



Welcome to the Virtual IMS *CONNECTION* newsletter. Virtual IMS *CONNECTION* at [www.virtualims.com](http://www.virtualims.com) is an independently-operated vendor-neutral site run by and for the IMS user community.

## Virtual IMS *CONNECTION* IMS presentation

The latest webinar from Virtual IMS *CONNECTION* was entitled, “The Right ‘Change’ SQL-Based Middleware”, and was presented by Mike McKee, a Senior Software Engineer from CONNX Solutions.

Mike prefaced his talk by highlighting how often the word “change” had been used in the recent US presidential election and quoted a Gartner analyst who said, “People resistant to change will not survive changes to the industry”. Mike went on to remind us of some statistics taken from an article entitled “Standing the Test of Time”, published in April 2008 in *IBM Systems Magazine*:

- 90% of Fortune 1000 companies use IMS.
- More than 3 trillion dollars of transactions go through IMS in a single day.
- Clients that run IMS have exceeded a workload of 100 million transactions per day.

These are quite interesting statistics, and surely IBM are the best people to know which organizations are running IMS and what they do with it!

Mike quoted Steve Tockey, author of “Return on Software”, who suggested that there comes a point in time when costs to maintain a system (or asset) becomes too costly, and analysis should be made on whether to “retire” the system. The main reasons, according to Tockey, are deterioration and obsolescence.

Mike suggested that a way round the problem was to use middleware. Middleware, he suggested, attempts to provide value to legacy databases by creating additional components that bridge older technologies with new technologies. He went on to say that SQL-Based Middleware (SBM) might be worth considering because many standards/products support SQL. Mike argued that SBM middleware enables “legacy” data (eg IMS) to be accessed through newer standards/technologies through SQL commands. The middleware attempts to make IMS or other legacy data appear as a relational database. And it could very well eliminate/postpone the need to

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migrate because middleware provides tools to bridge legacy technology to newer technology.

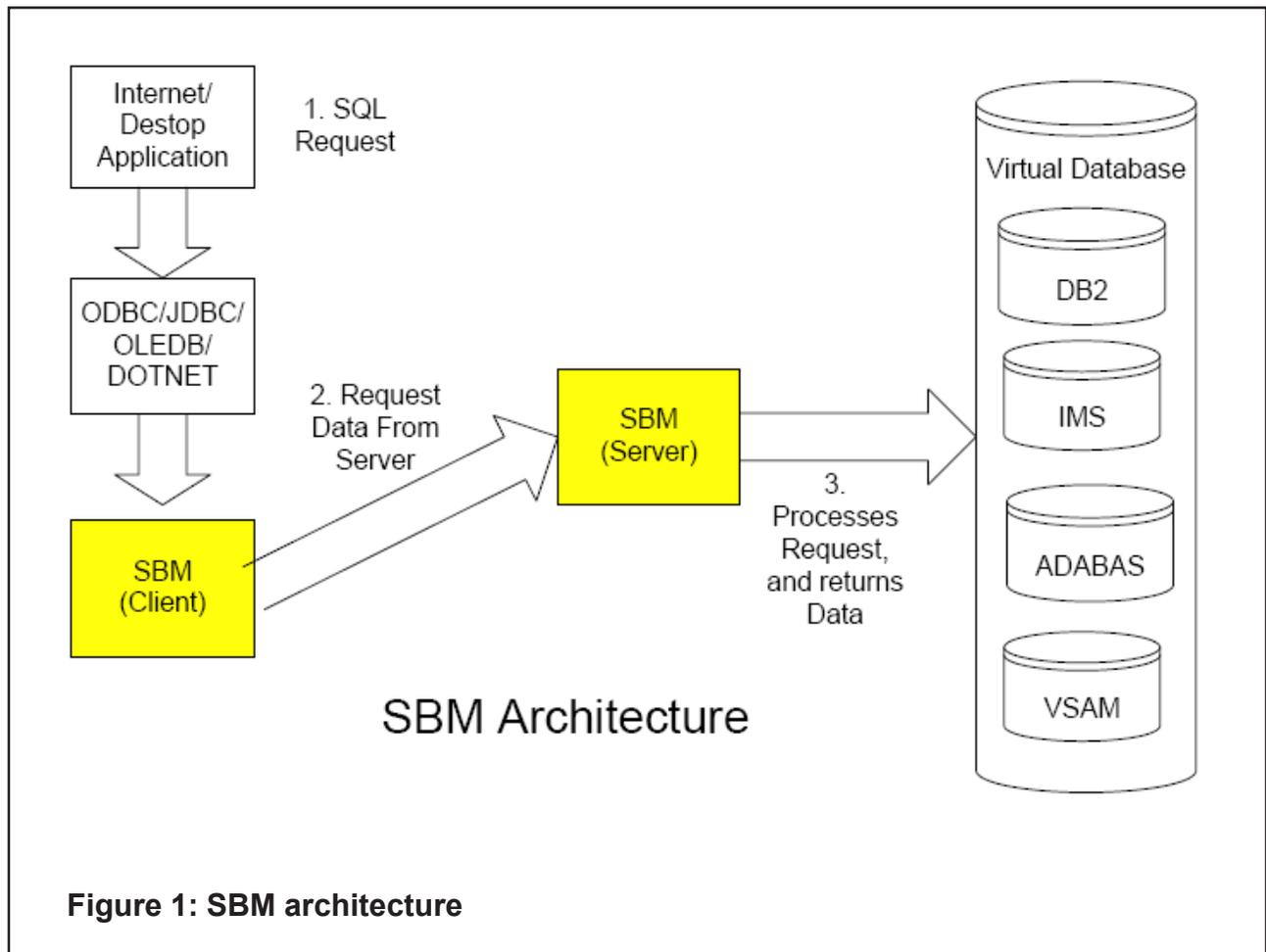
Characteristics of SQL-based middleware that Mike described are:

