Intervise Contributes to Success of Strategic Mobility 21

Background

The Strategic Mobility 21 (SM21) is the initial phase of the Joint Deployment and Distribution Support Platform (JDDSP) program. JDDSP is a multi-phase program designed to evaluate, develop, and implement solutions to challenges facing dual-use distribution networks: that is, transportation networks that are useful for military and commercial sectors. The program is focused on supporting the improvement of the military and commercial distribution processes and systems.

SM21 was designed to provide a first step for an integrated solution set to the most critical issues facing both military force deployment and sustainment distribution and commercial intermodal logistics. This integrated solution was designed to transform logistics networks through the introduction of information technology-based concepts and capabilities that tie together information and processes across organizations to promote total end-to-end visibility of shipment assets and the individual items inside the assets.

The SM21 system is actually a System-of-Systems. Different systems operated by different partners (and their respective data streams) were joined by the use of a Service Oriented Architecture (SOA) which enabled the individual systems to provide a unified feed to the user. However, the challenge was that each of these systems had its own organization and each organization had its own processes. In fact, the integration of systems was also an integration of organizations and processes. As a result, the System-of-Systems was also an Organization-of-Organizations and a Process-of-Processes. The variations in interpreting standards, data timings and general operations were as much of a challenge as the technology itself.

Services Provided

Intervise supported the Strategic Mobility 21 (SM21)/ Joint Deployment and Distribution Support Platform (JDDSP) effort by providing critical leadership and expertise in service-oriented architecture (SOA) design, system security and Semantic Web solutions.

Service Oriented Architecture (SOA)

Intervise designed an architecture that supports a System of Systems (SoS) and Software as a Service (Saas) and was designed to alleviate the problems of system and operating environment heterogeneity and interoperability, as well as the normal requirements volatility that exists in most operating systems.

Intervise utilized JBoss, MySQL, JAAS, Lucene and Jena to consolidate data from various vendors and provided a contolled data source upon which data was reported to the ultimate user. Intervise established an architecture using the internet as a common service bus within a Service Oriented Architecture (SOA).

Communication Protocols

In order to provide flexibility for connecting with the required systems, Intervise planned two styles of software architecture for communication across the web: REST – Representational State Transfer and SOAP – Simple Object Access Protocol.

Representational State Transfer, or REST, allows for the transfer of data and interactions by the web application handling RESTful URL's. Additionally, Intervise made directional XML communication available which allows data to pass between applications to be interpreted and displayed in any format needed by the end user.

Communication Security

Intervise provided a wide range of security capabilities including cryptography (encryption), public key infrastructure, secure communication, authentication and access control.   Specifically, Intervise utilized a Secure Socket Layer (SSL) to provide data that was encrypted by one side, then transmitted, and decrypted by the other side before processing.

Semantic Enabled Shipping Visibility

Intervise extruded the EDI messaging problem down to developing an ontology for an EDI message. Next, Intervise identified Container, Events, EDI Messages, Statuses, Bill Of Lading, Conveyances and the relationships between all entities.