



WELLFLEET
SOFTWARE CORPORATION

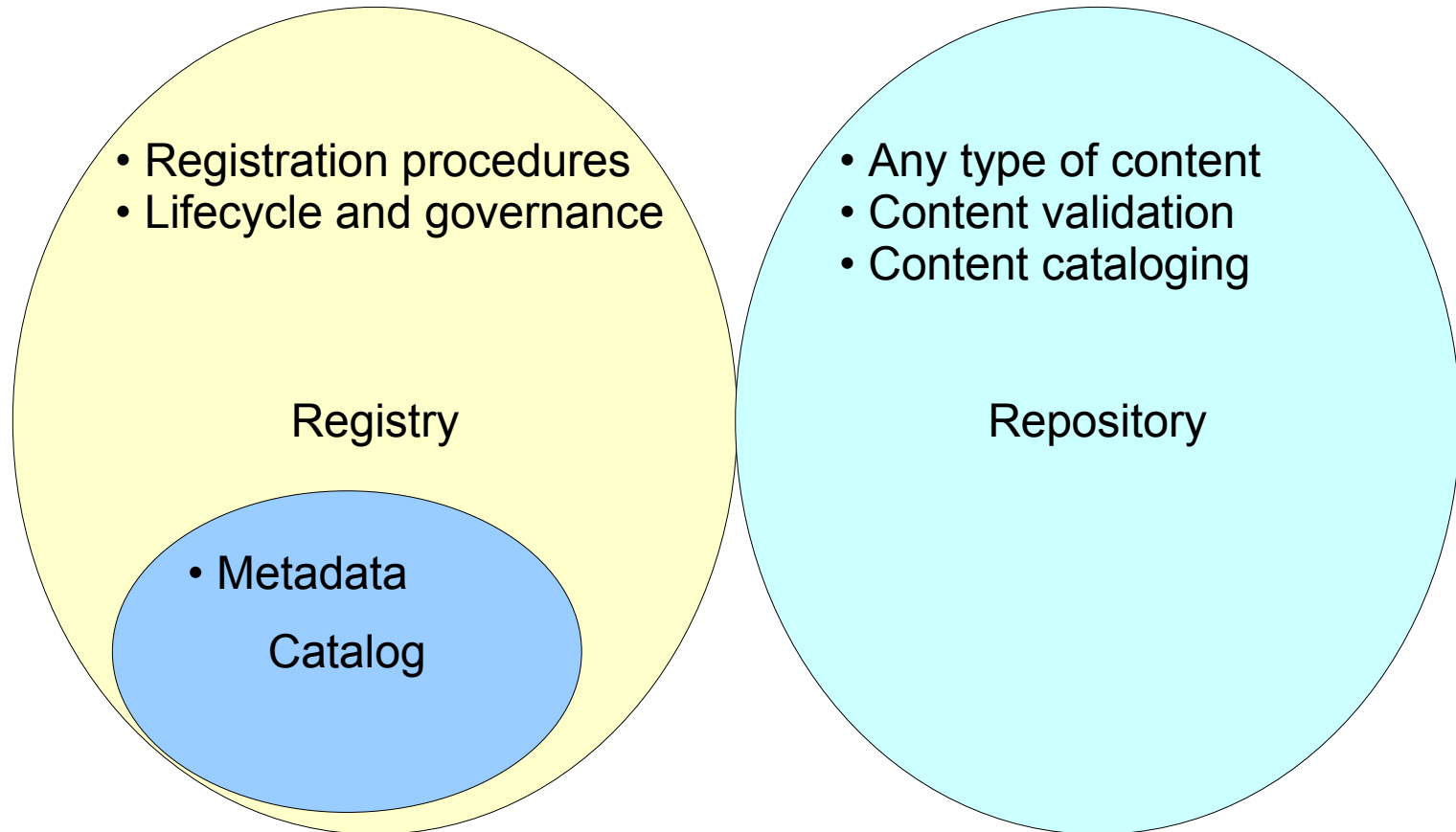
WellGEO RegRep and ebXML RegRep

Technical Update

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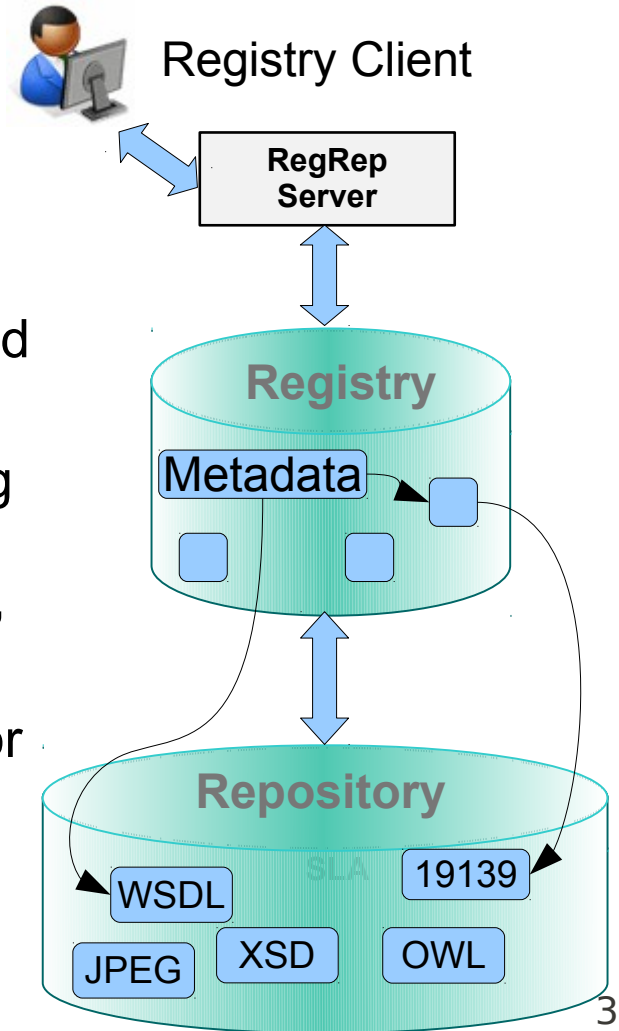
September 17, 2010

