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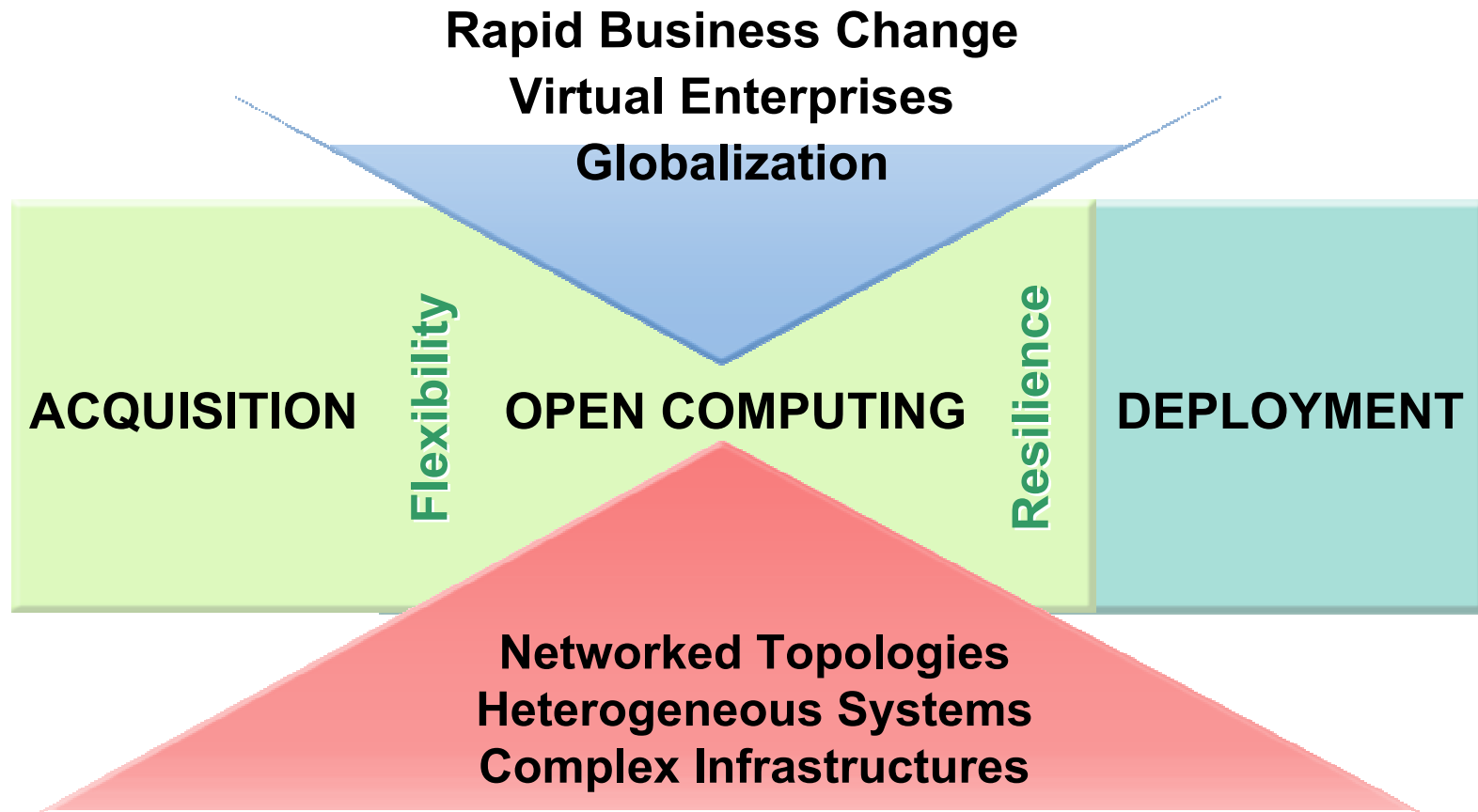
Web Service Standards

