web: www.redcarpetit.com

Activity: Consultant

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management.

Mainframe platforms supported: z/OS, VM/VSE, Linux

Non-mainframe platforms supported: IBM i, AIX, Other Unix, Linux, Windows, Cloud

Company profile

Red Carpet IT Services is an independent mainframe services provider, offering smart qualified solutions for all your mainframe requirements. This includes skills, advice, training & consultancy services. Red-Carpet IT Services is headquartered in Amsterdam and we operate throughout Europe.

Red Carpet IT Services has a dedicated pool of z/OS Mainframe Specialists, covering every aspect of the mainframe environment. Our mission in the mainframe space is to harmonize the future of IBM z/OS Mainframes in Europe.

Product/service information

Systems Programming, expert technical skills for short or long term engagements covering z/OS, RACF, CICS, DB2, IMS, MQ, VM, Linux, etc.

Mainframe Consulting leverages a wide range of independent expertise & experience regarding any aspect of your mainframe infrastructure.

Architects - z/OS infrastructure, RACF, CICS, MQ, IMS, DB2

Linux on IBM Z helps to enable fast, reliable and secure Linux platforms.

Assured Security from best practice health checks, penetration testing and niche software tools to better protect yourself against possible breaches.

Capacity and Performance improving service levels and reducing costs through infrastructure tuning and planning. Storage Management including DFSMSsms, DFSMSshsm, DFSMSrmm and Data Migration when installing new DASD subsystems.

Operations & Batch Analysts Mainframe Batch Processing, JCL Procedures, Job Schedulers

Migration and Upgrade assistance whether software (V2V or ISV swap out), storage or data centre, helping you both de-risk & speed the transition.

Process - including Problem Management, Change

Management, Performance Project Managers Prince2, ITIL Methodology, Agile

Disaster Recovery consulting, strategy, planning and procedures, reviews, testing, complete systems recovery. UNIX Systems Services (USS) proven expertise for this integral part of z/OS Parallel Sysplex including planning and implementation.

Replatform Technologies

Address:

Atlanta, USA

Phone: +1 770 815 6142

Web: www.replatformtech.com

Activity: Software vendor

Specialist areas: Web integration and legacy reengineering tools;

Mainframe platforms supported: Linux

Non-mainframe platforms supported: Unix, Linux, Cloud

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Company profile

We are a small company focused on using open source tools to migrate applications from z/OS to Linux and Linux for Z.

Product/service information

We offer a CICS system that runs on Linux and Linux for Z. We license it as source code for companies that want to control their entire technical stack. Works with a variety of COBOL compilers.

Rocket Software

Address:

77 Fourth Avenue, Waltham, MA 02451, USA

Phone: +1 855-577-4323

Web: www.rocketsoftware.com

Activity: Software vendor

Specialist areas: System management; data management; storage management; security; programming/testing; web integration and legacy reengineering tools; network performance/management; other

Mainframe platforms supported: z/OS, VM/VSE, Linux

Non-mainframe platforms supported: IBM i, AIX, Other Unix, Linux, Windows, Cloud, Other

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other

Company profile

Rocket Software partners with the largest enterprises to solve their most complex IT challenges across their applications, data and infrastructure so they can modernize without disruption. Trusted by over 10 million global IT and business professionals, Rocket Software meets customers where they are in their modernization journeys, providing the expertise, solutions and partnership needed to embrace hybrid IT environments. The company's 2,600 global employees work with customers to implement hybrid cloud strategies that modernize mission critical technology. Rocket Software is a privately held U.S. corporation headquartered in the Boston area with centers of excellence strategically located throughout North America, Europe, Asia and Australia.

Product/service information

The largest companies in the world rely on Rocket@ Software's infrastructure modernization solutions to optimize their mainframe environments. Rocket Software makes it easier to boost system and workload performance, automate workloads and critical processes, mitigate security and compliance risks with supported open source solutions for z/OS, and optimize storage capacity—on zSystems, across hybrid IT infrastructures, and within your hybrid cloud strategy. With deep experience in z/OS, Db2, IMS, CICS, and more, and as a founding member of the Zowe open-source framework from Open Mainframe Project, Rocket Software is committed to the mainframe's future as a mission-critical platform. With Rocket, you can modernize without disruption.

Our finely honed processes and extensive software toolset enable us to deliver the highest quality services efficiently and cost-effectively. For your next RACF project, contact RSH.

Product/service information

RACF Security Reviews: RSH reviews pinpoint even the most obscure security exposures and identify opportunities for improving RACF administration and performance. We scrutinize all RACF controls to ensure critical system resources are protected. RSH looks beyond RACF to examine mainframe security policies, standards, and procedures, and to inspect RACF-interface configuration options in other system software. This holistic approach provides a more insightful picture of the overall mainframe security posture. Knowing your security exposures is essential to prioritizing remediation.

RACF Implementation Services: RSH can tackle almost any RACF implementation, enhancement, or remediation task, whether large or small and no matter how intricate. Our services are customized to meet specific client needs and budgets and range from occasional advisor to ad hoc assistance to complete hands-on implementation. RSH staff can work independently or as teammates alongside client staff. We provide clear explanations of what was done and why so that clients can properly maintain controls going forward.

RACF Training: RSH is at the forefront of training the next generation of RACF administrators, technicians, and auditors. Our course series, ranging from basic administration to advanced technical topics, offers the ideal pathway for expanding your staff's RACF skills.

RSH Consulting

Address:

177 Huron Ave, Cambridge, MA 02138, USA

Phone: +1 617-969-9050

Email : info@rshconsulting.com

Web: <https://www.rshconsulting.com>

Activity: Consulting

Specialist areas: Security

Mainframe platforms supported: z/OS

Company profile

RSH Consulting, Inc. is a professional services firm established in 1992 and dedicated to helping clients strengthen their IBM z/OS mainframe cybersecurity by fully exploiting the capabilities and latest innovations in RACF. RSH staff is comprised entirely of exceptionally experienced technicians led by a recognized RACF expert.

RSM Technology

Address:

West Barn, Brightwell Farm, Brightwell Baldwin,

Oxfordshire OX49 5NP, UK

Phone: +44 (0)1494 45 13 13

Email : courses@rsm.co.uk

Web: www.rsm.co.uk

Activity: Training

Mainframe platforms supported: z/OS, Linux

Pricing options: Monthly/annual license

Company profile

Founded in 1980, RSM is the UK's leading independent provider of technical education & training for users of IBM mainframe systems. Working in partnership with the British Computer Society (BCS), RSM has been instrumental in developing and launching the Mainframe Technology Professional series of examinations and qualifications.

Product/service information

Publicly presented and customised, one-company training and education courses covering such areas as: z/OS, CICS Transaction Server, DB2 for z/OS, WebSphere MQ, IMS TM & DB, WebSphere Application Server, TCP/IP for z/OS.

Rulevolution

Address:

152 Chapeltown Road, Leeds LS7 4EE, UK

Phone: +44 333 444 0380

Email: info@rulevolution.com

Web: https://rulevolution.com

Activity: Software vendor

Specialist areas: Web integration and legacy reengineering; full or hybrid cloud migration; programming/testing

Mainframe platforms supported: From any platform, Linux on zOS for target

Non-mainframe platforms supported: Linux, Windows, Cloud

Company profile

First deployed in 2017 our PaaS approach is bringing innovation to the Business Process Replacement and/or Redesign space, by using Machine Learning to provide a deterministic (and thus explainable/traceable) system.

We provide training in our platform (for a DIY approach), consultants (to augment) or a full bureau service, or (more usually) a mixture of all three.

Product/service information

Leveraging Machine Learning and utilising data examples (real and synthetic) the Knowledge Builder replicates the desired processing and outcomes within an offline Studio environment. This is then realised as process models containing deterministic steps which can then be confidently deployed as a replacement for the original systems. This can be done quickly and cheaply thus greatly improving ROI over other replacement/migration approaches. As the learning is remembered, future maintenance is greatly reduced and cannot accidentally break existing behaviour.

Through our integration options mainframe application modernisation may be done incrementally, or replicated as is and then re-engineered safely later.

Final deployment can be mainframe or mid-range, on-prem or cloud.

SAS Institute**Address:**

SAS Institute Inc, 100 SAS Campus Drive, Cary, NC 27513-2414, USA

Phone: +1 919 677 8000

International Headquarters:

SAS Institute GmbH, PO.Box 105340, Neuenheimer Landstr. 28-30, 69043 Heidelberg, GERMANY

Phone : +49 6221 4160

Web: www.sas.com

Activity: Software vendor

Specialist areas: Data management

Company profile

- *Business intelligence.* With SAS business intelligence, you can integrate data from across your enterprise, and deliver fast access to self-service reporting and analysis to all levels of user. Easy-to-use interfaces make it simple for decision makers to get the answers they need – saving you time while driving better decisions.
 - *Analytics.* With SAS, you can deliver analytic results to all users to share insights and drive fact-based decisions.
 - *Data integration & ETL.* With SAS, you gain an integrated approach for managing your increasing volumes of enterprise data. You can simplify the process of data extraction, transformation and loading while improving data quality and achieving true data integration.
-

SMT Data**Address:**

Kongevejen 400B, 2840 Holte, Denmark

Phone: +45 3962 8887.

Email: info@smtdata.com.

Web: smtdata.com.

Activity: Software vendor

Specialist areas: System management, other

Mainframe platforms supported: z/OS, Linux on IBM Z

Non-mainframe platforms supported: Unix, Linux, Windows

Pricing options: One-time charge, monthly/annual licence, workload/usage based.

Company profile

SMT Data has developed a unique software solution that collects, aggregates and processes enormous amounts of technical data from the company's IT-infrastructure. Conceptually it is Business Intelligence for IT – we call it ITBI™.

For almost 30 years SMT Data has supplied fact-based optimization:

- Reducing IT infrastructure costs while enhancing utilization and performance
- Linking IT resource consumption and IT costs to business activity
- Controlling outsourcing providers and optimizing outsourcing costs
- DevOps transparency: Explain Application Developments impact on IT operational costs
- Consolidating assets and balancing load before / after M&A, Cloud etc.
- Reducing the time spent analyzing and reporting.

Product/service information

ITBI™ Software allows you to reduce IT capacity related costs by creating transparency into the cost drivers in your IT installation and insight into how business activities affect those cost drivers.

ITBI collects capacity and performance data from your IT Infrastructure. It then combines the data with business information such as costs, which organization is using the resources and for which activities. This data is gathered into a data warehouse and made available to the user through an advanced Business Intelligence reporting tool.

SMT Data offers the ITBI solution and consultancy in the form of project-based services or ongoing service.

The focus of a Project Based Service is to produce a set of agreed deliverables for the customer. SMT Data uses the ITBI Solution in producing those deliverables, but ITBI is an enabler for the project rather than the primary focus.

Ongoing services Get the full value out of ITBI and SMT Data's offerings. SMT Data consultants support the customer in operating and using ITBI on an ongoing basis. This support helps ensure that the customer gets the most out of ITBI. Ongoing services reduces the customer's own in-house resource- and skill requirements.

SoftBase**Address:**

20 Fall Pippin Ln Ste 202, Asheville, NC 28803, USA

Phone: (800) 669-7076.

Email: sales@softbase.com.

Web: www.softbase.com.

Activity: Software vendor

Specialist areas: Data management; programming/testing

Mainframe platforms supported: z/OS

Pricing options: Processor/capacity-based, workload/usage

Company profile

SoftBase is a leading provider of application testing and tuning solutions for IBM's DB2® database utilizing the OS/390® and z/OS® operating systems. SoftBase solutions enable our customers to build and maintain high-quality DB2 applications that run as reliably and cost-effectively as possible. SoftBase was founded in 1987 and is recognized globally for our long term service and commitment to our DB2 mainframe customers.

Product/service information**TestBase™**

TestBase™, our test data management solution, allows you to quickly retrieve manageable subsets of referentially intact data from DB2® databases around the enterprise, thoroughly test and validate proper functioning of all DB2 application enhancements, and ensure that all sensitive production data remains completely private during testing. Using TestBase Slice™, Application Developers can now manage their own test data and run unlimited tests to properly verify that ALL application SQL code and changes are working properly. As a result, DBAs no longer need to maintain a multitude of test beds.

Batch Healthcare - Attach Facility

Attach Facility™ reduces CPU costs by using patent-pending technology to allow older applications to utilize multi-row FETCH, without code changes. Attach Facility also enhances the batch DB2 environment by eliminating the use of TSO and allows the proper handling of step abends and return codes.

Batch Healthcare - Checkpoint Facility

In the event that critical DB2 batch jobs do fail due to unforeseen health problems, the Checkpoint Facility™ allows you to safely restart and complete these jobs as quickly as possible to ensure that all critical online applications are available when needed.

Batch Healthcare - DeadLock Advisor

DeadLock Advisor™ makes the job of pinpointing these issues and which job caused them effortless by placing messages in the joblog of both jobs involved in the deadlock, timeout or resource unavailable condition. In this way, application developers can troubleshoot their jobs without the assistance of a DBA.

Software AG

Address:

Uhlandstrasse 12, 64297 Darmstadt, Germany

Phone: +49 6151 92 0 (Germany)

Web: www.softwareag.com

Activity: Software vendor

Specialist areas: System management; data management; storage management; asset and change management; programming/testing; web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, VM/VSE, Linux on Z

Non-mainframe platforms supported: Other Unix, Linux, Windows, Power Systems, IBM i, i5/OS, and OS/400, Power Systems, AIX, Other

Pricing options: Monthly/annual license, processor/capacity-based

Company profile

Software AG is the industry's leading independent integration, Internet of Things, analytics, process software and services company. We are trusted by over 70% of the world's top 1,000 enterprises. Software AG transforms your business and drives enterprise innovation by helping you connect and integrate everything—from applications and devices to data and clouds. We help you free data—even data in motion—from silos to “democratize” it and make it shareable across your organization—any time it is needed, anywhere and by anyone.

As a pioneer in software innovation, Software AG has 50 years of experience keeping mainframe applications relevant and integrated with the latest technologies. Our proven application modernization capabilities can connect mainframe applications, data and people to new technologies, channels and services so you can build on your strengths and become part of a truly connected world.

Product/service information**Mainframe API Enablement**

Connect COBOL and Natural applications to external apps, devices and services with APIs so you can leverage your existing business logic in new ways. With seamless, built-in integration between EntireX and webMethods Integration Server, it is easy to generate REST APIs to connect core mainframe applications to an API ecosystem.

Mainframe Data Integration

Connect, replicate and migrate mainframe data from Adabas, Db2®, flat files, IMS™, QSAM and VSAM™ to cloud and on-premises environments. CONNX can unlock native database architectures and transform data into a format that allows it to be used in data warehouse, business intelligence, cloud and IoT projects.

User Experience Modernization

Connect your users with a better experience—transform green screens into modern web interfaces, redesign user workflows and use APIs to extend capabilities to new channels and applications with ApplinX.

Adabas & Natural 2050+

Software AG is committed to ensuring mission-critical Adabas & Natural applications are future ready—now. We can optimize your IT environment, modernize your core applications and transform your development environment to save costs, attract new developer talent and connect with new technologies.

Software Diversified Services (SDS)

Address:

1322 - 81st Ave NE, Spring Lake Park, MN 55432-2116, USA

Phone: 800-443-6183

Email: info@sdsusa.com

Web: www.sdsusa.com

Sales contacts:

America: sales@sdsusa.com.

EMEA: cvanderross@sdsusa.com

AsiaPac: cvanderross@sdsusa.com.

Activity: Software vendor

Specialist areas: System management; security; web integration and legacy reengineering tools; network performance/management

Mainframe platforms supported: z/OS, VM/VSE

Non-mainframe platforms supported: Other Unix, Linux, Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Company profile

Founded in 1982, Software Diversified Services delivers comprehensive, affordable mainframe and distributed software with a focus on cybersecurity, compliance, CICS management, and network monitoring/management.

Hundreds of organizations worldwide, including many Fortune 500 companies, rely on SDS software, for business-critical operations. Our expert development and award-winning technical support teams are based in Minneapolis, Minnesota, USA.

SDS has a 38-year history of delivering customer-centric IT infrastructure solutions, backed up by technical support staff with valuable expertise and experience. SDS software enables you to manage and protect your data and your brand while driving more value from your IT investment.

While the focus on cybersecurity and compliance has grown exponentially in recent years, SDS continues to provide world-class security solutions at affordable rates. DO MORE WITH LESS is a motto SDS adopted decades ago and it remains true, especially when considering their suite of mainframe security software offered today.

Product/service information

The SDS VitalSigns family of NETWORK products for z/OS is a low-overhead, easy-to-use suite that employs web browsers to provide a modern GUI for z/OS network management. Pinpoint the source of z/OS network delays, monitor security in real time, and more.

VitalSigns for FTP (VFTP) secures, monitors, automates, and audits FTP traffic through z/OS servers and clients.

VitalSigns for IP (VIP) provides real-time, browser-based management of TCP/IP networks, noted for breadth of monitoring scope, ease of use, and minimal CPU demands.

VitalSigns for Network Automation and Control (VNAC) is an ideal, lower-cost replacement for NetMaster and other network monitors.

VitalSigns SIEM Agent for z/OS (VSA) filters and delivers real-time z/OS security events to any SIEM.

SDS E-Business Server uses industry-standard PGP encryption, enabling you to securely and cost-effectively exchange confidential information. Common uses include securing archival backups and data within applications, email, file transfers, and transaction processing.

Enabling compliance with key regulations, E-Business Server features the industry's most trusted algorithms to encrypt and decrypt data.

SDS E-Business Server uses industry-standard PGP encryption, enabling you to exchange confidential information securely and cost-effectively. Common uses include securing archival backups and data within applications, email, file transfers, and transaction processing. Enabling compliance with key regulations, E-Business Server features the industry's most trusted algorithms to encrypt and decrypt data.

The Virtel Web Suite includes several browser-based products that offer the most secure 3270 terminal emulation, legacy app modernization, and interactive web connections.

CICS management software also available: IPCP and CAFC.

Software Engineering GmbH

Address:

Robert-Stolz-Strasse 5, 40470 Dusseldorf, Germany.

Phone: +49 (0)211 96149 0

Fax: +49 (0)211 96149-32

Email: se.info@seg.de

Web: www.seg.de

www.seg.de/language=en/808/start

Sales contacts:

America: SEGUS Inc

14151 Park Meadow Drive, Chantilly, VA 20151

Email: info@segus.com

Phone: +1-800-327-9650

Web: www.segus.com

EMEA: se.info@seg.de

AsiaPac: se.info@seg.de

Activity: Software vendor and consulting

Specialist areas: Database performance, maintenance, recovery

Mainframe platforms supported: z/OS

Pricing options: Processor/capacity based, other

Company profile

Software Engineering GMBH has been developing standardized DB2 software and providing DB2 consulting services for more than 25 years. By combining intensive

research with target-oriented development of new DB2 software products, we have established powerful skills in DB2 solutions. Driven by customers, consultants, and other highly skilled DB2 users at our Design Councils, we develop practical innovations to keep DB2 in the best shape.

Product/service information

RealTime DBAExpert insures high data availability, as well as fast and secure recoverability, 24x7. RealTime DBAExpert automates the management of DB2 for z/OS databases. Using real-time statistics and user-defined thresholds, combined with continuous monitoring of DB2 objects, RealTime DBAExpert detects and responds to database problems immediately. Seamless integration with all job schedulers and existing IT procedures secures existing investments and the exploitation of latest technologies saves valuable resources.

Bind ImpactExpert completely automates the evaluation of access paths for static and dynamic SQL. Integration into all existing rebind and bind procedures automatically determines the rebinds and binds necessary to insure consistent or improved performing access paths, as well as to avoid those that are unnecessary. Used as a migration aid, Bind ImpactExpert predicts the access paths that will result under a new DB2 version and categorizes the changes into version-specific results.

SQL PerformanceExpert for DB2 z/OS insures well-tuned SQL statements, which translates to efficient CPU usage, improved reponse time, reduced I/O activity and reduced resource locking. SQL PerformanceExpert automates the analysis of SQL performance (both static and dynamic) and identifies tuning changes that improve application performance, pinpointing problem areas and saving time and money associated with inefficient applications. It also automates package management and catalog change management, as well as the optimization of performance indexes.

PiT Recovery for DB2 z/OS automates, controls, and speeds up all the necessary actions needed for a point in time (PIT) recovery of ERP and CRM systems like Peoplesoft, SAP, and Siebel. Pit Recovery not only generates, executes, and controls the necessary jobs, it even weighs different scenarios like using DB2 image copies, flashcopies, or even the new DB2 V8 RESTORE SYSTEM feature. Additionally, it provides all the required information necessary to forecast how long a specific outage will last.