Catalog vs. Registry vs. Repository

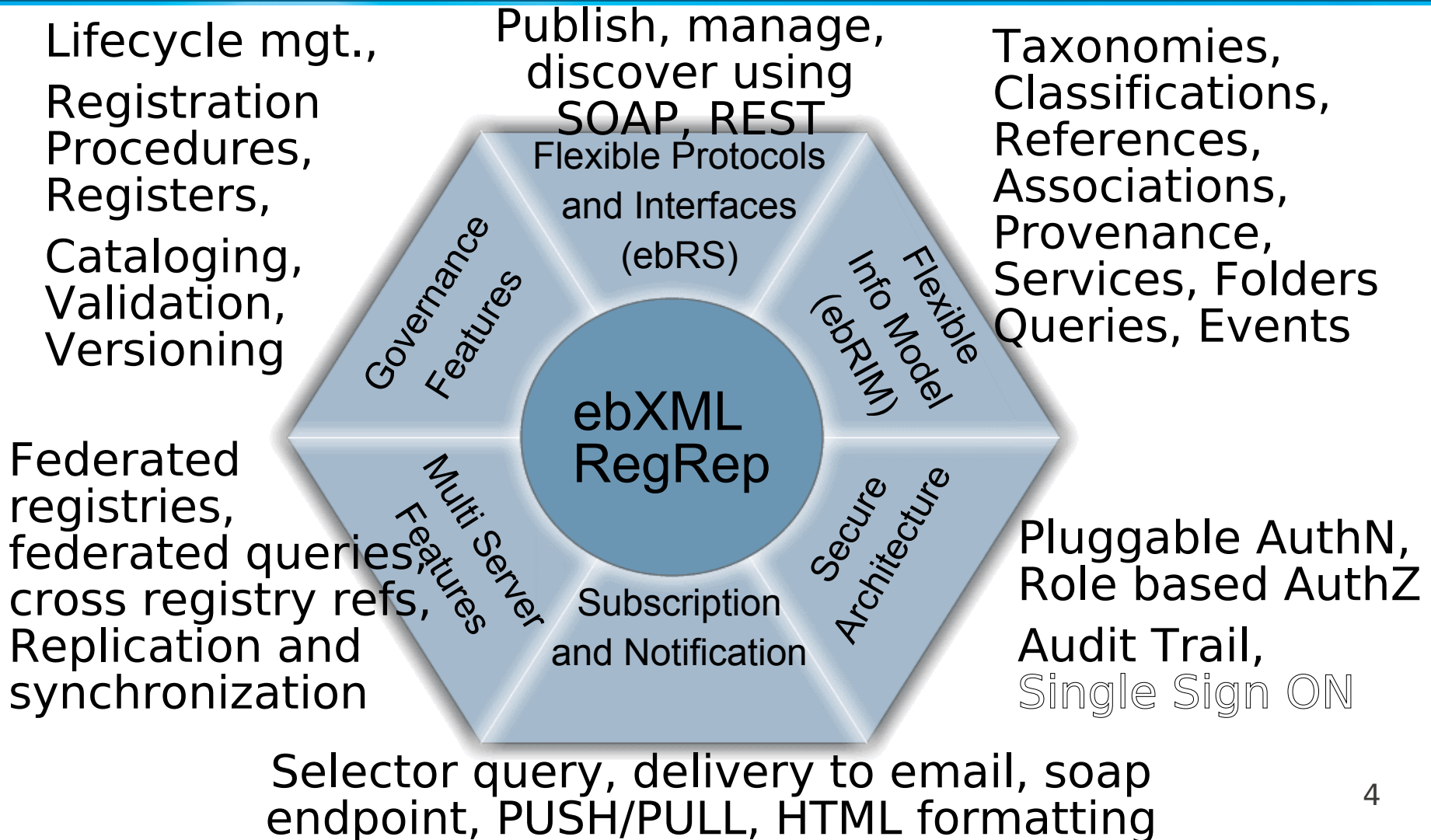


What is ebXML RegRep

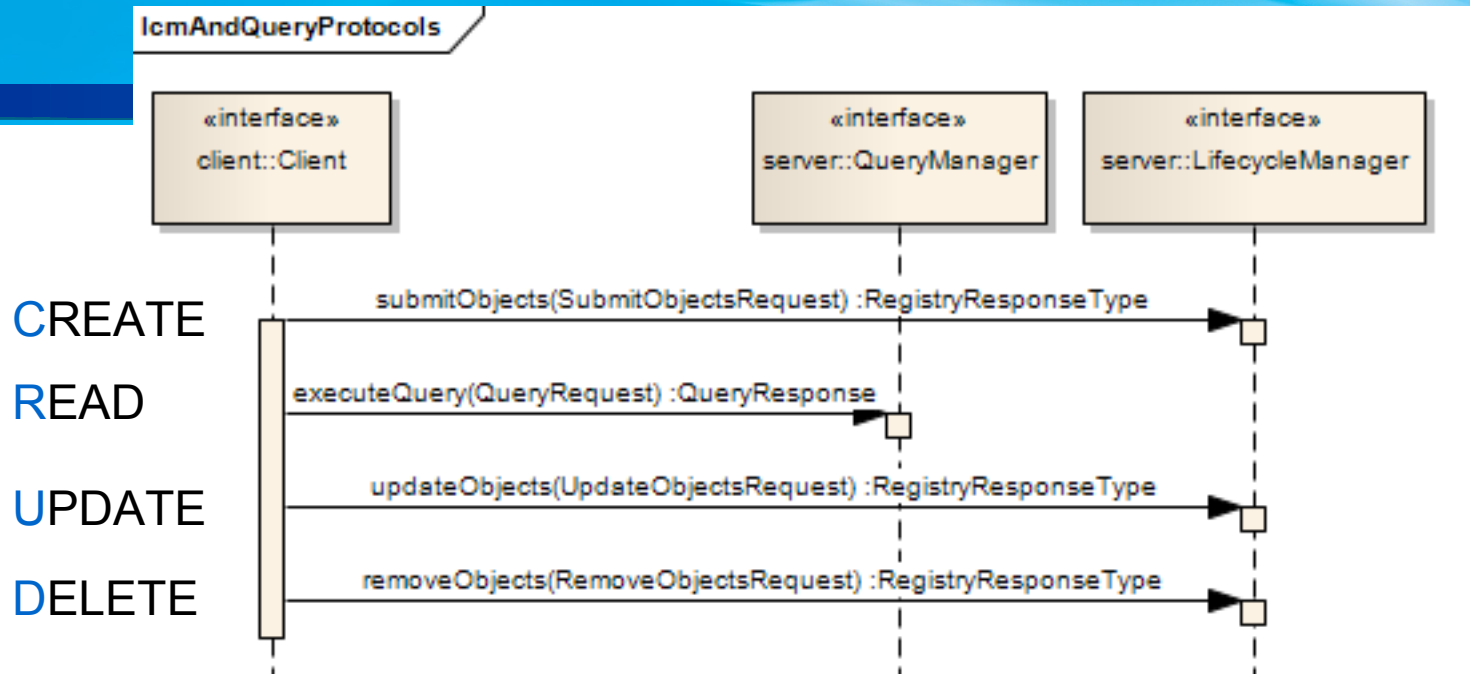
- Repository holds any type of content, Registry holds metadata about the content
- Registry supports flexible queries to find metadata, content and related metadata
- Metadata is extensible and may be classified and associated with other metadata
- Registry provides flexible protocols enabling lifecycle and governance features such as authN, authZ, CRUD, validation, cataloging, versioning, subscription and notification etc.
- Registry provides registration procedures for controlling change proposal submission, review, approval
- Multiple regreps may be federated together and searched using federated queries