Update and Relevance to SOA

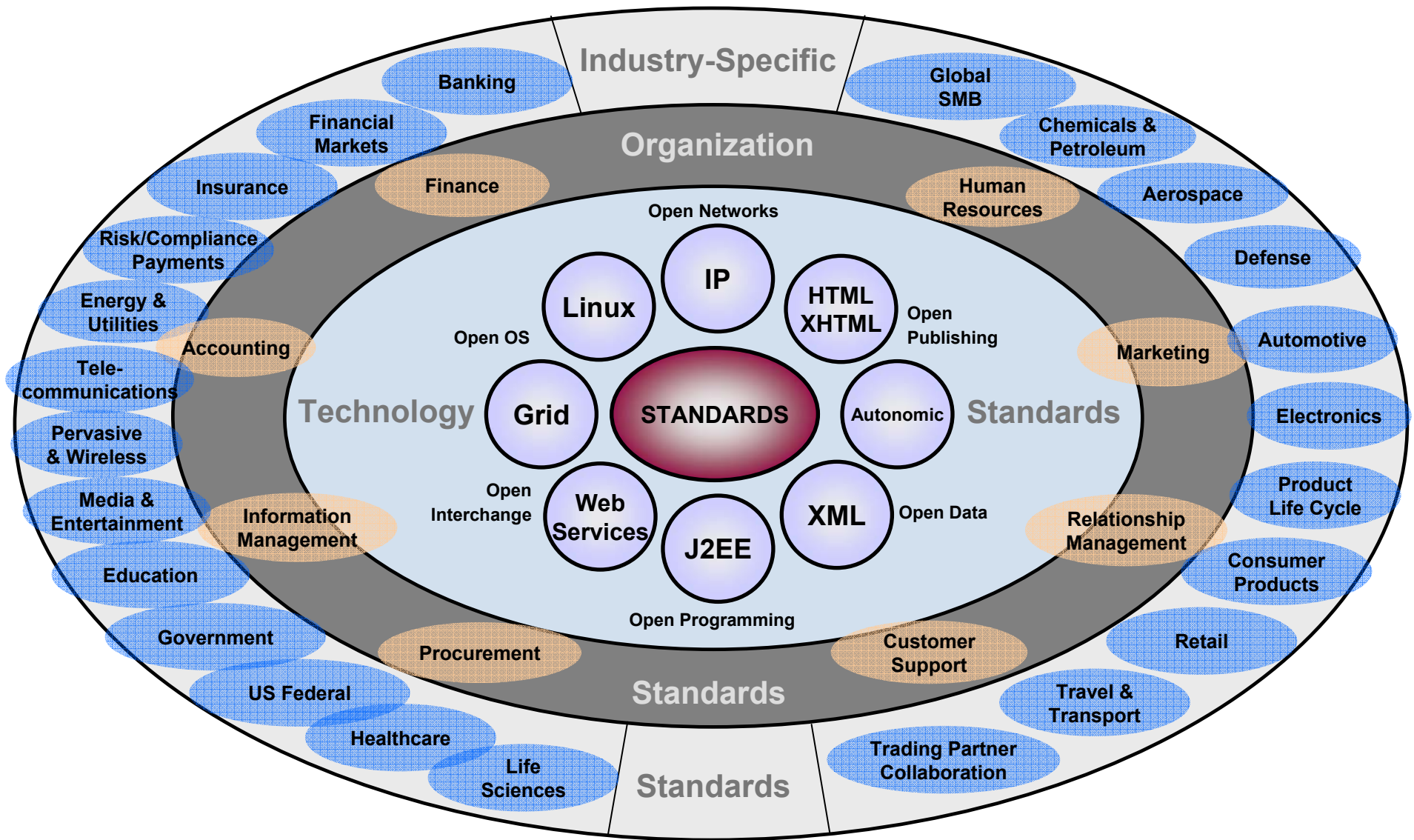
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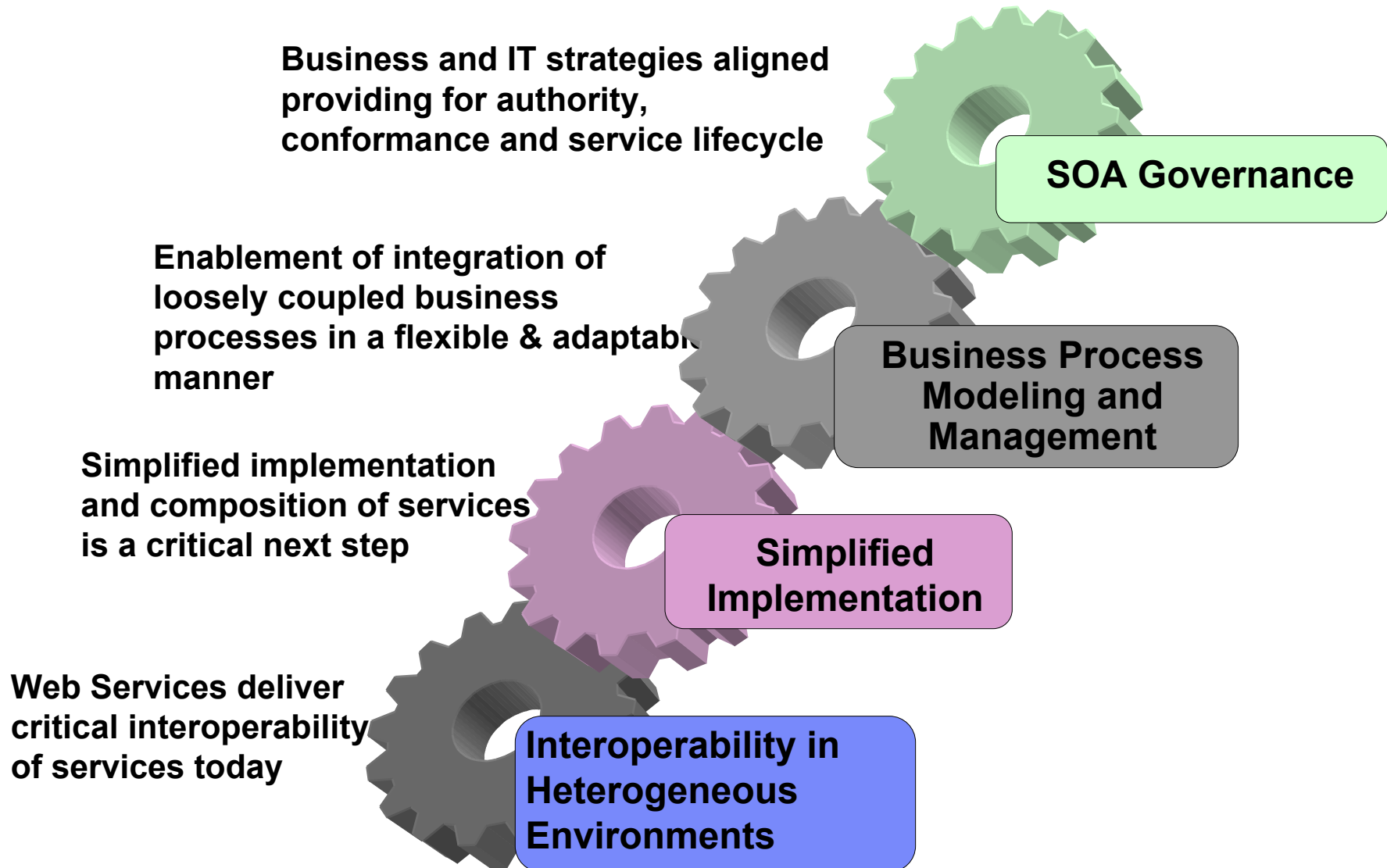
The Need for Standards in SOA



