Overview

- Service "standards", defining the service concept
  - OASIS reference model
  - W3C reference model

- Repositories registries
  - OMG RA Specification
  - W3C OWL-S
  - IBM Tools, RAM & WSRR

Registry = Only service meta-data
Repository = Registry + the relationships/dependencies between services
Standards

- OASIS Reference Architecture for Service Oriented Architecture Version 1.0 (April, 2008, 104 pages)
- W3C Web Services Architecture, Feb 2005, 98 pages
- Others...

OASIS

- **Reference Model for SOA** - an abstract framework for understanding significant entities and relationships between them within a service oriented environment, and for the development of consistent standards or specifications supporting that environment.
- **Reference Architecture for SOA** an abstract realization of SOA, focusing on the elements and their relationships needed to enable SOA-based systems to be used, realized and owned; while avoiding reliance on specific concrete technologies.
OASIS Service Description (from RefMod)

- Note: abstract mode, no coupling to XML provided

OASIS - Service Descriptions (from RefArch)

- Quite detailed, compared OASIS to RefMod.
W3C WS architecture

![W3C WS architecture diagram](image)

Figure 2-2: Meta Model of the Architecture

W3C Service-oriented model

![W3C Service-oriented model diagram](image)
Other… for example IRM

Registry specific "standards"

- ebXML Registry & Repository 3.0
- OASIS UDDI 3.0 – 2005 (Web-services only)
- OWL-S, Ontology Web Language - Services "Semantic" markup
- OMG RAS (no API)
- Tools (IBM)
OWL-S (W3C “member submission”), 2004

- Goal: Enable users and software agents to automatically discover, invoke, compose web services
- Add-on to WSDL
- Add the description of pre-conditions and post-conditions ("effects"/result)

OMG Reusable Asset Specification (RAS) - 2005

- Defines elements and attributes for describing reusable software assets.
- A profile/specialization exists for describing Web Services
- First impression: Needs to be tailored for SOA use!
Tools (IBM)

- **IBM Rational Asset Manager ("RAM")**
  - Configurable model (XMI - XML Metadata Interchange)
  - Pre-defined SOA model describing "Asset types", "Asset attributes" etc.

IBM Web Sphere RR (WSRR)

(From IBM PLM RedBook, 2008)
Conclusion

• Several "standard" exists that define how services can be described
• Standards commonly on different levels
  – High-level, with coupling to business processs
  – Low-level, with coupling to e-services execution environments (WSDL)
• Typically standards must be combined