Recovery HealthCheck for DB2 z/OS verifies all Recovery/Restart relevant prerequisites of a production database. It also provides recovery time objectives for each object, pinpointing the period of time that is required for a recovery. Recovery HealthCheck for DB2 z/OS makes the

prerequisites for a critical recovery scenario transparent and enables proactive adjustments and optimization before an outage occurs.

Solimar Systems

Address:

1515 Second Avenue, San Diego, CA 92101, USA

Phone: +1 619 849 2800.

Email: sales@solimarsystems.com.

Web: www.solimarsystems.com

Activity: Software vendor.

Specialist areas: System management

Mainframe platforms supported: z/OS, VM/VSE, Linux, Other

Non-mainframe platforms supported: Windows, i5, AIX, other Unix, Linux

Pricing options: One-time charge, Monthly/annual license

Company profile

Founded in 1991, Solimar Systems Inc is a leading developer of enterprise output management solutions for digital document creation, production and distribution environments. Installed in thousands of sites around the world, including nearly 40% of the *Fortune 100*, Solimar solutions satisfy a wide range of customer requirements by combining integrated connectivity, data stream transforms, print optimization, document re-engineering/repurposing and sophisticated print queue management with secure web-based document presentation, distribution and tracking.

Experts in legacy and modern data streams, Solimar solutions provide essential infrastructure to organizations in a variety of industries including insurance, financial services, banking, pharmaceuticals, telecommunications, healthcare, government, education, retail, manufacturing, utilities, distribution and print service bureaux.

Product/service information

Products include:

- *Solimar Print/Director Enterprise* – Client/server based enterprise output management solution that provides multi-level security, remote administrator and operator access, email alerts, powerful job routing/tracking capabilities, and industry leading data stream transforms.
- *ICONVERT* – Stand-alone powerful transform engine for AFP environments that automatically routes mainframe and AS/400 print reports directly to networked desktop and production PostScript printers, viewing stations and archive systems. Files are parsed and renamed with job events module.

- *SOLscript* – PostScript preamble that emulates and optimizes Xerox VIPP software by generating DSC compliant PostScript, extending the reach of VIPP applications to virtually all types and brands of workgroup and production printers, as well as ERM/ COLD and archive systems.
- *SOLsearcher* – Highly scalable and secure electronic document delivery and web presentation solution that enables organizations to effectively index, store, search and retrieve large collections of transactional and/or scanned documents. Ideal for B2B and B2C environments.

SSH Communications Security

Address:

SSH Communications Security Corp, Valimotie 17, FI-00380 Helsinki, Finland.

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Email: info@ssh.com.

Web: www.ssh.com.

Sales contacts:

America: +1 781 247 2100 / sales.americas@ssh.com.

EMEA: +358 20 500 7000 /ssh.sales@ssh.com.

AsiaPac: +81 3 3459 6830 / sales.jp@ssh.com.

Activity: Software vendor

Specialist areas: Security

Mainframe platforms supported: z/OS, Linux on Z

Non-mainframe platforms supported: AIX, Other Unix, Linux, Windows

Pricing options: One-time charge, processor/capacity based, workload/usage based

Company profile

SSH Communications Security is a world-leading provider of enterprise security solutions and end-to-end communications security, and the original developer of the Secure Shell protocol. The company's SSH Tectia solution addresses the most critical needs of large enterprises, financial institutions, and government agencies. With SSH Tectia, organizations can cost-effectively secure their system administration, file transfers and application connectivity against both internal and external security risks. As the original developer of the Secure Shell protocol and other key network security technologies, SSH has for ten years developed end-to-end communications security solutions specifically for the enterprise. Currently more than 100 of *Fortune 500* companies are using SSH security solutions. SSH shares are quoted on the Helsinki Exchanges Main List.

Product/service information

SSH Tectia is the leading end-to-end communications security solution for the enterprise. SSH Tectia is based on the SSH Secure Shell and SSH's other industry leading technologies, used by millions worldwide. SSH Tectia enables secure system administration, secure file transfer and secure application connectivity with centralized management throughout the internal and external network. SSH Tectia provides transparent strong encryption and authentication and easily integrates into heterogeneous, multi-platform environments.

Secure System Administration offers system administrators the ability to remotely manage servers in a heterogeneous operating system environment. SSH Tectia replaces legacy login (eg Telnet and Rlogin) and remote command execution methods with enterprise-class administrator tools based on the SSH2 standard.

Secure File Transfer enables secure automated and interactive file transfers throughout the network, both for internal and external file sharing. SSH Tectia provides secure drop-in replacements for FTP and additional APIs that facilitate effortless transition from legacy file transfers to strong file transfer security.

Secure Application Connectivity offers end-to-end confidentiality, integrity, and authentication for application connections between workstations and servers. SSH Tectia protects transparently both in-house developed and commercial business applications without the need to modify the applications or the supporting IT infrastructure. security right up to the mainframe.

SV Group

Address:

Albrechtova 32, HR-10000 Zagreb, Croatia.

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Email: info@svgroup.hr.

Web: www.svggroup.hr/

Activity: Software vendor.

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; network performance/management;

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z

Non-mainframe platforms supported: AIX, Unix, Linux, Windows

Pricing options: One-time charge, processor/capacity-based, workload/usage based

Company profile

SV Group d.o.o. is a project-oriented IT company founded in 1995.

Customers of SV Group solutions and services are companies whose activities have for years been dependent on IT technologies and solutions that directly support their business. This is why our customers seek a reliable and proven partner to realize their IT projects

Product/service information

SV Group d.o.o. provides you with:

- Application development,
- Innovative, reliable IT solutions based on proven technologies and concepts adjusted to your specific business needs,
- Supervision of information projects and solutions design and implementation ('Software Quality Assurance – SQA'),
- Sale of hardware, software and services:
- Hardware (IBM System z, IBM Power Systems, IBM System Storage),
- IBM Software (B2B Integration, Information Management software, Lotus software, Rational software, Tivoli software, WebSphere software, System z software, SPSS software),
- VMware software
- Microsoft software
- RedHat software
- Services provided by our certified experts, IBM services and services provided by our partners,
- Enterprise content management (ECM),
- IT asset management,
- IT infrastructure virtualisation,
- Secure data back up,
- Proactive IT system and application monitoring,
- Proactive and reactive support and maintenance of SV Group applications (Life Insurance, Office Management, Call Centre, New Croatian Personal Identity Card, Personal Identity Card for Foreigners, Croatian Passport, National Border Management Information System – NBMIS), Statistical Monitoring of Visits to Web Sites – S3a, and other application and system solutions .

Syspertec Communication

Address:

196 Bureaux de la Colline, 92213 Saint-Cloud Cedex, France

Phone: +33 (0)1 46 02 60 42

Email: info@syspertec.com

Web: www.virtelweb.com

Sales contacts:

America: (925) 937-5816 / info@syspertec.us.

Activity: Software vendor.

Specialist areas: Web integration and legacy reengineering tools

Mainframe platforms supported: z/OS, VM/VSE,

Non-mainframe platforms supported: IBM i.

Pricing options: One-time charge, monthly/annual license.

Company profile

SysperTec is a French independent software publisher which has more than 20 years of experience in technologies of connectivity between heterogeneous computer systems (primarily Mainframe). Betting that IBM mainframes would remain an essential element of corporate IT parks, SysperTec develops software solutions to modernize legacy applications since 1993.

Each of the group's solutions has the same goal: modernizing corporate information systems in order to enable them to better meet the challenges of their respective markets, all the while minimizing impact on their existing architectures... In a nutshell, do better for less! 500 customers spread over the 5 continents in banking, insurance, administration, services, industry and distribution sectors trust our solutions' ease of use, flexibility and reliability, coupled to reduced costs and perpetual technological innovation.

The group's software suites are distributed through a network of international partners. In the US, SysperTec has its own west-coast subsidiary which works closely with its North American mainframe distributor Software Diversified Services.

Product/service information

Virtel is a simple, fast, powerful, and cost-effective solution to convert the proven business logic of legacy applications (CICS, IMS, Natural, Ideal, TSO...) into new and dynamic web applications. With Virtel, mainframe applications look and behave like true web applications at a fraction of the cost, risk and duration of redevelopment, replacement, or rehosting strategies.

The Virtel software Suite is developed on a unique and original architecture, which makes it an attractive alternative when it comes to mainframe systems' evolution . It also allows a gradual implementation, following the rhythm of multiple needs thanks to various application modules.

Virtel Web Access

Upgrade from 3270 emulation to pure TCP/IP web access: this Virtel module securely extends 3270 applications to

web browsers with the classic green screen presentation and ergonomics.

Virtel Web Modernization

Turn 3270 green screens into modern GUIs: this Virtel module creates rich web pages that combine 3270 data streams with JavaScript widgets and AJAX-based application features.

Virtel Web Integration

Integrate mainframe and server applications for SOA or WOA architectures: this Virtel module creates interactive bidirectional connections between mainframe and web applications, e.g. web services (REST, JSON, or MQ) that consume 3270 transactions.

converts existing systems to the users chosen replacement product.

DR/VFI: a product that identifies critical files for Disaster recovery and compliance.

Megacryption: a z/OS encryption and PGP suite for compliance and easy to use encryption.

DataExchange: a publishing system to make z/OS data available to any user with a browser independent of its source.

Systemwerx

Address:

PO Box 1195, Bedford, MK42 8WY, UK

Phone: +44 207 0606601.

Email: sales@systemwerx.co.uk.

Web: www.systemwerx.co.uk.

Activity: Software vendor and consultancy.

Specialist areas: System management, security, web integration and legacy reengineering tools.

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: IBM i, AIX, Unix, Linux, Windows.

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Company profile

Systemwerx has, for over 10 years, provided our customers with solutions to their business needs.

Our system specialists provide our customers with practical experience in the development of business applications and exploiting operating system, networking, database, and cryptography across multiple platforms.

Product/service information

We provide a number of products to help z/OS users:

PassGen: a solution to generate one-time RACF passwords (Passtickets) – this allows applications off host to securely communicate with z/OS applications and databases. Passgen is available in a native Windows version and a Java version that executes on any system with a JRE.

Mimic: a solution to assist users migrating from Connect:Direct and CA-XCOM to another managed file transfer system. Mimic allows removal of existing products by providing an emulation of existing products and

Technical Storage SARL

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24 rue Joannes Masset, 69009 Lyon, France

Phone: 323-774-8677.

Email: info@technical-storage.com.

Web: www.technical-storage.com.

Activity: Software vendor

Specialist areas: System management; data management; storage management

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Windows

Pricing options: One-time charge, monthly/annual license.

Company profile

IBM ISV since 2007 supporting mainframe shops with performance management solutions for DASD (EADM) and Tape (EATM).

Product/service information

EADM and EATM operate in IBM z/OS Mainframe Storage Performance. EADM is a fully automated Predictive Analytics solution that mines your data-rich RMF and CMF 24x7. Alerts are sent when jobs, hardware or SLAs are underperforming. I/O performance is constantly monitored detailed by LPARs, LCU, STOGROUP, Volume down to file levels.

The Source Recovery Company

Address:

1070 Applecross Drive, Roswell, GA 30075, USA

Phone: +1 770 712-9887.

Email: jrahm@source-recovery.com.

Web: www.source-recovery.com.

Activity: Software

Specialist areas: Asset and change management; programming/testing

Mainframe platforms supported: z/OS

Pricing options: One-time charge.

Company profile

The Source Recovery Company has been recovering COBOL and Assembler source code directly from the mainframe executable since 1994.

Product/service information

The recovery of COBOL or Assembler source is offered as a service. It requires the executable to be sent to our office in Atlanta. The executable is then analyzed and torn down to the individual csect(s) within the executable. The client then identifies which csect(s) need to be recovered. Each csect is recovered back to the language as identified in the executable. The recovery is guaranteed to produce a 100% functionally equivalent executable.

We also provide a service of matching source to load in a situation where a client may have multiple versions of source and is not certain which version generated the executable in production.

TONE Software Corporation

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Web: www.tonesoft.com/mainframe

Sales contacts

America: sales@tonesoft.com

EMEA: sales@tonesoft.com

AsiaPac: sales@tonesoft.com

Activity: Software vendor.

Specialist areas: System management;

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Non-mainframe platforms supported: Cloud

Pricing options: Monthly/annual license, processor/capacity-based, workload/usage based

Company profile

Tone Software develops and markets business software to increase mainframe efficiency and modernize host operations, reduce z/OS support costs, and increase the productivity of z/OS IT teams responsible for critical business applications.

Based in Anaheim, California, TONE is a privately owned company that answers to customers, not share-holders. Leveraging more than 40 years of deep mainframe expertise, TONE is committed to delivering quality z/OS software and exceptional support and service to every client.

TONE products are marketed and supported throughout North America, Europe, and Australia through the Anaheim headquarters and international agents. Tone's solutions include:

- DYNA-STEP dynamic STEPLIB and ISPF library management
- STEPLIB-Rx solution to replace unsupported STEPLIB tools and shareware
- OMC-FLASH JES2, JES3, and JES3plus SPOOL viewing and management
- JES2Mail, JES2FTP, Mail2ZOS and CICS2PDF z/OS output transformation and electronic delivery solutions
- OMC-PRINT and OMC-TCP/IP host output routing and printing
- TRX TSO resource and performance management .

Product/service information

TONE's mainframe solutions manage and control the z/OS, TSO, JES2, JES3, JES3plus and VTAM infrastructure to modernize host operations, reduce system resource consumption, and increase host productivity, including:

- DYNA-STEP Dynamic STEPLIB allocation and ISPF library management to save time and resources, reduce overhead, speed user logons, reduce LOGON PROC maintenance, and expedite migrations from test to production.
 - STEPLIB-Rx, a fully supported solution to replace unsupported STEPLIB tools and shareware without re-coding.
 - OMC-FLASH JES spool management to view and control jobs, datasets, output, devices, operations, resources, and workflow across the JES2, JES3 and JES3plus environment, all with one seamless solution.
 - JES2Mail, JES2FTP, Mail2ZOS and CICS2PDF to transform z/OS output into PDF, HTML or CSV, then securely deliver the output via Email, FTP, RSS, or the cloud.
 - OMC-PRINT and OMC-TCP/IP host output management to route and print directly from JES to VTAM and TCP/ IP printers, with full control of enterprise- wide print activity.
 - ACC to automate and manage z/ OS console traffic and host processes, including start up, damage assessment, restart, and shutdown.
 - TRX TSO performance management to reduce TSO resource consumption, improve response times, reduce system overhead, and improve TSO user productivity.
-

Top Gun Technology

Address:

5500 Cottonwood Lane SE, #106, Prior Lake, MN 55372, USA.

Phone: +1 952 226 9700

Email: sales@topgun-tech.com.

Web: www.topgun-tech.com.

Activity: Hardware vendor.

Mainframe platforms supported: z/OS, Linux

Non-mainframe platforms supported: IBM i, AIX, Linux

Company profile

Top Gun Technology, a Veteran Owned Small Business, is your best source and logical resource to answer your questions regarding zSeries processors and related peripherals. We have the largest independent inventory of zEC12 & z196/z114 processors and older generation technology; whole systems, features and parts. Processors and complete systems are certified and banded by IBM before they leave our technical center.

Top Gun Technology's management, product engineers and sales staff have an average of 25+ years experience providing guidance to data center clients. We have built an infrastructure and team to support your hardware needs with helpful and forward-thinking planning and consultation. Our intent is to have you think of Top Gun Technology as a "resource" - a company that you can rely upon for thoughtful information, guidance and a unique approach to planning for and acquiring large-platform hardware and associated services at competitive prices that maximize your budget dollar.

Product/service information

Top Gun Technology is committed to being the industry's most logical alternative to the manufacturer. We provide an independent view of the market with expert, in-house solutions. Our goal is to offer options that cost far less than the manufacturer's or any business partner's solutions in these areas: IBM System z :zEC12/2828, z196/2817, z114/2818 & z10 Processors and Feature upgrades; IBM Power Systems-Power7, Power7+, Power6 as well as previous generation pSeries and iSeries, IBM Storage for mainframe and open systems platforms: Disk, tape, libraries & VTS; Brocade & IBM FICON directors, switches, blades & SFPs. HP(new/refurbished), Cisco, STK & EMC hardware is also available. Call if you have surplus hardware, need data center consolidation or leasing services.

Top Gun Technology – "Your Ultimate Data Resource".

Trident Services

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Email: sales@triserv.com.

Web: www.triserv.com.

Sales contacts:

America: 800-887-4336

EMEA: 800-887-4336.

AsiaPac: 800-887-4336

Activity: Software vendor.

Specialist areas: System management; data management; storage management.

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license, processor/capacity-based.

Company profile

Trident Services has provided z/OS solutions and systems consulting services since 1978. Trident has established a solid reputation for the excellence of its software and the expertise of its consulting staff while continuing to keep pace with industry changes, emerging technologies and client needs.

Product/service information

Our flagship software, zOSEM (zOperating System Environment Manager), is one solution for total system management of z/OS. Trident's zOSEM simplifies and modernizes z/OS management by implementing dynamic controls of functions, delivers improved system throughput, better control of JCL standards, optimizes HSM, and includes resource routing functions to significantly reduce ISV footprint, helping you reduce ISV and MLC charges. The latest release of zOSEM introduces step-level routing, which allows for further reduction of software license footprints by routing only the job step to a penalty box or LPAR.

Triton Consulting

Address:

The Royal, 25 Bank Plain, Norwich, Norfolk, NR2 4SF, UK.

Phone: +44 870 2411 550

Email: marketing@triton.co.uk.

Web: www.triton.co.uk.

Activity: Consultant

Specialist areas: System management; data management; storage management; security

Mainframe platforms supported: z/OS, Linux on IBM Z

Non-mainframe platforms supported: Unix, Linux, Windows, other

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, other

Company profile

Triton Consulting is a highly focused, independent data management services provider. Renowned in the industry for our levels of DB2 expertise, we are proud to be the home of an IBM Gold Consultant, two IBM Champions and some of the most highly qualified DB2 experts in the world.

Product/service information

zTune

Triton can help you to regain control of your software charges by running an audit of your current environment and identifying when and where the workload peaks occur.

Initial Analysis – Typically customers can reduce their peak CPU charges by a minimum of 3% with no performance impacts whatsoever and many customers can reduce their peak by 5% from this initial analysis.

Performance Tuning – The majority of mainframe users have significant potential for further reducing resource consumption (and therefore costs) through performance tuning of key workloads. This is especially true for those with older applications that haven't been actively maintained for a while or who have lost some of their deep middleware skills through retirement or redundancy.

By tuning these workloads, ongoing software costs can be reduced and mainframe upgrades potentially deferred. In addition, application performance will be enhanced and overall Total Cost of Ownership (TCO) reduced.

Our unique zTune service will identify potential mainframe workload management improvements and could immediately reduce your IT spend.

UBS Hainer GmbH

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Email: info@ubs-hainer.com

Web: www.ubs-hainer.com

Activity: Software vendor.

Specialist areas: Data management; programming/testing;

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Linux, Linux, Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based,

Company profile

UBS Hainer is dedicated to delivering quality software and services to IBM's z/OS mainframe customers running mission critical Db2 based applications. Cost and performance are not the only concern for Db2 shops. Staffing and processing time constraints are quickly becoming major issues. The value proposition for UBS's products and services include: Cost reduction, performance enhancement, job wall clock time reduction and expert system automation to free up experienced technical staff.

UBS Hainer GmbH, headquartered in Germany, was founded in 1997. It fields an active international network of distributors that have developed a noteworthy customer portfolio worldwide including well known insurance companies, banks, government institutions, health care providers, industry and service sector companies.

Product/service information

UBS Hainer is a leading innovator of Db2 refresh strategies for test data management. We've created a set of tools to simplify and automate all areas of cloning and copying so companies can easily manage multiple test and QA environments – from small unit tests to massive acceptance tests – without impacting their production systems.

BCV5:

Set up lightning fast copies on file system level to automate a regular refresh of your test beds and save 90% CPU, run time and manual effort compared to Unload/Load

BCV4:

Clone Db2 subsystems and isolate production from all other environments in mere minutes without impacting performance.

XDM Row Level Processing (RLP):

Select and mask consistent subsets with respect to RI constraints to supply developers and testers with specific data for unit testing

Is z/OS not your thing? – Ask for XDM Database Cloning (DC) and XDM Table Copying (TC), your tool of choice for Db2 Linux, Unix, Windows, Oracle, MS SQL..

