The Importance of Standards in IT Architectures

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Customer Challenges

- Winning the Present
  - Flexible execution
  - Predictable performance
  - Compliance

- Adapting to Accelerating Change
  - Strategic agility
  - Faster business model innovation
  - Flexible networks

- The Web as the ubiquitous dial tone
  - Geographically distributed
  - Homogeneous technology
  - Accessible everywhere
  - Multi-vendor

SOA and the Web of Services
Enterprise SOA requires technical standards to achieve cost-effective and efficient consumption, composition, and maintenance of services and requires business standards to define the precise semantics of services.

**Business standards**
- Driven by user requirements regarding inter-company business documents
- Examples: ACORD, CIDX, GS1, and OAGi

**Enterprise requirements**
- Reliability, availability, scalability, performance, and security
- Example: sustained throughput of 100,000 invoices per hour

**Technology standards**
- Driven by interoperability needs (examples: IBM WebSphere and Microsoft .NET)
- Simplifies development of enterprise SOA applications
- Examples: WSDL, SOAP, WS-Security, and WS-ReliableMessaging
**Success = Technical Standards + Business Standards**

<table>
<thead>
<tr>
<th>Technology standards</th>
<th>Business standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>W3C®</td>
<td>Higher education and research</td>
</tr>
<tr>
<td>WS-I MEMBER</td>
<td>Healthcare</td>
</tr>
<tr>
<td>OASIS SPONSOR</td>
<td>Financial service provider</td>
</tr>
<tr>
<td>Eclipse</td>
<td>High tech</td>
</tr>
<tr>
<td>Java</td>
<td>Telco</td>
</tr>
<tr>
<td>UN/CEFACT</td>
<td>Aerospace and defense</td>
</tr>
<tr>
<td>SPEC2000</td>
<td>Chemicals</td>
</tr>
<tr>
<td>RpettaNet</td>
<td>Automotive</td>
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<td>CidX™</td>
<td>Mill products</td>
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<td>papiNet</td>
<td>Engineering and construction</td>
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<tr>
<td>ATAG</td>
<td>Consumer products</td>
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<td>SWIFT</td>
<td>Banking</td>
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<td>ARTS</td>
<td>Retail</td>
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<tr>
<td>FAN•UCC SYSTEM</td>
<td>Pharma-ceuticals</td>
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<tr>
<td>CDER</td>
<td>Oil and gas</td>
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<td>IREDES</td>
<td>Mining</td>
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Enterprise SOA Is More Than Technology

Enterprise Services

- Are implemented by means of an open, standards-based technology (Web services standards)
- Provide standardized business connectivity
SAP’s Approach to Standards in Enterprise SOA

SAP’s standards taxonomy

[Diagram showing the SAP’s standards taxonomy]
Java Enterprise Edition 5 (Java EE 5)
Service component architecture (SCA)
Service data objects (SDO)

<table>
<thead>
<tr>
<th>Standard</th>
<th>SAP NetWeaver 7.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCA</td>
<td>1.0 (preview)</td>
</tr>
<tr>
<td>SDO</td>
<td>2.1</td>
</tr>
<tr>
<td>Java 2EE and</td>
<td>5.0</td>
</tr>
<tr>
<td>Java EE</td>
<td></td>
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Messaging Standards

Web services

- Envelope standards (SOAP)
- Electronic address standards (WS-Addressing)
- Message delivery standards (WS-Reliable Messaging)

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<tbody>
<tr>
<td>JMS</td>
<td>1.1</td>
</tr>
<tr>
<td>SOAP</td>
<td>1.1</td>
</tr>
<tr>
<td>MTOM</td>
<td>1.0</td>
</tr>
<tr>
<td>WS-Reliable Messaging</td>
<td>Early implementation of 1.1</td>
</tr>
<tr>
<td>WS-Security</td>
<td>1.0</td>
</tr>
<tr>
<td>WS-I Basic Security Profile</td>
<td>1.0</td>
</tr>
<tr>
<td>WS-I Reliable Secure Profile</td>
<td>Still under development</td>
</tr>
</tbody>
</table>
Security Standards

- WS-Security
- WS-I Basic Security Profile
- WS-SecureConversation
- WS-Trust
- SSL
- TLS
- SPML
- SAML
Profile Standards (1/2)

Web Services Interoperability Organization (WS-I)

- WS-I Sample Application
- WS-I Basic Profile
- WS-I Basic Security Profile
- WS-I Reliable Secure Profile

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</tbody>
</table>

Sample application

Sample applications based on other vendors’ platforms

Interoperability testing
Profile Standards (2/2)

WS Profile Standards

Web services specifications

Constrains

References

Sample application architecture specification

Used by

Tests Interoperability of

Implemented by

Sample applications

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Open standards and open source software are distinct

- Open standards specify implementation requirements
- Open source software is an implementation

Open standards can be implemented well by software whether they involve open source software or commercial software.

Buying decisions should be based on TCO considerations, rather than only on the software licensing model.
Increasingly commoditized enterprise software functionality is available as OSS

- Databases (MySQL MaxDB, …)
- Operating Systems (Linux, …)
- Application Server (Apache, …)
- IDE (Eclipse, …)

Allows users to reduce TCO

- Commoditize lower levels and focus on higher levels of software stack
- Select from a wider range of service providers, particularly for Linux
- Reduce training costs through wide availability of OSS skill sets (portability of skills)

Interoperability with commercial software is enabled by standards support
Each organization independently creates the same PO message that is functionally the same in a business process but because they use different design rules, the messages are totally incompatible. This creates high B2B integration costs, particularly across industries.

UN/CEFACT Design Methodology
- Defines the basic data types (consistent vocabulary)
- Defines a methodology that enables consistency in Naming and Structuring (consistent Grammar)
Summary

- SAP drives technical and business standards to simplify adoptions of enterprise SOA and improve interoperability.
- SAP runs with open source software, providing increased platform flexibility and, in many cases, dramatically reduced costs.
- Customers are turning to SAP as a trusted advisor to assist them in determining a synergistic IT strategy that leverages open source and industry standards.