Focusing on Utilities’ Customer Care through GIS solutions

by

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Outline

Service Chaining

- Latin american context
- Current challenges
- Geoinformatics proposals
- Orchestration of GI services
- Use case on customer care and tool
- Conclusions
- Questions
Utilities

A gentle definition
Based on Law 142/1994 from Colombia and similars in Chile, Argentina, Ecuador, Venezuela, Panamá, and El Salvador.
New Business Trends

Strategic Investors

Utilities Laws

Electric and Gas Deregulation

New Market Segments:
- Retail Electric Cos.
- Energy stocks
- No Regulated Clients.
Current Scenario

Utilities

COMMERÇIALIZATION

Regulated Market
(Small Clients)

Open Market
No Regulated Clients
Utilities Organizations

Current Challenges

- How to harmonize the information between technical and commercial areas?

- How to transfer and share knowledge and experience?

- It is not the lack of geoservices (datasets & functions/operations), …

- but the way to find and access them.
Utilities Organizations

Some examples to solve in LA

- On Site Billing → EPSA with Reliant Energy and ITRON.

- Emergency Call Center → Edesur with Enersys and Andersen Consulting.

Service quality control → Many places: Colombia, Venezuela, Argentina. Soon in Central America.
**GI Services and Composition**

- **GI Service**: GIS functions and datasets to fulfill different goals (viewing, querying, buffering).

- A single GI service is often not able to satisfy users’ goals on its own.

- **Idea**: Putting several GI services together to achieve new and more useful solutions.
A simple BPEL4WS process for handling service quality charges for billing.

GI Service Chaining

GI Services and Composition

- This involves
  - Discovering the GI services to be composed
  - Integrating the discovered GI services

- Loose coupled components.

- Web Services ➔ A piece of functionality (software and data) accessible on internet (via interfaces)
Requesting Agent

1. Advertise Service Profile
2. Issue Service Query (Profile for Goal A)
3. Find Candidate Profiles
4. Select Service

Service Registry

5, 6. Construct, Issue Request (Goal or Query)
7. Perform Service, Generate Reply
8-10. Apply Grounding, Translate, Interpret Reply

Service Provider

FIND
PUBLISH
BIND

GI Service Chaining

Web Service Architecture

Source: SWSA, 2004
GI Service Chaining

Types of Composition

• Static Composition
  – The control flow and data flow amongst the GI services (components) are given by the user, the services are chosen at design-time.

• Dynamic Composition
  – GI services are decided at run-time, the control flow and data flow amongst the component web services are generated automatically.
The real power for most situations comes from the possibility to assemble GI services in chain of services to achieve user’s requirements and to fulfill their expectations.

These chain of services are often called composite applications - behave as workflows of functions and data defined in an specific area of knowledge.
GI Service Chaining

- Portal
- Receive
- Localization
- Flow
- Function 1
- Function 2
- Process
- Business Modeling (BPEL)

DataSets
- Primary Network
- Interconexion Sys

Functions
- Connectivity A
- Network A
- Shortest Route

Connected Applications (SOA / Web Services)

Initiate (Interruption Info.)
Response (Billing Charges)
GI Service Chaining

**What is BPEL4WS**

- BPEL4WS – **Business Process Execution Language** for **Web Services**
- By Microsoft, IBM and BEA
- Merge of previous tools.
- Supports the implementation of any kind of business process in a very natural manner
- XML-based workflow definition language
GI Service Chaining

What do we have so far?

- A reality and experience.
- GI services.
- A geoinformatics approach.
- A standard.

- So …Lack of an orchestration (composition and execution) tool for service chain reusability.
- Inadequate mechanisms to facilitate semantic validation of GI components during the composition stage.
GI Service Chaining

Research tool for orchestration of GI

[Diagram of GI Components]
GI Service Chaining

Architecture

Presentation Layer

(Load, Save, New, Edit, Import, Export)

BPEL Visualizer
BPEL Composer
BPEL Executor

BPEL Parser and Analyzer

Ontology on Energy and Gas !!

Repository of Service Chains

Semantics OWL-S
Benefits for clients and companies

- Companies are focused on processes. Not on technological implementation.
- Integrated (collaborative) and sharing environment.
- Better functions.
- Faster solutions.

In summary, time to be “busy” with the core business: clients and infrastructure!!
Conclusions

GI Composition for Customer Care

• The most important value of any company is their clients.
• Solutions are available on internet as connected applications (SOA/Web Services).
• Service chaining provides reliable solutions now and everywhere.
• The “magic” word is services for customers. (OK, Also for users).