Value-4IT Limited

Address:

7 Wright Road, Long Buckby, Northampton NN6 7GG, UK.

Phone: +44 (0) 845 0579386

Email: info@value-4it.com.

Web: www.value-4it.com/

Activity: Integrator

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z

Non-mainframe platforms supported: AIX, Unix, Linux, Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other

Company profile

Value-4IT are an independent software & professional services company offering diverse and in-depth business facing experience for IBM Z Mainframe, UNIX, Linux and Windows platforms

Our experienced personnel provide our valued customers with a wide range of business, process & technical skills for maximizing the business value for IT resources within your organization.

Therefore our philosophy is a combination of pragmatic and structured delivery via TCA, TCO, & ROI methodologies, safeguarding the timely implementation of cost efficient IT solutions for business improvement initiatives..

Product/service information

Value-4IT are focused on delivering cost efficient and strategic IT solutions that meet or exceed business requirements. Our customer-facing personnel all have many years experience working with leading IHVs, ISVs and Professional Services organisations, designing and integrating value-added solutions for many global Blue Chip customers.

Through a combination of innovative and evolving processes, the raison d'être of Value-4IT is to collaborate in long-term and rewarding partnerships with our customers, becoming their trusted advisor, by consistently delivering timely and cost-efficient solutions.

Value-4IT also maintains an independent viewpoint of the IT market place and are ideally placed to provide pragmatic third-party input into technology selection and IT portfolio

review for our customer base. We are honoured to have been chosen to be the UK territory distribution channel for a modicum of best-of breed software solutions, while we do so with a Software Asset Management (SAM) focus, using straight-forward, competitive and no-small-print caveat pricing regimes.

Value-4IT are UK partners for Dino-Software, Optica, PerfTechPro and Technical Storage, supplying high function IBM Z Mainframe Systems Management solutions, with short-term ROI and optimized TCO, when compared with similar products.

Vanguard Integrity Professionals, Inc.

Address:

6625 S. Eastern Avenue, Suite 100

Las Vegas, NV 89119, USA.

Phone: 702-794-0014

Email: marketing@go2vanguard.com.

Web: www.go2vanguard.com

Activity: Software vendor

Specialist areas: Security

Mainframe platforms supported: z/OS.

Pricing options: One-time charge, monthly/annual license, workload/usage based, other

Company profile

Vanguard Integrity Professionals provides enterprise security software and services that solve complex security and regulatory compliance challenges for large enterprises and government agencies around the world. With solutions for Identity and Access Management, Audit and Compliance, Security Administration and Intrusion Detection, Vanguard automates processes necessary to identify and mitigate the risks customers face. Vanguard's customers receive a rapid return on investment and are able to focus on other critical business needs thereby becoming more productive and more secure. For more information, visit www.go2vanguard.com.

Product/service information

Security Management Solutions

Vanguard Administrator - Automated security administration

Vanguard Advisor - Event detection, analysis, and reporting

Vanguard SecurityCenter - Windows-based security administration of RACF

Vanguard Enforcer - Intrusion detection and management system for z/OS and OS/390 mainframe systems

Vanguard Policy Manager- A "Best Practices" enforcer for z/OS Security Server RACF Commands

Compliance and Audit Solutions

Vanguard Analyzer - System integrity and analysis
 Vanguard inCompliance - Continuous system compliance verification
 Vanguard Enforcer - Intrusion detection and management system for z/OS and S/390 mainframe systems
 Vanguard Policy Manager - A "Best Practices" enforcer for z/OS Security Server - RACF Commands

Access Management Solutions

Vanguard Authenticator - Scalable, modular, and integrated authentication solution for entire enterprise
 Vanguard ez/SignOn - Enterprise identity management and intrusion detection
 Vanguard ez/Token - A two-factor authentication solution integrated with RACF for users logging on to the mainframe
 Vanguard Tokenless Authentication - Delivers strong authentication capabilities by generating and sending a one-time use, time-sensitive passcode to a communication device the user already possesses: the user's cell phone, PDA, Blackberry and more
 Vanguard ez/Integrator - Security programming tools that allow your applications to inherit the enhanced security of RACF
 Vanguard ez/AccessControl - Extending RACF access and identity management to desktops and servers
 Vanguard PasswordReset - User reset of forgotten passwords

Intrusion Detection Solutions

Vanguard Enforcer - Intrusion detection and management system for z/OS and S/390 mainframe systems
 Vanguard Advisor - Event detection, analysis and reporting
 Vanguard ez/SignOn - Enterprise identity management and intrusion detection.

Verhoef Training Ltd**Address:**

11 Kingsmead Square, Bath BA1 2AB, UK

Phone: +44 (0) 1225 339705.

Email: info@verhoef-training.co.uk.

Web: www.verhoef-training.co.uk

Activity: Education

Specialist areas: System management; storage management;**Mainframe platforms supported:** z/OS, VM/VSE, Linux on Z

Non-mainframe platforms supported: IBM i, AIX, other Unix, distributed Linux, Windows, Cloud, other

Pricing options: Other.

Company profile

For over 30 years Verhoef Training has been delivering quality 'Technical Training for IT Professionals' throughout the world. Our UK training centre was established in the World Heritage City of Bath in 1993. From there we deliver training throughout the UK, Europe and the Middle East. We have a range of over two hundred classes for IT professionals and have always specialised in the IBM Mainframe.

Product/service information

We provide technical IT training courses, mentoring and online tuition. Ranging from simple introductions to full blown mainframe systems programmer academies for companies all around the world.

Vertali Ltd**Address:**

Unit 13, Buntsford Drive, The Courtyard, Bromsgrove B60 3DJ, UK

Phone: +44 (0) 7768 617006.

Email: info@vertali.com.

Web: vertali.com

Activity: Consultant

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; network performance/management, other

Mainframe platforms supported: z/OS, Linux

Non-mainframe platforms supported: Cloud

Company profile

Headquartered in the UK, Vertali provides expert IBM mainframe skills and resources to organizations around the world. We know IBM Z technology inside out so you benefit from more experience, expertise, and insights than anyone else can offer. Working with world-leading organizations in finance, retail, utilities, governments, and 100% focused on IBM mainframe infrastructure, we help you secure and optimize your mainframe operations, reducing costs and increasing ROI.

Vertali offers:

- A large pool of IBM Z skills and resources
- Senior mainframe professionals vetted for their experience, integrity and communications skills
- Specialist expertise in cyber resiliency
- A solid track record in delivering on time and within budget.

Product/service information

Vertali provides trusted consultants who deliver world-class mainframe infrastructure and security services that help our clients to navigate and profit from change, mitigate risk, and achieve their technology and business objectives. We help you to plan, deliver, maintain, and update your mainframe strategy.

Mainframe Consultancy Services:

- Mainframe Infrastructure Services
- Project Delivery
- Software Migrations

Mainframe Security Services:

- Assessment/Audit Remediation
- Cyber Resiliency
- Mainframe Penetration Testing
- Mainframe Security Assessment
- Security as a Service.

VirtualZ Computing

Address:

5775 Wayzata Blvd., Suite 700
Minneapolis, MN 55416, USA

Phone: 800-930-0416.

Email: jeanne.glass@virtualzcomputing.com

Web: <https://virtualzcomputing.com/>

Activity: Software vendor

Specialist areas: Data management.

Mainframe platforms supported: z/OS, Linux

Non-mainframe platforms supported: Linux, Windows

Pricing options: One-time charge, monthly/annual license, workload/usage based.

Company profile

VirtualZ Computing™ is a privately held, woman-founded, women-led software company that is revolutionizing data access.

With Lozen™ and Zaac™, enterprises are empowered with real-time, read-write data access from any platform, anytime, anywhere.

VirtualZ is a Microsoft Partner, Micro Focus Authorized Technology Alliance Partner, Splunk Technology Alliance Partner, and an IBM PartnerWorld member.

Product/service information**Lozen™**

Our patented product, Lozen software, allows you to leave data where it is — securely on the IBM Z platform — eliminating the need to replicate or “lift and shift” data during migration.

Lozen was built on familiar, industry-standard protocols and APIs that maintain mainframe-level security and performance. It unlocks broader data access at a lower cost and enables simpler application migration — all in a no-code implementation.

This strategic data access solution was inspired by a female Apache warrior and battlefield strategist named Lozen. As the first woman-founded, women-led IBM Z ISV in history — and with Native American and diverse heritage across our team — Lozen’s story threads deeply within VirtualZ.

Zaac™

Coming soon, Zaac operates under the concept of “IBM Z as a Client” (Z-a-a-c), allowing mainframe applications to read and write data from other platforms in real time — the way a client would.

With Zaac, the mainframe is elevated so that it has the same data access capabilities as any other platform. Applications running on IBM Z now have real-time, read-write access to data on other storage platforms and to data created by applications running in the cloud and on distributed platforms — all while maintaining existing mainframe-level security.

WDR Ltd

Address:

Park Lodge, 60 London Road, Horsham, West Sussex, RH12 1AY, UK

Phone: +44 (0)1403 268251.

Email: info@wdr.co.uk.

Web: www.wdr.co.uk

Activity: Consultant

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management, other

Mainframe platforms supported: z/OS, VM/VSE, Linux

Non-mainframe platforms supported: IBM i, AIX, Unix, Linux, Windows

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Product/service information

Established nearly 40 years ago by two senior ex-IBM Executives, WDR is one of the UK’s leading IT specialists. The early years, through hands-on consultancy, training courses, seminars and systems development, were dedicated to improving performance and management predominately in the IBM mainframe market. Always the

niche company, WDR remains attracted to the difficult challenges that others may miss.

WDR has since broadened its focus from mainframes to mid-range systems to networks and distributed systems to the desk-top and server-based systems of today. Throughout, we have remained current in all these activities.

WDR have an attractive office and training centre at Horsham, an old market town in West Sussex in the South of England, and maintain facilities to give seamless support to our many prestigious clients.

Web Age Solutions

Address:

Suite 1, 436 York Road, Jenkintown, Montgomery County, PA 19046, USA

Phone: +1 215 517 6540.

Email: gwagner@webagesolutions.com.

Web: www.webagesolutions.com

Activity: Education

Specialist areas: System management; data management; storage management; programming/testing; web integration and legacy reengineering tools

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Unix, Linux, Windows

Pricing options: Other

Company profile

Web Age Solutions supports the following technology and methodology areas through training, mentoring and consulting.

Mainframe – DB2 – WebSphere – WebLogic – Linux – UNIX – Python – Java EE – OOAD – Spring – Hibernate – Oracle – Big Data – Service Oriented Architecture – Cloud – Enterprise Architecture – Mobile Computing (Android and i/OS) – JBoss – HTML5 – Open Source – Microsoft – Web services – AJAX – Data Warehousing – XML/XSLT – Virtualization – ITIL – Web 2.0.

Product/service information

Specific to our mainframe curriculum, we provide training in subjects as diverse as MVS Concepts and Utilities, CICS, COBOL, DB2, TSO/ISPF, IMS, z/OS Systems management and others. Our courses are developed by industry experts and run using IBM mainframe computers.

Weintraub Systems

Address:

801 Monica Ln, Campbell, CA 95008, USA

Phone: + 1-845-891-1690

Email: Phil.Weintraub@WeintraubSystems.com

Web: www.weintraubsystems.com

Activity: Consultant

Specialist areas: Other

Mainframe platforms supported: z/OS, Linux on IBM Z

Company profile

Weintraub Systems provides IT architecture services for firms needing to integrate their mainframe with a hybrid cloud architecture. Founded by Phil Weintraub, who was IBM Vice President for mainframe IT modernization for North America.

Product/service information

We provide IT architecture services for mainframe users. This includes optimization, application portfolio assessments, and modernization.

XStream

Address:

Corso Svizzera 185, 10149 Torino, Italy

Phone: +39 011 0168800

Email: company@xstream-labs.com

Web: http://xstream-labs.com/

Activity: Software vendor

Specialist areas: System management; data management; asset and change management; web integration and legacy reengineering tools; other performance/management.

Mainframe platforms supported: z/OS

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

Company profile

XStream is a start-up born in 2018 from the twenty-year experience gained by the founding members in the management of Large Computing Systems with the purpose to develop innovative software solutions aimed to optimize Mainframe Technology Management and to enhance IT Governance best practices. Since

2019 XStream has been included by i3P, the Politecnico University of Turin Incubator for the growth of the most promising technological start-ups, and by UniCredit Start Lab Business Accelerator promoted by Banca UniCredit

Product/service information

Xstream Suite.

A Modular Platform to Manage & Control Mainframe Assets and Service Delivery

IT Governance

- Mainframe Assets Discovery
- Performance/Resource/Service Delivery Monitoring
- IBM Monthly Licence Compliance Control

Real-Time Mapping & Monitoring

- Mainframe & Storage Assets
- System & Business Processes
- Transactional & Batch Workloads

Transactional Workloads

- Real-Time Profiling and Analysis
- Software Quality
- Program-level Introspection & Consumption
- Program-level Impact Analysis

User-friendly Interface

- No need for specialized Technical Personnel

What-if Analysis

- Mainframe Scenarios Prototyping & Analysis

Machine Learning Technology

- System Proactivity & Resiliency
- Dynamic & Predictive Monitoring

The use of Xstream Suite products allowed the technical teams of one of the main European banks to achieve:

- In a few months an 8% MIPS saving on CICS transactional workloads
- In 3 years a 25% reduction in licensed MIPS

Zdevops

Address:

Ter Wadding 12, 7608 LH, Almelo, The Netherlands

Phone: 639219574

Email: info@zdevops.com

Web: zdevops.com

Activity: Consultant

Specialist areas: System management; storage management; asset and change management; security; programming/testing; web integration and legacy

reengineering tools; network performance/management

Mainframe platforms supported: z/OS, Linux on IBM Z

Non-mainframe platforms supported: Linux

Company profile

zdevops was founded around a simple core belief:

“It’s all about having a passion for your job and being proud of all the awesome things you do”

We assist organisations and individuals in getting the most out of their z Systems environment. This is done via hands on support, training and coaching.

Product/service information

We don’t sell any Mainframe products yet, the minute we do we can assure you they will be awesome!

ZETO Katowice

Address:

Zakład Elektronicznej Techniki Obliczeniowej w Katowicach Sp. z o.o., ul. Owocowa 1, 40-158 Katowice, Poland

Phone: +48 32 3589 268

Email: sitekr@zetokatowice.pl

Web: www.zetokatowice.pl

Activity: Software vendor

Specialist areas: System management; data management; storage management; asset and change management; security; programming/testing; web integration and legacy reengineering tools; network performance/management; other

Mainframe platforms supported: z/OS, Linux on z/OS

Non-mainframe platforms supported: Linux, Windows, Cloud, other

Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based, other

Company profile

ZETO Katowice Sp. z o.o. is a company operating in the IT market since the 60’s of the twentieth century, providing IT solutions for public and private sector.

Our main areas of activity are creation of dedicated IT systems, processing and data security, advisory services, mobile applications, solutions based on business analytics and Big Data. ZETO Katowice has extensive expertise in the management, administration and operation of Mainframe infrastructure. Over 50 professionals work in the mainframe environment.

We have expertise in project management (PRINCE2, Scrum, Agile). We design and deliver IT services using the best practices of ITIL.

We are constantly improving implemented The Integrated Management System of Quality and Information Security (international standards ISO 9001 and ISO/IEC 27001). The main objective of that management system is to adapt the business processes and standards to market requirements as well as efficient identification and reduction of critical information security risks.

Product/service information

ZETO Katowice meets the requirements of existing legislation, especially in the field of protection of personal data, the confidentiality of the data entrusted and any license agreements.

In our Data Center, we have three IBM machines: production z14 ZR1, backup z13s, test zBC12. The power of these machines is adapted to the needs of our customers. Our Data Center has redundant IT infrastructure, including IBM Mainframe servers, disk arrays, SAN, LAN and WAN infrastructure. Server room meets all applicable standards and customers requirements.

Our most important customer is The Polish Social Insurance Institution (ZUS). ZUS is one of the largest financial institutions in Poland. The main product is the computer system known as Rentier-Manager/ADABAS, which supports the activities of the Social Insurance Institution in the area of services provided to Polish pensioners. Rentier-Manager/ADABAS is developed in Mainframe technologies.

We have high competence in: z/OS, z/VM, Linux on IBM Z, Natural/ADABAS, CICS/TS, Complete, RACF/zSecure, DFSMS/DFSMSHSM, REXX, JCL, TSM.

We are interested in building sustainable cooperation with customers and business partners. We have a lot of space for offices and IT equipment. We can make any remote work in customer's or partner's Main-frame environment.

zSoftware

Address:

Kloosterwei 320, 2361 XR Warmond, The Netherlands

Phone: +31 610162676.

Email: info@zsoftware.nl.

Web: www.zsoftware.nl.

Activity: Consultant

Specialist areas: Asset and change management.

Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z

Non-mainframe platforms supported: IBM i, AIX, Unix, Linux, Windows, other

Company profile

zSoftware can help any Enterprise lowering their Software Costs on any environment (Mainframe, Distributed) with smart Software Asset Management.

Join the Virtual user groups

Virtual : IMS
USER GROUP

Virtual : CICS
USER GROUP

Virtual : Db2
USER GROUP

A guide to sources of information for IBM mainframers

Newsletters, magazines, user groups, and social networking information resources for the z/OS environment

Although there are now relatively few publications focusing specifically on the mainframe, there are plenty of ways to gather information and comment on large systems. Apart from traditional magazines, there are numerous e-zines, blogs, discussion groups, and other online resources, and this guide offers a personal selection for readers to sample. A list of the main mainframe user groups is also included, which are one of the best sources of information available. You can suggest other sites/titles for inclusion in the next year's Yearbook (email arcati@itech-ed.com).

Enterprise Tech Journal

Enterprise Tech Journal describes itself as being for IT technicians in the world's largest multiplatform enterprises. The associated website at enterprisesystemsmedia.com contains articles, news, events, and a store.

enterprisesystemsmedia.com



Journal of Information Integration and Management.

dbta.com/

Five Minute Briefing: Data Center

Database Trends and Applications publishes a number of Five Minute Briefing newsletters, but the Data Center title sometimes has announcements that are relevant to mainframers. The newsletter provides an excellent weekly round-up of announcements.

dbta.com



Enterprise Executive

Enterprise Executive, this is the sister publication to *Enterprise Tech Journal*, and is aimed at IT managers in the world's largest multiplatform enterprises. It is a less technical, but no less informative, than *ETJ*, and both are available as flipbooks.

enterprisesystemsmedia.com



SearchDataCenter

TechTarget publishes a range of Web-based newsletters, and under the 'Topic' drop-down menu, you can find a number of datacenter topics, but nothing specifically for mainframes any more.

searchdatacenter.techtarget.com/

Enterprise Systems

Based on the once-celebrated Enterprise Systems Journal, the Enterprise Systems Web site provides some interesting articles and discussions on mainly non-mainframe platforms. It claims to provide high-end datacenter and server solutions, and has sections for information about datacenter/enterprise, cloud, security, storage, and virtualization. It offers newsletters, whitepapers, and webcasts.

www.esj.com

TechChannel

IBM Systems Magazine website has morphed into a platform- and company-agnostic tech trends hub. It includes articles and blogs and webinars.

techchannel.com/

IBM Redbooks

IBM Redbooks publications provide a wealth of real-world installation, configuration, and usage insights into myriad technologies with a multitude of titles. It is categorized by IT Infrastructure, Software, Storage, and Training.

<http://www.redbooks.ibm.com/>

Database Trends and Applications Magazine

This bimonthly magazine describes itself as the

Mainframe social media

In addition to the ever-growing number of blogs focusing on mainframe-related topics, it's now possible to interact with mainframe-minded people on Twitter, Facebook, LinkedIn, Instagram, and other social media.

IBM has its Servers & Storage blog at: ibm.com/blogs/systems/topics/mainframes/. There are CICS blogs in the CICS part of the IBM Z and LinuxONE Community website: <https://community.ibm.com/community/user/ibmz-and-linuxone/groups/topic-home?CommunityKey=8bc7f42b-b4ba-4419-80d8-2fbf894a6649>. There are IMS blogs in the IMS part of the IBM Z and LinuxONE Community website: <https://community.ibm.com/community/user/ibmz-and-linuxone/groups/topic-home?CommunityKey=eba3ada3-db89-4dca-9154-328195f5e560>. And there are Db2 for z/OS blogs at: <https://community.ibm.com/community/user/ibmz-and-linuxone/groups/topic-home?CommunityKey=c1dcdd7e-90a2-432a-99bd-04326454f40a>.