Overview of ebXML RegRep Functionality

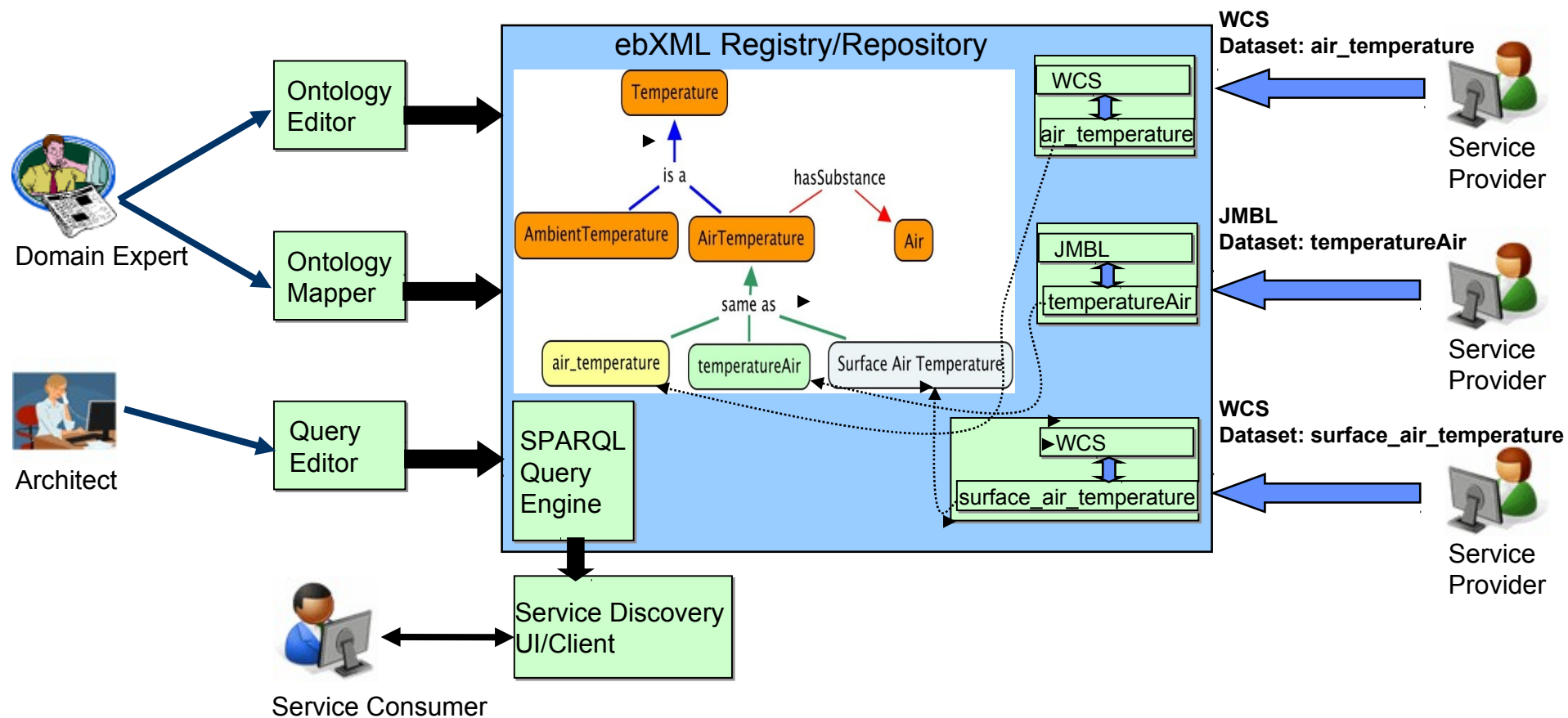


RegRep Interfaces and Protocols

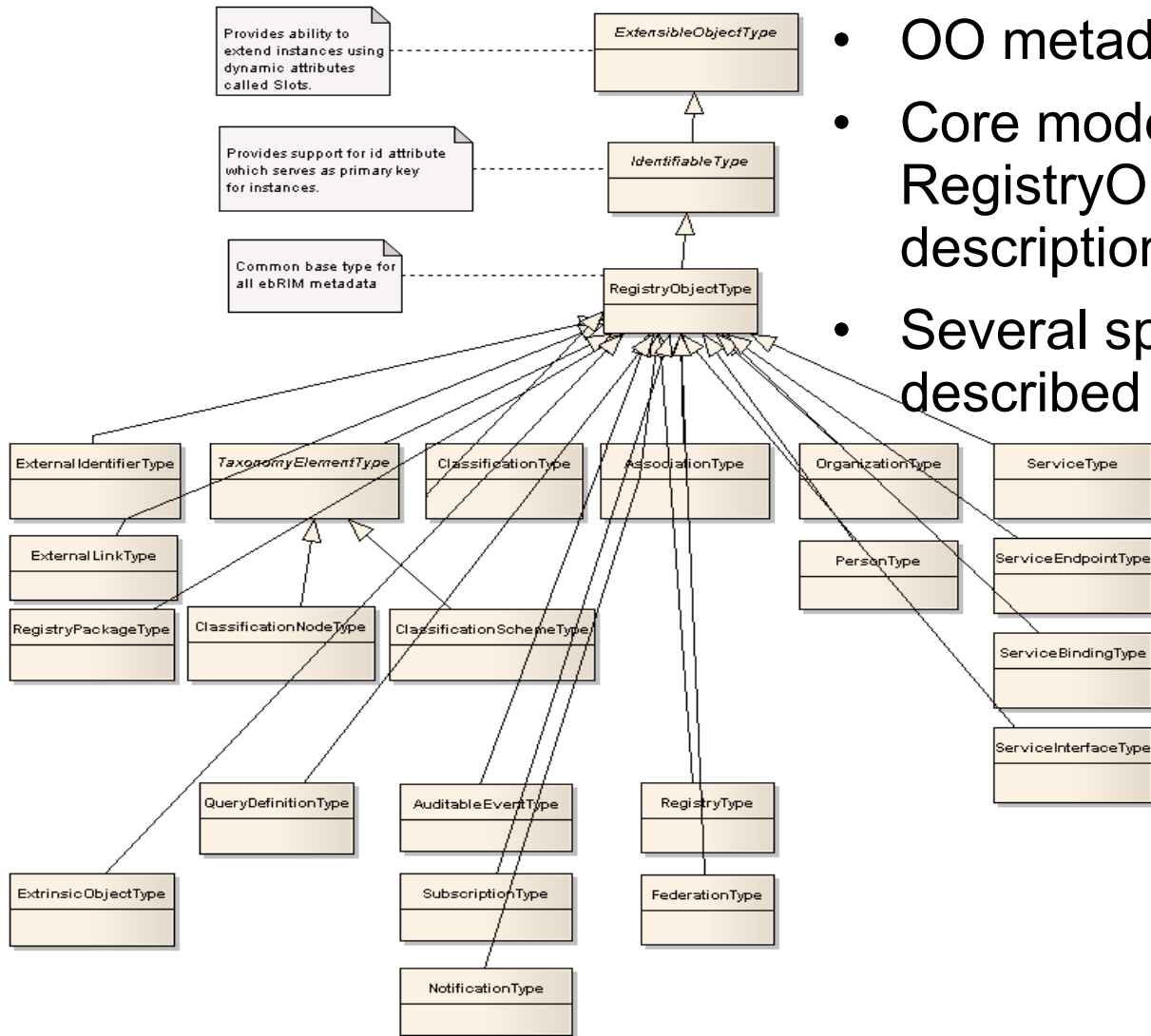


- Simple, extensible, type independent **CRUD** protocols
- Flexible enough to support powerful governance and end-to-end lifecycle management features
- Standard and adhoc queries, stored queries, any query language, user-defined functions, with semantic and spatiotemporal support
- SOAP and REST bindings

Semantically Enhanced Discovery to Find Similar Datasets



ebXML RegRep Information Model (Inheritance View)



- OO metadata standard format
- Core model defines RegistryObject (id, name, description, version, slots)
- Several specialized sub-model described in backup slides
 - Associations
 - Classification
 - Provenance
 - Query
 - Event
 - Federation
 - Access Control

Security Features - Authorization

- Role Based Access Control / Authorization
 - Access Control Policy (ACP) plugin
