NonStop Java – The "New COBOL"

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This year COBOL and I turned 50 years old. When COBOL and I were born, there were only 48 states in the union. Yes, Old Glory had only 48 stars to go along with those 13 stripes!

In the Financial Services Industry, where I am gainfully employed, COBOL has long been king. While COBOL and I have both seen better days, we do still both enjoy our work, and neither of us are quite ready to retire. In fact, COBOL and I still feel highly productive, serving more real-time transactions every day than there are Web pages served on the Internet.

But as time moves on, COBOL and I could really use some help from the younger generations. For some time we have been mentoring a promising new technology with great anticipation that this newcomer will step up to the plate and take over the helm.

On HP's Integrity line of NonStop servers, that newcomer, NonStop Java, has come of age. With the Itanium chip set, Java performs a factor of 20 or better than the older NonStop server lines, and is fully capable of running all the Open Source software that is available on the Web.

As I will describe in this article, NonStop Java is not only a terrific platform for developing Java applications and Web services, but it is also a useful tool for extending the life of our past investments by "gluing" legacy COBOL applications into the heterogeneous fabric of the modern enterprise.

NonStop Java – A First-Class Citizen of NonStop Fundamentals

The success of COBOL on NonStop is not just the capability of the COBOL language, but it is rather the "secret sauce" of the NonStop Operating System – the massively scalable, message-based, transactional, architecture that is built into the foundations. Those same fundamentals are also built in to NonStop Java.

For example, NonStop Java itself is a Pathway Server (hence the name, "NonStop Server for Java"). Using the HP-provided extensions called "JToolkit," Java can send and receive Pathsend messages by way of $RECEIVE (same as a COBOL requester or nested server), can access Enscribe files, and can even run as a standalone Pathway server.

HP's implementation of Tomcat, the official product name being "NSJSP," is a deep port. The Java software API's are the same servlet API's that are supported by the Open Source Apache Tomcat, yet the underpinnings fully incorporate NonStop fundamentals including server net, parallel TCP/IP, Pathway and TMF. The iTP Web Server, a rewrite of the popular Apache Web server, is also built on NonStop fundamentals.

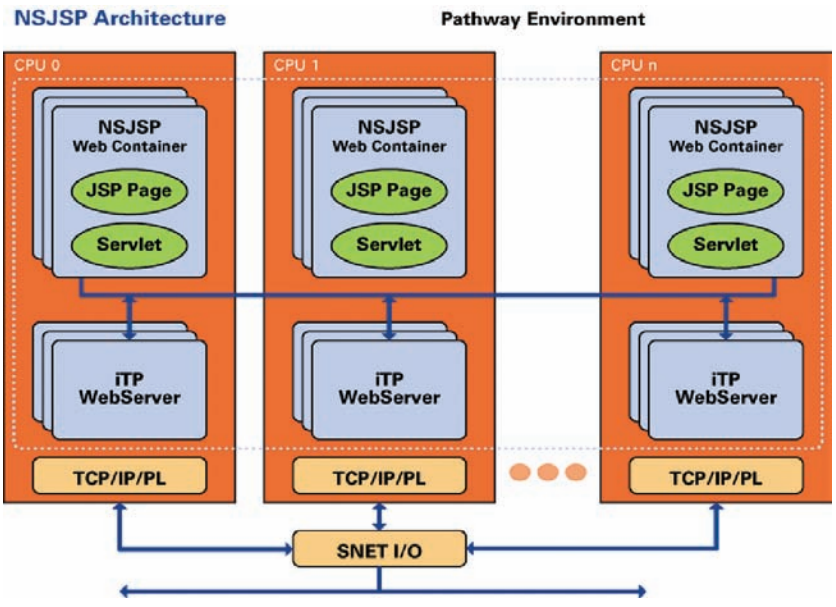

Figure 1: NonStop Java Servlets (NSJSP, aka Tomcat)

JDBC – The Database Glue

JDBC Type 2 and Type 4 drivers are of course available for NonStop SQL databases, enabling pure Java access to tables stored either in NonStop SQL MP, NonStop SQL MX and NeoView.

There is one particular area where Java excels far beyond the hopes and dreams of COBOL. While there are many drivers that allow Windows, Unix and other clients to access NonStop SQL databases, there are no database drivers that allow COBOL to act as "clients" to off-platform databases such as Oracle, MySQL, IBM DB2, Microsoft SQL Server, etc.

With NonStop Java, any database for which there is a JDBC driver can be accessed by Java ▶

A past ITUG board member, Sam Ayers is chair of the worldwide Connect Advocacy Steering Committee, and he leads the Java Special Interest Group (SIG). Ayers is employed by JPMorgan Chase (Chase Paymentech), where he architects and develops mission-critical Java applications and Web services.