There's the IBM IMS Central site at <https://imsdev.github.io/>, which has lots of useful information.

Planet Mainframe publishes blogs each week. It describes itself as, "The world's premiere resource for leading-edge mainframe technology". You can find the blogs at: planetmainframe.com/blog/.

And, not to be missed, Craig Mullins' DB2 Portal blog at db2portal.blogspot.com/.

Alan Radding describes himself as a 20-year IT industry analyst and journalist covering mainframe, midrange, PC, Web, and cloud computing. His DancingDinosaur blog – Mainframe computing in the 21st century – can be found at dancingdinosaur.wordpress.com.

Other interesting blogs include: Irving Wladawsky-Berger by Irving Wladawsky-Berger at blog.irvingwb.com/blog/, and James Governor's Monkchips site at www.redmonk.com/jgovernor. It says of itself, an industry analyst blog looking at software ecosystems and convergence.

IBM has a mainframe page on Facebook at www.facebook.com/IBMZ. There is an IMS group; at facebook.com/groups/ibmims, and there's the CICS Training Hub at facebook.com/27CICS. Although these don't seem very active.

The Virtual CICS user group is on Facebook at www.facebook.com/VirtualCICS. And the Virtual IMS user group is at www.facebook.com/VirtualIMS.

There are mainframe-related discussions on LinkedIn. For example, there's: Mainframe Products & Services: Announcements, Events, Training, Promotions, Blogs, etc at linkedin.com/groups/2915689/; Mainframe Operators and Programmers at linkedin.com/groups/3688300/; Mainframe Users at linkedin.com/groups/3699921/; Mainframe Performance & Optimization: News and Opinion at linkedin.com/groups/2318931/; System z Advocates at linkedin.com/groups/155723/; MainframeZone at linkedin.com/groups/2196066/; Mainframe Audit at linkedin.com/groups/2352119/; Mainframe Experts Network at linkedin.com/groups/55779/; Mainframe Security Gurus at linkedin.com/groups/36083/; IBM Z and Events at linkedin.com/groups/3053018/; SHARE at linkedin.com/groups/1803278/; z/OS at linkedin.com/groups/2085015/; z/OS Operating System Education at linkedin.com/groups/2109186/; and Mainframe Professional Network Group at linkedin.com/groups/1912637/.

If you're interested in Db2 there's Db2 Professionals at linkedin.com/groups/45375/; IDUG: International Db2 Users Group at linkedin.com/groups/46747/; Db2 for z/OS at linkedin.com/groups/1171547/; and Db2 for z/OS DBAs at linkedin.com/groups/2008475/; amongst many

others. The Virtual Db2 user group is at <https://www.linkedin.com/groups/12717787/>.

There's the CICS Special Interest Group at [linkedin.com/groups/1534227/](https://www.linkedin.com/groups/1534227/); IBM CICS at [linkedin.com/groups/4304249/](https://www.linkedin.com/groups/4304249/); and the Virtual CICS user group at [linkedin.com/groups/3847862/](https://www.linkedin.com/groups/3847862/).

For IMS there's IMS Global at [linkedin.com/groups/1949922/](https://www.linkedin.com/groups/1949922/); and the Virtual IMS user group at [linkedin.com/groups/3792561/](https://www.linkedin.com/groups/3792561/).

In future, LinkedIn might consider using vanity names like Facebook does.

If you go to YouTube (www.youtube.com) there are numerous short videos about mainframes and mainframe-related topics. IBM has a number of YouTube channels, including [youtube.com/user/IBM](https://www.youtube.com/user/IBM).

On Twitter, Craig Mullins (@craigmullins) recommends the following each week: @IBMZ, @PlanetMainframe, @RosalindRad, @t_eddolls, @RegHarbeck, @JeffBisti,

@SHAREhq, @Interskill, @zster, @MainframeGuyBS, @tinatarq, @rossmauri, @mentorafrika, @a_giorgio, @Darren_Surch, @MistyMVD, @MarvinSilverma3, @topictrick, @psqlctln, @drdusty275, @OpenMFProject.

Other good tweeters to follow include:

@IBM, @IBMChampions, @ARCserve_Europe, @BigData_paulz, @BMCSsoftware, @BobThomas_ESM, @crshnburn, @DTurnerBlogs, @GlobalKnowledge, @IDUGDB2, @JoshARhoads, @Macro_4, @martinpacker, @microfocus, @PlexSpy, @PreciselyData, @TeamARIN, @VirtualCICS, @VirtualIMS, @VirtualDb2and @WarrenWhitlock, @MainframerzM, @GSE101, @stevewallin, @ezriel_gross, @SHAREhq.

It may not be a definitive list, but it's a good place to start!

In addition, there are now mainframers using Instagram (eg @ibm, @lifeatibm, @ibmdata, @ibmsports, @lifeatibm, @ibmscience, @t_eddolls).

IBM Tech TV is the always-on platform for the latest technical talks, interactive coding sessions, and up-to-date information straight from IBM Experts. IBM Tech TV shows cover topics that are key to enhancing your skills and relevant to your industry and applications you're building. Subscribe now and return to watch your favorite weekly series and access valuable content that is added regularly!

IBM Tech TV offers free live and on-demand shows on topics of Cloud, Data, AI, Automation, DevOps, social topics and IBM Z®. You can find the latest technical talks, interactive coding sessions, and up-to-date information straight from IBM experts and our partners.

You can subscribe at: <https://community.ibm.com/community/user/ibm-tech-tv>

Other online information

Wikipedia

Although not a newsletter or journal, Wikipedia is a great online encyclopaedia that is written and maintained by its readers. The editors work hard to make sure that valuable content is not vandalized, and the site contains a surprisingly up-to-date range of mainframe-related definitions.

en.wikipedia.org/

IBM Z Favorites

zFavorites for z Systems is a collection of links to helpful z Systems websites. It has links to various interest categories, such as products, product documentation, software and solutions, support and more. Use the navigation bar to the left to select your area of interest.

www-01.ibm.com/servers/resourcelink/svc00100.nsf/pages/ibm-z-favorites?OpenDocument

IBM-MAIN listserv

The IBM Mainframe discussion list has been maintained for many years by the University of Alabama, and continues to be well supported. Unlike the high-level blogs, this is the place for very

specific technical discussions. Subscribers can sign up to receive useful summaries of message threads.

listserv.ua.edu/archives/ibm-main.html

You can also find information on Google Groups at: groups.google.com/forum/#!forum/bit.listserv.ibm-main

RACF-L

A discussion group that focuses on RACF.

listserv.uga.edu/scripts/wa-UGA.exe?A0=RACF-L

Assembler-List

A discussion group that focuses on Assembler.

www.lsoft.com/scripts/w1.exe?SL1=ASSEMBLER-LIST&H=LISTSERV.UGA.EDU

IMS list

A discussion group that focuses on IMS.

imslistserv.bmc.com/scripts/wa-BMC.exe?A0=IMS-L

CICS list

A discussion group that focuses on CICS.

listserv.uga.edu/scripts/wa-UGA.exe?A0=CICS-L

Mainframe-related apps

There are now mainframe-related apps available that you can download from Google Play for Android devices and the App Store on Apple devices. So, what comes as an app?

IBM HMC Mobile for Z and LinuxONE allows users to securely monitor or manage systems from anywhere, even if they are spread across multiple Hardware Management Consoles. user can view system details, including status, hardware messages, memory, processors, and more.

Mainframe tutorial and refresher apps available include:

- **Mainframe IBM Interview QA** from Programmerworld, which gives 600+ interview questions.
- **Mainframe Tips** from Bhooshan Suresh Rao Mane, which provides mainframe tips for COBOL, JCL, Db2, VSAM, and CICS.
- **Mainframe Quiz** also from Bhooshan Suresh Rao Mane, which has quiz questions for COBOL, JCL, VSAM, Db2, and CICS.

- **JCL Tutorial** a free guide to Job Control Language.

And there are lots more like that. I've no idea how useful they are, but there must be a need for them or people wouldn't keep releasing them.

It's good to know that your mobile device can be a useful resource for working on a mainframe. And it's handy to know that while you're waiting for a plane or friends to show up, you can sharpen and hone your mainframe skills on an app on your phone or tablet.

Mainframe user groups

The IBM mainframe world has attracted numerous user organizations and special interest groups (SIGs). Most hold regular meetings and conferences, often with satellite groups and chapters throughout the world. Here are a few of them:

- **SHARE**. The oldest (1955) and probably most influential IBM user organization with SIGs focusing on various aspects of IBM software, hardware and security. Known as GUIDE/SHARE in Europe.
share.org
gse.org
gse.org.uk/
- **zNextGen** is part of SHARE, and invites people who are new to enterprise computing, in a new role with z Systems servers, or working as new z Systems professionals, to participate.
share.org/Connect/SHARE-Programs/zNextGen
- **CMG**. The Computer Measurement Group is widely supported and specializes in capacity planning and performance issues (mainframe and increasingly distributed). There is a large network of CMG organizations worldwide.
cmg.org
- **IDUG** – International DB2 User Group.
idug.org

- **TPFUG** – TPF User Group (yes, it's still out there, handling 5000 transactions per second).
tpfug.org
- **IBM WebSphere, Liberty, Java & DevOps Community**.
community.ibm.com/community/user/wasdevops/home
- **International zSeries Oracle SIG** for companies licensed for Oracle on z/Linux and/or z/OS.
zseriesoraclesig.org

There are also two large user organizations for data center managers with a focus on infrastructure (including mainframe):

- **AFCOM** (afcom.com)
- **7x24 Exchange** (7x24exchange.org)

Apart from the Virtual IMS user group (itech-ed.com/virtualims), regional IMS user groups include the long-established Dallas/Fort Worth group and a number of newer ones. There is also the Virtual CICS user group (itech-ed.com/virtualcics), and the Virtual Db2 user group (itech-ed.com/virtualdb2).

Canada has CIPS, Canada's Association of IT Professionals, which has been in existence since 1958 and can be found at cips.ca/.

Glossary of Terminology

Definitions of some mainframe-related terms

This glossary is intended as an *aide memoire* for experienced mainframers and a useful reference for those new to the z/OS world. If you would like to suggest any new entries for the next edition, please send them to mainframe@arcati.com (we will even list you as a contributor!).



3270

IBM's family of dumb, block-mode synchronous screen and printer terminals, which became the standard for terminal/mainframe connectivity.

3270 data stream

Format used by 3270 devices for communication, and much used for emulation to make PCs look like dumb terminals.

5250

Terminal standard for the iSeries/400, System/3x etc.

ABARS

Aggregate Backup And Recovery Support. A disaster recovery feature within DFSMSHsm for automatically creating files containing back-ups of critical data. The main use of ABARS is to group all the datasets relating to a particular application together.

Abend

ABnormal ENDing. IBM speak for an unexpected termination to a program run, eg a crash.

Above the line

In z/OS, z/VM, and VSE/ESA, above the line refers to virtual/real memory locations with an address greater than 16MB. The 16MB limit resulted from earlier operating systems supporting 24-bit addressing.

ACB

Access Control Block. The control block used to tie an application program to a VSAM dataset.

Access control

Enforcing rules governing use of computer resources by restricting both the use and type of use to authorized individuals and the computer resources they are responsible for.

Access method

IBM-specific jargon for software that moves data between main storage and I/O devices.

ACF/VTAM

Advanced Communications Function / Virtual Telecommunications Access Method is IBM's proprietary telecommunications software.

ACID

This acronym describes the properties of a transaction. Atomicity refers to a transaction's changes to the state – either it all happens or nothing happens. Consistency refers to the state of a transaction. It must not violate any of the integrity constraints associated with the state. Isolation refers to the transaction not being affected by others. Durability refers to the survival of changes to state after a transaction completes.

ACL (1)

Access Control Lists specify which users are permitted to access a file or program function. The ACL format is determined by the External Security Manager (ESM).
RSH

ACL (2)

Automated Cartridge Library. Synonymous with ATL (Automated Tape Library).

ACO

Automated Console Operations. Automated procedures that replace or reduce the number of actions an operator takes from a console in response to system or network activities.

ADA

Programming language much loved by the military (ADA is a US government standard), which uses it for writing systems for controlling guided missiles and the like. Withdrawn August 1994.

Address Resolution Protocol

The Internet Protocol (IP) used to dynamically map IP addresses to physical hardware Media Access Control (MAC) addresses.

Address space

The virtual storage allocated to an executing task in a mainframe. Generally used within z/OS to mean the space used by one of batch job, system task, or TSO user.

Agile

A modern alternative to waterfall models of project development in which requirements and solutions emerge through collaborative working between developers and users. It results in rapid changes and innovative solutions to problems.

AI

Artificial Intelligence is the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions), and self-correction.

AIOps

Originally, Algorithmic IT Operations, although sometimes thought of as artificial intelligence for IT operations, it refers to software that uses machine learning to help IT teams evaluate and act faster and more accurately.

AIX

Advanced Interactive eXecutive. IBM's version of Unix for mid-range systems (System p). It is one of four commercial operating systems that are certified to The Open Group's UNIX 03 standard. It is currently supported on IBM Power Systems alongside IBM i and Linux.

AJAX

Asynchronous Javascript And XML is a way of creating interactive Web applications using a group of technologies together. These technologies include XHTML (or HTML) and CSS; the Document Object Model; and the XMLHttpRequest object.

AMASPZAP

z/OS batch utility to apply a fix directly to object code *in situ*. Often protected against unauthorized use because of its additional ability to make direct changes to disk.

AMODE

Addressing MODE. Attribute of z/OS programs indicating the length (in bits) of the addresses used in the program. Introduced in MVS/XA to differentiate between the then new 31-bit addressing that expanded the addressable space from 16MB (24 bit) to 2GB. z/OS introduced 64-bit addressing.

AMS

Access Method Services. z/OS and VSE subsystem for performing various data-related actions on VSAM and ICF catalogs, including defining VSAM datasets, and deleting and copying most dataset types. In short, a multi-purpose utility. Also known as IDCAMS because that is the program name.

Analytics

Extracting hidden value from the massive volumes of data.

Ansible

This popular open-source software is a provisioning, configuration management, and application-deployment tool enabling infrastructure as code.

APAR

Authorized Program Analysis Report. An official report of a software error to IBM. Also used to refer to the patch supplied by IBM to fix the error (PTF is the correct term).

API

Application Program(ming) Interface. Documented programming procedures to access a given piece of software; typically an entry point name and parameter list. The re-use of APIs can speed up application development.

APL

A Programming Language, conceived within IBM by KE Iverson, and popular on the mainframe in the late '70s and early '80s to support end-user activities.

APM

Application Performance Management monitors and manages the performance and availability of software applications in order to meet business needs.

App

This usually refers to a mobile application found on Android and Apple smartphones and tablets.

Applet

A small application program written in the Java that can be retrieved from a Web server and executed in a browser.

APPN

Advanced Peer-to-Peer Networking architecture is an enhancement to SNA architecture. It can handle dynamic multipath routing.

ARM

Automatic Restart Management is a sysplex-wide integrated restart mechanism that can restart MVS subsystems after an abend, restart workloads on another MVS image after an MVS failure, and restart a failed MVS image.

AS/400

Application System/400. IBM's mid-range processor, announced in June 1988. It was replaced by the IBM Power Systems in April 2008. Now called IBM i.

ASCII

American Standard Code for Information Interchange. A modification of the international code which has become a *de facto* standard (except for IBM which also uses the EBCDIC code) for transmitting data. Uses seven bits plus a parity bit, and includes alphanumeric and control characters. ASCII must be converted to EBCDIC for uploading to IBM mainframes.

ASM

Auxiliary Storage Manager. The part of z/OS that looks after the I/O operations relating to paging – specifically the pages and page slots on external storage (typically DASD).

Assembler

Programming language that allows the user to get close to the hardware on IBM mainframes. Assembler statements correspond one-to-one with mainframe, machine-level instructions.

ATL

Automated Tape Library (also known as Automated Cartridge System – ACS, tape silo, or silo). Type of mass storage system (MSS) in which industry standard tapes are loaded by a robotic arm.

Augmented reality

Using a device, such as a smartphone or tablet, to view an object, such as server, and see on that device additional information about the object – such as performance information.

Auxiliary storage

All storage needing a channel I/O to access it (basically cache, SSD, disk, tape, mass storage).

AWLC

Advanced Workload License Charges is a new monthly licence pricing metric from IBM and applies to z196s.

BaaS

Blockchain as a Service – like Software as a Service (SaaS) – is where cloud-based solutions are consumed to build, host, and operate blockchains while the cloud-based service provider keeps the infrastructure agile and operational.

Backout

A process that removes all database updates performed by an application that has abended (qv).

BAL

Basic Assembler Language. The machine language on the original S/360 from which the modern Assembler languages are derived.

Bandwidth

A measure of how fast a network can transfer information, originally measured in Hertz (Hz), but now used for any measure of network throughput. The more precise definition: frequency range within a radiation band required to transmit a particular signal. Measures the difference between the highest and lowest signal frequencies in millions of cycles per second.

BASIC

Beginners All-purpose Symbolic Instruction Code. Universal interactive programming language.

Batch

An accumulation of data brought together for processing or transmission, usually unattended. Less formally, the processing of such data, as opposed to online processing where a user is present to respond interactively.

BCD

Binary-Coded Decimal. A binary-coded notation in which each of the decimal digits is represented by a binary numeral. This differs from the pure binary notation, where the entire number is represented as a single binary numeral.

BCS

The Basic Catalog Structure and the VVDS are the two parts of the ICF catalog. The BCS contains dataset and alias names and volume serial numbers.

BCU

A Balanced Configuration Unit comprises processor memory, I/O, storage, and DB2 resources. It is the smallest combination of these that work together efficiently. As more work is added to the system, so more BCUs can be added. This avoids any one component being too big in terms of the others.

BDAM

Basic Direct Access Method allows programmers to access specific blocks of data on DASD.

Benchmark

An agreed workload used as a standard against which to compare the performance of different hardware/software. For a benchmark to be useful it needs to be a public standard.

Big Data

The SNA/APPN command used to activate an LU-LU session following the successful completion of the SNA/APPN session initiation processing.

Big SQL

This allows users to access Hadoop-based data using familiar SQL statements. It utilizes InfoSphere BigInsights.

Bimodal IT

Gartner's management of IT model where one strand is very conservative and unwilling to change and the other strand embraces rapid application development and is tightly linked to business needs.

BIND

The SNA/APPN command used to activate an LU-LU session following the successful completion of the SNA/APPN session initiation processing.

BIOS

Basic Input/Output System. The I/O component of a simple operating system defining the interface between the operating system and the outside world.

Bitcoins

Bitcoins originated in a 2008 concept paper by Satoshi Nakamoto. Bitcoins are a virtual currency that are 'mined' by solving complex algorithms and are usually stored in a digital wallet. Bitcoin exchanges are completely private, which makes them popular with criminals! Many legitimate companies offer products for sale using bitcoins.

BLOB

Binary Large Object. A generic term for a file containing some kind of binary data (text, image, document, sound, etc). Typically, BLOBs can be transferred and manipulated across a wide range of platforms.

Block

A string of data elements, such as characters, words, or physical records, that are recorded or transmitted as a unit.

Blockchain

A blockchain is a distributed database that maintains a continuously growing list of ordered records. Blockchains are secure by design and an example of a distributed computing system. Once recorded, the data in a block cannot be altered retroactively.

Bluemix

Bluemix is an open-standards, cloud-based platform for building, managing, and running all types of apps, for Web, mobile, big data, and smart devices. It includes Java, mobile back-end development, and application monitoring, all provided as-a-service in the cloud.

BMS

Basic Mapping Support. An interface between CICS and an application to control the movement and presentation of datastreams to and from a dumb terminal. BMS allows data to be displayed without allowing for display-dependent formatting characters.

Boolean

An operation that follows the rules of Boolean algebra.

Boot

To prepare a computer system for operation by loading an operating system.

BPAM

Basic Partitioned Access Method is a low-level access method used to access Partitioned DataSets (PDSs).

Breach

This is where a cyberattack has gained access to a network and the mainframe, giving unauthorised access to data and backups to hackers.

BSAM

Basic Sequential Access Method, along with QSAM, is an access method used to access sequential datasets.

Bus

Generic term in data communications to describe a wiring topology (such as that used in Ethernet) in which devices are connected along a single linear medium.