 - Current support for Default ACP Plugin. Next will support XACML ACP Plugin
 - Default ACP allows anyone to read object, owner to update/delete their own objects and admin role to do all actions on any object
- Custom java ACP plugins may be used to integrate with external 3rd party AuthZ tools

Security Features – Audit Trail

- All WRITE events logged by AuditableEvents
 - READ not logged due to resource constraints
- AuditableEvent tracks who did what action to which objects when and what other objects were impacted by same event

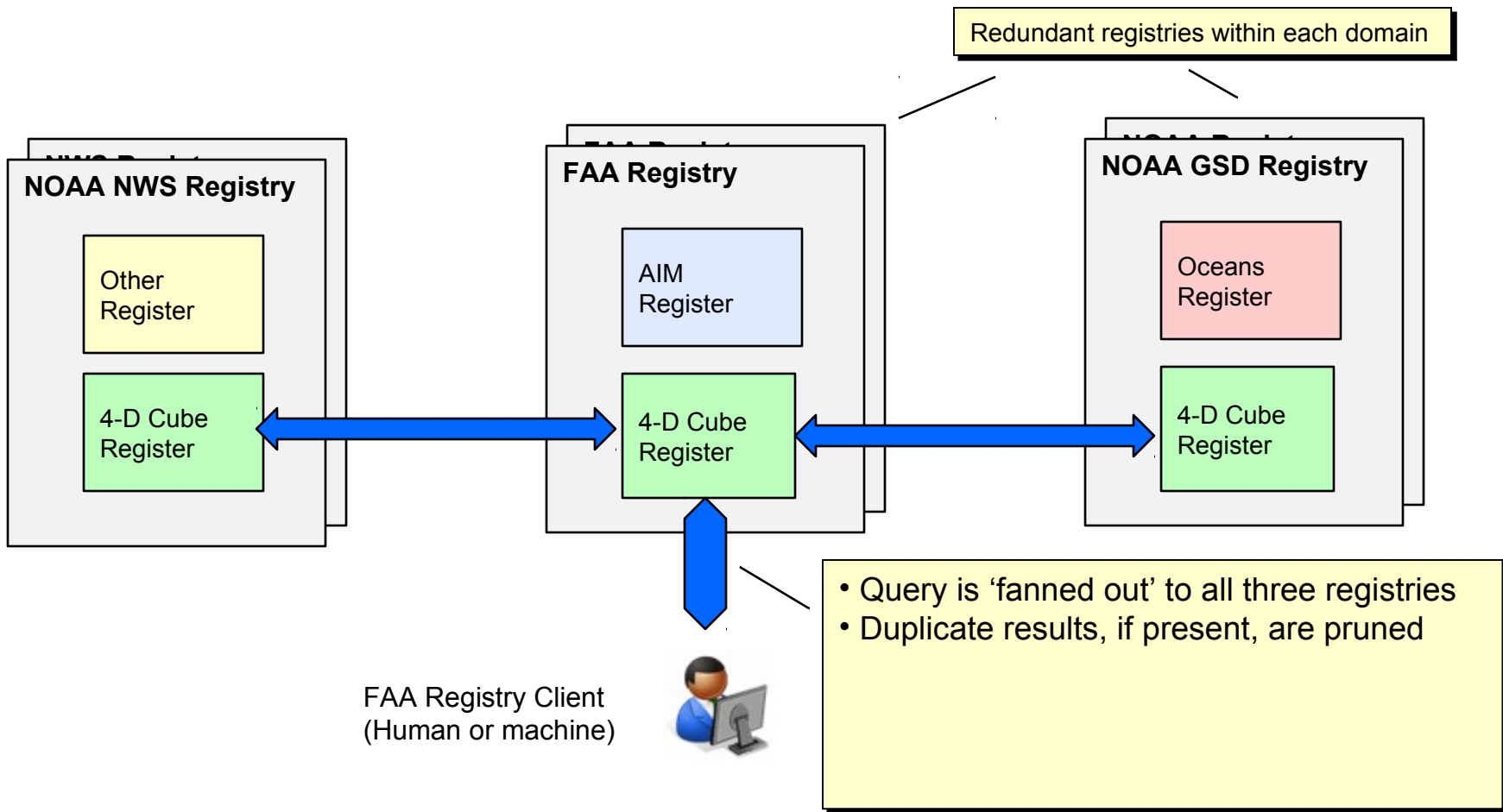
Subscription and Notification Features

- Subscription created, updated deleted using normal LifecycleManager protocols
 - Selector query determines objects of interest
 - DeliveryInfo specifies endpoint for notification delivery (may be email, soap or java plugin)
- Notification **PUSHED** to endpoint async
 - **MAY** be **PULLED** using normal query protocol
 - Supports immediate or periodic notification
 - May be HTML formatted or raw

