



Web Services Management Framework

<http://devresource.hp.com/wsmf/>

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Introduction

- ▶ Current standards:
 - ▶ offer subset of needed functionality
 - ▶ manage subset of wanted manageable resources
 - ▶ manageability often secondary aspect in design (after functionality)
- ▶ WSMF: consistent and secure management of various types of resources using Web Services
 - ▶ expose resources as managed objects
 - ▶ manage them through Web Services
- ▶ Why use Web Services:
 - ▶ language and platform independence
 - ▶ encapsulation (implementation hiding)
 - ▶ wire level standards (XML, SOAP)
 - ▶ industry momentum





WSMF consists of

- ▶ WSMF-Foundation
 - ▶ defines rules for defining interface of managed objects
- ▶ WS-Events
 - ▶ Web Services-based event subsystem
 - ▶ subscription (push/pull) to event notifications
- ▶ WSMF-WSM: WSMF Web Services Management
 - ▶ instance of WSMF-F for managing Web Services
 - ▶ managing Web Services through Web Services
- ▶ Extensible by design: future domain specific instances of WSMF-F





WSMF-Foundation

- ▶ Managed object:
 - ▶ represents a manageable resource
 - ▶ implements management interfaces
 - ▶ may support events
- ▶ Management interface:
 - ▶ exposes set of related management capabilities, described in WSDL
 - ▶ categories (extensible): identity, configuration, monitoring, discovery, control, collection





WSMF-Foundation

- ▶ Relationships
 - ▶ association between two managed objects
 - ▶ only (manager/member)-of-collection
 - ▶ should be extended domain-specific
- ▶ Discovery
 - ▶ through relationships traversal
 - ▶ outside framework scope (e.g. UDDI)
- ▶ Events
 - ▶ optional
 - ▶ should be extended domain-specific
 - ▶ managers can subscribe to notifications (push/pull)
 - ▶ **specification of raising conditions?**

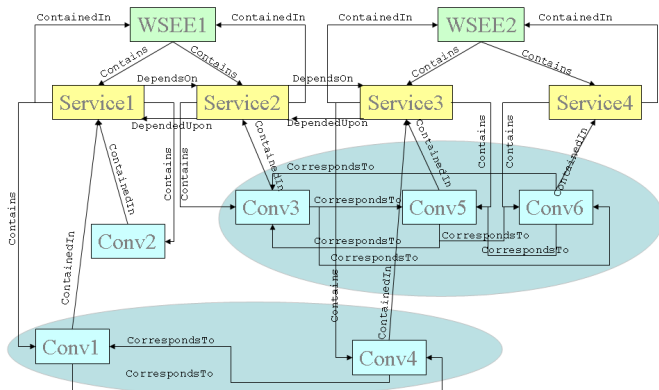




WSMF-WSM

- ▶ Application of WSMF-Foundation to management of (resources involved in) Web Services
- ▶ Example extension (instantiation) of WSMF-Foundation
- ▶ Added managed object types:
 - ▶ Web Service
 - ▶ Web Services Execution Environment
 - ▶ Conversation
- ▶ Added relations:
 - ▶ contains/contained-in
 - ▶ depends-on/dependent-on
 - ▶ corresponds-to







WSMF-WSM Web Service object

- ▶ Extends *managed object* from WSMF-Foundation
- ▶ New interfaces in existing WSMF-Foundation categories:
 - ▶ configuration: `getWSDL`, ...
 - ▶ monitoring: `getConversations`, `getContainer`, ...
 - ▶ control: `start`, `stop`, ...
- ▶ New interfaces in new categories:
 - ▶ performance: `messagesReceived`, `faultMessagesReceived`, `responseTime`, ...
- ▶ Web Service must implement all these to conform to WSMF-WSM





WSMF-WSM other objects

- ▶ Web Services Execution Environment
 - ▶ Any software entity that hosts Web Services and provides useful features to them
 - ▶ Extends *managed object* from WSMF-Foundation with e.g. `getServices`, `start`, ...
- ▶ Conversation
 - ▶ one Web Service 's view of a set of related messages
 - ▶ Extends *managed object* from WSMF-Foundation with monitoring, performance, discovery operatios





Discussion

- ▶ Example of integrating (different management systems) using Web Services
- ▶ Example of defining basic extensible framework
- ▶ Discovery (relationship tree traversal)
- ▶ Relevance to WSMO
 - ▶ it's complementary
 - ▶ it's fine
 - ▶ but I don't know much about management ...