BYOD

Bring your own device is the policy many companies are adopting to allow employees to bring their own mobile devices (laptops, tablets, and smartphones) to their workplace, and to use those devices to access privileged company information and applications.

BYOI

Bring Your Own Identity is the growing practice of taking a validated identity with you and so not needing to remember different user-ids and passwords for different environments. There are security issues.

Byte

A string of 8 bits that represents one EBCDIC character. The IBM mainframe architecture is organized around the concept of the byte.

C

A programming language developed at Bell Labs in 1972, so named because its predecessor was named B. Unix was written in C.

C/C++

An optional, separately priced feature of z/OS, available with or without Debug Tool. The C/C++ IBM Open Class Library is included with z/OS, but is only enabled when C/C++ is licensed.

Cache

High-speed buffer between a fast device and a slow device. In large IBM systems caching may take place in the CPU (in main or expanded storage), the controller, device head-of-string, or the device itself (eg in a track buffer). It is used to reduce access time.

Capacity on Demand

Processors can be purchased with extra capacity already on-board but not functioning. When extra capacity is required at a site, it is turned on. This is non-disruptive and customers don't pay for the extra capacity until they start using it.

Catalog

A dataset that contains information about other datasets, eg type, location, size, format. The z/OS master catalog usually also contains entries for user catalogs.

CCL

Communication Controller for Linux (CCL) on zSeries runs the Network Control Program (NCP) software product in Linux, enabling users to get rid of their legacy 3745 communication controllers running NCP-based SNA workloads to zSeries servers.

CDS

Configuration DataSet.

CGI

Common Gateway Interface. A mechanism used by HTTP servers to invoke arbitrary programs for additional processing of certain requests; typically, those involving database access.

Change management

The methodology for planning and controlling software changes.

Channel

A specialized computer used in the IBM mainframe architecture to control transfers between devices and the processor unit. The channel offloads some of the processing associated with I/O from the main CPU.

Channel adapter

Hardware unit to attach a channel to a processor.

Channel attached

Devices that are directly attached to the processor by cable rather than over a communications link.

Channels

CICS TS 3.1 introduced a replacement for size-restricted COMMAREAs – they are channels and containers. Any number of containers can be passed between programs and they are grouped together in channels.

CHPID

CHannel Path IDentifier. A single byte binary value used to uniquely identify each channel path on an eServer zSeries and previous mainframe systems.

CICS

Customer Information Control System. General purpose TP monitor for terminal-oriented and inter-system transaction processing in z/OS and VSE/ESA environments. Now with added SOA.

CICS Explorer

This is a system management tool for CICS systems that's based on the Eclipse platform.

CICSplex

A CICS complex (CICSplex) is a group of inter-communicating CICS systems.

CICSplex System Manager (CPSM)

This provides system management as well as automation and workload management.

CKD

Count Key Data is a way to format disk drive using cylinder number, track number, and physical record.

Client/server

Generic term for systems (also known as server/requester) in which one machine provides a range of services to one or more other machines.

CLIST

Control language used to manage interactive applications in the z/OS TSO environment. Largely superseded by REXX.

Cloud computing

A new name for something similar to client/server computing. A user launches a browser and clicks a link. Somewhere else an application launches and work is done. The mainframe seems to have always worked in this way. Organizations like Microsoft, Amazon, and Google are trying to become big players in this 'new' paradigm.

Cloud Paks

IBM Cloud Paks are AI-powered software that come with pre-integrated data, automation, and security capabilities. They help create hybrid cloud platforms.

CMOS

Complementary Metal Oxide Semiconductor. A chip technology used widely by IBM in its processors, superseding the water-cooled ECL chips on the mainframe.

CMS

Conversational (originally Cambridge – the lab where it was built) Monitor System. Operating system running under VM, and providing timesharing and program development facilities.

COBOL

Programming language, very widely used for commercial applications on the mainframe. Some sources suggest that CICS and COBOL account for 85% of all transactions processed.

Communication Server

IBM's all inclusive, multi-platform, software bundle that provides a plethora of terminal emulation, Web-to-host, and networking capabilities.

Compile

The translation of a high-level programming language (source program) into a machine language program (an executable program).

Compiler

A program that translates high-level programming languages into machine language programs.

Composite applications

A composite application is an application built by combining multiple services. This tends to mean taking part of a really useful mainframe application and combining it with some other code so that the mainframe application becomes available over the Web

Compression

Generic term for a method of reducing the amount of space needed to store data, by encoding the data. This is achieved through the elimination of empty fields, gaps, redundancies, and unnecessary data to shorten the length of records or blocks.

Connector

One way of integrating CICS applications as Web services is to use connectors on the mainframe and use native interfaces to permit tight integration with the target application.

Containers

CICS TS 3.1 introduced a replacement for size-restricted COMMAREAs – they are channels and containers. Any number of containers can be passed between programs and they are grouped together in channels. Channels are deleted when no programs are using them.

Control Point

SNA/APPN/HPR functionality that performs authorization, directory services and configuration management.

CORBA

Common Object Request Broker Architecture. Set of standards for distributed object management from the Object Management Group (OMG).

Coupling

Generic term used to mean connecting of processors together into a more or less tightly-knit computing complex. Used specifically by IBM to mean the connection of multiple eServer zSeries processors in a Sysplex.

Coupling Facility

Hardware from IBM, where common tables can be shared in a Sysplex, for high-speed cacheing, update locking of shared data, list processing and workload balancing between multiple processors.

CPC

Central Processor Complex.

CPU

Central Processing Unit. Processor. The part of a computer that executes instructions.

CRM

Customer Relationship Management refers to the way organizations manage their relationships with customers – including finding, marketing to, selling to, and servicing these customers.

CTG

CICS Transaction Gateway provides J2EE standards-based access to CICS applications, which means it's an easy way to make existing CICS applications part of a Service-Oriented Architecture (SOA).

CTC

Channel-To-Channel connections would link two mainframes and provide high-speed communication.

Cyberattack

Bad actors trying to and often successfully gaining access to a network and the mainframe, then exfiltrating often confidential data.

CyberSecurity Mesh Architecture (CSMA)

An integrated approach to securing IT assets regardless of their location. It redefines the perimeters of cybersecurity to the identity of a person or a thing. Gartner predicts that this will reduce the financial implications of cyber incidents by 90% in less than two years.

Cylinder

The tracks, in an assembly of magnetic disks, that can be accessed without repositioning the access mechanism.

DASD

Direct Access Storage Device. IBM'speak for disk.

DAT

Dynamic Address Translation. The process by which virtual addresses are converted into real addresses during instruction execution.

Data dictionary

A data dictionary (DD) is a database containing information about the way items of data are used. Typically a DD contains details of data names, data usage, data structures, data models, and so on.

Data lake

A data lake is a repository of data stored in its natural format. This could be in a Hadoop-based repository.

Data mining

The practice of using a data warehouse for highly complex, ad hoc queries.

Data Privacy Passports

These were introduced with the z15 mainframe. They enable users to protect and provision data, and revoke access to that data at any time. They not only work in the z15 environment, but also across an enterprise's hybrid multi-cloud environment.

Data sewer

What happens to a data lake as more and more records are added.

Data warehouse

General term for a collection of database, middleware, and query tools that allow fast, flexible access to near-operational corporate data.

DataOps

This is an automated, process-oriented methodology, that's used to improve the quality and reduce the cycle time of data analytics.

DataPower

IBM WebSphere DataPower SOA Appliances is a family of pre-built, pre-configured rack mountable network devices that accelerate Web services deployments while extending SOA infrastructure.

Dataset

A unit of data storage and retrieval consisting of one or more data records. Outside of the IBM mainframe environment, people call them files.

DB2

Database/2. Relational database management system first announced for mainframe environments in 1983. Originally promoted as an end-user tool, but is now IBM's preferred DBMS for just about everything and runs on all platforms.

Db2ZAI

IBM Db2 AI for z/OS empowers the optimizer in the Db2 for z/OS engine to determine the best-performing query access paths, based on a site's workload characteristics.

Debug

The human problem determination process for software. Literally, to remove bugs.

DEDB

Data Entry DataBases are one of two types of IMS fast path database. These databases do not have indexes and are stored in VSAM files.

Defragmentation

The use of a software utility to improve access and retrieval time by rewriting fragmented data to contiguous sectors of a computer storage medium.

Denial of Service

An insidious, carefully-orchestrated attack on computer systems or networks to overload their resources with a barrage of requests in the hope of discovering overload-induced vulnerabilities within the targets or to just disrupt the mission-critical activities of an enterprise.

DeOS

No longer is DDoS (Distributed Denial of Service) our only worry, we need to think about Destruction Of Service attacks.

Device

Any computer peripheral, such as tape or DASD, or any object that appears to be a peripheral.

DevOps

Part DEvelopment and part OPerations, DevOps is a philosophy emphasizing the collaboration and communication between software developers and other IT people, so that building, testing, and releasing software, can happen rapidly, frequently, and more reliably.

DevSecOps

DevSecOps is DevOps with security consideration introduced earlier in the life cycle of application development in an attempt to minimize vulnerabilities.

DFSMS

Data Facility Storage Management Subsystem. An element of z/OS and also available for z/VM, as DFSMS/VM. The idea is that you simply tell the system about your storage, back-up, performance, and other requirements of the data, and the system does the rest for you. Of course, it's not really that simple.

DFSMSdfp

DFSMS Data Facility Product. A component of DFSMS that provides functions for storage, data, program, and device management, in conjunction with distributed data access. Enables the definition of the services to be assigned to new datasets. Handles catalog management and access methods.

DFSMSdss

DFSMS DataSet Services. An optional, separately priced feature of DFSMS that handles device migration, copy, space management, and dump/restore. It also converts existing data between non-SMS and SMS volumes, and provides an interface for storage administrators (ISMF).

DFSMShsm

DFSMS Hierarchical Storage Manager. An optional, separately priced feature of DFSMS. It is a sophisticated automated system for both back-up and hierarchical storage management. It includes an ISPF interface for end users who wish to migrate, recall, back-up, or recover individual datasets, or to override the default migration and/or back-up parameters.

DFSMSrmm

DFSMS Removable Media Manager. Its goal was to integrate the system managed storage principles of DFSMS into all removable media, most notably tape and optical.

Digital reinvention

Successful digital reinvention follows a fundamental rethink or reimagining of how an organization operates and how it engages with its environment and customers.

Digital Transformation (DX)

Another way of describing the inevitable change in technology that occurs in businesses that plan to stay in business.

Disruptive technology

Henry Ford said: "If I had asked people what they wanted, they would have said faster horses". That's an example of a disruptive technology – something that changes the way people do things.

DL/I

Data Language/I. The I is the Roman numeral One. The data manipulation language within IMS DB. DL/I is also the product name for IBM's VSE/ESA implementation of IMS DB.

DLSw

Widely-used SNA/APPN(/NetBIOS)-over-TCP/IP transport mechanism which, however, unlike EE, does not support SNA COS or routing.

DMZ

A De-Militarized Zone is used in the on-going war against viruses and malware etc. Typically, one computer accepts incoming data and send outgoing data. Behind it is a firewall, and behind that is the protected LAN.

Docker

Docker is a software container platform. Everything you need to make the software work is packaged into this container. It includes libraries and settings to run on any platform. This way, you get an efficient, lightweight, self-contained system, plus the assurance that the software will always run the same, no matter where it's deployed. IBM has Docker Enterprise Edition for IBM Cloud.

Domino

Web server technology from Lotus (June 1996), which allows browsers to interact with Notes and access Notes databases. Now closely integrated with WebSphere.

DRaaS

Disaster Recovery as a Service is the replication and hosting of physical or virtual servers by a third-party to provide failover in the event of a catastrophe.

EBCDIC

Extended Binary Coded Decimal Interchange Code. Coded 8-bit character set (giving 256 characters) used by IBM mainframes.

e-business

Used to refer to business transactions that use the Internet.

ECI

The External Call Interface is used by CICS to allow non-CICS programs to invoke programs under CICS.

Eclipse

Eclipse is an Open Source IDE. IBM's version is sold as WebSphere Studio Workbench. The Eclipse platform comprises the platform run-time, the workspace, the workbench, the Standard Widget Toolkit (SWT), the Version and Configuration Management (VCM), and the help system. Eclipse comes with a large number of plug-ins. The user interface for Eclipse is known as the workbench.

Edge computing

Putting some computing power at the furthest reaches of the network to control IoT devices, for example

EE

HPR-over-UDP/IP, created by committee and codified in RFC 2353 in 1998, which permits SNA/APPN networking, replete with native COS and routing, across IP networks.

EJB

Enterprise JavaBeans. A server-side, transaction-oriented extension to the JavaBeans component model specification published by Sun. EJB are JavaBeans, but have no user interface and are designed to run within a special EJB container. In principle, any properly coded EJB should run within any fully compliant EJB container.

Enqueue

The z/OS expression (often abbreviated to ENQ) for requesting resource serialization. ENQ can be used to put a user-named entry in the system resource queue in order to prevent another program using a serially usable resource.

Enterprise Content Management (ECM)

This refers to a way of organizing and storing an organization's documents, and other content, that relate to the organization's processes. Nowadays, ECM can be used when talking about strategies, methods, and tools used throughout the life-cycle of the content. ECM also covers the capture, search, and networking of documents with digital archiving, document management, and workflow.

Enterprise Extender

Enterprise Extender (EE) is a combination of SNA encapsulated in IP packets, so it can be thought of as a kind of protocol.

EPI

A CICS External Presentation Interface service is an implementation of a service that can be created from a 3270 terminal. EPI provides communication with 3270 terminal-based CICS applications.

ERP

Enterprise Resource Planning systems try to integrate all the data and processes that exist within an organization into a single unified system.

Error log

A dataset or file that contains a record of machine checks on device errors, which are stored for later analysis.

ESB

An Enterprise Service Bus is a software architecture construct that is standards-based and flexible. It is an attempt to separate the service being called and the required transport medium.

ESCON

Enterprise System Connectivity. The high-speed fibre-optic channel architecture (using a serial, packet-switched protocol) first available on ES/9000 and 3090Js and many peripherals. Replaced by FICON in May 1998, though still available.

ESDS

Entry Sequenced DataSet is a VSAM sequential dataset.

ESM

External Security Manager is a vendor software product that performs security authorization checking. RACF, ACF2, and Top Secret are ESMs. ESMs verify a user's identity, determine whether a user is permitted to access a dataset (ie file) or resource, log a user's activities, and decide whether a user can view or administer controls.

RSH

ESS

The Total Storage Enterprise Storage Server, code-named shark, is a high-speed data storage product.

EWLC

Entry Workload Licence Charges allow customers only pay for peak z/OS usage, not for full machine capacity.

FBA

Fixed Block Architecture is a way of formatting disk drives where space is allocated in fixed-length blocks rather than cylinders.

FDBR

Fast DataBase Recovery creates a separate IMS control region (the Fast Database Recovery region) to monitor an IMS subsystem. If it detects a failure, it will recover any database resources that are locked by the failed IMS, so they're available for other IMS subsystems.

FHE

Fully Homomorphic Encryption allows users to perform addition and multiplication operations on encrypted data, which, when decrypted, gives the same output as would have been produced using unencrypted data.

Fibre optic channel

Channel technology which replaced copper bus-and-tag channel cables with fibre-optic links.

FICON

Fibre CONnection. Mainframe channel that implements the ANSI FCS transport. Each FICON channel can handle over 4,000 I/O operations per second, equivalent to eight ESCON(qv) channels. The FICON channel link speed is 100MB/sec full duplex, compared with 17MB/sec simplex with ESCON links.

Firewall

Specialized software designed to prevent unauthorized access to a computer system while permitting validated, non-harmful interactions to get through.

Flat file

Any file (dataset, mainframe parlance) stored in a file access method without an index which, of course, eliminates all relational DBMSs.

Floating point

One of several methods of storing numbers on an IBM mainframe and most other computers. Similar to scientific notation, such as 3.75 times 10 to the 25th power, only it is 2 or 16 that is taken to some power.

FLPA

The Fixed Link Pack Area is an area of storage containing modules loaded at IPL time.

FORTRAN

FORmula TRANslation. A programming language best suited for engineering, scientific, and mathematical applications.

Fragmentation

When an operating system writes data to disk or other storage media, and there is insufficient contiguous space, the data is then written to discontinuous sectors. The result is fragmented data. Fragmentation can cause increased data access times because the operating system must search different tracks for information.

FTP

File Transfer Protocol is an application layer protocol that uses TCP and Telnet services to transfer bulk data files between machines or hosts.

Fog computing or fog networking or fogging

This is an architecture that uses edge devices to carry out a substantial amount of computation, storage, and communication locally and routed over the Internet backbone.

FWLC

Flat Workload License Charge. A flat monthly charge for a software product, no matter what size of zSeries server it is being run on.

Gamification

A way of making using the software more fun – like in a game – and so people are more likely to do it. It has applications in mundane tasks such as updating a knowledgebase.

Gateway

One way of integrating CICS applications as Web services is to use gateways, which run off the mainframe on middle tier servers and may well use traditional methods, such as screen scraping.

GDG

Generation Data Group. Collection of (z/OS non-VSAM) datasets all with the same logical name (GDG Base

Entry); the individual datasets are uniquely identified by the generation number which is stored as part of the dataset name.

GDPR

General Data Protection Regulation applies to any organization storing data about EU citizens.

GDPS

Geographically Dispersed Parallel Sysplex is an application to manage z/OS remote copy configuration and storage subsystems, to automate various tasks, and perform failure recovery for a sysplex located at two sites.

GTF

Generalized Trace Facility. An optional z/OS utility that records system events, which can be used for problem diagnosis.

GitHub

A Web-based Git version-control repository hosting service, which is available on mainframes.

GUIDE

Guidance for Users of Integrated Data processing Equipment. For many years, an international user group for users of large IBM equipment. Main GUIDE interests were in applications and the commercial world. Depending on the area of the world you live in, it either stepped aside for SHARE or merged with SHARE (now GUIDE/SHARE in Europe, for example).

Hackathon

A caffeine-rich events where teams use APIs to create customer-friendly applications quickly.

Hadoop

An open-source software framework for storage and large-scale processing of data-sets, ie Big Data. On a mainframe, it runs in a Linux partition (Linux on System z).

Hadoop Distributed File System (HDFS)

A filesystem used to store Big Data.

HALDB

High-Availability Large Databases are the newest (since V7) IMS databases. They are like souped-up very big full-function databases.

HBase

This is a non-relational, distributed database, written in Java that is used to store Big Data.

HCD

Hardware Configuration Definition is an interactive tool used to define the hardware configuration.

HDA

Head/Disk Assembly. The read/write head and associated bits and pieces that read data from disks. The implication is also of a sealed unit, at least from the customer perspective, as opposed to a removable disk pack.

HFS

Hierarchical File System comes with Linux and refers to the way files are stored.

HiperBatch

A way of running batch jobs in hyperspace, so there was far less I/O and things ran faster.

HMC

Hardware Management Console used to manage hardware.

Host

A computer system that is a server and/or serves attached terminals. Often used to refer to mainframe.

HPR

High-Performance Routing is an extension to APPN networking providing improved routing performance and reliability.

HSA

High-Speed Adapter is the name for subchannels on some servers.

HTML

HyperText Mark-up Language is a “mark-up language” for defining the structure of a document – eg Web pages.

HTTP

HyperText Transfer Protocol is the protocol used to request, transfer, and display hypertext documents.

Hub

A generic term for a device that has a single connection to the host and many connections for other devices to connect to it.

Hybrid cloud

Public and private cloud services can be integrated with on-premises infrastructure to produce a hybrid cloud environment with orchestration, management, and application portability across all three.

Hybrid working

Working from anywhere, including, but not restricted to the office and home.

I/O

Input/output. Refers to the transmission of data into or out of a processor's memory. This would include communication lines and peripherals such as disk drives.

ICETOOL

An enhanced DFSORT utility that includes the OUTFIL feature.

IBM i

An operating system running on IBM Power Systems. It was originally named OS/400 and ran on AS/400s.

IBM Z

IBM's mainframe family of processors, eg z15, z14, etc.

ICF

Integrated Catalog Facility contains catalog information about datasets. It is made up of BCS and VVDS.

ICF

Integrated Coupling Facility is a component of a Parallel Sysplex. It allows multiple processors to share, cache, update, and balance data access.

ICSF

Integrated Cryptographic Service Facility is part of MVS security, protecting data on the mainframe.