Multi-Registry Features

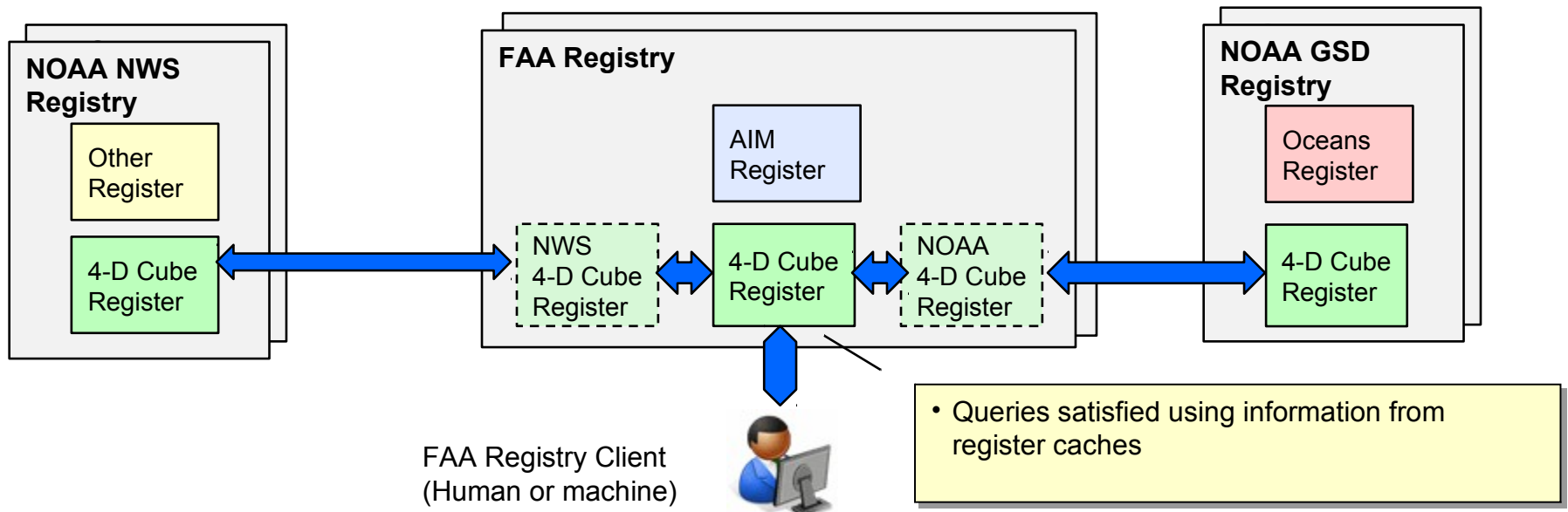
- Federation gives illusion to clients that a group of registries are a single registry
 - Federated query indicated by federated="true"
 - Federated query returns single unified result
 - Partial results OK if some nodes unavailable
- Replication and remote references
- Registries in federation **MUST** support RegRep Query Protocol