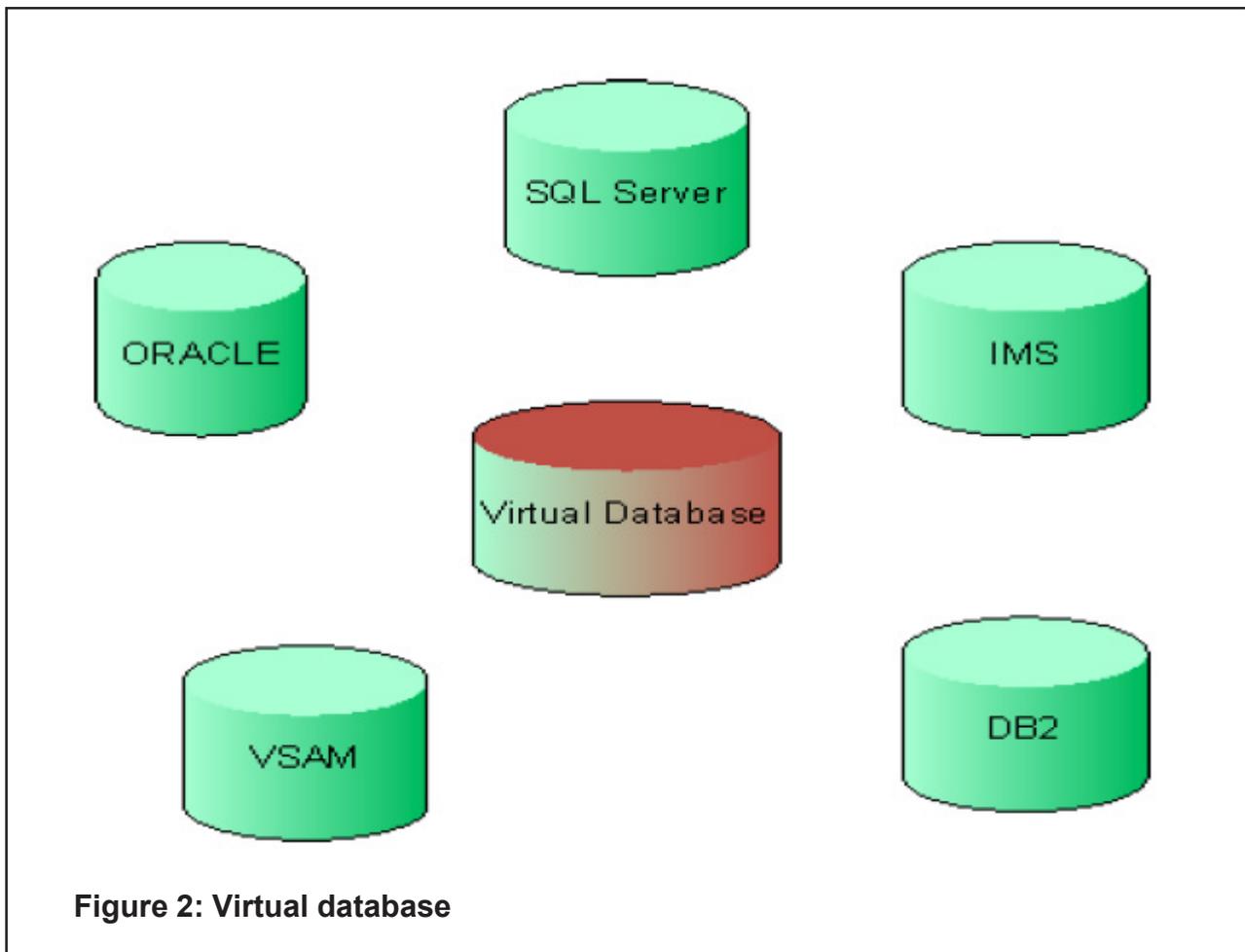
- Support for ANSI SQL.
- Has repository for meta data that makes up the data sources that it supports.
- Supports interface standards such as ODBC, JDBC, OLE DB, and .NET.