IDAA (IBM DB2 Analytics Accelerator)

This high-performance appliance integrates IBM Netezza and zEnterprise technologies, providing fast results for complex and data-intensive DB2 queries on data warehousing, business intelligence, and analytic workloads.

IDCAMS

Access Method Services. Multi-purpose batch VSAM utility program.

IDE

Integrated Development Environment. Salesmen say it stands for "It Does Everything", and unlucky customers as "I Do Everything"! An IDE could be a glorified text editor right up to all-singing all-dancing software like Eclipse and Visual Studio.

IEBCOMPR

z/OS Compare Datasets utility does a logical compare of datasets. Replaced by SuperC in ISPF/PDF.

IEBCOPY

z/OS Library Copy utility for copying members of a partitioned dataset (PDS), unloading a PDS into a sequential dataset and back again. Unloading is especially useful for copying a PDS to tape.

IEBGENER

z/OS Sequential Copy/Generate Dataset utility. Replaced by ICEGENER in DFSORT and several non-IBM products.

IEBPTPCH

z/OS Print-Punch utility for producing a hard copy of datasets and library members. Replaced by ISPF/PDF's hardcopy capabilities.

IEBUPDTE

z/OS Update Dataset utility. Can only be used for PDS members and sequential datasets with fixed-length records no greater than 80 bytes in length.

IEHLIST

z/OS List System Data utility for listing a VTOC or the directory of a PDS.

IEHMOVE

z/OS Move System Data utility for moving or copying logical collections of operating system data. Replaced by DFSMSDss.

IETF

Internet Engineering Task Force. An open community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet.

IFL

Integrated Facility for Linux. Dedicated Linux processor on the zSeries.

IIOIP

Internet Inter-ORB Protocol is an object-oriented protocol that makes it possible for distributed programs written in different programming languages to communicate over the Internet.

IML

Initial Microcode (sometimes Machine) Load. The first step in starting up a mainframe, during which the firmware is automatically copied into the machine.

IMS

Information Management System. Vintage but extremely powerful system for transactional workloads, still underpinning many of the world's business-critical applications. Composed of two systems: Database Manager (IMS DB) and a Transaction Manager (IMS TM).

IMS catalog

The IMS catalog contains information about IMS program resources, database resources, and relevant application metadata that IMS controls.

IMS Connect

This is an integrated TCP/IP gateway for IMS, allowing user-written applications to access IMS data and transaction services from any TCP/IP client. It also supports callout from IMS applications to outside services.

IND\$FILE

Mainframe file transfer program.

Info/Man

IBM Information/Management. Software problem, change and configuration management software. Now called Tivoli Information Management for z/OS.

Integrity Monitoring

Integrity Monitoring (IM) software offers security features such as whitelisting; early warning of infrastructure (parmlib, system files) changes; unusual activity by users; and surgical restore jobs; as well as regular checking that changes to data and backups are not unauthorized; and sending alerts.

Internet of Things (IoT)

This refers to devices such as remote sensors, CCTV, weather satellites, etc that will be monitoring throughout the day, and producing data that can be captured and analysed.

IOCDs

Input/Output Configuration DataSet. The dataset specifying the I/O devices that can be connected to a mainframe.

IOCP

Input/Output Configuration Program. The program describing the I/O configuration to the channel subsystem.

Internet of Everything (IoE)

The concept originated at Cisco, who defines IoE as "the intelligent connection of people, process, data, and things". With IoT, all communications are between machines, IoE adds machine-to-people (M2P), and technology-assisted people-to-people (P2P) interactions to machine-to-machine (M2M) communications.

IP

Internet Protocol. An Internet protocol that routes data through networks. IP acts as an intermediary between the higher protocol layers and the physical network. It does not provide error recovery or flow control.

IP address

The numerical Internet Protocol (IP) address of an Internet computer. Every computer has a unique numerical IP address. IPv6, which offers 64-bit addressing, is meant to replace IPv4, which only offers 32-bit addressing. One day, all the addresses available with 32-bit addressing are meant to be used up!

IPL

Initial Program Load. The first part of the process of loading an operating system into a machine.

IRC

Inter-Region Communication is a CICS facility providing communication between CICS regions using functions such as Multiregion Operation (MRO) and Distributed Program Link (DPL).

IRD

Intelligent Resource Director. z/OS feature for redistributing workloads on the fly.

ISHELL

ISHELL (ISPF Shell) is the name of the panel displayed after issuing the ISH command. It can be used to view files and directories.

ISPF

Interactive System Productivity Facility. Menu and screen management system.

ISPF/PDF

ISPF/Program Development Facility. ISPF facility providing access to application development services for end users and programmers. Incorporates C and REXX programming support, and some support for programmable workstations.

ISV

Independent Software Vendor. A software vendor which isn't part of and/or doesn't belong to a hardware manufacturer.

IT4IT

This Reference Architecture prescribes holistic management of the business of IT with continuous insight and control, enabling 'Boundaryless Information Flow' across the entire IT Value Chain. It provides prescriptive guidance on how to design, procure, and implement the functionality needed to run IT. The end-to-end, 'how to' emphasis of the IT Value Chain and IT4IT Reference Architecture also enables the state of services that IT delivers to be systematically tracked across the service life-cycle.

ITIL

Information Technology Infrastructure Library. ITIL provides a framework of best practice guidance for IT service managers. The actual ITIL publications cover areas such as service strategy, service design, service transition, service operation, and continual service improvement.

J2EE

Java 2 Platform, Enterprise Edition. The Java Software Development Kit (SDK) tools, APIs, and run-time (ie execution) environment targeted at Java developers building enterprise-class, server-side applications.

Java

An object-oriented programming environment developed by Sun towards the end of 1995. Java creates applets which can be downloaded across the Internet, and which will allow clients to interact with objects on the Web and intranet servers.

Java Virtual Machine

The facility allowing Java applets/source code to run on a computer.

JavaBeans

A platform-independent, software component technology for building reusable Java components called Beans. The JavaBeans component model specifies how to build reusable software components, how the resulting Beans describe their properties to visual rapid application development tools, and how they communicate with each other. Beans can be combined to create applications or applets.

JavaScript

An interpreted scripting language.

JCA

Java EE Connector Architecture can connect existing CICS applications to external Java applications using the CICS Transaction Gateway.

JCICS

The CICS Java class library (JCICS) can be used by Java applications to access CICS services.

JCL

Job Control Language. The language used on the mainframe to describe the steps of a batch job (files to be used, programs to be run, etc).

JDBC

Java DataBase Connectivity. An API that is designed for use by Java database applications, and has the same characteristics as Open Database Connectivity (ODBC).

JDK

Java Development Kit. Software development kit from Sun consisting of a Java compiler, a debugger, standard Java classes, and a Java run-time (ie JVM) for Unix.

Jenkins

A continuous integration tool used most often for software development

JES2 and JES3

Job Entry Subsystem 2. One of two batch processing subsystems available for z/OS, both developed in the 1960s and with a different heritage and different control statements. Each reads batch jobs in, schedules their execution and spools their output. JES2 is by far the more popular.

JMS

The Java Message Service is a Java API to message-oriented middleware (MOM).

JNDI

Java Naming and Directory Interface is really two APIs used to keep track of, and access, dispersed data.

JNI

The Java Native Interface is a programming interface for writing Java native methods and embedding the Java virtual machine into native applications.

JSON

JavaScript Object Notation is an open standard format using human-readable text to send data objects as an alternative to XML.

JSP

JavaServer Pages. Uses XML-like tags and scriptlets to encapsulate logic that fills out the dynamic content of HTML pages.

JVM

see Java Virtual Machine.

Kantara Initiative

This is an organization dedicated to advancing technical and legal innovation related to digital identity management. It isn't a standards body, but makes recommendations to standards bodies about digital identity management.

Kerberos

Security system for Unix environments derived from MIT's Project Athena. Uses a trusted server to ensure that there are no unwanted systems in the network.

Kernel

The core of an operating system that performs basic functions such as allocating hardware resources.

Kilobit

1024 bits, or 2 to the 10th power, when referring to processor storage, real and virtual storage, and channel volume. However, when referring to disk storage capacity it is 1000 bits. Abbreviated as Kb.

Kilobyte

1024 bytes, or 2 to the 10th power, when referring to processor storage, real and virtual storage, and channel volume. However, when referring to disk storage capacity it is 1000 bytes. Abbreviated as KB.

KSDS

Key Sequenced DataSet is a type of VSAM dataset in which the physical location of records is controlled by the key used.

Kubernetes

This is an open-source container-orchestration system for automating application deployment, scaling, and management. It was originally designed by Google.

KVM

Kernel-based Virtual Machine is a virtualization module in the Linux kernel that allows the kernel to function as a hypervisor.

Kyndryl

Once IBM's Managed Infrastructure Services business, in 2021 it became a separate company.

LAN

Local Area Network. A generic term for the transport mechanism for a local (eg site or building) network. The thing that makes current LANs special is their intimacy with the connected machines; effectively the LAN acts as an extension to the internal bus of the attached system, and allows a single system to be built from physically dispersed components.

Language Environment

LE provides a common run-time environment for major programming languages. The common library of run-time services includes message handling, condition

handling, storage management routines and time/date functions.

Latency

A measure of response time. On a disk drive, how long it takes for the first bit of requested data to rotate under the head. In a network, the minimum elapsed time for a message to be transmitted, consisting of the aggregate delay contributed by the communications links and devices along the way.

LDAP

Lightweight Directory Access Protocol. An Internet directory management standard that provides a consistent way to manage user access to network resources, such as information, applications and systems.

LDS

Linear DataSet is a type of VSAM dataset that can be kept permanently in memory thus improving performance.

Legacy system

The description given to any system that's been around longer than the programmer who wants to change it. Some 'legacy systems' can be comparatively recent and, despite popular perceptions, they are certainly not exclusive to the mainframe.

Liberty profile

This is a cut down version of the WebSphere Liberty product. It provides a way for CICS, IMS, and DB2 users to easily allow their applications to link to apps running in mobile devices and the Internet of Things.

LIFO

Last In, First Out. A queuing technique where the most recent addition to the queue is processed first. Also known as a push-down stack.

Linear Dataset

A VSAM dataset type, similar to an ESDS, but which always has 4096 byte blocks, and which can be kept permanently in memory for enhanced performance.

Linux

An Open Source Unix variant that seems to run on everything from workstations (where Microsoft haters insist it will replace Windows) to mainframes (where IBM has spent bags of money making it run well).

Listener

An application that 'listens' for input on a line and then acts on it.

Load module

A program in a form that can be loaded into memory for immediate execution.

Logical Partitioning

A way of dividing up a processor's capacity under PR/SM into physically separate areas (LPARs or Logical PARTitions) for resilience, performance or security reasons.

LPA

Link Pack Area. The z/OS area used for resident programs, eg those programs which are most frequently used and (usually for performance reasons) should not be loaded by each application program from libraries stored on disk.

LPAR

Logical PARTitioning is a way of dividing up a processor's capacity.

LSR

Local Shared Resources. A technique for improving CICS performance by the sharing of a common buffer pool for VSAM datasets.

LU

SNA's software interface (or 'port') through which end users gain access to the SNA network.

LU 6.2

SNA's protocol suite for program-to-program communications.

LUW

Logical Unit of Work is the amount of work that will be backed out in the event of a failure. For example, a CICS transaction is processing away happily and then something goes wrong. The LUW defines how much of what has been processed will be backed out and how much that occurred previously can be left. Large LUWs are efficient providing that failures are rare. Small LUW use processing power, but are more efficient for recovery after a failure.

M2M

Machine-to-machine is used when talking about machines, devices, and equipment that can communicate with each other. And that communication can be wired or wireless.

MAC

Media Access Control. Generic term for the way in which workstations gain access to transmission media.

Macro

A preprocessor (precompiler), and the statements it processes, for Assembler. Generates Assembler instructions and machine instruction mnemonics as well as allowing assembly time conditional logic.

Mainframe

A high-performance computer serving many people at once and running many different applications concurrently.

Man-in-the-Middle

Data siphoning scheme where fraudulent software manages to insert itself, undetected, between two network partners by actively emulating the two partners being deceived.

MapReduce

A process used on Big Data at runtime that maps the data and reduces it.

Master catalog

The z/OS catalog where the search begins for a dataset.

MCM

The MultiChip Module (MCM) contains the Central Electronic Complex (CEC) of a S/390 system.

Measured usage

The method of charging for software based on the monthly usage. Same as Usage-based pricing.

Megabit

1,048,576 bits. Abbreviated as Mb.

Megabyte

Roughly one million bytes – actually 1,048,576 bytes. Abbreviated as MB.

MFLOPS

MegaFLOPS. One MFLOPS is one million floating point operations per second – a common measure of numerically intensive compute power.

MIB

Management Information Base. Generic term (often used specifically in relation to the SNMP management protocol) for the database of the objects managed in a network – usually a LAN.

Microcode

Although it can have very specific alternative meanings, its most common usage is as a synonym for firmware.

Microsecond

1/1,000,000 of a second.

Microsoft

The company that made the shrewd move of persuading IBM to use its DOS operating system for the IBM PC. The rest is history.

Middleware

Though it defies definition, its primary role is to provide connectivity and other shared services between platforms. There are numerous types.

MIME

Multipurpose Internet Mail Extensions. An encoding format allowing e-mail messages containing a variety of media forms (audio, video, image, and text) to be sent across the Internet.

MIPS

Million Instructions Per Second (or Meaningless Indicator of Processor Speed). A crude and not very meaningful way of expressing raw computer power, widely used for comparing the power of different mainframe models and for demonstrating the futility of comparing the mainframe with other platforms.

Mirroring

The technique of constantly maintaining a parallel copy of critical datasets, so that the duplicate data can be used if there is a problem with the main data.

MLPA

The Modified Link Pack Area is an area of storage used to contain re-enterable routines from APF-authorized libraries.

MobileFirst

MobileFirst is a set of mobile software, services, and solutions for businesses offered by IBM.

MOM

Message Oriented Middleware. For example, WebSphere MQ.

MongoSQL

This is an Open Source NoSQL database that uses JSON-like documents with dynamic schemas for speed.

MPF

Message Processing Facility. A utility in z/OS that controls message display and message processing, typically to suppress unnecessary system messages. A first step towards automated operations.

MQSeries

Messaging and Queueing Series – see WebSphere MQ.

MRO

Multi-Region Operation is a function of the CICS Inter-Region Communication facility enabling communication between CICS regions.

MSDBs

Main Storage DataBases are one of two types of IMS fast path database. These databases do not have indexes and are stored in VSAM files.

MSS

Mass Storage System is hardware for storing large amounts of archive data, typically involving the use of a jukebox mechanism to retrieve discrete data cartridges.

MSU

Millions of Service Units. Measure of mainframe compute power, used selectively by IBM as an alternative to MIPS. Opinions vary as to how the two metrics compare.

MTBF

Mean Time Between Failures. The average value of the length of time between consecutive failures under stated conditions of a system.

MTO

Master Terminal Operator. Software enabling a terminal to control a subsystem, eg CICS.

MTTR

Mean Time To Recovery or Repair. The average time required for corrective maintenance. See also MTBF.

Multiplexer

A generic device (also known as a mux) that combines data from two or more devices, transmits the data as a single datastream over a high-speed communications medium, and disentangles (de-multiplexes) the data at the other end.

Multi-point

Communications configuration in which a single primary node communicates with two or more secondary nodes (which cannot communicate with one another, except through the primary). Also known as multi-drop.

MVP

Minimum Viable Product is often created at hackathons.

MVS

Multiple Virtual Storage. In z/OS's long history, MVS has the honour of being its name for the longest period (about 20 years), and the operating system is still referred to as MVS by many mainframe technical specialists. Popularly believed to stand for Man Versus System.

Nabla containers

These are a new type of container designed for strong isolation on a host. Nabla replaces the typical VM hypervisor interface of hypercalls and vmexits with simple system calls (syscalls), and so reduces the attack surface.

Nanosecond

1/1,000,000,000 of a second.

NAS

Network Attached Storage.

.NET

.NET is a Microsoft strategy for creating Web services. In essence, a Windows user should be able to run applications locally or over the Web without noticing the difference. Visual Studio .NET is a development environment that is currently available.

NetView

SNA network management product. Announced mid-1986. Although it started off life as a rather half-hearted bundling of various mainframe-centric network management products (including NCCF, NLDM, NPDA, VNCA, and NMPF), by mid-1995 it had turned into a fully-fledged distributed network management system, with a strong focus on distributed Unix boxes as network management workstations. Replaced by Tivoli NetView and other products.

NFS

Network File System. Set of Unix protocols (originally developed by Sun Microsystems) for file sharing across a LAN. Built on top of Ethernet and TCP/IP.

NJE

Network Job Entry. JES facility enabling multiple hosts to share job queues and system spools.

Node

In SNA, a total unit of network-attachable functionality, realized in software, that gets implemented within a device or runs on a computer.

NoSQL

NoSQL databases don't have to use SQL, but may. They are different from traditional relational databases.

Notes

Lotus groupware product that IBM took on in June '91.

OAuth

This is an open standard for authorization. It allows people to access third-party Web sites using their validated Facebook or Twitter IDs.

OCR

Optical Character Recognition. OCR software is used to convert scanned documents into machine-readable text files.

ODBC

Open DataBase Connectivity. An API created by Microsoft that allows Windows applications to access relational databases, such as DB2 and Oracle, and other data sources using SQL statements.

OEM

Original Equipment Manufacturer. An OEM is a manufacturer who makes a product and sells it to another company, which puts its own badge on it and sells it to the end user.

Office 365

A Cloud-based version of Microsoft's Office suite of enterprise-grade productivity applications. As well as Word and Excel, users get Outlook, SharePoint, Forms, and Team sites.

OLAP

On-Line Analytical Processing. A term coined by database guru Ted Codd and used to refer to multi-dimensional analysis and reporting applications of the EIS and Information Warehouse type.

OLE

Object Linking and Embedding. Microsoft-sponsored standard for moving and linking data and other objects between applications and systems in Windows.

OLTEP

On-Line Test and Execution Program. IBM engineer's tool for analysis of hardware problems.

OLTP

On-Line Transaction Processing. Generic term for high-throughput, very resilient transaction systems. OLTP tends to be used to refer to systems with some degree of fault tolerance.

OMG

Object Management Group. A group of vendors responsible for standards for object management and interoperability including CORBA, UML, MOF and CWM. IBM joined in 1991.

OMVS

The OMVS command is used to invoke the z/OS Unix shell. From here you can use shell commands or utilities requesting services from the system. You could also write shell scripts and run shell scripts or programs written in C.

Online Reorganization (OLR)

Using OLR with IMS HALDBs, the databases remain available to applications throughout the OLR reorganization process.

Open Systems

Computer systems that provide either interoperability, portability, of freedom from proprietary standards, depending on your perspective.

OpenEdition

'Open' version of MVS that was replaced by Unix System Services in z/OS and OpenEdition Shell and Utilities in z/VM.

OpenID

This provides a way for users to consolidate their digital identities by having a single OpenID when connecting to different Web sites.

ORB

Object Request Broker. A specialized object that allows other objects to communicate with each other to make and receive requests and responses.

OS/390

Replacement for MVS, announced in 1995. Now superseded by z/OS, but still used in some mainframe sites.

OSA

Open Systems Adapter is an integrated hardware feature allowing zSeries 900 platforms to provide connectivity directly to clients on LANs.

OSA Express

Open Systems Adapter-Express are an IBM adapter family consisting of integrated hardware features that are designed to provide direct connection for zSeries and S/390 Parallel Enterprise Servers G5 and G6 to high speed routers and switches, to other high-speed servers, and to clients on LANs.

OSAM (Overflow Sequential Access Method)

This is an IMS-specific access method that optimizes the I/O channel program for IMS access patterns.

OTC

One Time Charge. An initial license charge. Caused a furore when the concept was introduced, but people seem to have got used to it now. At the beginning of 1999, OTC was dropped from any mainframe software product for which a monthly charge option was available.

OTE

Open Transaction Environment was introduced with CICS TS 1.3. Its aim is to open up the CICS application execution environment, allowing applications to be defined to execute under their own TCBs within CICS and allowing CICS to better exploit multiple processors.

OTMA (Open Transaction Manager Access)

This IMS facility is a transaction-based connectionless client/server protocol that functions as an interface for host-based communications servers accessing IMS TM applications using the Cross Systems Coupling Facility (XCF).

Outsourcing

The notion of contracting out part or all of your IS function to an outside organization. Used to be often used synonymously with facilities management, although strictly speaking facilities management involves delegating responsibility for the whole service rather than just part of it.