Federated Query Example in a Federation Managing Weather Related Information

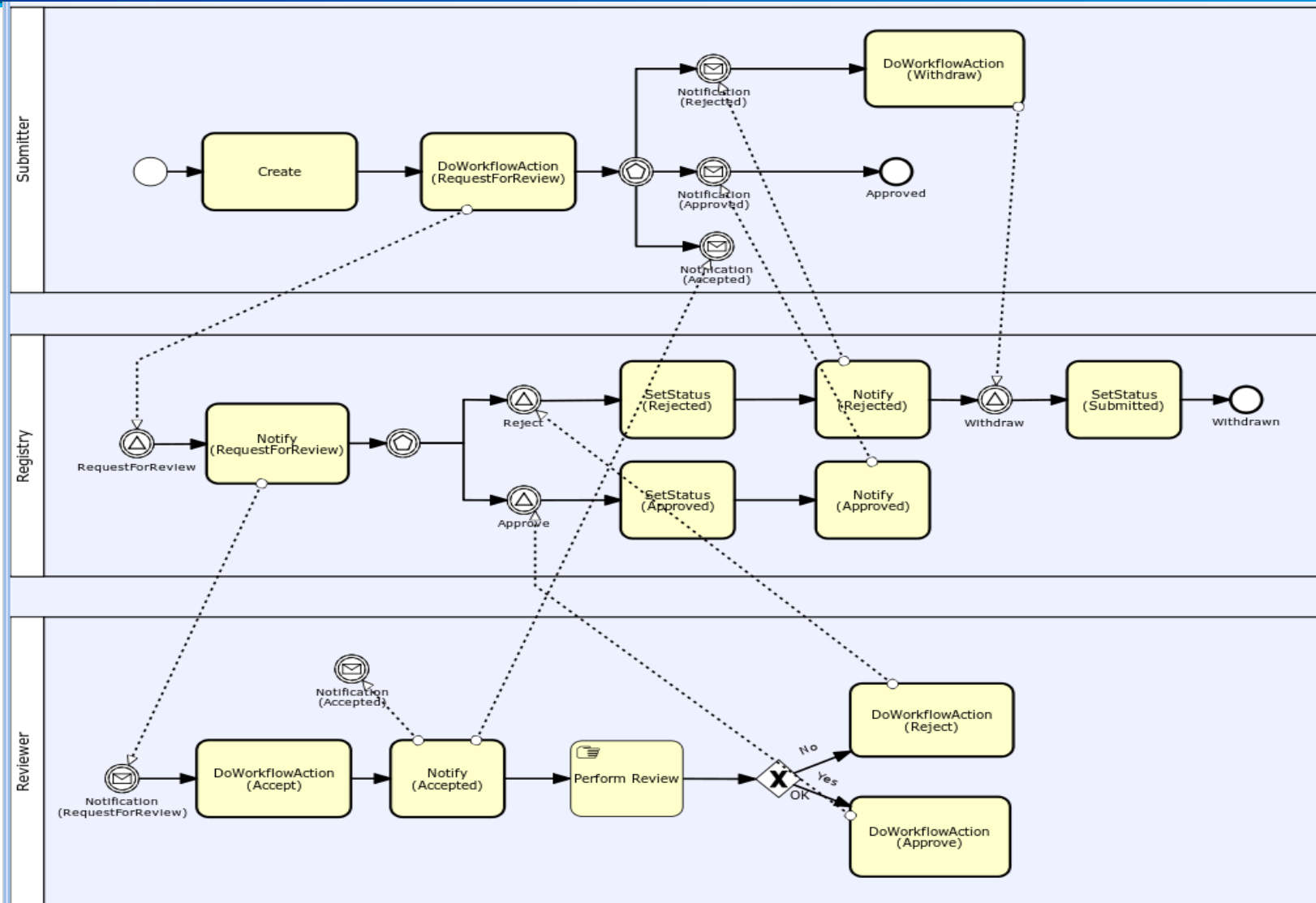


Federated Governance, with Local Caching and ebXML RegRep *Remoteable Registers*

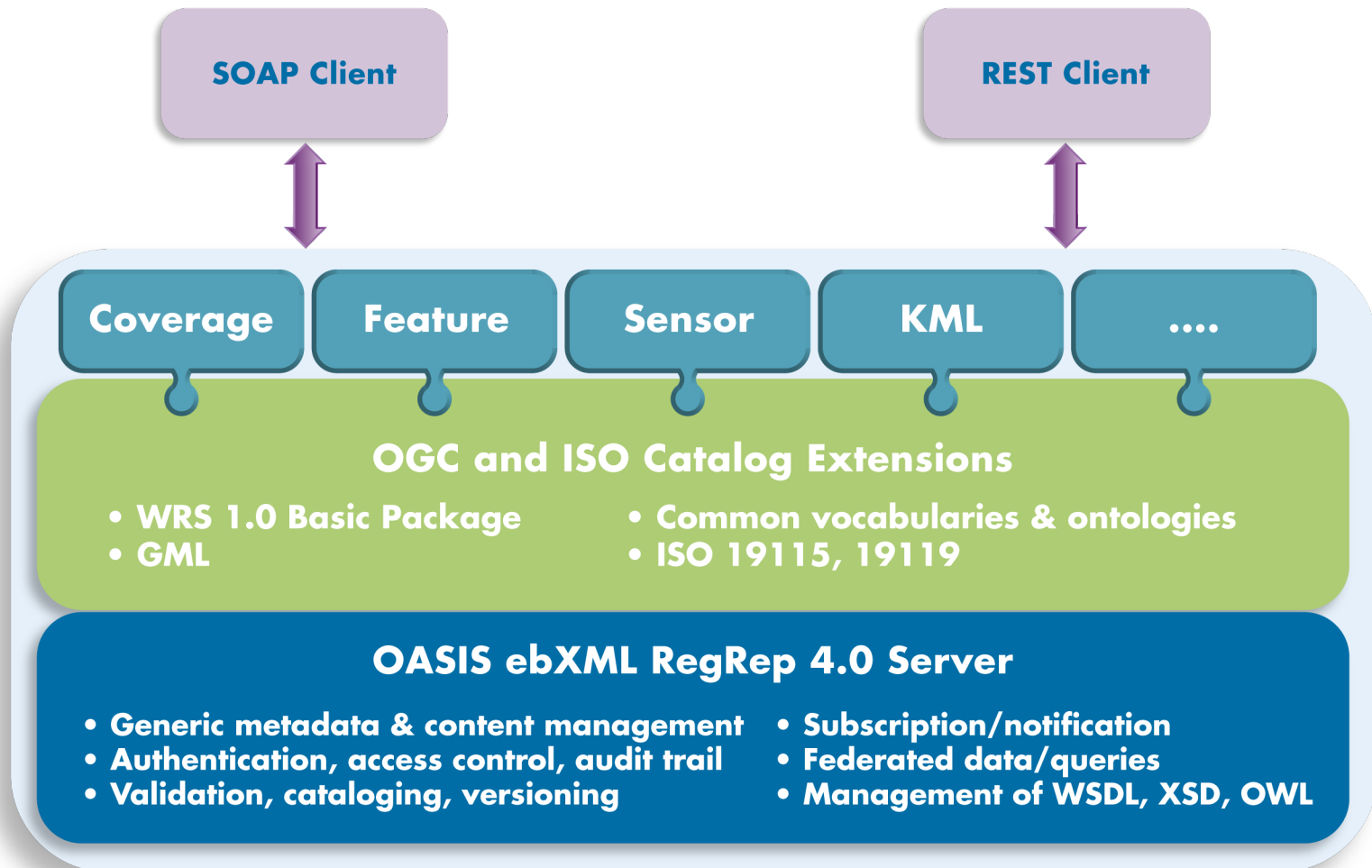
- Preserves federated governance model
- Adds caching – remote register contents replicated in local domain
- Allows for changes to optionally be reviewed by human before being ‘pulled’ from remote registry
 - Similar to PC software update model (at least my Mac asks me before installing changes)



Governance Features (In Dev) – Configurable Governance Process



WellGEO RegRep is built on open industry standards



Related Links

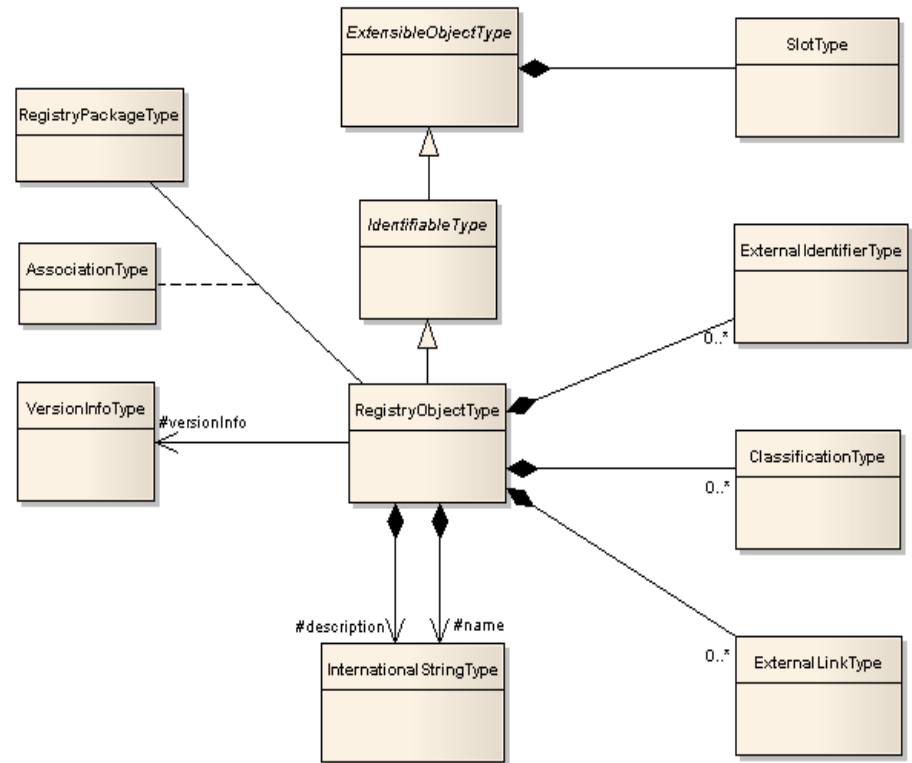
- ebXML RegRep core specifications:
 - <http://tinyurl.com/regrep-spec-4-0-wd6-3-zip>
- ebXML RegRep Spatio-temporal Profile
 - <http://www.wellfleetsoftware.com/node/20>
- ebXML RegRep OWL Profile
 - <http://www.wellfleetsoftware.com/node/19>
- WellGEO RegRep COTS implementation
 - <http://www.wellfleetsoftware.com/products>