Mike went on to describe the architecture of an SBM (see Figure 1). He suggested that they typically have a client/server architecture. The client module (the SQL engine) resides on a non-mainframe platform (PC, Linux box, Web server), and the server module resides on a mainframe, or the machine where the data resides.

In Figure 1, the first step is the SQL Request. What happens is applications/services/beans issue SQL Requests through function calls in interfaces such as ODBC, OLE DB, JDBC, and .NET.

In step 2, client processing, the client evaluates the SQL Request verifying it for accuracy. It then develops an execution plan based on the common data dictionary (metadata) that contains information about the tables, columns, and/or indexes. Lastly it generates an RPC Call to the server.



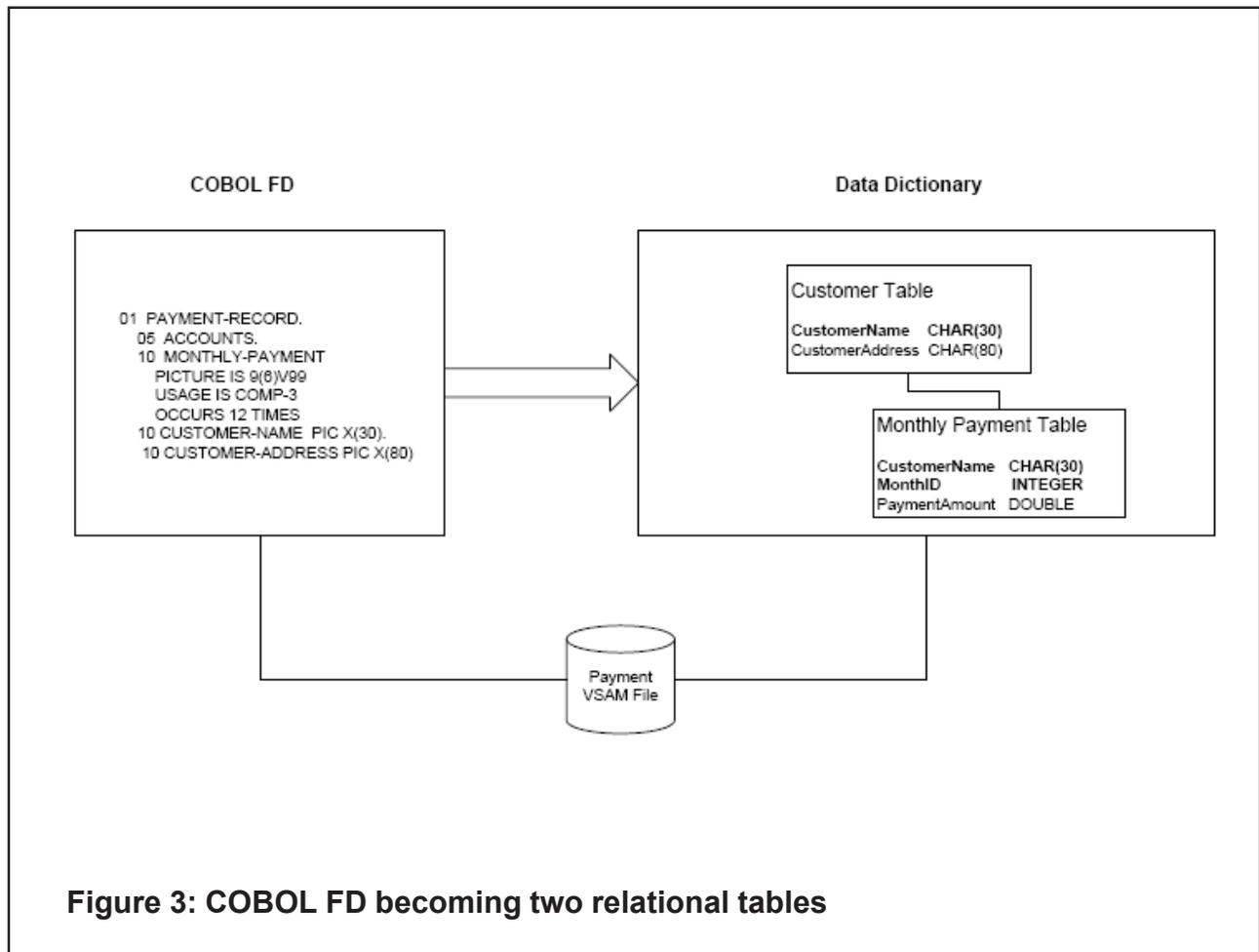


In step 3 the server gets control. The server analyses the RPC call, and determines whether it is a select, insert, update, or delete call. The server makes a call in the native language (in IMS it is DL/I) to carry out the correct operation.

In step 4 it gives the results back to the client. If it were a query, it would give results in the form of data retrieved from the database. If it were an update/delete/insert, it would carry out the operation, and let the client know how many rows were processed. While the processing seems simplistic, the middleware deals with many “plumbing” details, such as data translation, date/time issues, and threads/parallel processing.

Many SBMs can be described as a “virtual” database. This means that they “abstract” many of the data sources that might be contained in the data dictionary. For instance, an SBM might contain VSAM files, IMS database, DB2 tables, Oracle tables, and a SQL Server database, and all the details would be encapsulated in “private” virtual database that clients would connect to.

Mike informed us that many critics of an SQL approach suggest that it is “impossible” to normalize hierarchical relationships. Lots of legacy data in Cobol FDs have arrays, and sometimes arrays within arrays. In IMS this is often also referred to as Segments. While Xquery (another way to access data) allows for these types of data sources, these data



sources can also be turned into relational sources. Figure 3 shows a COBOL FD becoming two relational tables.

Mike stressed that SQL data access was important because:

- Standards, standards, standards.
- Widespread support by development community.
- Language is fairly simple to learn, yet grammar is powerful.

Mike gave some guidance on selecting an SBM provider:

- Is the data source supported?
- Is the hardware/OS supported?
- Performance – is it close to the native speed you get in your mainframe applications?
- Data type support – some data types are fairly complex (eg Date/Time). Are they supported? Can it handle nested arrays?
- Correct results – are the results consistently correct?