PaaS

Platform as a service provides a platform, allowing customers to develop, run, and manage Web applications without the complexity of building and maintaining the infrastructure typically associated with developing and launching an app.

Page

An essential process within virtual storage technology. Fixed sized blocks (typically 4096 bytes) of memory are freed up by writing their contents to a paging device until any virtual address within that block is referenced.

Parallel Sysplex

See Sysplex.

Parity bit

A binary digit check bit appended to a group of binary digits to make the sum of all the digits, including the appended binary digit, even or odd, depending on whether Even or Odd Parity is being used.

Parmlib

Parameter Library. A dataset in z/OS containing parameter settings. The most important is SYS1.PARMLIB which contains parameter settings for z/OS and many key subsystems.

Parse

The analysis of the operands entered with a command in addition to the creation of a parameter list for the command processor. It can also refer to the initial processing of source code by a compiler, when it divides up each program statement into its component parts, also known as tokens.

PASCAL

Programming language, mainly used in academia, though even there it is rarely seen these days.

Patch

A code modification to correct a reported problem that is sent to software product users after the release of a product.

PAV

Parallel Access Volumes are used to eliminate I/O supervisor queueing against DASD. Thus improving the performance of anything accessing the disk devices.

PCI

Peripheral Component Interconnect. Extremely popular PC bus standard originally promoted by Intel and soon supported by IBM, even though it meant dropping its beloved MCA.

PCMCIA

Personal Computer Memory Card International Association. Industry-standard interface (not just for memory, but for modems, network interfaces, etc) for laptop and notebook computers.

PDF

Portable Document Format. File definition format used by Adobe Acrobat.

PDS

Partitioned Data Set. A z/OS feature that is really made up of datasets within a dataset. Each PDS is made up of zero or more members. Each member has all the characteristics of a standard sequential dataset, though all members share the same attributes: those that were defined for the PDS when it was allocated. Each member has a one- to eight-character name that follows the same rules as a level of a standard z/OS dataset name (DSN). Each PDS has a directory of its members, which can also (optionally) contain other information, known as Statistics, which are maintained by software such as the ISPF/PDF editor.

PDSE

Partitioned Data Set Extended. Software which enables the space freed by expired or deleted PDSs to be reused. Introduced in 1989 in an attempt to address the limitations of the PDS.

Peer-to-peer

A form of distributed system in which all participating nodes can function as both client and server.

PERL

Practical Extraction and Reporting Language. A general-purpose Unix scripting language, which is popular for writing CGI programs. Its speed and flexibility make it well suited for form processing and on-the-fly page creation.

Pervasive encryption

Available with Z14s, it generally means the ability to encrypt everything everywhere without interfering with the user experience. The Z14 can "pervasively encrypt data associated with any application, cloud service, or database all the time".

Petabyte

1024 terabytes (TB) – 2 to the fiftieth power, or 1,125,899,906,842,624 bytes. Abbreviated as PB.

PF key

Program Function key. A single keystroke can be used to perform a specific command.

PGP

Pretty Good Privacy. Encryption technology which uses the public key approach. Messages are encrypted using a public key, but can only be decoded using a private key kept by the intended recipient of the message.

Phishing

A malicious scheme to obtain the credentials necessary to access a secure system by masquerading as that system and fooling people into entering the sought-after credentials.

Picosecond

1/1,000,000,000,000 of a second. A time span during which even <insert your least-liked company name here> would not be able to put up prices.

PING

Packet INternet Groper. A test of reachability in TCP/IP networks. A PING is a program used to test the ability to reach destinations by sending an echo request and waiting for a reply.

Pipeline

In Linux and other Unix-like operating systems, a pipeline is a set of processes chained together. Output from one process is then input for the next process until all the processes have executed.

PL/I

Programming Language/One. Language developed by IBM. A sort of love-child of COBOL and FORTRAN, it was widely used on the mainframe for many years but never quite achieved the 'universal standard' status that IBM had hoped.

Plain text

Data that is not encrypted. Typically refers to data while it is being transmitted across a network.

PLPA

Pageable Link Pack Area is part of memory containing system-level programs that may be run by multiple address spaces.

Polling

Generic name for a method for controlling devices (eg networked workstations or terminals), in which a computer calls (polls) each device in turn to see whether it wants to communicate.

POP

Principles of Operation. The name of the manual that defined the S/360 and subsequently the S/370 architecture.

Port

Generic noun and/or verb. As a noun, it means a point at which data can enter or leave a data network or individual device; as a verb it means to convert a piece of software written for one environment so that it runs in another.

POSIX

Portable Operating System Interface Standard. Operating system interface standard from the IEEE, designed as a procurement reference standard for ensuring source-level application code portability.

PostScript

Language/protocol cum page description language developed by Adobe Systems for driving high-resolution page printers.

Power Systems

Originally, IBM had the System i running IBM i (OS/400) and the System p series running AIX or Linux. In 2008, IBM merged the two lines of servers and workstations under the same name, Power Systems, with identical hardware and a choice of operating systems, software, and service contracts.

PPP

Purchasing Power Parity is Gustav Cassel's theory (1920) that, in an efficient market, identical goods must have only one price.

PR/SM

Processor Resource/Systems Manager. Logical partitioning hardware technology that makes a single system, even if it has only one processor, look like multiple systems each of which is a Logical PARTition (LPAR).

Private area

Area within z/OS which contains the user's own data/programs.

Private key

A key known only to the sender or receiver of an encrypted message.

Problem State

A term used in performance measurement to indicate when the machine is performing end-user work. The opposite is Supervisor State, when the machine is spending time generally managing itself.

PROLOG

PROgramming in LOGic. Language mainly used for developing artificial intelligence and expert systems.

PROP

PRogrammable OPerator. A facility in z/VM that allows remote control of a virtual machine, enabling limited automation of routine operator activities.

Proprietary

Proprietary is used to refer to architectures and standards owned by a hardware or software vendor. The term is usually used in opposition to 'open'.

Proxy server

A server that receives and fulfils requests intended for another server.

PRPQ

Programming Request for Price Quotation. IBM terminology for a customer request for a price quotation on alterations or additions to the functional capabilities of system control programming or licensed programs.

PSLC

Parallel Sysplex License Charge, a monthly license charge designed to support the design of a Parallel Sysplex cluster. In a fully qualified Sysplex environment, PSLC software charges are based on the total MSU value for only those machines where the products execute.

PSW

Program Status Word. A hardware register (double word) in the mainframe. The PSW contains the address of the next instruction to be executed and, when an application or system software error occurs, why it happened and other status information.

PTF

Program Temporary Fix. An official IBM temporary patch to a program – often less temporary than IBM and its users would wish. PTFs are distributed on PUTs. Sometimes the term APAR is used instead of PTF.

Public key

A published key value used as one of the two keys in public key encryption.

PWFI

The pseudo wait-for-input option means an IMS MPP region can stay scheduled until another input message appears, avoiding additional application program termination and rescheduling.

QMF

Query Management Facility. Query and report-writing system for DB2 with some analysis and graphics features.

QSAM

Queued Sequential Access Method is an access method for communicating with sequential datasets.

RACF

Resource Access Control Facility is IBM's External Security Manager (ESM) for z/OS and z/VM.

RSH

RAG

Red/Amber/Green status lights used to indicate in an easily interpretable way the status of a system, with red indicating poor system health.

RAID

Set of redundancy standards for disk subsystems (RAID 0-6), developed by the University of Berkeley and adopted by the RAID Advisory Board.

RAM

Random Access Memory, also known as system memory, is the amount of physical memory that is addressable by and directly accessible to the processor chips on the motherboard.

Ransomware

This is downloaded software that stops you using your PC. The software will usually ask for money before control of your computer is given back to you. Just running anti-virus and anti-malware software is not enough these days. Examples of ransomware include: Brolo, Crowti, FakeBsod, Krypterade, Reveton, and Tescrypt. The number of ransomware attacks is increasing all the time.

RAS

Reliability, Availability, and Serviceability – the three most desirable properties for IBM computers.

RDBMS

Relational DataBase Management System. Database system based on relational principles. DB2 is IBM's preferred RDBMS for just about every platform.

Read-only mode

A mode that does not allow updates to the data being read.

Real storage

The combination of central and expanded storage. Also known as processor storage.

Red teaming

This refers to the practice of viewing a problem from an adversary or competitor's perspective – and that usually means looking at issues with security.

Redbook

A more readable version of an IBM manual

Relational database

A type of database that allows information in one set of database tables to be connected to information in another set of tables without requiring duplication of information.

RESTful

REST (Representational State Transfer) is an architectural style used to build Web services that are lightweight, maintainable, and scalable. A service based on REST is called a RESTful service. It links mainframe applications with mobile and cloud apps.

REXX

Restructured EXtended eXecutor language. A widely used job control language, REXX has become a replacement for existing procedural languages such as CLIST. REXX is an effective programming language in its own right with powerful string processing facilities.

RJE

Remote Job Entry. Dedicated RJE terminals include 2780/3780 or 3770.

RMF

Resource Measurement Facility. On-line performance and resource monitor for z/OS. Also includes a formatter for printing performance reports. An optional, separately priced feature of z/OS.

RPA

Robotic process automation is a way to automate repetitive or routine tasks that are usually performed by knowledge workers. It uses metaphorical software robots. Employees are then free to perform higher-value work.

RPG

Report Program Generator. Programming language widely used on the eServer iSeries 400 and its predecessors, AS/400 and System/3x. As its name implies, originally used mostly for report generation and very strong sort/merge facilities, where it can be used completely non-procedurally.

RRDS

Relative Record DataSet is a type of VSAM file. Each record is accessed directly by its record number.

RSM

Real Storage Manager. The part of z/OS that controls real memory.

SAF

System Authorization Facility is the z/OS security API and is invoked by either the RACROUTE macro or z/OS Unix callable services. Resource Managers (eg CICS, TSO, JES) use RACROUTE to request security authorization checks. SAF passes the request to the External Security Manager (ESM) for a response.

RSH

SAML

Security Assertion Mark-up Language addresses the issue of Single Sign-On (SSO). The SAML specification defines three roles: the principal (typically a user), the identity provider (IdP), and the service provider (SP).

SAN

Storage Area Network.

SAP (System Assist Processor)

A System Assist Processor is a specialized processor that assists a central processor on a mainframe.

SASE

Secure Access Service Edge (pronounced “sassy”) is the combination of wide area networking (WAN), and network security services like CASB, FWaaS, and Zero Trust, into a single, cloud-delivered service model.

SCEM

Supply Chain Event Management examines all possible events and factors that might disrupt a supply chain.

SCM

Supply Chain Management applies to all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption. It is the process of planning, implementing, and controlling the operations of the supply chain as efficiently as possible.

Screen scraping

A programming technique for interacting with online host applications that generate text-only display output. The display output is read (scraped) right off a virtual screen by the workstation-based software and input generated on a virtual keyboard. What the user sees is quite different, and usually includes a GUI.

SDEPS (Sequential Dependents)

Sequential dependent segments (SDEPs) may be included in an IMS Data Entry Database (DEDB).

SDSF

System Display and Search Facility. Online tool for programmers and operators monitoring jobs awaiting execution in the JES2 input spool queues and, most commonly, viewing the printed output of batch jobs in the Held output spool queues, to save printing it on paper.

Serial number

Term used to denote the machine which you own today, which may be very different from the one you originally bought.

Server

A device providing database information, or Web pages, any other information. It usually has a number of clients or users of this data.

Service Level Agreement

Generic term for an agreement between a user and the people providing a computer service. The SLA specifies such things as response time, availability, etc.

Service Unit

The basic charging unit in usage-based pricing.

Servlet

A Java applet, without a user interface, that is executed on a Web server. Often used to replace CGI routines, because they support dynamic HTTP requests.

SFM

Sysplex Failure Manager is used when one of the systems in a parallel sysplex fails. It is responsible for recovery of the system and subsystem.

SGML

Standard Generalized Mark-up Language. The canonical mark-up language from which HTML and XML are derived.

Shift left

This is an approach to software testing and system testing in which testing is performed earlier in the life-cycle. That means it’s moved to the left on the project timeline. Similarly, quality and security can be moved earlier in the software life-cycle. Although, I’m sure you’ve spotted the flaw in the thinking – if too much is shifted to the left, then everything is back where it started!

SIEM

Security Information and Event Management software products and services combine security information management and security event management. They provide real-time analysis of security alerts generated by applications and network hardware.

SIGP

SIGnal Processor.

Site Reliability Engineer (SRE)

An SRE will spend half their time on developing new features, scaling, and automation. The other half of their time will be spent on operator-type tasks. They will not only fix problems as they occur, but will also identify the root cause of the problem and create an action plan to address them – ensuring, as far as possible, that the

incident doesn't happen again. Often, this will result in more automation.

Skeuomorphism

is making one thing look like something else, eg making the digital interface look like a paper one – you often see it with calendar applications that look like desktop paper calendars. The GUI emulates real physical objects that the user will be familiar with. Including skeuomorphism in a UI design is a good idea because it makes an unfamiliar interface look like something familiar – and, therefore, its use becomes more intuitive.

SLA

A Service Level Agreement is a formally negotiated agreement between two parties (the IT department usually being one of them) where the level of service is formally defined.

SMF

System Management Facilities. Function within z/OS which collects data on all system activities for use in accounting, performance monitoring, capacity planning, etc. SMF creates log entries (SMF records) of this data.

SMP/E

System Modification Program / Extended is used to install most software products.

SMS

System Managed Storage. The philosophy of letting the computer system manage the storage of data rather than having it done by a human data administrator.

SMTP

Simple Mail Transfer Protocol. The protocol allowing the transmission of e-mail messages across the Internet.

SNA

Systems Network Architecture. IBM's extremely powerful but complex data communications architecture defining levels of protocols for communications between terminals and applications, and between programs. While SNA-only networks have all but disappeared, SNA applications are still very much in evidence in the large enterprise.

SNMP

Simple Network Management Protocol. Unix protocol originally developed for management of TCP/IP networks.

SOA

A Service-Oriented Architecture is a collection of services that communicate with each other. The services are self-contained and do not depend on the context or state of the other service. Mainframe applications become available to Web browsers and now mainframe applications can call other Web services.

SOAP

Simple Object Access Protocol. A lightweight form of middleware for accessing services, objects, and servers in a platform-independent manner.

Sockets

Software interfaces that allow two Unix application programs to talk to one another using TCP/IP protocols.

Solution Consumption License Charges

SCLC applies to a number of Monthly License Charge (MLC) software programs. It offers pay-as-you-go pricing for the actual consumption of CPU, or a 20% saving for a minimum monthly commitment.

Spark

A popular fast engine for large-scale data processing.

Spool

Simultaneous/Shared Peripheral Operation On-Line. DASD storage used as a temporary storage area between devices – eg printer and processor.

SQA

System Queue Area. Storage area in z/OS.

SQL

Structured Query Language. IBM and ANSI standard (they diverge and converge regularly with the passage of time) for access to relational databases.

SRB

Service Request Blocks are requests to execute a service routine and they are usually initiated by system code executing from one address space to perform an action affecting another address space.

SRM

System Resources Manager. Software which is meant to improve throughput by optimizing the use of system resources.

SSCP

SNA's System Services Control Point, in a hierarchical network, typically implemented on a mainframe within VTAM, that is responsible for directory services and configuration management. Now superseded by the peer-to-peer oriented functionality of APPN/HPR control points.

SSL

The Secure Sockets Layer is a much-used protocol for managing the security of messages sent over the Internet.

Stand-alone dump

A display of all used memory locations, typically stored on DASD or tape, created with a program that does not require the operating system to be functioning normally.

Superuser

A user ID with minimal security restrictions.

Supervisor State

A term used in performance measurement to indicate when the machine is spending time generally managing itself. The opposite is Problem State, when the machine is performing end-user work.

SupportPac

A SupportPac is supplied by IBM and contains complementary software, which may be new utilities, or class libraries, or things that IBM thinks will make the product more usable or work better.

SVC

SuperVisor Call. An interface to operating system functions that is used to protect the operating system from inappropriate user entry. It can also refer to the SVC Assembler mnemonic or machine language instruction it represents.

Swagger

A simple yet powerful representation of your RESTful API. With the largest ecosystem of API tooling on the planet, thousands of developers are supporting Swagger in almost every modern programming language and deployment environment. With a Swagger-enabled API, you get interactive documentation, client SDK generation, and discoverability.

Swapping

The process of transferring a complete program between main memory and auxiliary storage (usually disk).

Syncpoint

A point in a transaction's life when updates are committed. In a distributed environment, where the transactions may be across several databases, the syncpoint enables the commit to be delayed until all the participants can commit simultaneously.

SYSGEN

System Generation. The process of creating a customized version of an operating system. In the IBM environment this was a complex, error-prone and time-consuming process.

System i

Formerly iSeries and now called just *i* – a later incarnation of the AS/400 family of hardware that runs on Power hardware.

System p

Formerly pSeries – this is the latest incarnation of the RS/6000 family of hardware.

System z

Formerly zSeries – this is the name for mainframes running z/OS and/or z/VM and/or other operating systems. Now called IBM Z.

SYSOUT

z/OS output intended for a printer. The name comes from the JCL DD parameter SYSOUT, where SYSOUT=A means send the output to the JESx Class A spool queue.

Sysplex

SYStem comPLEX. A processor complex which is formed by loosely coupling System/390 processors together into a single unit (using channel-to-channel adapters or ESCON/FICON fibre-optic links); the processors are synchronized using the Sysplex Timer, and can be managed as a single system image.

Tablet

For many executives, the must-have device is an iPad from Apple or an Android device from Samsung and other suppliers. As a consequence, these now need to be connected to corporate data, with all the concomitant security issues.

TCB

Task Control Blocks represent tasks executing within an address space. There are usually several TCBs associated with each address space, so more than one task could be running in any one address space at any one time. TCBs are created when a program issues the ATTACH macro to initiate a new task.

TCP/IP

Transmission Control Protocol/Internet Protocol. Set of protocols for the network and transport layers of a packet-switched data network, most notably the Internet. Developed in the US for the Department of Defense ARPANet system and has become the *de facto* standard for most forms of data communication.

telnet

The remote, or virtual, terminal protocol for the Internet. Allows users to log-in to their home machine from any other machine, or *vice versa*.

Telum processors

IBM's new 7-nanometer chip, which is designed to handle AI workloads faster, and improve security and fraud detection for mainframes used by financial services organizations such as banks and insurance companies.

Terabyte

1024 gigabytes or 1,099,511,627,776 bytes. Abbreviated as TB.

TeraFLOPS

1000 GigaFLOPS, a measure of supercomputer performance.

Third platform

This is meant to represent the next phase of the IT revolution. The first platform is the mainframe; the second is the PC; and the third comprises cloud services, mobile computing, social networking, and big data analytics.

Threadsafe

Originally introduced with CICS 3.2, threadsafe refers to the ability of an application to process multi-threaded programs at the same time safely.

tn

Refers to tn3270, tn3270e and tn5250 collectively or interchangeably.

tn3270

Specialized TCP/IP telnet protocol which provides compatibility with a 3270 datastream by emulation of the screen buffer. Used for mainframe host access across the Internet and internally within organizations to replace SNA terminal-to-host access with TCP/IP.

tn3270e

Improved version of tn3270 that supports colour, the 3270 System Request key and other capabilities not present in tn3270.

TPF

Transaction Processing Facility. Low-function but high performance mainframe TP monitor for very large communications systems. Derived from ACP (Airline Control Program), which was derived from PARS (Programmed Airline Reservation System).

TPIPE

IMS Connect communicates with IMS through logical connections called transaction pipes (TPIPEs).

Transport layer

The network layer responsible for quality of service and accurate delivery of information, ie error detection/correction occurs here.

TSO

Time Sharing Option. These days, everyone just says TSO when they mean TSO/E.

TSO/E

Time Sharing Option/Extensions. An element of z/OS that provides an on-line interactive environment for programmers and users. Best known for the ISPF/PDF environment that runs on TSO/E. Can also be used to test batch programs.

TXSeries

Amerging of CICS, Encina and IBM Transaction Server.

UCB

Unit Control Block is used to control access to devices.

UDDI

Universal Description Discovery and Integration is a directory model for Web services. UDDI is a specification for maintaining standardized directories of information about Web services, recording their capabilities, location, and requirements.

Unified Resource Manager

The Unified Resource Manager is an integrated System z management facility responsible for platform management on z196s. This tool set enables clients to install, monitor, manage, optimize, diagnose, and service resources and workloads from a single point.

