Enabling COBOL for SOA Participation

Highlights

- With its proven Java and legacy modernization capabilities in Fortune 500 environments, UST is bridging the gap between the modern world of SOA-based Web services and COBOL systems through an innovative application plug-in technology

- The usage of J2EE 1.4 specifications and W3C standards provides a scalable, extensible, flexible and portable solution

- As an extended part of the Acucorp team, UST ensures that Acucorp need focus only on COBOL features

- Acucorp placed confidence and trust in the partnership with UST as *extend*®*8* is expected to be one of its biggest software release

Profile

Acucorp is a leading provider of application development solutions that modernize and enhance business-critical COBOL applications. For more than 18 years, Acucorp has provided customers with cost-effective, low-risk solutions enabling COBOL programs to run on any technology platform, including Web and mobile architectures. These solutions, known as *extend*®, are considered the most portable and interoperable COBOL solutions available.

Business Issue

Enabling mission-critical COBOL applications is Acucorp's business. Therefore staying abreast of technology trends and constantly expanding the *extend*® product-line to address changing client requirements is core to Acucorp's continued success.

The criticality of business applications written in COBOL and the importance of enterprise integration make it imperative for COBOL programs to co-exist with next-generation applications. In particular, companies need a way to re-use and extend existing COBOL systems within service-oriented architectures (SOA). However, while COBOL powers many of the world's largest business systems, making COBOL a convenient player in modern architectures has been problematic.

To facilitate seamless mainframe integration, Acucorp focuses on creating a model that enables business applications and data built around COBOL to be consistently available anytime, anywhere by all calling clients. Given the prevalence of the Java platform — which is currently utilized by more than 60 percent of developers with an expected growth rate of 25 percent in 2007 (*Enterprise Development Management Issues Survey*, Evans Data 2006) — Acucorp recognized its importance to meet the growing client requirement for cross-platform operation. With focused competencies in COBOL and mainframe technologies, Acucorp looked to hire a development partner with existing, best-in-class, Java expertise to speed its solution to market.

Due to its proven Java and legacy modernization capabilities in Fortune 500 environments, UST Global℠ (UST) was selected to bridge the gap between the modern world of SOA-based Web services and COBOL systems through an innovative, but standards-based J2EE application plug-in technology.

UST as the Vendor of Choice

- Best-shore model gives 24x7 service

- An agile approach gives complete transparency to project artifacts and processes followed

- Periodic reviews of implemented features and regular collaboration with client enables early identification of any disconnect in requirements

- Team of high-end technical talent from the UST Java Center of Excellence

The UST Approach

The objective was to build infrastructure modules for the Acucorp *extend*® *8* suite — a product that would be available in late 2007. This product suite will automate and manage the integration of COBOL programs into an Enterprise SOA by hosting them as Web services. Acucorp placed confidence and trust in the partnership with UST as *extend*® *8* is expected to be one of its biggest software release.

UST established a core team of experienced developers from its Java Center of Excellence (CoE) in a dedicated and secured offshore facility in India managed by a senior Java architect. Through architectural consultancy, design and implementation services, UST set out to engineer various product components with a focus on specific technology and process approaches including:

- Utilizing the specifications in J2EE 1.4 to make the system portable on any conforming vendor-specific application server
- Providing a flexible design that allowed the crux of the application to be *configured* rather than *coded* in case any affecting parameters change
- Complete transparency that allowed macro as well as micro management by Acucorp.

To ensure success, UST worked with Acucorp to establish clear project goals, determine the appropriate processes for distributed product development, and create a clear communication plan with regular review cycles. The goal of the Acucorp/UST partnership was to draw on its shared product vision through all phases of architecture, design, development and system testing. A high-level test guide formed a preliminary manual on test lab setup toward performance testing of the developed subsystem.

To provide complete transparency throughout the software development cycle, UST implemented an agile product development methodology utilizing:

- Continuous testing using Cruise Control to evaluate the impact of changes to a module, thus minimize integration issues
- Senior engineers who were able to quickly address frequent requirement changes to build components
- Consistent client communication through daily status meetings, weekly calls and regular on-site visits by senior team members and business analysts
- An open communication environment using Wiki to share story-board, design guidelines, build instructions, updated plans and any issues
- Incremental builds to gain feedback from Acucorp on functionality
- JUnit Test scripts to help understand and test requirements.

The UST Solution

The resulting solution enabled Acucorp to package a COBOL program as a service. For this, UST provided:

- A scalable means to invoke a COBOL program
- Tools to create service definition from COBOL programs that generated a WSDL
- Tools to generate a proxy to the COBOL program from the WSDL file
- Tools to associate the deployed proxy with appropriate Acucorp runtime
- A UI utility which could be further integrated with their AcuBench® IDE (Integrated

Development Environment)

- A view into runtime that provides statistical metrics of the service and resource components.
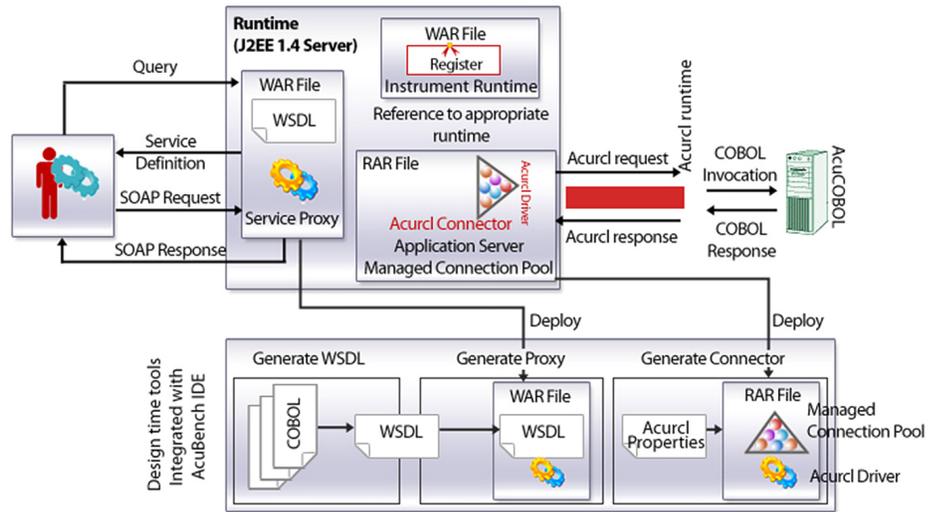
Since architectural decisions decide the longevity of a product, it was important to ensure that the solution maintained the industry standards. For this, the following technology choices were made around W3C and stable J2EE 1.4 specifications:

- Connectivity to Acucorp's COBOL runtime "AcuConnect", using a Java driver that can be used in any Java application to invoke a COBOL program
- Scalability achieved by using the Java Connector Architecture (JCA)-based application server managed connection pool
- JAX-RPC-based Web services that make calls to COBOL using the managed connection pool of the application server
- Java Management Extensions (JMX) to manage and monitor the runtime environment which includes the hosted connectors and the deployed services
- SWT-based UI that provides the interface to generate WSDL, proxy or connector.

Benefits

UST's commitment to providing exceptional technical expertise and quality of delivery will enable Acucorp to bring out a product line that deliver quality software products to its customers through:

- Integration with Acucorp IDE (Acubench®) providing developers greater ease of development and administration of Cobol Web services
- Improved time-to-market reducing client costs by at least 70%
- Framework-based development to save overall software development costs by at least 30%
- A proven, agile methodology that provides transparency and increases the adaptability of the software by allowing very late requirement changes
- Leveraging existing stable open source tools to provide additional productivity and lower costs.