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April 27, 2006
Tampa Convention Center
Tampa, Florida, USA

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SOA and Geospatial Information

A great fit!

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Agenda

- Quick SOA Introduction
- Demo
  - Review Requirements
  - Reuse Existing Code
  - Generate Web Services
  - Test

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What is SOA?

- A software architecture based on exposing and calling small capabilities (services) using open standard interfaces to build adaptable, yet robust applications
- Provides loosely coupled services
- Implementation independent of interface
  - Java, PHP, .Net, etc.
  - Not a GUI

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Why SOA?

- Traditional Monolithic Applications are:
  - Less-flexible (vertical)
  - Expensive (low code re-use)
  - Have long development cycles (large packages)
  - Usually OS or platform dependent

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Why SOA?

- SOA's:
  - Are flexible (horizontal)
  - Encourage service re-use (less expensive)
  - Provide quick ROI (development of small re-useable modular capabilities)
  - Platform independent interfaces

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High-Level Comparison

Monolithic Application

- CRM
- Financial
- Stats Package

Web-Service

- getCustomersByZip
- getMonthlyResults
- getAccidentsByMile

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SOA Key Components

- UDDI (Universal Description, Discovery, and Integration)
  - An “index” of web service capabilities
- WSDL (Web Service Description Language)
  - Description of Capabilities / Interface
  - Used to populate the UDDI

Key Components (cont.)

- Messaging
  - SOAP (Simple Object Access Protocol)
  - XML
- "The Web Service" WS-* Specs
  - Marshals the inputs and outputs using SOAP, usually over HTTP or JMS
  - Can add additional capabilities for reliability and security

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SOA "Gotchas"

Web Service Standards are

RAPIDLY EVOLVING

- You may need to revisit service interfaces in the future to "update" them to current specs
- "Bleeding edge" app server versions may be required to support important specs (such as WS-Security)

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The Demonstration…

First business requirement:

- Expose Spatial Feature Metadata
  - Results site-specific (feature counts, update dates)
  - Use live data sources (no text mock-up)
  - Reuse existing code where possible

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The Demonstration…

Second business requirement:

- Find the nearest manhole to a building with available single-mode fiber, and return the distance and direction
  - Results site specific
  - Use live data sources
  - Reuse existing code where possible

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The Demonstration…

STEPS:

1. Locate existing code
   - PL/SQL packages
2. Create a wrapper package for web consumption
   - Additional instructions, error trapping, etc.
3. Test the packages using SQL-Worksheet
   - Show input attributes and expected output
4. Add a data source description

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The Demonstration…

STEPS (continued):

5. Create in-bound WS connectors to the packages
   - Java stub package “auto” generation
6. Publish to App. Server
7. Demonstrate the WS functionality
8. Show the WSDL (what would be registered with an UDDI)


Q&A

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