- Can Data Definition be easily imported into the repository (Data Dictionary)?
- Evaluation – is there support to assist you during the evaluation process?
- Security – are there security enhancements?
- Driver Interfaces – is there support for popular interfaces such as ODBC, OLE DB, JDBC, and .NET?
- Are there additional tools to complement the SBM?

Mike McKee concluded by saying that an SBM can enhance the life of a legacy system. By adding SQL-based middleware legacy databases, many new technologies (mashups, Web services, applets, beans, .NET, Web applications) can be used to provide value to your organization.

Mike then showed an example SBM is use. He illustrated how the IMS data could be selected and how a query could be run against the data.

A copy of Mike's presentation is available for download from the Virtual IMS *CONNECTION* Web site at <http://www.virtualims.com/presentations/SBMRightChange.pdf>.

### Virtual IMS CONNECTION meeting dates

The following meeting dates have been arranged for the Virtual IMS *CONNECTION* user group:

- April 7, 2009 – Henry Sobieski, Director of Product Marketing, Software AG.  
“IMS Modernization: Making the Business Case”

Abstract: With IT budgets tighter than ever in 2009, Software AG's Henry Sobieski will provide practical steps for planning and winning funding for an IMS modernization initiative. Henry will also highlight four key technology elements that should be considered for any IMS modernization project. If you're even considering modernization you won't want to miss this presentation.

- June 9, 2009 – Tom Harper, Product Author, NEON.  
“zIIP processing”

All meetings start at 10:30 Central Time (4:30 GMT in the winter and 3:30 GMT during daylight saving time). All members will be e-mailed the WebEx URL, access code, and password for each meeting. Members need to log in about five minutes before the meetings starts in order for the WebEx connection to complete, and to phone into the freephone number provided so they can join in with the audio component of the meeting.

### News Update

Grid-Tools has announced that their data generation software tool, Datamaker, now integrates with mainframe data sources such as IMS/DB. Datamaker editions offer test data generation to create test data, data masking, data scrambling, data modelling, data quality assurance, subsetting, database compare, a test data warehouse, "Test Data on Demand," and third-party integration with performance and SOA tools. More information is available at [www.grid-tools.com/mainframe\\_gridtools.php](http://www.grid-tools.com/mainframe_gridtools.php).

CA has announced Release 12 of its CA SYSVIEW Performance Management software, which is designed to reduce the complexity of managing mainframe-based services, enabling IT to deliver greater value to a business with its existing resources. CA describe CA SYSVIEW Performance Management r12 as an interactive solution for proactive management and real-time monitoring of z/OS environments, making it easy for IT staff to optimize service levels across multiple systems. Release 12 includes a new GUI and auditing capabilities. Among the enhancements is advanced centralized management through the added support of IMS Type 2 commands that enables users to centrally issue IMS commands and query responses across multiple systems. Full details are at [www.ca.com/us/press/release.aspx?cid=196593](http://www.ca.com/us/press/release.aspx?cid=196593).

GT Software has announced a learning series co-sponsored by IBM designed to deliver interactive education focused on Service-Oriented Architecture (SOA) capabilities within the context of IBM's IMS transaction and database systems. This learning series is designed to demystify SOA to IMS customers. The hands-on workshops focus on how companies today can leverage IMS as part of a comprehensive SOA strategy. Participants learn how to develop a requirements checklist for IMS and SOA, and then actually build in-bound and outbound Web services against the live IMS system. Further, SOA governance, performance, and security considerations are addressed. Companies interested in participating in the IMS & SOA Hands-On Workshops can register at <http://www.gtsoftware.com/content/gt-software-ims-and-soa-workshop>.

### Recent IMS articles

*Aligning IT & Business: Managing the Inevitable* by Nick Griffin in the December/January issue of *zJournal*. You can find the article at [zjournal.com/index.cfm?section=article&aid=1104](http://zjournal.com/index.cfm?section=article&aid=1104)

*IT Management: IMS Modernization Survey Reveals Concerns for the Future* by Bob Thomas in *Mainframe Executive*. You can find the article at [www.mainframe-exec.com/articles/?p=95](http://www.mainframe-exec.com/articles/?p=95).