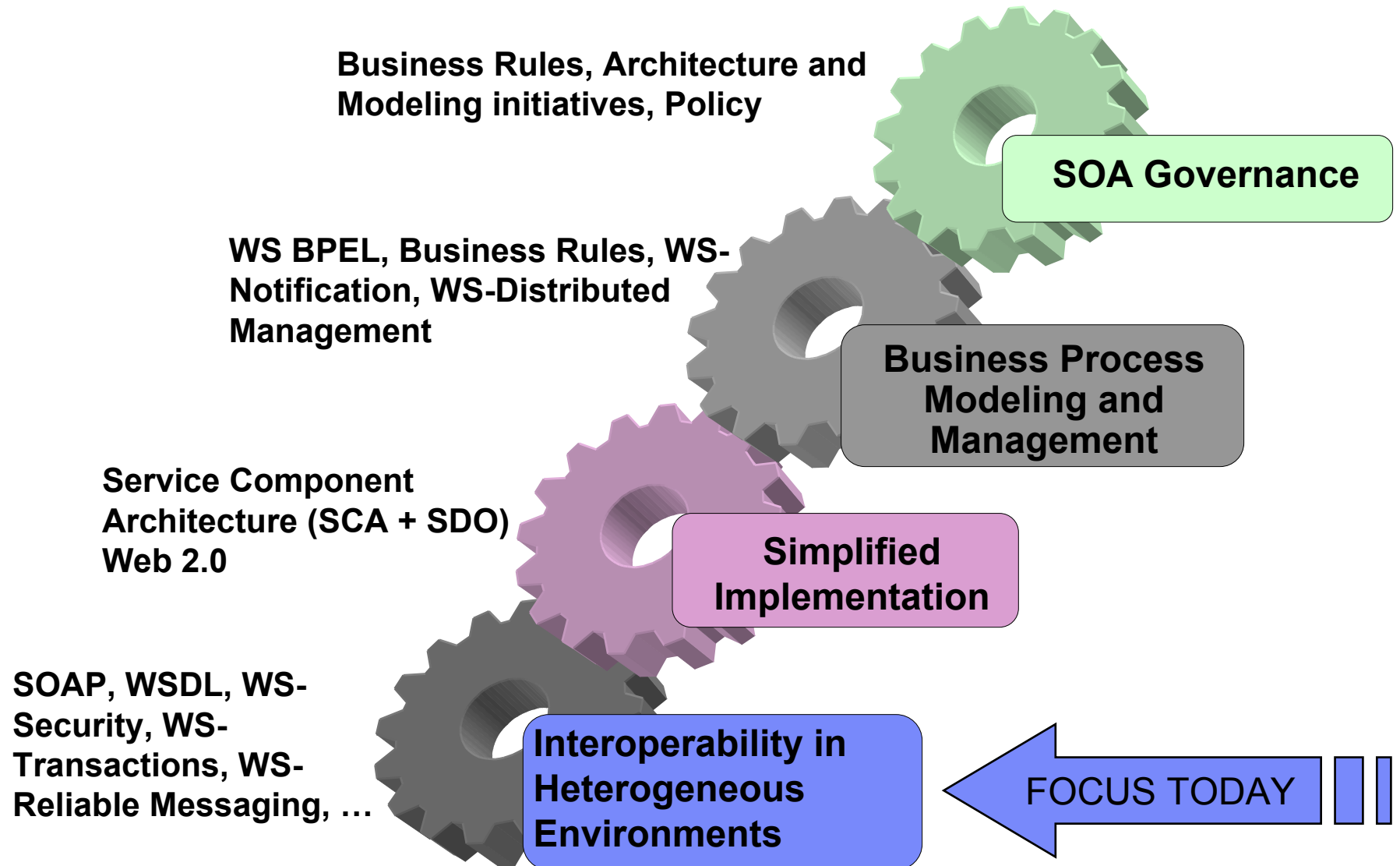
The Standards Landscape



SOA Infrastructure/Technology Standards Roadmap



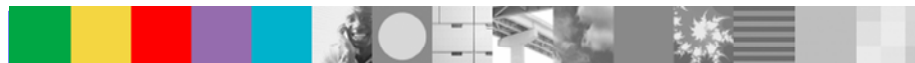
SOA Infrastructure/Technology Standards Roadmap



