Service-oriented technology to support Geosciences

Case Studies

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Outline

• Introduction and SOA presentation
• Case studies
  1. A Metadata Browser of Geo-Information Resources (Geo-IR)
     i. System Presentation
     ii. Thick Client Demo
     iii. Exercises
  2. A DSS for Flash Flood
     i. Overall System Presentation
     ii. Thick client Demo
     iii. Adapting system Presentation
     iv. Mobile Client Demo
     v. Exercises
Traditional Scenario
A Web enabled Scenario

Architectural Concerns:
• Autonomy of Information Systems
• Single point of failure
• Scalability of the system
• Extensibility of the system

Utilises HTTP, HTML, MIME technologies
A Web Services enabled solution

Utilise SOAP, WSDL, XML, HTTP technologies

Interoperability Concerns:
- Standard services interface
- Standard data models
- Standard data encoding

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An extended Scenario

Benefits:
- Strengthen systems reusability
- De-couple demanding tasks of complex applications
- Enable co-operative work
- Strengthen systems autonomy

Facilitating Services Concerns:
- Standard services interface
- Standard data models
- Standard data encoding
An extended Scenario

Benefits:
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Facilitating Services
Concerns:
- Standard services interface
- Standard data models
- Standard data encoding
The Puzzle Game

- **Interoperability**
  1. Shape $\Rightarrow$ Interfaces
  2. Colour $\Rightarrow$ Data Model/Encoding

- **Standards**
  1. Standard Interfaces
  2. Standard Data Model/Encoding

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A Service-Oriented Approach

How to fill the gap between Geo-data Providers and User Communities?

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A Service-Oriented Approach

They can be: Distributed and interoperable
A Service-Oriented Approach

They can be the Puzzle pieces

Self-made

IDV

Self-made

ArcGIS

OpenGIS

WFS

GeoDATA PROVIDERS

Feature-based Datasets

Grid Datasets

Record-based Datasets

Human Interaction Services

Co-operation Services

Processing/Task Services

Model/Information Management Services

Device Rendering Services

User Communities

Grid Data Providers

Ground Data Providers

Other Data Providers

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World Wide Lab

- More Peer-to-Peer than One-Stop Shop

- Grid Computing
- Data Grid
- Grid Services

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Case Studies

• Case Study #1
  – A Metadata Browser of Geo-Information Resources (Geo-IR)
    • CaseStudy#1.ppt

• Case Study #2
  – A DSS for Flash Flood
    • CaseStudy#2.ppt