Reuse of Content from ISO 15926 and FIBO

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January 23 2014
Agenda

• Really quick overviews
  – ISO 15926
  – iRING User Group
  – FIBO

• Network Management Motivation

• Reuse Specifics

• Experiences
ISO 15926

- Designed for data integration and exchange regarding the lifecycle of an “installation” and its components
  - A “babel fish” for project information
- Established for the process industry
  - Large projects with many participants, being built and maintained for long periods of time
- Technology useful outside the process industry if have a vocabulary of reference data
iRING

• Acronym for ISO 15926 Realtime Interoperability Network Grid


• Four purposes:
  – Prove that information exchange is possible using the full ISO 15926 spec
  – Develop tools and make them available under an open-source license
    • Supporting configuration and execution
  – Develop best practices
  – Encourage vendors to collaborate and support iRING interfaces within their products
FIBO

• Acronym for the Financial Industry Business Ontology

• [http://edmcouncil.org/financialbusiness](http://edmcouncil.org/financialbusiness)

• Effort to standardize the language and define:
  – Terms, conditions, and characteristics of financial instruments
  – Legal and relationship structure of business entities
  – Market data
  – Obligations and process aspects of corporate actions
Motivation for Reuse for Network Mgmt

• Overlapping semantics
  – Key concepts such as physical and planned entities and service level agreements between various parties

• Reuse of iRING tooling
  – Data needs to be defined and exchanged across multiple products and sites in an enterprise
    • Similar to the process industry customer, vendor and supplier environment

• Small budget and tight timeframe
  – Can’t/shouldn’t create an ontology from the ground up, want to find/reuse basic concepts
Concepts from ISO 15926 (I)

• Possible versus actual individuals
  – In support of network planning
• Property and indirect property
• Activities with beginnings and endings
  – Configuring, monitoring, following, occurring, process, creating, completing, ... (especially for trouble ticketing)
• Role
• Information, note, data sheet, guideline, ...
Concepts from ISO 15926 (II)

• Units of measure (interlaced with the QUDT ontology)
• System and feature
• Physical object, container, compartment, component, connector, ... (especially for inventory and sparing)
• Connection (would have been nice)
  – Problematic since it is defined as transferring “matter, energy or both”, ~physical
To Use iRING Tools, Extend ...

- Class_of_arranged_individual with network_individual concepts
- Standard_class with relevant standards (such as IETF)
- Class_of_activity with both operator, user and equipment/service activities (such as establishing connection)
- Class_of_direct/indirect_property with networking values (such as jitter or bandwidth)
- ...

- Would be defined regardless of the use/reuse of ISO 15926
Concepts from FIBO

- Agreements, commitments, contracts, contractual elements, and objectives
- General concept of autonomous agent, person, organization, role and group
  - But legal specifics are not relevant at this time
- Physical location and address
- Many of the:
  - Object properties (“relations”)
  - Data properties
  - Annotation properties
ISO 15926 Experiences

• Valuable concepts, especially when coupled with domain-specific insights
• Too physically oriented
• No single source for a complete explanation
  – [http://www.iso15926.net](http://www.iso15926.net) (more condensed, targeted browser)
ISO 15926 Experiences

• Intimidating ...
  – Too much complexity, mind-boggling tens of thousands of classes
  – Annotations (definitions and examples) separate from class definitions for “Part 2”
    • General concepts in “Part 2”; Specific concepts in “Part 4”; Groupings/templates in “Part 7”

• OWL 1 (DL) definition
  – Programmatic/syntactical, generated from EXPRESS
  – Limited use of OWL semantics/constructs
    • Defined using Class, subClassOf, disjointWith, equivalentClass
    • But independent concepts of relationship and possible_/actual_individual (versus object properties and named individuals)
FIBO Experiences

• Reuse more limited than ISO 15926 due to targeted nature of the specification
  – But more specificity meant that info was more obvious and easier to immediately use or discard
• Still early in development and too generic
  – Depth and details
• Zip file contained all the necessary OWL files except:
  – OMG’s SpecificationMetadata (which was obvious but annoying on import to a tool like Protégé)
• Defined in OWL (versus translated)
  – Much easier to understand, import, ...
  – Annotations integrated with the concept definitions
General Comments

• Difficult to find specific semantics in ontologies
• Could not reuse full ontologies
  – Specific concepts/semantics very valuable
• Other (small) general ontologies were imported/used directly
  – For example, W3C’s Time and Provenance ontologies
• Targeted semantics very useful as starting points
  – Not open-ended
  – More complete analysis than network mgmt perspective alone could have provided
  – Room to grow as needed