Backup Slides

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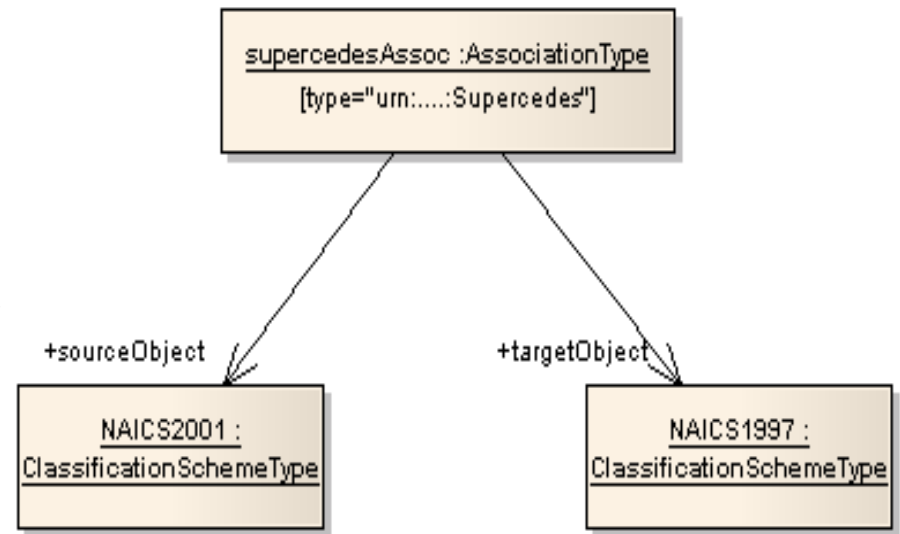
ebXML RegRep - Core Information Model

- Most types extend RegistryObjectType
 - Provides id, name, description, status
- ExtensibleObjectType provide slots
- More specialized types defined by more specialized models next



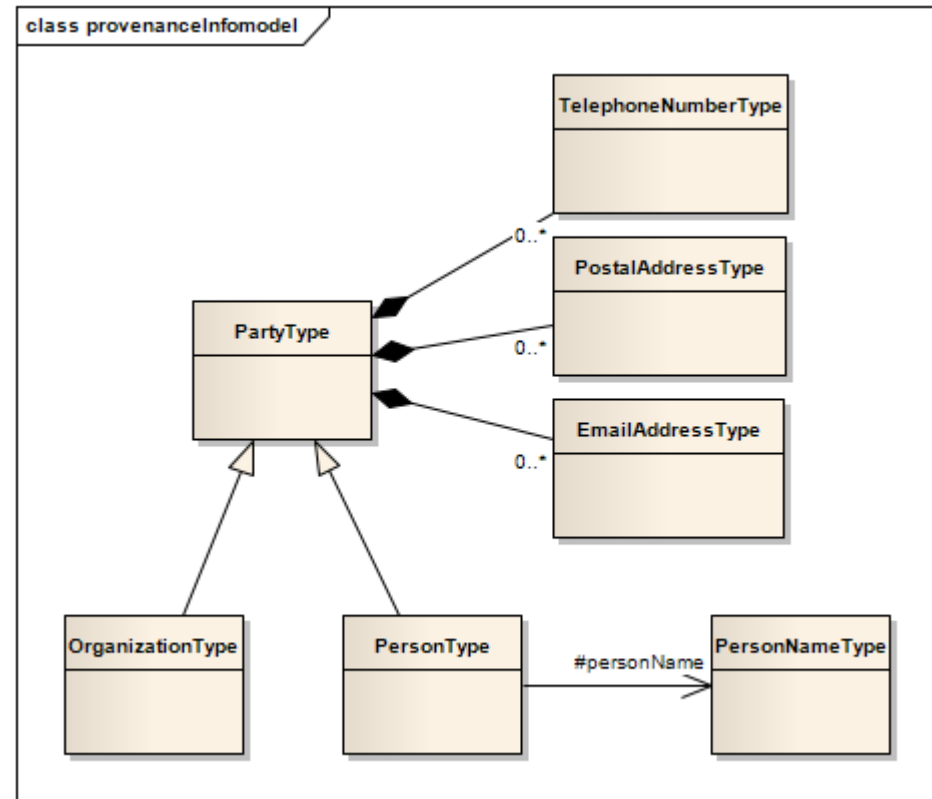
ebXML RegRep - Association Information Model

- Any two objects may be associated with each other
- Each association has a “type”
- Standard association types defined by AssociationType ClassificationScheme



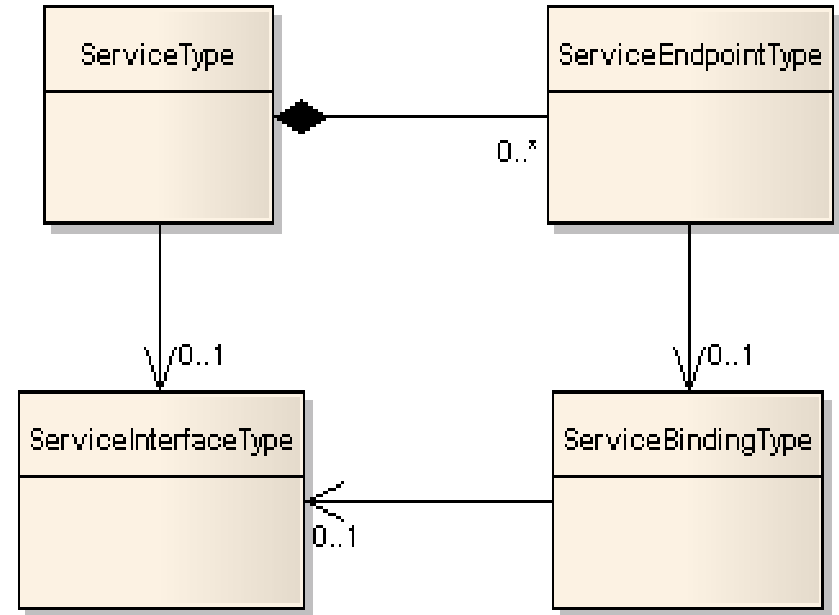
ebXML RegRep - Provenance Information Model

