Smarter Access to IMS Resources for Your Applications

By Kenny Blackman

The IBM® mainframe is celebrating 45 years of providing an upward and downward compatible runtime environment for customer applications. This fundamental principal was incorporated into the IMS™ architecture over 40 years ago. IMS includes a transaction manager and a database manager that provides a runtime environment for online transaction processing.

The IMS Transaction Manager supports both an interactive terminal SNA based network and a TCP/IP based network. To provide network transparency and message integrity for the customer applications, IMS TM includes a queue manager. IMS customer application programs can use IMS Message Format Services to build the input/output screen for the interactive terminal Client. MFS parses the data to manage the input/output data streams for the application program. This provides device independent application programming. The following figure is an example of an interactive terminal screen managed by IMS MFS.

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***************************************************
*      IMS INSTALLATION VERIFICATION PROCEDURE      *
***************************************************


                         TRANSACTION TYPE : NON-CONV (OSAM DB)
                         DATE             : 05/12/2009

   PROCESS  CODE  (*1) :   _
                                         (*1) PROCESS CODE
   LAST  NAME         :                          ADD
                                                 DELETE
   FIRST  NAME        :                          UPDATE
                                                 DISPLAY
   EXTENSION  NUMBER  :                          TADD

   INTERNAL  ZIP CODE :


                                         SEGMENT# :
```
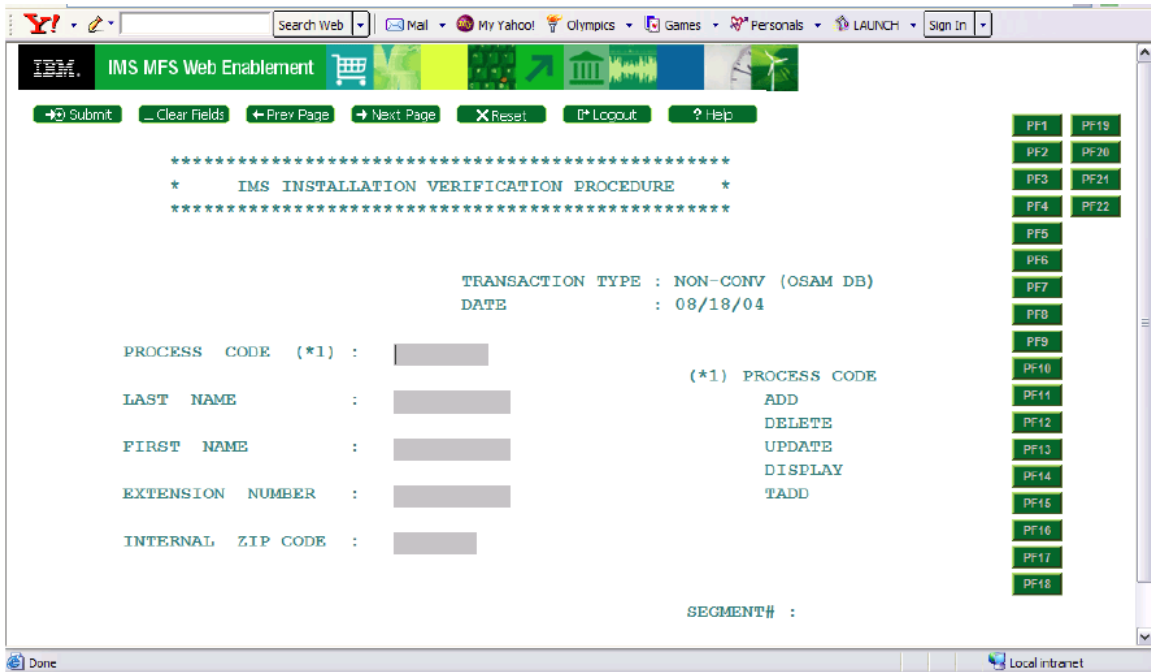
The use of device independent programming enables the introduction of new client types that customers can leverage without requiring a modification to their IMS application investment. HTTP over the TCP/IP network established the foundation for the World Wide Web and the use of a Web browser to access IMS applications. The IMS MFS Web Enablement solution supports the reuse of existing MFS-based IMS application business logic by Web browser clients without modifying the applications. The following figure shows how the MFS interactive terminal screen can be enhanced for Web enablement.

Y! · ✎ · [ ] Search Web ▾ | ✉ Mail ▾ 🔵 My Yahoo! 🏆 Olympics ▾ 🎮 Games ▾ 👥 Personals ▾ 🚀 LAUNCH ▾ Sign In ▾

IBM. **IMS MFS Web Enablement**

⊕ Submit   ▭ Clear Fields   ← Prev Page   → Next Page   ✕ Reset   ⎘ Logout   ? Help

PF1 PF19
PF2 PF20
PF3 PF21
PF4 PF22
PF5
PF6
PF7
PF8
PF9
PF10
PF11
PF12
PF13
PF14
PF15
PF16
PF17
PF18