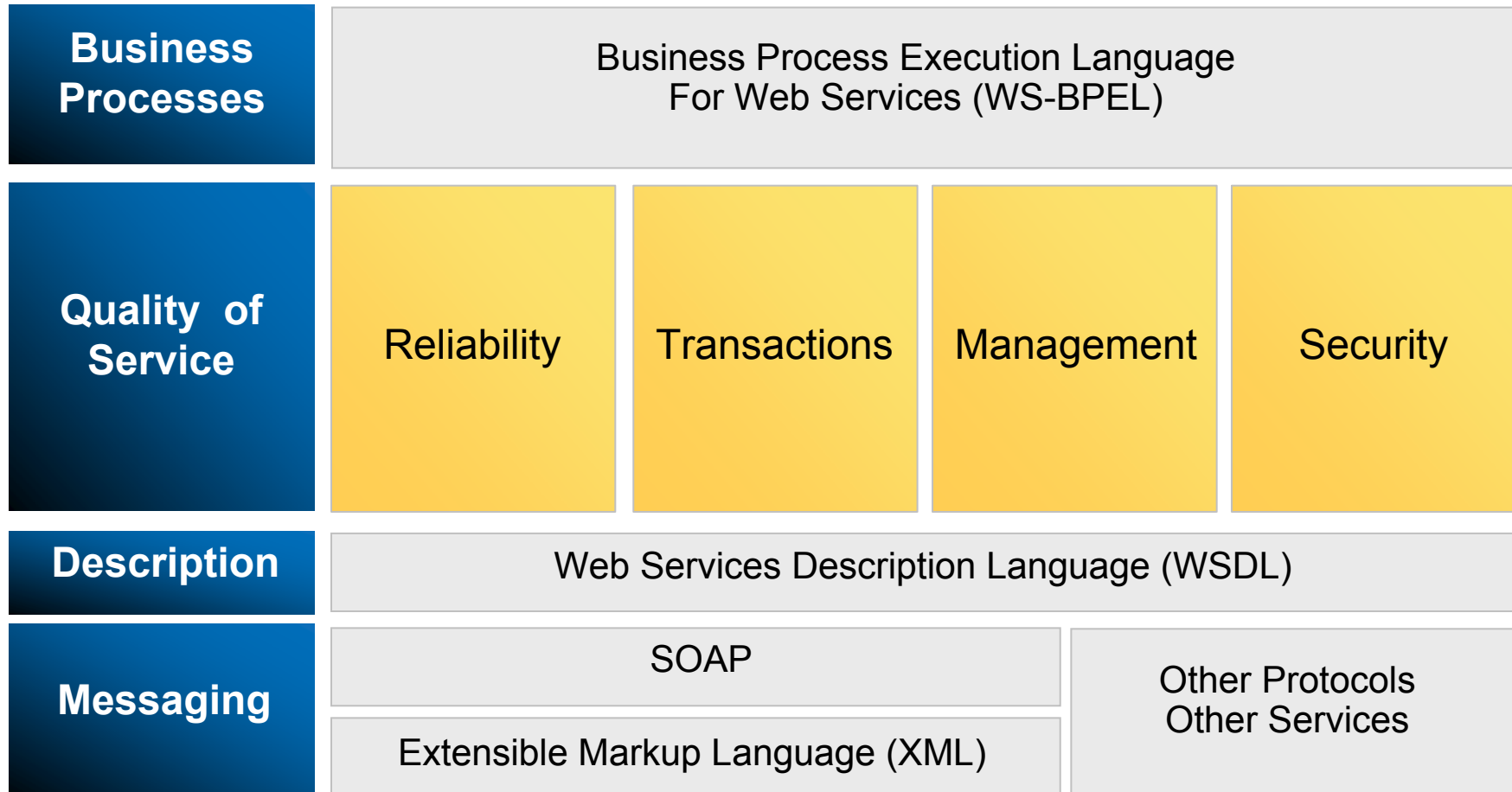
The Standards Challenge: Making Standards Simple and Useful



- WS-I – Web Services Interoperability organization
 - ▶ Formed by IBM along with partners in 2002 to accelerate development and adoption of standards by defining profiles of usage
 - Basic Profile 1.1, Simple Soap Binding Profile 1.0, Attachments Profile 1.0 and Basic Security Profile 1.0 delivered
 - Reliable Secure Profile use cases published
- Community Centric Profiles
 - ▶ Profiles and Usage Patterns are developed over time through a collaboration with our clients
 - ▶ Profiles tie standards to requirements, they describe sets of standards which may be used together to yield business value
 - ▶ Usage Patterns explain how customers use profiles
 - ▶ Extends initial WS-I horizon to identify next wave of technology priorities
 - ▶ Moving into interoperability at Quality of Service layer
- **Customers are using profiles to identify which standards to leverage and to ensure a consistent application of those groups of standards**



Web Service Specifications – More Organized Overview





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Web Services for Beginners (a very brief orthogonal presentation within the presentation)

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Web Services for Beginners (the 10,000 meter view) - SOAP

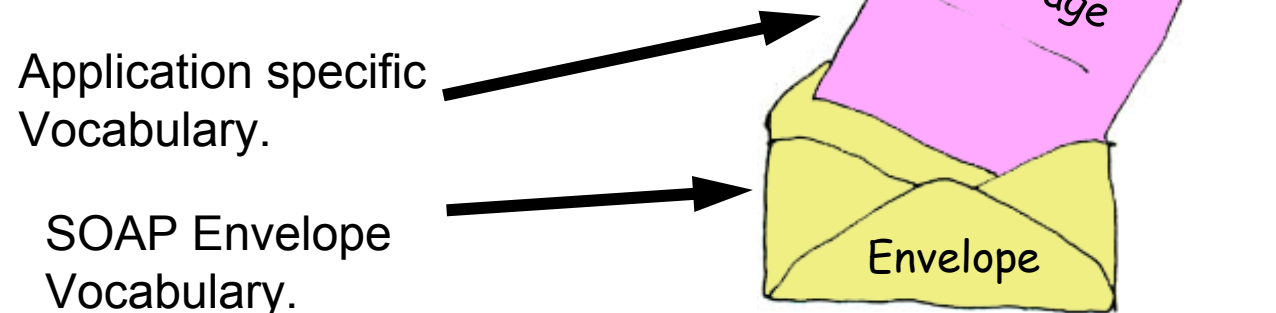
One way messages, or Request and Response style messages

- ▶ Request can invoke a method on a remote object
- ▶ Response returns result of running the method

REMINDER: SOAP is not just about RPC

SOAP specification defines an "envelope"

- ▶ "envelope" wraps the message itself
- ▶ the "envelope" contains a header (optional) and a body
- ▶ message is a different vocabulary
- ▶ namespace prefix is used to distinguish the two parts