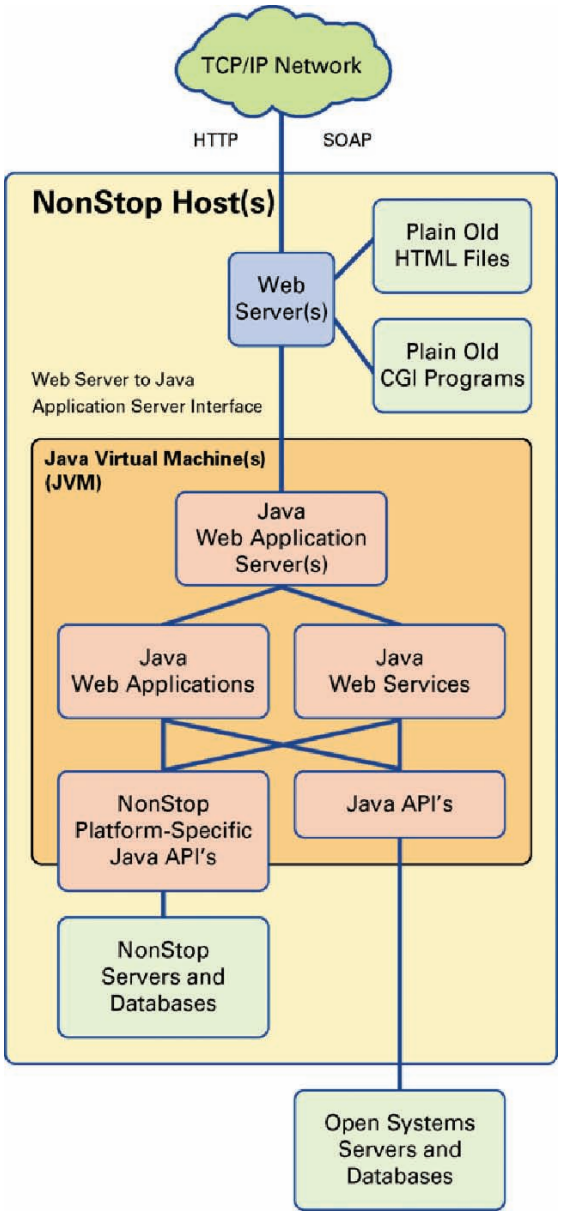

Figure 2: Java Web Framework indicating APIs

programs, Web applications, Web services or gateways running on NonStop.

For example, Java applications running on NonStop can perform SQL operations against Oracle databases. The capabilities of JDBC promote NonStop to the level of first-class-citizen for application developers who need massive scaling but who also need to access heterogeneous data sources.

Open Source Frameworks - SASH

I have heard it said that more than 60 percent of the Open Source software in the entire world is written in the Java language. Java is free and open to all, is taught in the universities, and has been widely adopted by the younger generation.

The latest Open Source frameworks – Spring, Apache Axis, Java Server Faces and Hibernate – not only work well under NonStop Java, but HP has stepped up to the plate and is providing Global Mission Critical Support Center (GMCSC) support for those popular Open Source Frameworks. Support staff at customer sites can open mission-critical tickets with HP's global, 24x7 support organization and receive software support for the Open Source components.

Spring and Java Server Faces provide a light-weight yet flexible and consistent framework that implements the Model-View-Controller architecture pattern.

Apache Axis2 is a Web services suite that has been fully operability tested among all the major platform vendors. Using Axis2, your SOAP server implementation is more likely to work with all clients.

Object Relational Mapping (ORM) software maps the columns of relational database tables to the "objects" of object-oriented languages such as Java and C++. For those who wish to utilize Object-Relational-Mapping (ORM) middleware, Hibernate is the most popular Open Source implementation, and is fully supported by the HP GMCSC. With the Spring framework, one also has the option of not using ORM software and writing direct JDBC calls encapsulated inside Data Access Layers (DALs).

Eclipse-Based Development

NonStop Java development is performed using the same Eclipse-based software tools and plug-ins that are used for other Java platforms, and with no proprietary modification. The basic Eclipse IDE inherently provides Java development including class browsing, context-sensitive editing, compiling and debugging as well as the important feature of remote single-step debug against Java Servers running on NonStop.