*Celebrating 40 Successful Years* by Jack Yuan in *IBM Systems Magazine*. You can find the article at [www.ibmssystemsmag.com/mainframe/januaryfebruary09/trends/23639p1.aspx](http://www.ibmssystemsmag.com/mainframe/januaryfebruary09/trends/23639p1.aspx).

*IMS at 40: Stronger than Ever* by Kim Moutsos in *IBM Database Magazine*. You can find the article at [www.ibmdbasemag.com/story/showArticle.jhtml?articleID=211300235](http://www.ibmdbasemag.com/story/showArticle.jhtml?articleID=211300235).

## IMS on Facebook

Yes, IMS now has a place on Facebook. You can become a fan by going to [www.facebook.com/pages/IBM-IMS/38404374060](http://www.facebook.com/pages/IBM-IMS/38404374060). I'm waiting for IBM's IMSers to turn up on Twitter – if they haven't already.

And talking about Twitter, they have a widget you can add to a Web site so that you can follow what someone is up to. The only problem is that the code they supply is not W3C valid. For my feed, they supplied the following:

```
<object classid="clsid:d27cdb6e-ae6d-11cf-96b8-444553540000" codebase="http://
download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=9,0,124,0" width="290"
height="350" id="TwitterWidget" align="middle">
  <param name="allowScriptAccess" value="sameDomain" />
  <param name="allowFullScreen" value="false" />
  <param name="movie" value="http://static.twitter.com/flash/widgets/profile/
TwitterWidget.swf" />
  <param name="quality" value="high" />
  <param name="bgcolor" value="#000000" />
  <param name="FlashVars" value="userID=20425034&styleURL=http://static.twitter.com/flash/
widgets/profile/smooth.xml">
  <embed src="http://static.twitter.com/flash/widgets/profile/TwitterWidget.swf"
quality="high" bgcolor="#000000" width="290" height="350" name="TwitterWidget"
align="middle" allowScriptAccess="sameDomain" allowFullScreen="false" type="application/x-
shockwave-flash" pluginspage="http://www.macromedia.com/go/getflashplayer"
FlashVars="userID=20425034&styleURL=http://static.twitter.com/flash/widgets/profile/
smooth.xml"/>
</object>
```

I copied the code and added it to my home page at [www.itech-ed.com/index.htm](http://www.itech-ed.com/index.htm). I then validated the HTML using <http://validator.w3.org>. It came up with numerous errors and warnings. So I modified the code. It now works *and* is valid. Feel free to use the modified code, just remember to change the userID to your one.

```
<object data="http://static.twitter.com/flash/widgets/profile/TwitterWidget.swf"
type="application/x-shockwave-flash" width="290" height="350" id="TwitterWidget"
align="middle" >
  <param name="movie" value="http://static.twitter.com/flash/widgets/profile/
TwitterWidget.swf" />
  <param name="quality" value="high" />
  <param name="bgcolor" value="#000000" />
  <param name="allowScriptAccess" value="sameDomain" />
  <param name="allowFullScreen" value="false" />
  <param name="FlashVars" value="userID=20425034&#38;styleURL=http://static.twitter.com/
flash/widgets/profile/smooth.xml" />
</object>
```

## About Virtual IMS CONNECTION

Virtual IMS CONNECTION is a user group established as a way for individuals using IBM's IMS hierarchical database and transaction processing systems to exchange information, learn new techniques, and advance their skills with the product.

The Web site at [www.virtualims.com](http://www.virtualims.com) provides a central point for coordinating periodic meetings (which are technically-oriented topics presented in a webinar format), and will provide articles, discussions, links, and other resources of interest to IBM IMS practitioners. Anyone with an interest in IMS is welcome to join Virtual IMS CONNECTION and share in the knowledge exchange.

To share ideas, and for further information, contact [trevor@itech-ed.com](mailto:trevor@itech-ed.com).

The Virtual IMS CONNECTION user group is free to its members. Various sponsorship opportunities are available to vendors of IMS-related products. Full details of these opportunities and can be found *here*.