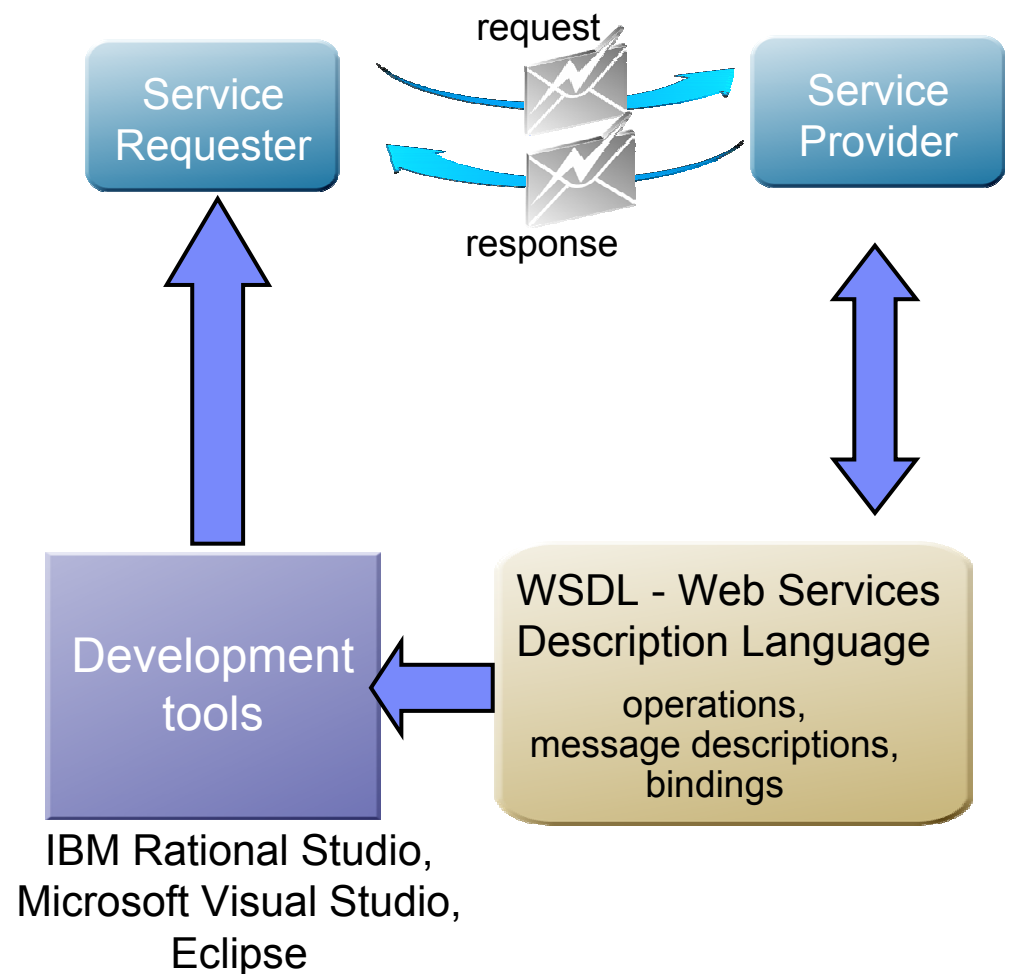
Basic Web Services (SOAP, WSDL, UDDI)

SOAP uses XML messages for a request and response model of conversation between programs

WSDL describes the interface a requester uses to invoke a service.

Development tools use the WSDL document to generate SOAP code automatically.

UDDI can be used to publish details of one or more services.



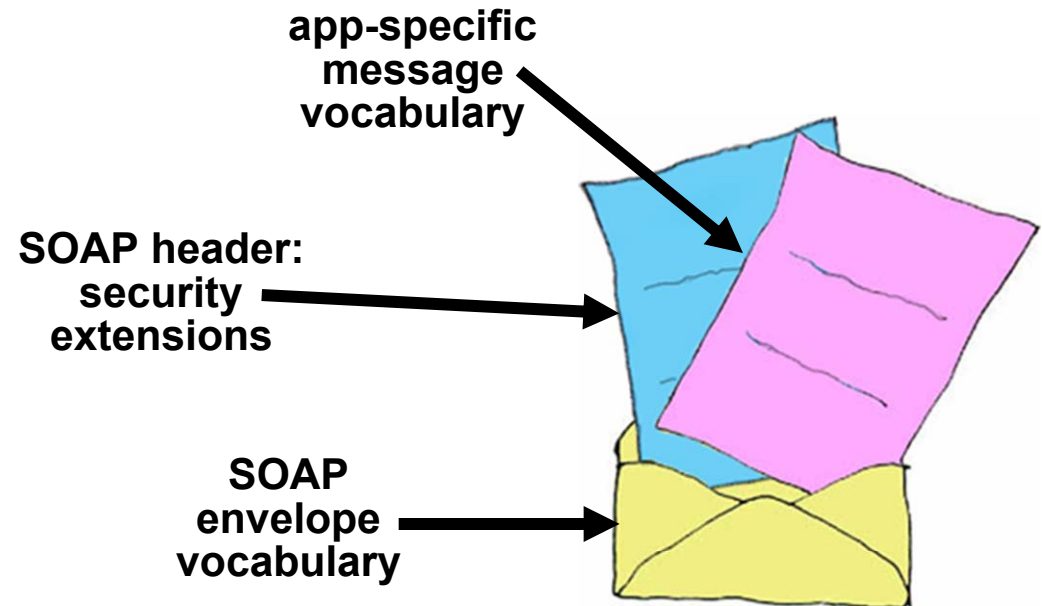
Web Services for Beginners (the 10,000 meter view)

■ The SOAP specification defines the “envelope” vocabulary

- ▶ The "envelope" wraps the message itself
- ▶ The message is a different vocabulary
- ▶ A namespace prefix is used to distinguish vocabularies

■ WS-Security defines the **<Security>** element, which allows security extensions to be placed in **<soapenv:header>**

- ▶ Username/password
- ▶ Encryption details
- ▶ XML Signature
- ▶ x.509 certificate
- ▶ Kerberos ticket
- ▶ Rights (REL)
- ▶ SAML





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Back to the topic...
Web Service Standards
Update and Relevance to SOA