```
**************************************************
*       IMS INSTALLATION VERIFICATION PROCEDURE    *
**************************************************


                          TRANSACTION TYPE : NON-CONV (OSAM DB)
                          DATE             : 08/18/04

PROCESS   CODE   (*1) :  [        ]

                                   (*1)  PROCESS CODE
LAST   NAME          :   [        ]        ADD
                                           DELETE
FIRST  NAME          :   [        ]        UPDATE
                                           DISPLAY
EXTENSION   NUMBER   :   [        ]        TADD

INTERNAL   ZIP CODE  :   [        ]



                                   SEGMENT# :
```

🔵 Done   🛡 Local intranet

The World Wide Web leveraged the internet to enable the development of application systems and to open the window of the desktop user to new opportunities. However this Web 1.0 world did not have a complete set of standards and standards became the next step of the web evolution.

SOAP provides an XML based network application protocol to establish a standard for exchanging structured information using HTTP. Web Services Description Language (WSDL) describes networked XML-based Web Service interface and their associated interface methods. These two standards provided the framework that was used to build Web Service applications that can interoperate using the intranet or the internet.

The IMS SOAP Gateway supports the SOAP and WSDL standards that enable IMS applications to perform as a Web Service provider and consumer. The IMS SOAP Gateway server performs the conversion of SOAP messages and the IMS Connect runtime supports the XML transformation to provide IMS application programs device independence. The following figure is an example of the WSDL generated by Rational® Application Developer for System z® to represent the IMS application program as a Web Service provider.
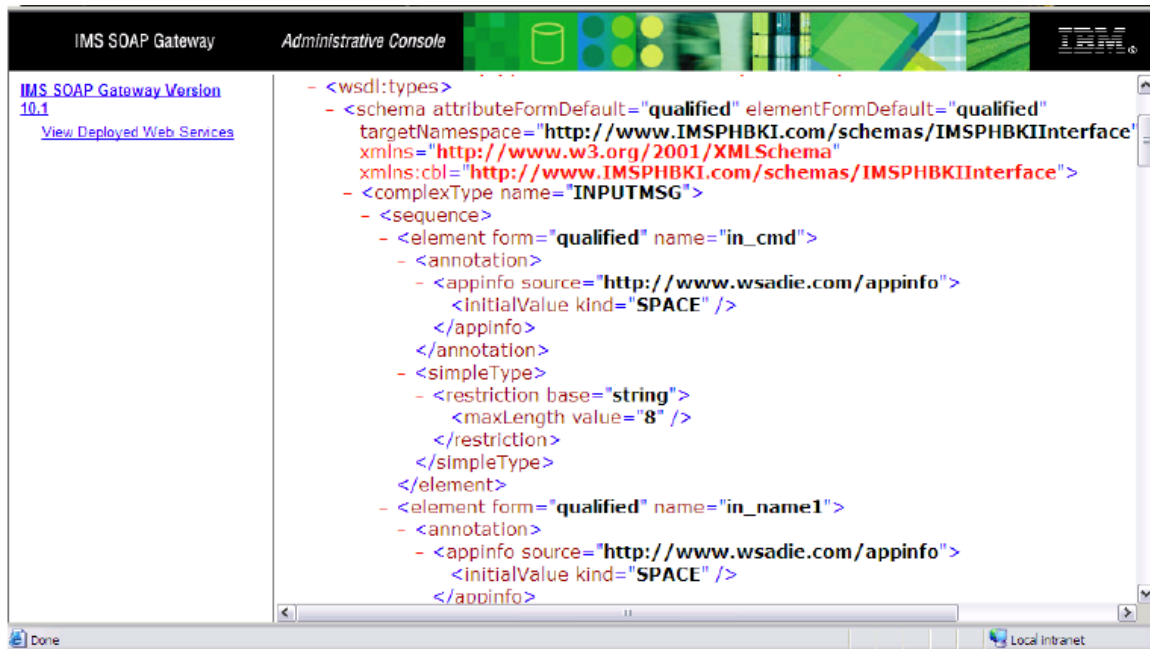
