Framework for Web Services Implementation: Burton Group Proposal

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FWSI – Burton Group Proposal

Agenda

• What is a reference architecture?
• Network Platform
• Web Service Functional Elements
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• *What’s a reference architecture?*
• Network Platform
• Web Service Functional Elements
What’s a reference architecture?

Reference Architecture Definition

• The relationship and definition of the major components and technologies available to manage information and business processes.
  • Strategic rather than tactical implementation timeframe (2-3 years)
  • Based on known and anticipated business requirements
What’s a reference architecture?

Reference Architecture Definition

Differs From Design

• Architecture does not specify exact sizing and placement of components or how they will be deployed
• For example:
  • The network platform architecture provides guidelines for selecting infrastructure, frameworks, and techniques used to enable the development and deployment of web services and integration solutions
• A design would require activities such as specifying system and business requirements, hardware/software installation and customization specifics, application modeling, and identifying infrastructure constraints.
What’s a reference architecture?

Reference Architecture Benefit

- Raises the possibility of effectively migrating towards a service oriented architecture, streamlining information access, consolidating systems, and improving productivity for staff, partners/suppliers, and customers
- By providing:
  - Common set of enterprise-wide “standards”
  - Application technology plan that is pro-active
  - Builds consensus and cross-team communication
What’s a reference architecture?

Reference Architecture Implementation

- Reference architecture is used in conjunction with an architecture framework methodology
- Architecture Framework methodology includes the following work items:
  - Develop a baseline
  - Determine high-level business requirements
  - Assess current application infrastructure, portfolio, and directions
  - Perform gap analysis
  - Develop high-level architecture and migration strategy
What’s a reference architecture?

Relationship to FWSI objectives and scope

- Reference architecture uses FWSI functional elements as template building blocks.
- Reference architecture incorporates FWSI implementation guidelines in technical positions
  - A technical position describes standards and technologies to use.
  - A technical position provides rationale for major architectural decisions or services
- Reference architecture technical position contain a set of use cases.
Network Platform

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• Web Service Functional Elements
Network Platform

Applications get on the bus

Web Services Framework Standards

Storage
Database
Directory
Security
Messaging
Presence
Data Routing

Web Services Framework Standards

Applications
APIs & Protocols
Class Libraries
OS
Process
Memory
Storage
Network
Windows/.NET

Applications
APIs & Protocols
Class Libraries
OS
Process
Memory
Storage
Network
UNIX/Linux

Applications
APIs & Protocols
Class Libraries
OS
Process
Memory
Storage
Network
Java

Applications
APIs & Protocols
Class Libraries
OS
Process
Memory
Storage
Network
CICS/COBOL
Network Platform

Service Oriented View

Framework services: definition, discovery, semantics, arguments, data, etc.

What’s required to implement the vision . . .
FWSI – Burton Group Proposal

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• What’s a reference architecture?
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Web Service Functional Elements

Infrastructure Environments

- Service Environment (FWSI Functional Elements)
- Interoperability Environment (WS-I, WSF, WS-*, Globus)
- Development Environment (Java, .NET, LAMP, Other)
- Execution Environment (operating systems, frameworks, servers)
Web Service Functional Elements

Core Entities

- Service metadata publishers
- Service metadata brokers
- Service metadata subscribers
Web Service Functional Elements

Network Platform Control Services

Identity
Security
Management
Communication
Orchestration
Event
Metadata
Web Service Framework Standards

Foundational Standards

- Interface Discovery and Description (UDDI, WSDL)
- Messaging (SOAP)
- Data Definition (XML, XML Schema)
- Transport Protocol (SMTP, HTTP, Other)

Start out with SOA basics . . .
Web Service Framework Standards

Advanced Framework Categories

Presentation

Provisioning

Business Process

Data Management

Metadata

Registry

Security

Reliable Messaging

Transactions

Messaging

Layer advanced semantics . . .
Web Service Specifications

Specification Support for Web Services Framework

- **Security**
  - WS-Security, WS-Trust
  - WS-Federation, WS-SecureConversation

- **Reliable Messaging**
  - WS-ReliableMessaging, WS-Reliability

- **Messaging**
  - WS-Addressing, SOAP
  - MTOM, SOAP with Attachments (sWA)

- **Transactions**
  - WS-Coordination, WS-Transaction
  - WS-CAF, WS-CF, WS-TXM

- **Business Process**
  - BPEL, BPML

- **Presentation**
  - WSRP

- **Management**
  - WSDM

- **Provisioning**
  - SPML

- **Meta-Data**
  - WS-Policy, WSDL

- **Data Definition**
  - XML Schema, XML

- **Registry**
  - UDDI, ebXML

- **Data Management**
  - XQuery, XMLA
Web Service Deployment Template

Product oriented view

Service Subscribers

Policy Repository

SOAP/XML Firewall

Acceleration

Data Routing

Orchestration

Registry (UDDI, ebXML)

Repository

Management

Interfaces

Web Service Platform

Applications

APIs & Protocols
Class Libraries
OS
Process Memory Storage Network
Windows/.NET
Web Service Functional Elements

Generic Service Building Blocks

- Storage
- Database
- Directory
- Security
- Messaging
- Presence
- Data Routing
- Other
- Communication
- Event
- Identity
- Management
- Orchestration