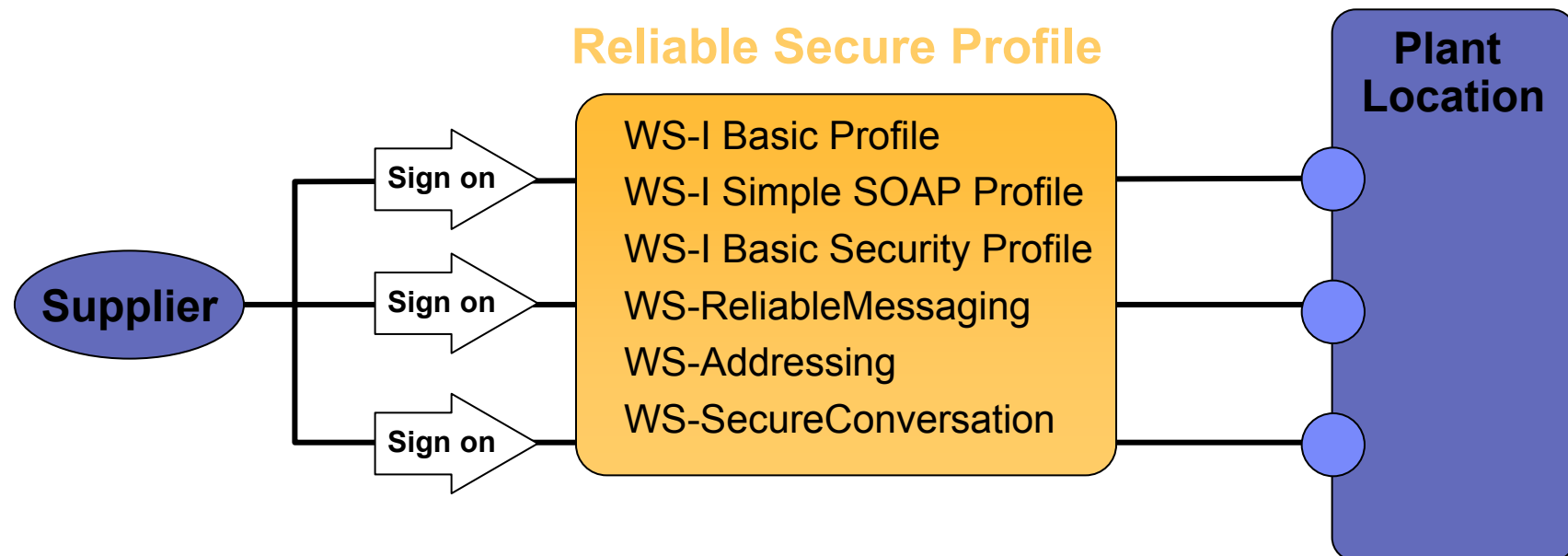
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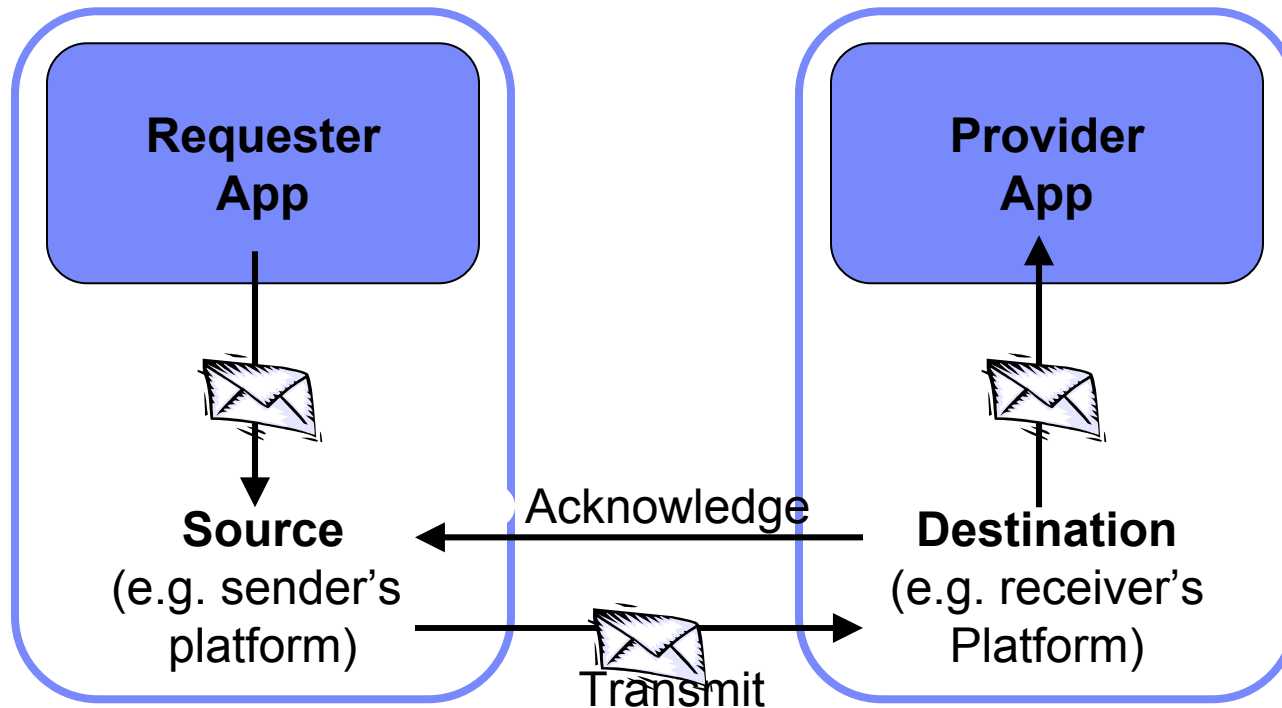
WS-I Reliable Secure Profile

- Developed in cooperation with the automobile manufacturing industry
- Submitted to WS-I in 2006 and currently being refined through the WS-I process

Business Processes	Business Process Execution Language For Web Services (BPEL4WS)			
Quality of Service	Reliability	Transactions	Management	Security
Description	Web Services Description Language (WSDL)			
Messaging	Simple Object Access Protocol (SOAP)		Other Protocols Other Services	
	Extensible Markup Language (XML)			