The Service Oriented Architecture describes how application programs can be leveraged as services that participate in business processes. The IMS SOAP Gateway or the IMS TM Resource Adapter can be used to integrate IMS applications in an SOA environment as a web service. As web technologies and standards continue to evolve the concept of Web 2.0 was created to recognize the evolution of web technologies to leverage the web application platform. The web-oriented architecture (WOA) describes how SOA services combined with WEB 2.0 technologies and techniques can improve delivery of business services.

IMS Info 2.0 is the IMS Web 2.0 solution that builds upon the existing IMS SOA infrastructure by providing access to IMS applications through RSS, ATOM, or XML feeds for use by the Web 2.0 community. IMS Info 2.0 is a plug-in that is embedded in the IBM Mashup Center Enterprise Edition, InfoSphere™ MashupHub, and Lotus® Mashups. The IMS Connect runtime supports the XML transformation responses and requests between MashupHub and IMS to provide IMS application programs device independence. The following figure is an example of a web mashup application that uses IMS application feeds generated by Rational Application Developer for System z.

Check out the IMS Web 2.0 demo at
http://www-01.ibm.com/software/data/ims/mashup.html

IMS is committed to providing the technology that is needed to support new standards that can be used to leverage the customer's application investment.
The IMS Database Manager provides device independent application programming for managing data. IMS DB supports data type neutrality that enables the storage of a variety of data formats. This flexibility can be leveraged as new data paradigms are created. For example XML documents can be stored in an IMS managed database. The XML document can be decomposed and stored in an IMS database to allow access by existing customer application programs or it can be stored intact to provide a repository for the XML documents. To support the increasing volume of data the IMS Database Manager supports database partitioning which extends the capacity of a single database to over 40 terabytes of data.
