Web Services Infrastructure

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Web Services

- SOAP is being used to create web services.
- A web service is a piece of functionality that can be invoked over the web (HTTP).
- Web services are either created from scratch or by presenting existing functionality as web services.
Implementing Web Services

- URL addressable
- Platform, language independent
- Do not require specific object model infrastructure on client and server
- Implementation is opaque to client (black box)

Can be considered “components for the Web”
Rogue Wave SOAP Experience

- We’ve been developing SOAP products since the SOAP 0.9 specification.
- We make SOAP bridges for accessing existing enterprise services and for creating new web services.
- We eat our own dog food… yum!
RW SOAP Products

• Creation of SOAP Web Services
• Current products provide access to existing resources: XML-CORBA Link and XML-DB Link.
• Common infrastructure provides support for security, service composition, transformations, HTTP GET access, pervasive devices.
XORBA

- XML-CORBA Link, a.k.a., XORBA, is a SOAP to CORBA bridge.
- It currently works with Orbix, VisiBroker, and Rogue Wave’s ORB.
- Should work with any ORB that supports IIOP.
- Converts SOAP requests into IIOP requests and translates IIOP response into a SOAP response.
- Plugs into web servers.
XML-DB Link

- Provides access to databases via SOAP.
- A named and parameterized set of SQL statements is invoked by a SOAP call.
- The result set is formatted as a SOAP response.
- Supports multiple databases and platforms via DBTools.h++. 
XML Link Architecture

IDL OR SQL (Input) → Design Tool → Repository of Service Descriptions → XML Link Engine

Application(s) → Web Server (Servlets/Apache) → Internet

Middle Tier → Web Client → HTTP App

RDBMS → ORB → CDR IIOP

XML HTTP

Customer Systems

Native SQL
Composition & Transformations

- The XML Link infrastructure supports web service composition and transforms through a service composition language.
- You can create new web services by composing existing web services.
- Web service requests and responses can be transformed using XSLT.
Wireless Example: XML-DB Link & Onyx

Service is invoked with HTTP GET (URL) or POST

Apache is listening on port 2222.

SQL commands set up as services access Onyx. Queries take search parameters.

Results are transformed from XML to HTML via XSLT.

Palm.net Forwards Request to RW

Palm.Net

Palm.Net Forwards Request to RW

Onyx

Rogue Wave server
Apache Server/Linux OS

XML Link
Apache Server/NT OS

Firewall

HTTP
Implementing a Knowledge Base

- Web access to our knowledge base.
- Knowledge base stored in Onyx database. Includes code samples formatted in HTML.
Lessons

• Pluses
  • Very flexible.
  • Allows loose coupling.
  • Mix and match clients, servers, and transports (bridging).

• Minuses
  • Performance impact.
  • Can’t embed other XML documents or HTML (directly) within a SOAP request or response.