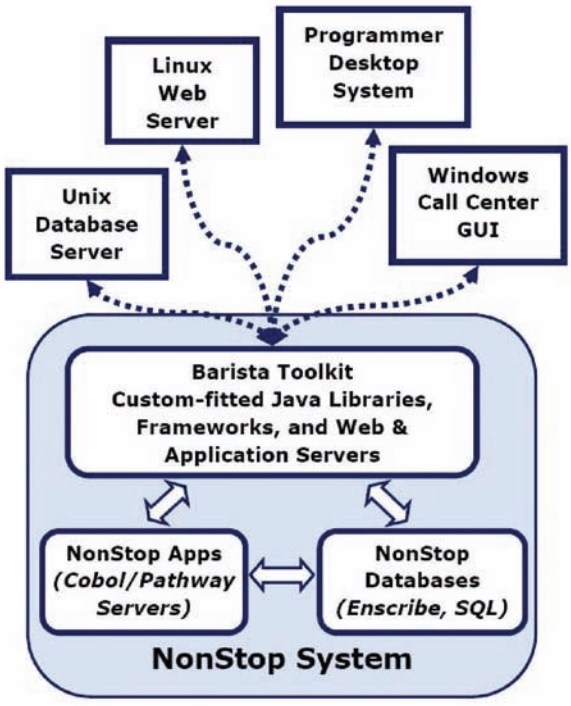

Figure 3: U.S. Consulting's Barista Toolkit

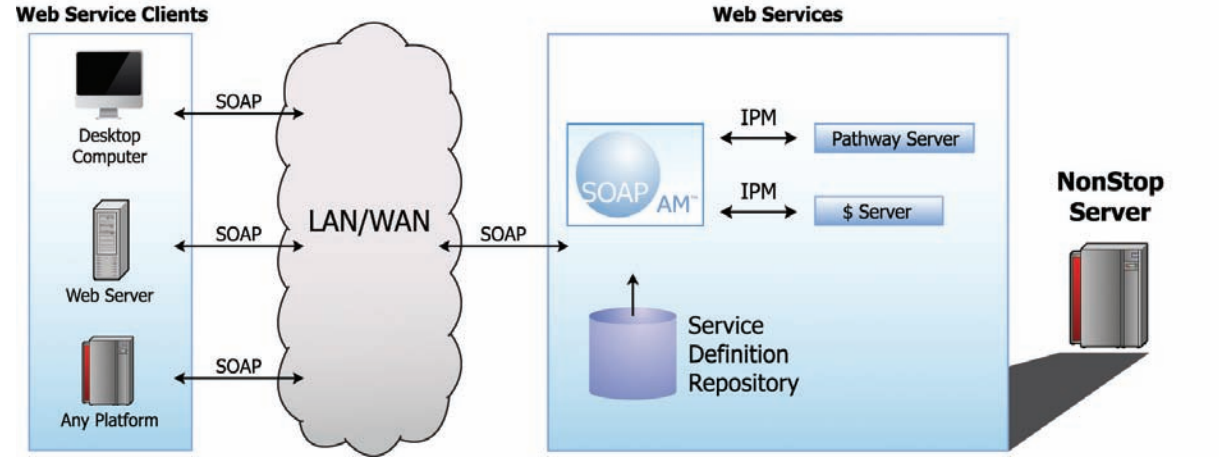

Figure 4: SOAP/AM Server

HP also provides cross-compilers and a product called "Enterprise Plugins for Eclipse" that integrates the NonStop cross-compilers for other languages including COBOL and C into the Eclipse framework, so you can do all NonStop development from within Eclipse.

HP Partner Support for NonStop Java

A significant number of HP Partners are now providing NonStop Java products and services. As an example, one such company, U.S. Consulting Services, Inc. (USCSI), out of Oldsmar, Fla., is providing a complete NonStop Java practice called "Barista" that utilizes HP's core offerings, supplementing with Open Source components and expertise, proprietary custom libraries, and consulting services.

The Barista offering provides complete capability to integrate Windows .NET, HP-UX, Linux and proprietary database technologies to NonStop servers. In addition, a complementary offering by USCSI called "EASA" provides capability to fully automate production of spreadsheets, PDF files and reports in pure Java.

For more information regarding the Barista NonStop Java service offering, see www.uscsi.com.

Java for the "NonStop Rest of Us"

While everyone would like to have the new Integrity hardware, the fact is there are many shops still running older NonStop hardware, and that need to integrate Java technology with their existing S-Series NonStop Systems.

A company called NuWave Technologies specializes in integrating Java without the need to even install OSS on the NonStop Host. NuWave offers several products that facilitate the integration of COBOL servers to newer technologies such as SOAP and Java Message Services (JMS).

COBOL Can Be a SOAP Client, Too!

For database access, NonStop systems are often considered to be the "servers" and there is limited support for application developers who wish to make their applications "clients." The same holds true for SOAP clients. While one can readily find a Java-based SOAP client off-the-shelf, it is considerably more difficult to find a SOAP client for a COBOL application. One particularly important capability offered by NuWave is the ability to provide SOAP Client capability for COBOL programs, so COBOL can act as a client to Java-based Web services running on other platforms.