- Registration procedures rely on Organizations and Persons and services with specific governance roles



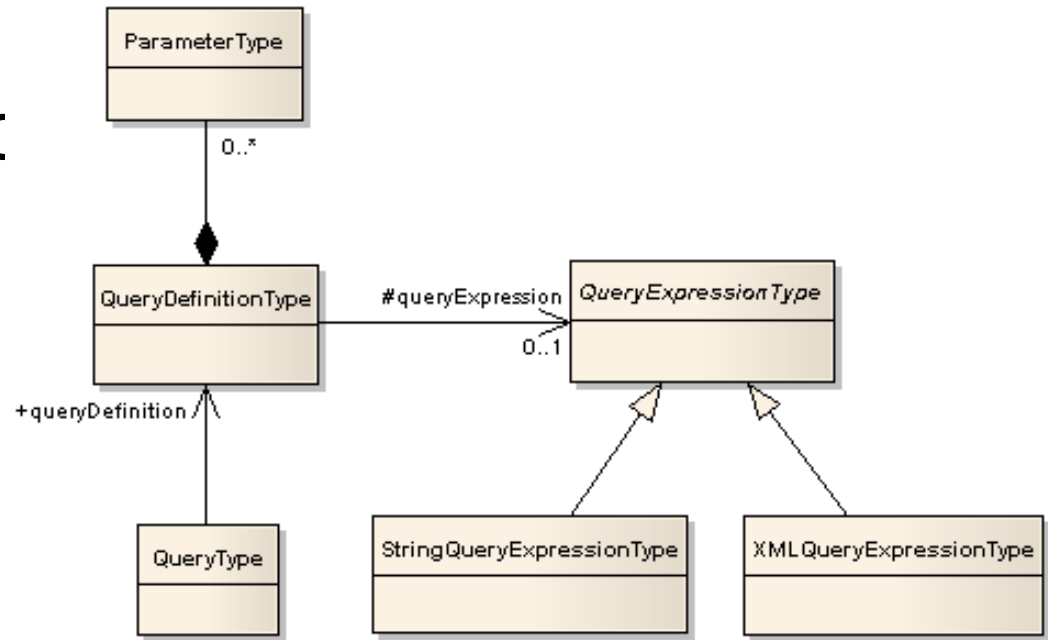
ebXML RegRep - Service Information Model

- Based on WSDL 2, OWL-S
- Used to represent service interfaces and endpoints

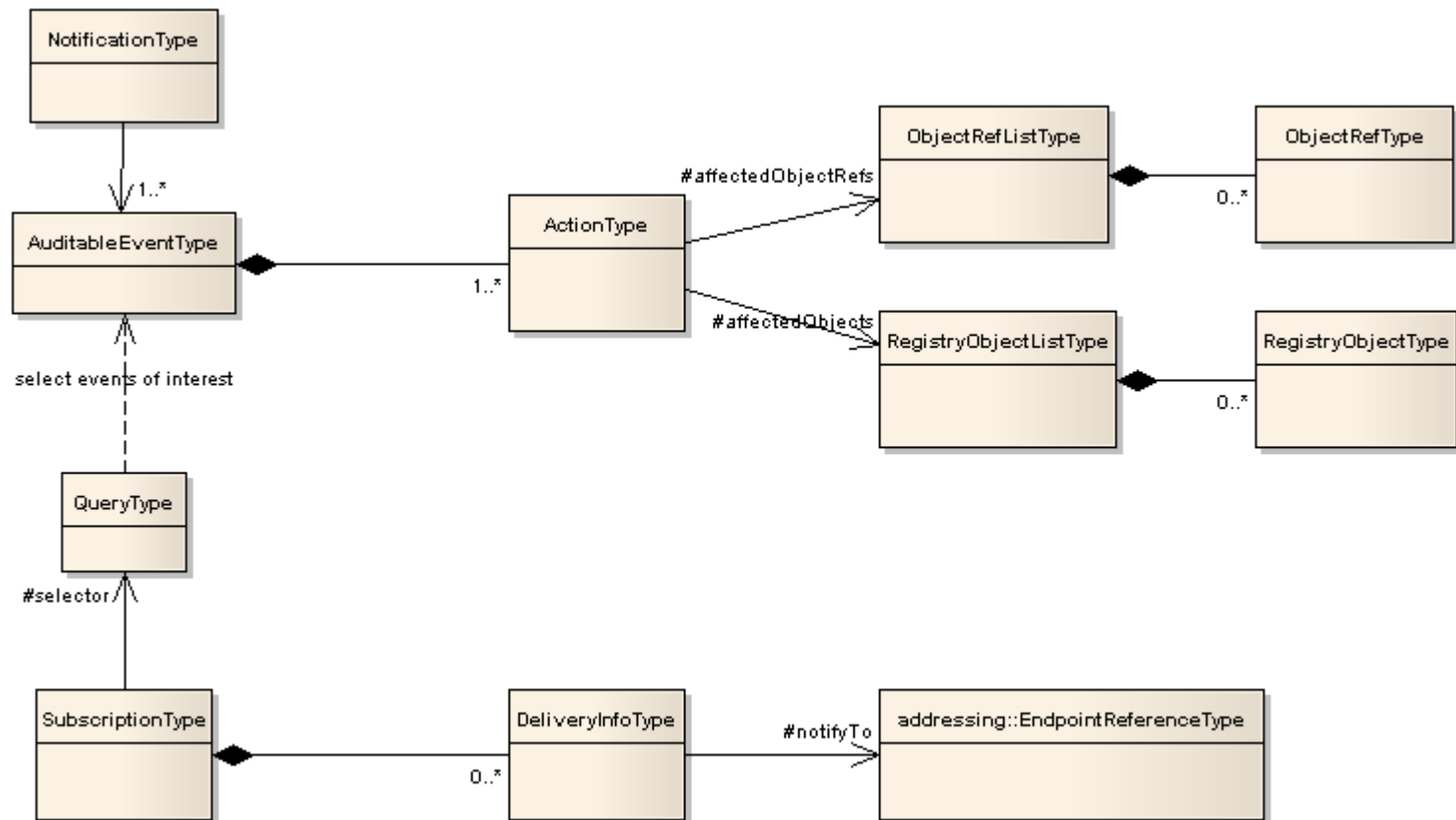


ebXML RegRep - Query Information Model

- Used to define stored queries and their parameters
- Query expression language neutral (as is the query protocol)



ebXML RegRep - Event Information Model



- Used in audit trail, subscription, notification

ebXML RegRep - Federation Information Model

- RegistryType represents a registry server
- Federation represents a group of registry servers
- Associations are used to add registries to a federation

