Portals, Portlets and Web Services for Remote Portlets

Web Services for the Integrated Enterprise
OMG's Second Workshop on Web Services Modeling, Architectures, Infrastructures and Standards
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Overview

- Portal Architecture
  - Portal
  - Portlet

- Standards
  - Portlet API
  - WSRP

- Web Services for Remote Portlets
What is a Portal?

- Provides unified access to all your internal applications and content
- Delivers a collaborative working environment
- Unified workplace – the new standard user interface
- Gives you a personalized user interface
- Access through multiple devices – convenience and personalization
- All with very little coding
Mobile Access

- Access from anywhere, anytime
- Desktop and mobile browsers
  - Internet Explorer
  - Netscape Navigator
  - WAP/WML phones
  - iMode/cHTML phones
- Services, content and user interface are adapted to the device and user’s context
- More devices in the future
  - personal digital assistants
  - Voice
Example of a Stock Quote Portlet

- Stock prices for user-selected list of stock symbols:
  - VIEW mode shows stock prices: **doView**
  - EDIT mode lets user change stocks
  - HELP mode explains the portlet
  - CONFIG mode lets administrator select stock quote source to use
Example of a Portal Topology

- Intranet
- Clients
- WAP Gateway
- Voice Gateway
- Internet
- Outbound Proxy
- Authorization Server
- Content Providers
- Web Services
- Public UDDI Registry
- Content Management Server
- Portal Database
- Search Server
- Portal Cluster
- User Registry
- Authent./Reverse Proxy
- Firewall
- Corporate UDDI
- Backend Systems
- Intranet
- Public UDDI Registry
- Corporate UDDI
- Intranet Clients
- WebSphere software
- IBM
Portal Architecture

- **Portal Application**: (Aggregation, Customization, ...)
- **Container SPI**: Portlet/Servlet Container (Ref. Impl)
- **Portlet API**: Portlet
- **Portlet Services API**: Portlet Services SPI
- **Service Environment/Registry**: Portlet Services SPI
- **Portlet Invoker API**: Portlet Invoker API
- **Remote Services**: SOAP Router (Inbound)
- **Local Services**: Local Portal Services
- **Remote Portal Services**: Remote Portal Services
- **User**: User
- **Portlet Registry**: Portlet Registry
- **Portlet Instances**: Portlet Instances

**Authorization**

**Authentication**

**WebSphere software**

- **Remote User**: Remote User
- **Remote Portal Services**: SOAP Proxy (Outbound)

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**SOA**

- **SOA**: will be standardized in the JSR 168
What to remember?

- Portals are highly modular and distributed web applications

- Portals provide multi-modal, personalized access to applications

- Applications are represented as **portlets** and are aggregated on a portal page
Current Situation

- Different Portal Vendors have defined different APIs
  - Different APIs for local "components"
    (simple JSPs, Portlets, Modules, ...)
  - Different interfaces/protocols for invocation of "remote components"
    (Gadgets, Remote Portlets, ...)
- No interoperability between local/remote portlets and portal servers
- Application and Content Providers must implement different portlets for different portal servers
- Customers developing significant numbers of portlets are quickly locked into a particular portal solution
- No standardized, easy way to plug-n-play content and applications into portals exists
Portlet API

- API defining interaction between portals and portlets
- leverages the Java™ Servlet API
- items covered in V1.0
  - window states / portlet modes
  - action/render phases
  - user specific preference data
  - session concept
  - include to Servlets/JSPs
  - user profile information
  - caching
  - portal context
  - packaging & deployment
  - portlet JSP tag lib
Standards for Portals

- **Java Portlet API**
  - Achieves Interoperability between local Portlets and Portals
  - Standardization in JSR in the Java Community Process
  - JSR is co-lead by IBM and Sun
  - [http://jcp.org/jsr/detail/168.jsp](http://jcp.org/jsr/detail/168.jsp)

- **Web Services for Remote Portlets (WSRP)**
  - Achieves Interoperability between Visual, User-Facing Web Services and Portals
  - Standardization in OASIS WSRP Workgroup
  - IBM leads workgroup
  - [http://oasis-open.org/committees/wsrp/](http://oasis-open.org/committees/wsrp/)

- Portlet API and WSRP provide particular value when used together:
  - Portlets written to the Java Portlet API may be wrapped in WSRP services and published to directories
  - WSRP services can be found in a directory and bound to by wrapping them into Portlets written to the Java Portlet API to aggregate them in portals
Portlet API & WSRP

HTTP

Portal Core

Portlet API (JSR 168)

Local Portlets

Portlet Proxies

WSRP

SOAP

WSRP Services

Publish/Find Web Services (SOAP)

Service Registry
What to remember?

- JSR168 defines a Java API that allows portlets to run on any compliant portal

- WSRP allows Web Services to be integrated as portlets in a plug&play fashion
WSRP Motivation

- Enable the sharing of portlets (markup fragments) over the internet
Goals of Web Services for Remote Portlets (WSRP)

- Allow **visual**, **interactive**, user-facing web services to be **easily plugged into** all standards-compliant portals.
- Let anybody **create and publish** their content and applications as user-facing web services.
- Portal administrators can browse public or private directories for user-facing web services to plug into their portals as new portlets, **without any programming effort**.
- Let portals **interact** and publish portlets so that they can be consumed by other portals.
- Make the internet a **pool** of visual web services, waiting to be integrated.
Remote Portlets vs. Data Oriented WS

- WSRP ⇔ visual & user facing & interactive
WSRP Advertising

Publish

Find

directory

Publish

proxy

Bind

Live Connection

SOAP

Stocks service
Relationship to other Standards

- **SOAP** (Simple Object Access Protocol)
  - Basis for the communication layer
  - Guarantees interoperability
- **WSDL** (WebService Definition Language)
  - Used as the interface definition
- **UDDI** (Universal Description & Discovery Interface)
- **ebXML Registry**
- **JSR168** (Definition of the Java Portlet API)
  - Defines the preferred JAVA API to implement WSRP entities
- **JSR109** (Integration of J2EE and WS)
- **WS-Security**
- **WS-Trust**
Summary: Traditional Back-End Usage Scenario

- Local Portlets
  - Efficient 😊
  - Local deployment of code 😞
  - Specific UI for each deployed portlet 😞
  - Business layer and presentation layer both located on the portal server 😞
  - Portlets cannot be shared between portals!! 😞
“Traditional” Web Service Usage Scenario

- Portlets using Web Services
  - Different Web Services expose different interfaces 😞
  - Specialized UI and proxy code required for each WS 😞
  - Local deployment of code is still necessary 😞
  - Data layer separated from presentation layer 😊

![Diagram showing Portlets using Web Services](image)
WebServices for Remote Portlets (WSRP)

- All remote connections share a unified API 😊
- No coding required, proxy and stub are coded once or generated automatically 😊
- Stable and standardized transport mechanism (e.g. SOAP) 😊
- Visual and user-facing 😊
WSRP Summary

- What's covered
  - Inter-portal communication via SOAP
  - Concept of transient and persistent state
  - User profile
  - Registration
  - Secure/non-secure transport
  - Simple Caching (enhanced by vendor extensions)
  - **Tight alignment with JSR168**

- Schedule
  - 1st public draft by end of Feb 2003

- What's **NOT** covered
  - Authorization
  - UDDI support
  - Eventing/messaging
Questions?

Questions!

Questions!!

WebSphere software

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