Unit of work

The statements executed between one commit point and the next – usually a group of SQL statements which would need to be rolled back as a group if any single statement in the group could not be executed. It's the basic recovery unit.

Unix

A misspelling of UNICS (UNiplexed Information and Computing Service). A hardware-independent operating system originally for minicomputers.

Unix System Services

A full function Unix implementation under z/OS that complies with the POSIX standard. Originally introduced as OpenEdition.

Usage pricing

The principle of charging for software on the basis of the amount of work done, eg the number of transactions or the amount of batch data processed.

User catalog

In z/OS, an ICF catalog created to reduce the number of entries in the Master Catalog, thereby improving performance.

VIO

Virtual I/O. Hyper-efficient z/OS paging technique. Simulates DASD using real storage and so avoids the overhead of channel activity.

VIPA (Virtual IP Addressing)

This frees hosts from depending on a particular physical network interface for communication with a TCP/IP stack.

Virtual storage

A technique for giving programs the illusion that they have massive quantities of main storage to themselves. The technique works by allowing programs to address lots of virtual memory, but making the operating system page the required data in and out of real main store and to and from a paging device at the appropriate time. The technique enables cheap DASD to be used instead of expensive main storage.

Virtualization

A way of dividing up a computer's components and sharing them in order to maximize their usefulness.

VM

Virtual Machine. Mainframe operating system which can act as a hypervisor, enabling users to run multiple OSs on a single machine. There are two components to VM – the hypervisor itself, which provides resources to the virtual machines; and CMS, which provides conversational and timesharing facilities. VM was on the way out when IBM discovered a new role for the software: z/VM can host hundreds (technically thousands) of Linux images on the mainframe at a fraction of the cost of distributed hardware.

VOLSER

Volume Serial Number. The key identifying a tape or other storage volume. Maximum six characters. Most installations use a six-digit VOLSER for in-house tapes to easily differentiate them from DASD volumes.

Volume

The unit of physical storage. Originally the volume equated to a single disk or tape, but logical volumes are more the norm today, especially with most current DASD devices emulating previous products and VTS doing volume stacking on tape.

VPA

A Virtual Personal Assistant is piece of AI (artificial intelligence) just for you. It can schedule meetings and tell you what the weather's like.

VSAM

Virtual Storage Access Method (aka Very Slow And Mysterious). IBM mainframe proprietary software for direct (by key or by record number) or sequential processing of fixed and variable length records on DASD.

VSE

Virtual Storage Extended. For many years, VSE was IBM's principal operating system for small to medium-size mainframes. A few years back it looked as if VSE support would slowly be withdrawn, but customer support is strong and the re-dubbed z/VSE now looks set to continue for some time.

VTAM

Virtual Telecommunication Access Method. The main SNA subsystem resident in the mainframe, which manages session establishment and data flow between terminals and application programs, or between application programs.

VTOC

Volume Table Of Contents. The area of a disk used to store the directory of components, including datasets, held on that volume. Anything that takes DASD space is listed in the VTOC. For example, the index and data components of a VSAM KSDS file are listed in the VTOC, but not the cluster name, which is only listed in the catalog.

VVDS

The VSAM Volume DataSet along with the BCS make up the ICF catalog structure. The VVDS is a special type of ESDS. It is created automatically whenever a VSAM component (including a BCS) is allocated on a volume which does not yet have a VVDS. The VVDS is always called SYS1.VVDS.Vvolser.

VWLC

Variable Workload License Charge. IBM software pricing scheme that allows users to license a product for a capacity less than the total capacity of the system. Replaced by AWLC on zEnterprise mainframes.

WAS

WebSphere Application Server. IBM's Java application server. WAS for z/OS version 6.0.1 supports J2EE 1.4 and many mainframe-specific functions.

Watson Explorer

Watson Explorer combines content and data from different systems and presents it in a single view.

Web 2.0

A practically meaningless term in itself (the Web is not software with version and release numbers) that can be used as a way of highlighting some of the new technologies that are available over the Internet and identifying the companies that are using them, like Google Earth, Flickr, etc.

WebSphere

An IBM Internet-focused software platform that supports e-business applications and sits at the heart of IBM's middleware strategy. The foundational products are WebSphere Application Server and WebSphere MQ.

WebSphere Application Server (WAS) Liberty profile

This is a cut-down version of WAS containing only the features required by the applications used on the server.

WebSphere MQ (WMQ)

Originally MQSeries. IBM software/middleware that provides a message queuing infrastructure; it sits on various systems in a heterogeneous environment, providing integration between disparate systems and applications.

WebSphere Optimized Local Adapters (WOLA)

A part of WAS for z/OS that provides a low-overhead communication mechanisms for exchanging high volumes of messages.

Web service

Web services are essentially "mini" applications that include a description of what another application does, how to access it, and what data it requires. They are often utilized in integration projects where disparate systems may have difficulty interacting with each other without the use of the common standards.

WLM

Workload Manager. Feature within SRM for simplifying the management of system resources such as CPU and storage. eWLM reportedly adds the ability to define business performance objectives across disparate systems.

WMLz

IBM Watson Machine Learning for z/OS lets users build machine learning models using their IDE and platform of choice and then deploy scoring services within transactional applications and monitor them on IBM Z.

Workload License Charges

An IBM software licensing scheme which charges according to required software capacity, not hardware capacity.

WSAT

Web Services Atomic Transaction is now supported in CICS TS 3.1. Web services can be configured to take part in an extended or global unit of work. This is known as an atomic transaction. Recoverable updates are not committed or backed out until instructed to do so by the Web service.

WSDL

Web Services Description Language is the standard format for describing a Web service. A WSDL definition describes how to access a Web service and what operations it will perform. WSDL (along with SOAP and UDDI) is one of the three foundation standards of Web services.

WSRR

WebSphere Service Registry and Repository is used with WebSphere in SOA environments.

WTO

Write To Operator. A message sent to the mainframe operator console from JCL or an application program.

XML

eXtensible Mark-up Language is a W3C recommendation and provides a standard approach for describing, capturing, processing, and publishing information.

X-Terminal

A type of terminal developed in the Unix world that provides a GUI type environment (usually X-Windows) without the need for a programmable workstation.

z/Architecture

IBM's latest architecture for mainframes and peripherals.

z/OS

The latest incarnation of MVS, the principal operating system for the IBM mainframe. Announced in October 2000, it brought with it support for 64-bit addressing and a broad range of technical innovations. As well as running on zSeries machines, it also runs on System/390 G5 and G6 processors and Multiprise 3000 systems.

z/OS Connect

z/OS Connect is built on IBM WAS Liberty profile running on z/OS, and is a gateway providing a way to consume data and services hosted on IBM Z from mobile, cloud, and Web applications.

z/OSMF

z/OS Management Facility allows users to manage various aspects of a z/OS system from a browser. It's intelligent, and helps users more easily manage and administer a mainframe system by simplifying day-to-day operations and administration of a z/OS system.

Z/TPF

The latest version of the Transaction Processing Facility, a low-function but high-performance TP monitor for very large data communications systems.

z/VM

The latest version of the much-loved Virtual Machine, a hypervisor that enabled users to run multiple operating systems on a single machine.

zAAP

A Java co-processor for the z890 and z990, which allows customers to offload Java application processing without paying software costs for the additional capacity.

Zap

Affectionate name for various utilities (AMASPZAP, aka SUPERZAP in z/OS), which can be used to apply a fix directly to object code *in situ*. Zapping is a bad thing – it creates programs in which the object code does not agree with the source, and which are hence totally unmaintainable.

zBX

The zEnterprise BladeCenter Extension (zBX) on operates as a tightly-coupled extension to the z196 and z114 mainframes through a high-performance private network. Users then add POWER7 or System x blades to four racks.

zCX

z/OS Container Extensions let users run Linux on Z applications as Docker containers in a z/OS system to directly support z/OS workloads.

Zero day vulnerability

This is a hole in a piece of software that is unknown to the vendor.

zFS

zSeries File System is a Unix file system that can be used in addition to HFS.

zIIP

z9 Integrated Information Processor. A co-processor similar to zAAP (the idea is that you pronounce them ZIP and ZAP), but designed to off-load DB2 work and integrate data across the enterprise. Like zAAP, you pay for the hardware but do not incur IBM software charges for the additional capacity. Minimum requirement: z9-109 with z/OS 1.6 or later and DB2 V8.

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Zombie computers

These are used to spread e-mail spam and launch distributed denial-of-service (DDOS) attacks.

Zombie data

This is old forgotten data that you thought you'd deleted, but hadn't.

Zombie programs

These are the programs that hackers use to gain access to your computer. They are often called 'bots'.

Zoom

Video-conferencing software that now seems to be everywhere. Used for business meetings and family chats.

Zowe

Zowe is the first Open Source framework for IBM Z. It allows development and operations teams to securely manage, control, script, and develop on the mainframe like any other cloud platform. These new developers do not need to have previous mainframe experience!

ZTNA

Zero Trust Network Access is a way of working requiring the strict verification of every individual and device that attempts to access a network or other business resource.

This glossary was originally based on the former Xephon publication, the *Handbook of IBM Terminology*.

Trevor Eddolls of iTech-Ed Ltd is an independent mainframe consultant and popular blogger.

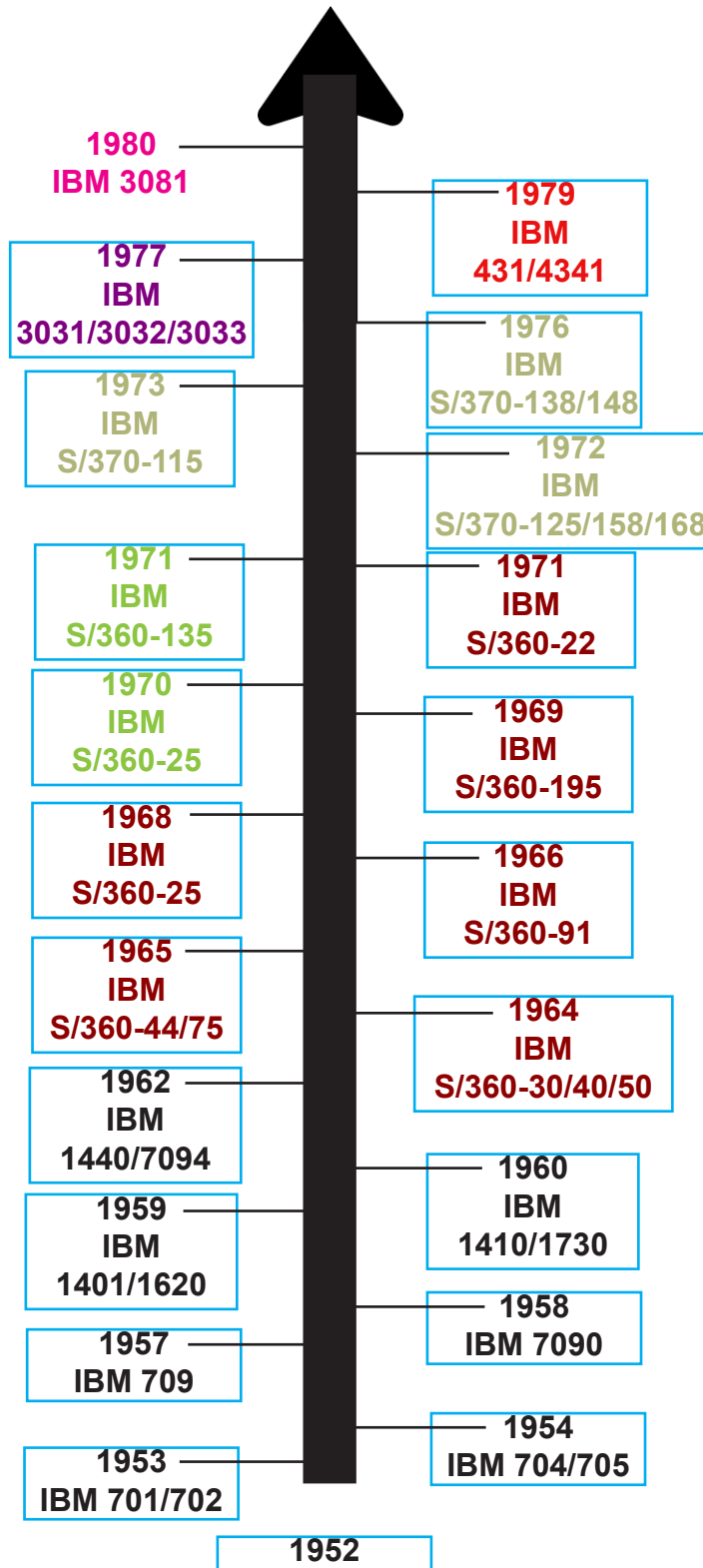


Our thanks to Robert S Hansel (RSH) of RSH Consulting for his contributions.

Mainframe evolution

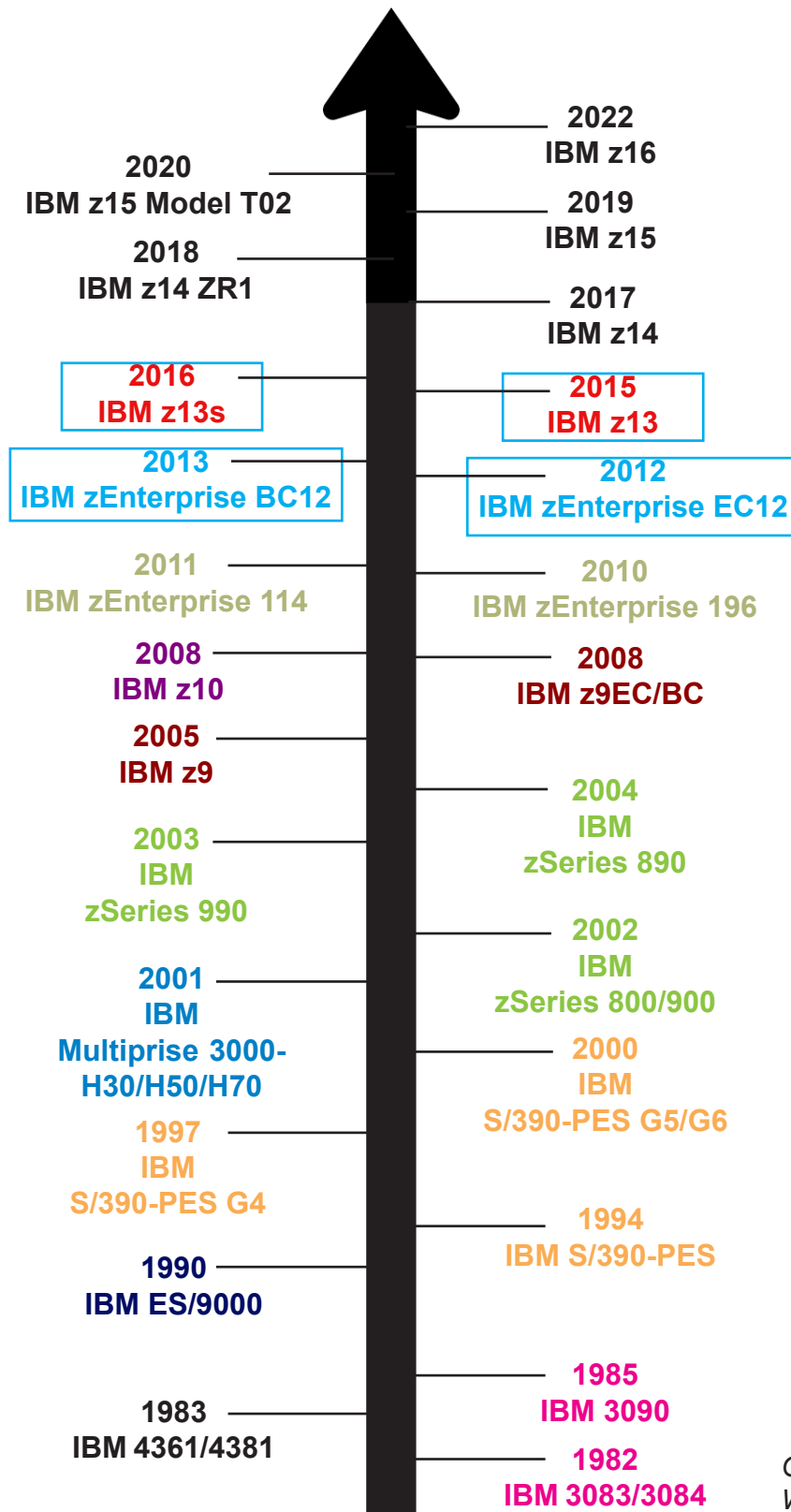
Mainframe hardware timeline 1952-2022
Mainframe operating system development

Mainframe hardware timeline 1952-80



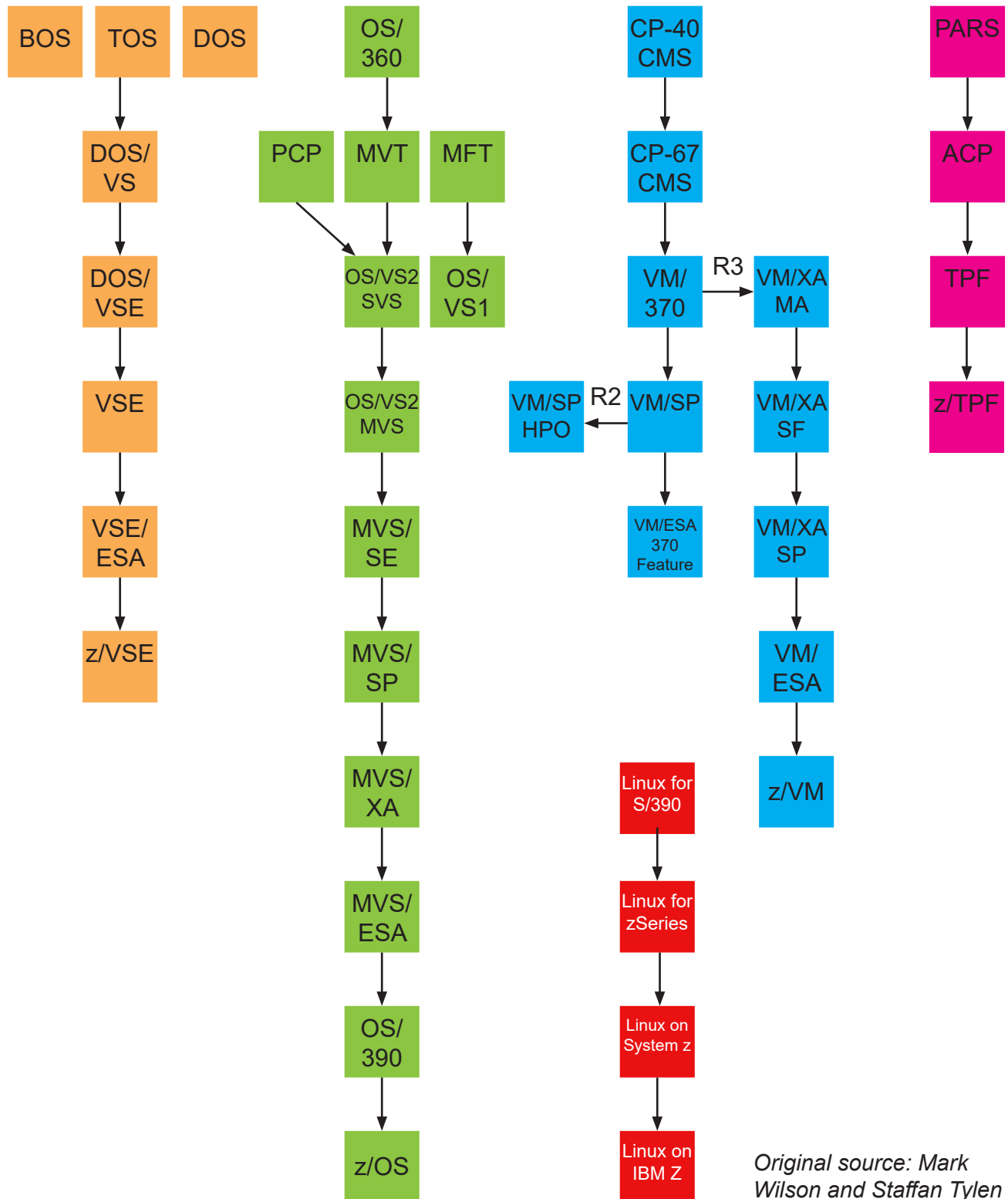
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