OSCAR Knowledge Base

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Clarifications

• Open Source Cadastral Application and Registry (OSCAR)
  – Impetus from FAO
  – Now an FAO project
• University of Otago (UO) OSCAR
  – Branding distinct but closely related to FAO OSCAR – integrate efforts jcept.net jmecano.net
  – Focus on Registry aspects: Land records, processes, time-varying data, variation, evolution, rich representations of the link between people and land
What is the problem?

Barriers imposed by Closed World Architectures (relational, object) make it extremely difficult to resolve conflicting ‘forces’ (needs, requirements):

- Provide low cost, sharable, reusable, generic, inter/intra domain applications and services (FLOSS).
- Provide future proof, evolvable, highly configurable, integrated applications and services.

Result is always a trade-off between forces e.g. complexity v completeness

*We are investigating techniques that address these barriers*
Closed World Architectures

- Explicit, complete, ‘up front’ schema and models
- Evolution is by rebuild
- Typically ‘current state’
- Integration is an extra
- Highly-coupled systems
- Isolation – many worlds

Open World systems

- “Anything can be said about anything”
- “Not all is known, unknown things may become known over time”
- Low coupling, an extension of the WWW
- Rich and expressive representation – not limited by predefined schema
imagine a space...

The current Samoa ontology and database contains: 3000 TBox and 870,000 ABox statements (incl inferred).

Properties are first class

- Classes/concepts do not have predefined attribute ‘slots’.
- The domain and range of a property do not imply slots.
- “Necessary and sufficient conditions for class membership”
  - An individual can be a member of one or more classes – useful for evolution/integration
  - Membership can be implied (via properties) or explicit via statements
Property Restrictions

hasCoordinates hasDomain Spatial Object

Is a

Some Thing hasCoordinates Coordinates

Range of TransferredFrom is NonCurrentShare complement of NonCurrentShare is CurrentShare
How is all this useful?

• ALL domain knowledge (including processes) is together in an ‘open world’ format/container
  – Rather than spread across highly-coupled closed worlds
  – Separate from ‘machinery’
  – Machinery is incidental

Experience in Samoa

Successful land administration system but limited scope due to cost and other constraints:

• Poor linkage with parcel polygon data
• Issues of identity of persons, groups, parcels etc
• No support for evolution or integration