The WS-Reliable Messaging model



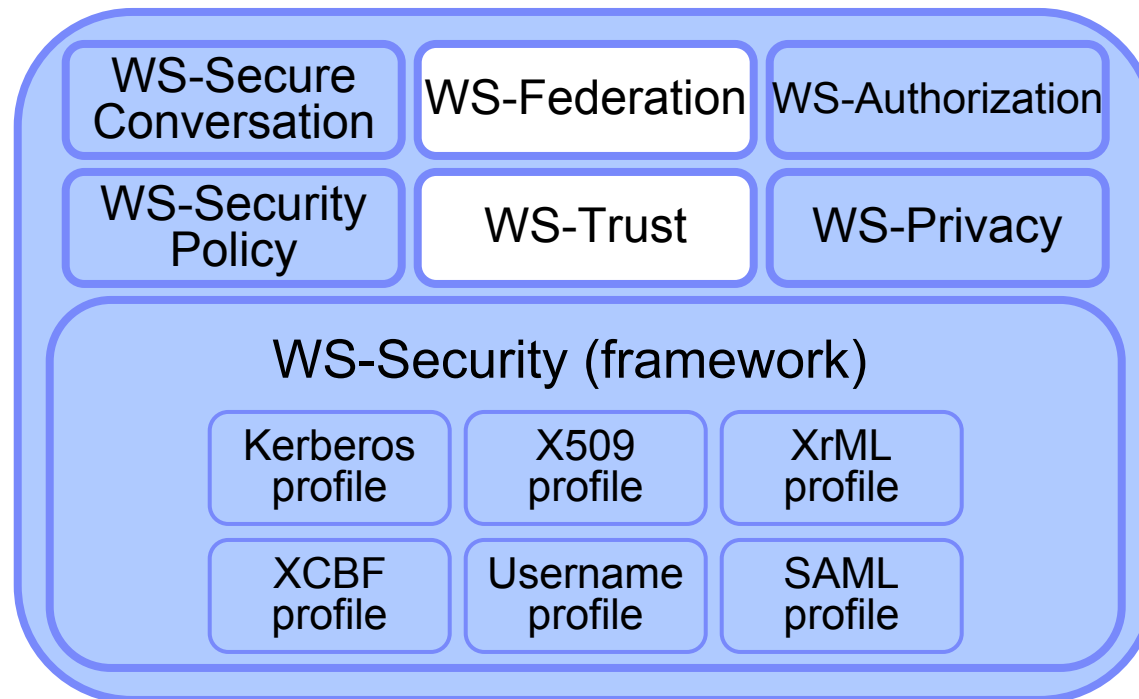
- ❶ Requester App sends a message for reliable delivery
- ❷ Source transmits the message (one or more times)
- ❸ Destination receives and acknowledges the message
- ❹ Destination delivers the message to the Provider App

Security..

- Completing the details on the 2004 Roadmap:

Business Processes	Business Process Execution Language For Web Services (BPEL4WS)			
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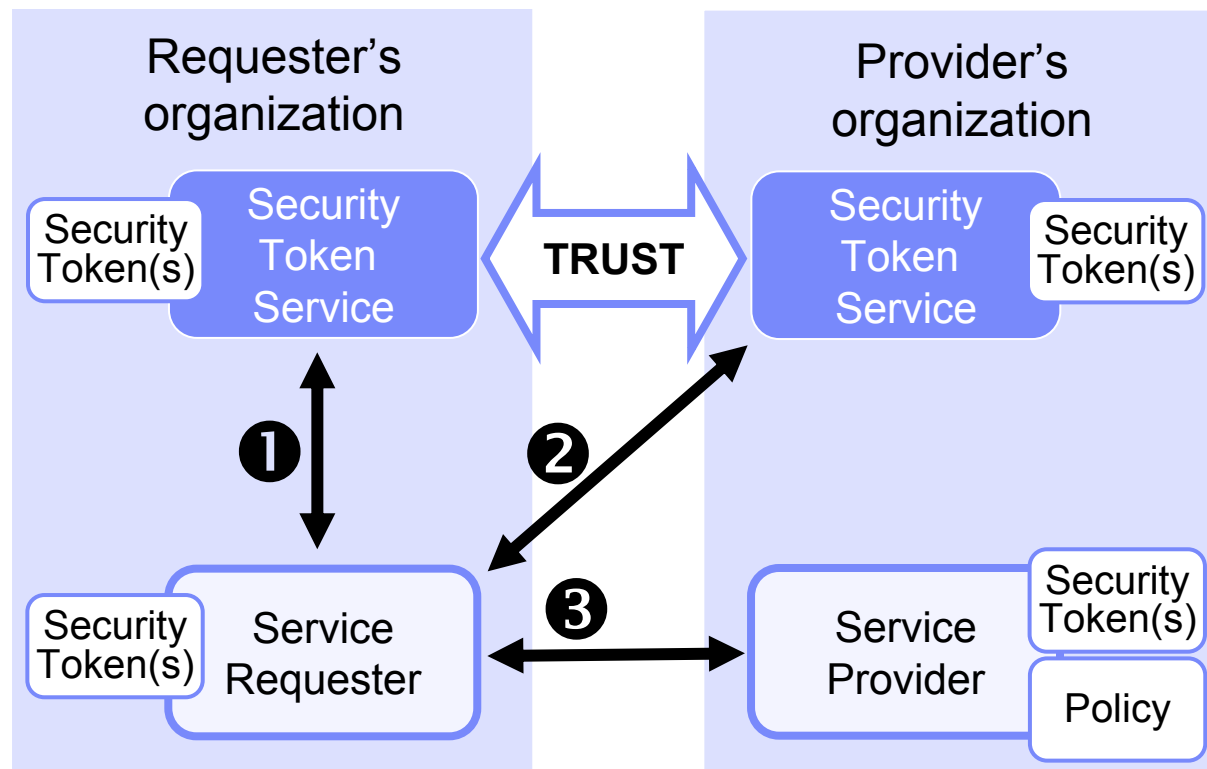
www.ibm.com/developerworks/library/ws-secmap/



Additional Security Standards WS-Trust and WS-Federation

- Interoperability across security domains
- In the OASIS standards process
- WS-Trust and WS-Federation are part of the WS-SX Technical Committee

Business Processes	Business Process Execution Language For Web Services (BPEL4WS)			
Quality of Service	Reliability	Transactions	Management	Security
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- 1 Security tokens from Requester's organization are used
- 2 to acquire security tokens from Provider's organization
- 3 which are required by the provider for the service request message.