IMS 11 DB enhancements provide direct distributed TCP/IP database access using DRDA® protocols and new Universal Drivers for Java™ application programming. These programming options include:

The IMS Universal DB resource adapter is for connectivity to IMS databases from a Java Platform, Enterprise Edition (Java EE) environment using the Common Client Interface (CCI) and Java Database Connectivity (JDBC) interfaces.

The IMS Universal JDBC driver is a stand-alone JDBC 3.0 driver for making SQL-based database calls to IMS databases using type 2 or type 4 JDBC connectivity.

The IMS Universal DL/I driver provides a stand-alone Java API for writing queries to IMS databases using traditional IMS programming semantics.

The use of these Universal Drivers provides new application programming opportunities and runtime environments that can leverage existing IMS databases and coexist with existing application business logic. For example you can use Linux® for system z to manage your server farm and provide direct access to your IMS databases. The following figure shows the various Java Platforms supported by the Universal Drivers.
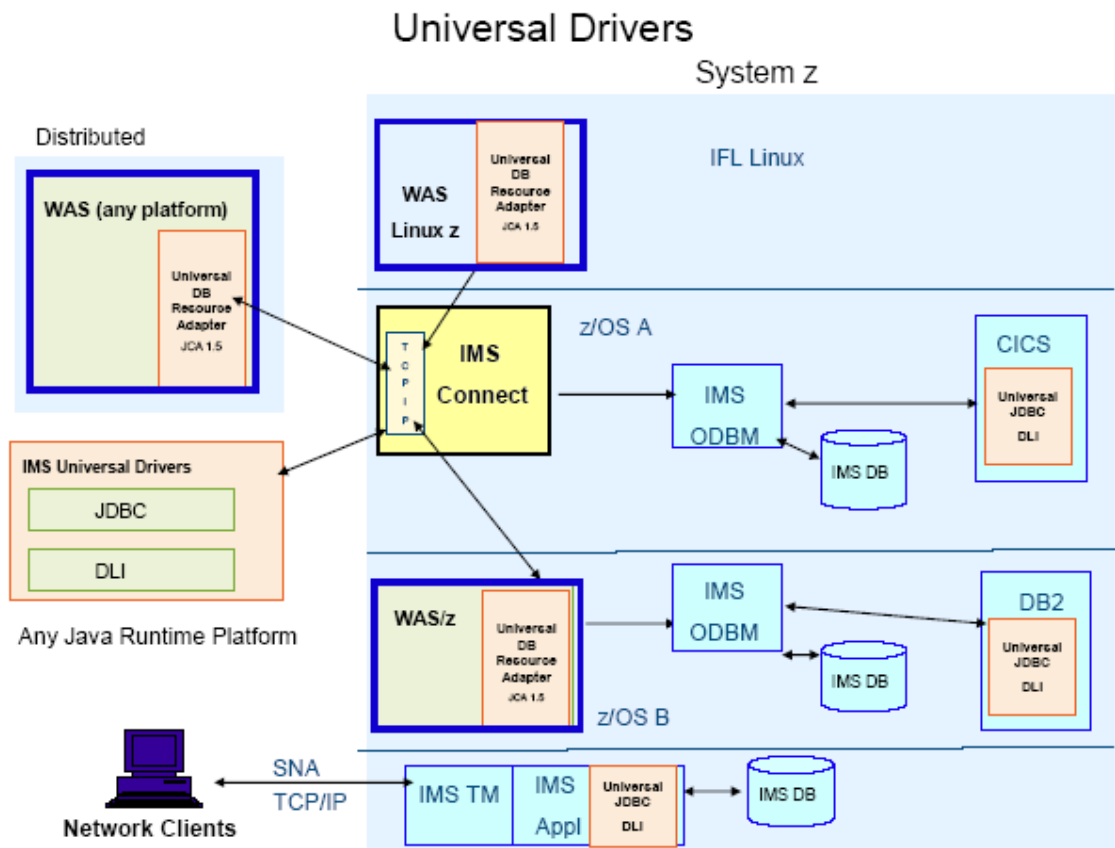
IMS continues to innovate and to provide functions that not only meet today's information technology and business requirements, but also prepare organizations for the future. Instead of rip-and-replace, organizations can count on IMS to protect and further extend the value of their existing IMS assets through technological innovations and evolution. The following figure summarizes the IMS solutions available to support your IMS application program and database investment.
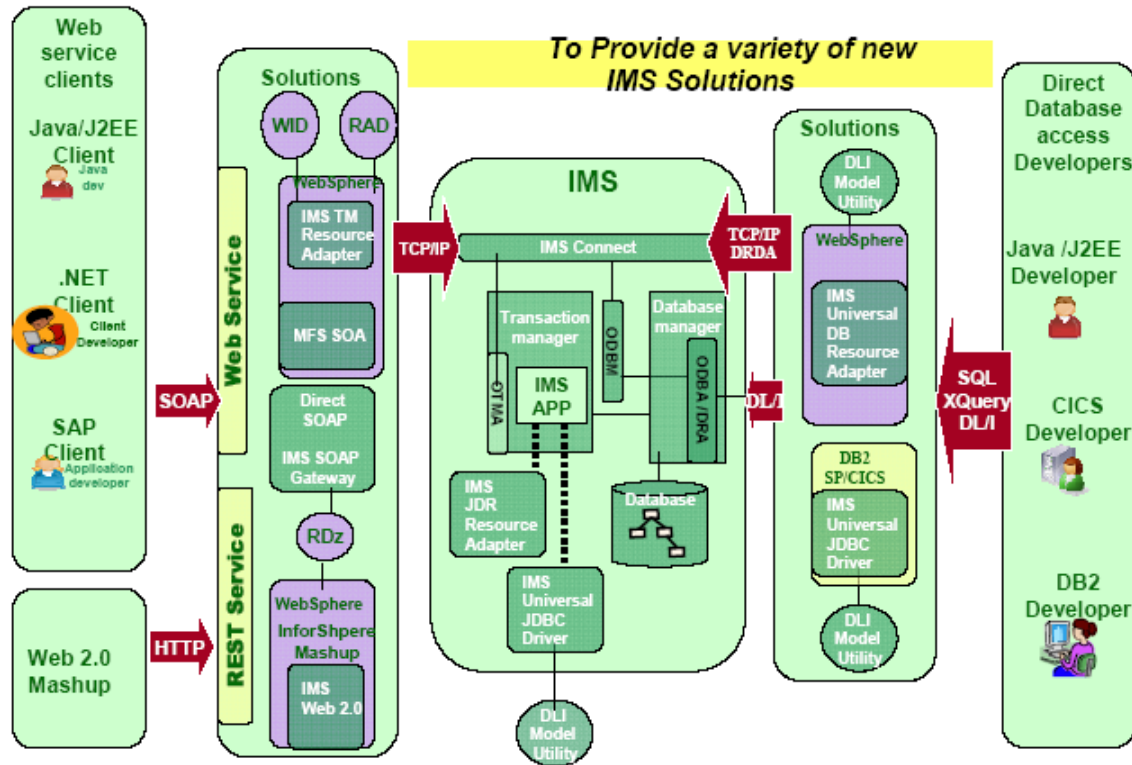
For additional information on IMS go to the following URL:
http://www-01.ibm.com/software/data/ims/

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