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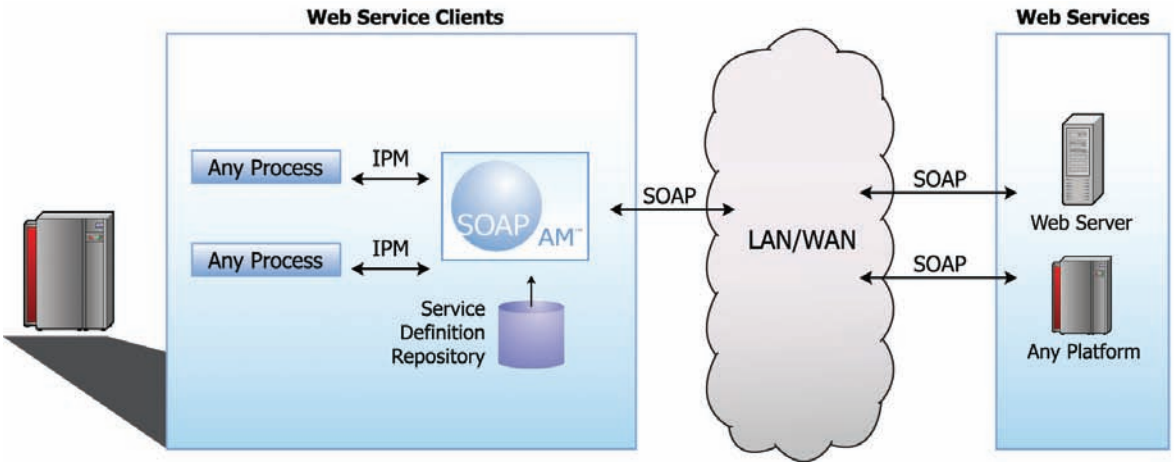

Figure 5:SOAP/AM Web Service Client

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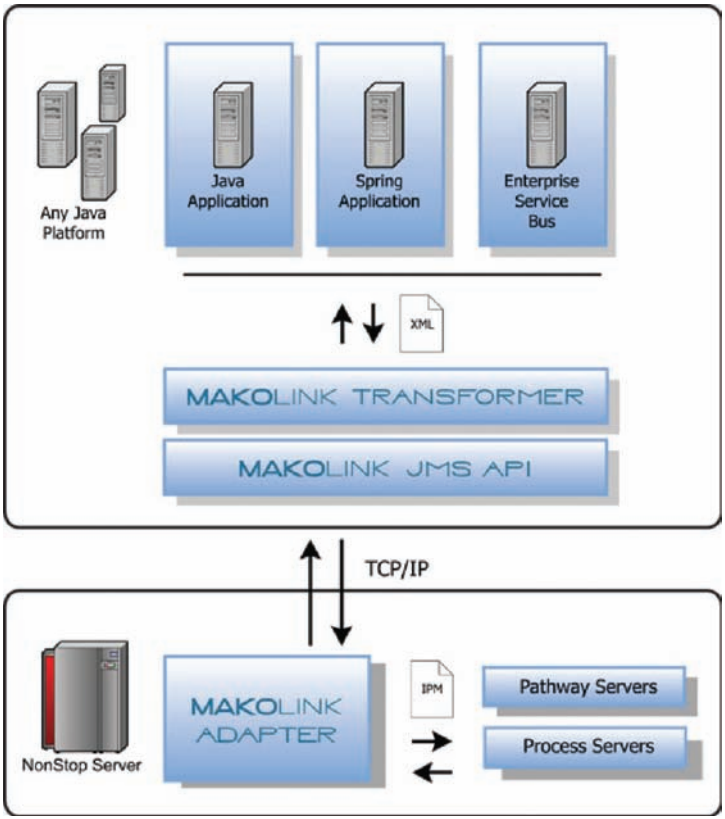

Figure 6: NuWave MAKOLINK Architecture

Heterogeneous Java Integration Using JMS

NuWave has a new offering called MAKOLINK that will integrate Pathway Servers implemented in COBOL to any Java application or framework using reliable message services (Java Message Services, JMS).

The underpinnings of MAKOLINK are the popular ApacheMQ integration framework—a popular integration approach within heterogeneous data centers.

For more information regarding the NuWave products, see www.nuwave-tech.com.

For more information regarding ApacheMQ, see http://activemq.apache.org.

NonStop Java Future is Bright

With a rapidly developing base of support, coupled with the Award-Winning Integrity NonStop Servers, the future for NonStop Java is brighter by the day. Incremental improvements to NonStop Java are positioning it to be the "New COBOL." With the integrated support of NonStop fundamentals, Java is massively scalable and mission-critical from the ground up. The availability of HP Global Mission Critical Support for the SASH framework seals the deal!