Web Service Transactions

- **Currently in 60 day public review prior to voting for “standard” at OASIS**
 - ▶ **Web Services Atomic Transaction 1.1**
 - ▶ **Web Services Business Activity 1.1**
 - ▶ **Web Services Coordination 1.1**

- **WS-Coordination defines a framework for deploying coordination protocol sets**
 - ▶ Activation and Registration Service and Coordination Context
- **WS-AT & BA define coordination types for specific transaction models**
 - ▶ Atomic transactions where the results of operations are not made visible until the completion of the unit of work.
 - ▶ Business transactions where the results of operations are made visible before the completion of the unit of work and need to be compensated rather than rolled back to undo the work.

Business Processes	Business Process Execution Language For Web Services (BPEL4WS)			
Quality of Service	Reliability	Transactions	Management	Security
Description	Web Services Description Language (WSDL)			
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Evolution of Web Services Management Standards

Business Processes	Business Process Execution Language For Web Services (BPEL4WS)			
Quality of Service	Reliability	Transactions	Management	Security
Description	Web Services Description Language (WSDL)			
Messaging	Simple Object Access Protocol (SOAP)		Other Protocols Other Services	
	Extensible Markup Language (XML)			

Diverse proprietary solutions address customer pain points

Standards addressing different understanding of the problem and business priorities

Customer and user experience drive work to align on a common standard

Amberpoint	CA
Actional	IBM
HP	Microsoft
BMC	Others...



WS Distributed Management



WS Management

**“ Evolving Web services standards for managing system resources
A roadmap to harmonize current management web services specifications “**

Published by HP, IBM, Intel, and Microsoft March 2006



Web Services Accomplishments and Highlights 2007

Accomplishments:

- ▶ WS Security 1.1 approved as OASIS Standard (2006)
- ▶ WS-Addressing approved as W3C Recommendation (2006)
- ▶ WS-Policy approved as W3C Candidate Recommendation in February 2007
- ▶ WS-Secure Conversation approved as OASIS Standard (March 1, 2007)
- ▶ WS-I Basic Profile 1.1 (Final Profile 2006)
- ▶ WS-I Basic Security Profile (Approval Profile 2006)
- ▶ WS-I Reliable Secure Profile Working Group started
- ▶ Web Services management roadmap for reconciliation published (2006)

Areas of Activity in 2007:

- ▶ Web Services harmonized management specifications delivery
- ▶ WS-Reliable Messaging is being prepared for consideration as OASIS Standard
- ▶ WS-Atomic Transaction, WS-Business Activity, WS-Coordination in OASIS voting process
- ▶ WS-Trust and Security Policy in OASIS voting process
- ▶ Reliable Secure Profile Use Case Document available





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Thank you for listening...
Where you can get more information...

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Emergent concepts in SOA: Layers of aggregated Web services: Read about a new concept that helps develop software applications based on layers of aggregated Web services (LAWS) and XML development by specifications.

The value of patterns: This paper helps to articulate the value of patterns and demonstrates how they can be harvested from real engagements, in alignment with architectural decisions.

Web Services Inspection Language specification update: The WS-Inspection specification provides an XML format to help with inspection of a site for available services and a set of rules for how inspection-related information should be made available for consumption.

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An environment that extends current wiki technology to enable rapid deployment, content aggregation, structured data, and powerful extensibility. [More.](#)

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Many Eyes: A service that combines information visualization with social software, enabling collaborative visualization by groups of users.

Dynamic Cache Statistics Collector and Visualizer for IBM WebSphere Application Server: A tool that collects and visualizes statistics that provide insight into the state, health, performance, composition, and efficiency of the cache.

PHP for z/OS: A port of the PHP scripting language to the z/OS platform.

Service Integration Bus Performance: A tool that provides a quick and easy way to view the messaging performance statistics for WebSphere Application Server (6+) and WebSphere Enterprise Service Bus.

IBM SMI-S-Based Storage Device Simulator: An SMI-S-based simulation tool for facilitating the testing of management applications for heterogeneous storage devices.

IBM CIM Provider Certification Tool: A CIM-based certifier for facilitating the verification of CIM providers.

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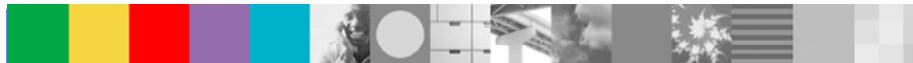
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Standards Organizations Mentioned in Presentation

- **OASIS Open** <http://www.oasis-open.org/>
 - ▶ *WS-Security, WS-SecureConversation, WS-Federation, WS-Trust*
 - ▶ *WS-Reliable Messaging*
 - ▶ *Transactions – WS-Atomic Transaction, WS-Business Activity, WS-Coordination*
 - ▶ *WS-Distributed Management, UDDI*

- **World Wide Web Consortia (W3C)**
<http://www.w3.org/>
 - ▶ *SOAP, WSDL, other core specifications including XML, XML Schema*
 - ▶ *WS-Addressing*
 - ▶ *WS-Policy*

- **Web Services Interoperability Organization**
<http://www.ws-i.org/>
 - ▶ *WS-I Basic Profile 1.1, Basic Security Profile, Reliable Secure Profile*





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Thank you for listening... Questions?

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