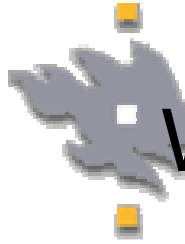


# WST: Web Service Technology Overview Part -III

28th November 2005

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# Web Services Technology (WST) Map

- Provide a complete landscape of Web Services technologies and its development towards enabling services oriented architectures.
- Main purpose of a specific Web Services technology being proposed
- Understand the relation of each other and the manner it affects the Web Services architecture

**NOTE:** The Technologies we study today are only for overview of ongoing Activities, they are all not necessarily are part of Web Services Standards  
Some of them might disappear or get merged into others ....

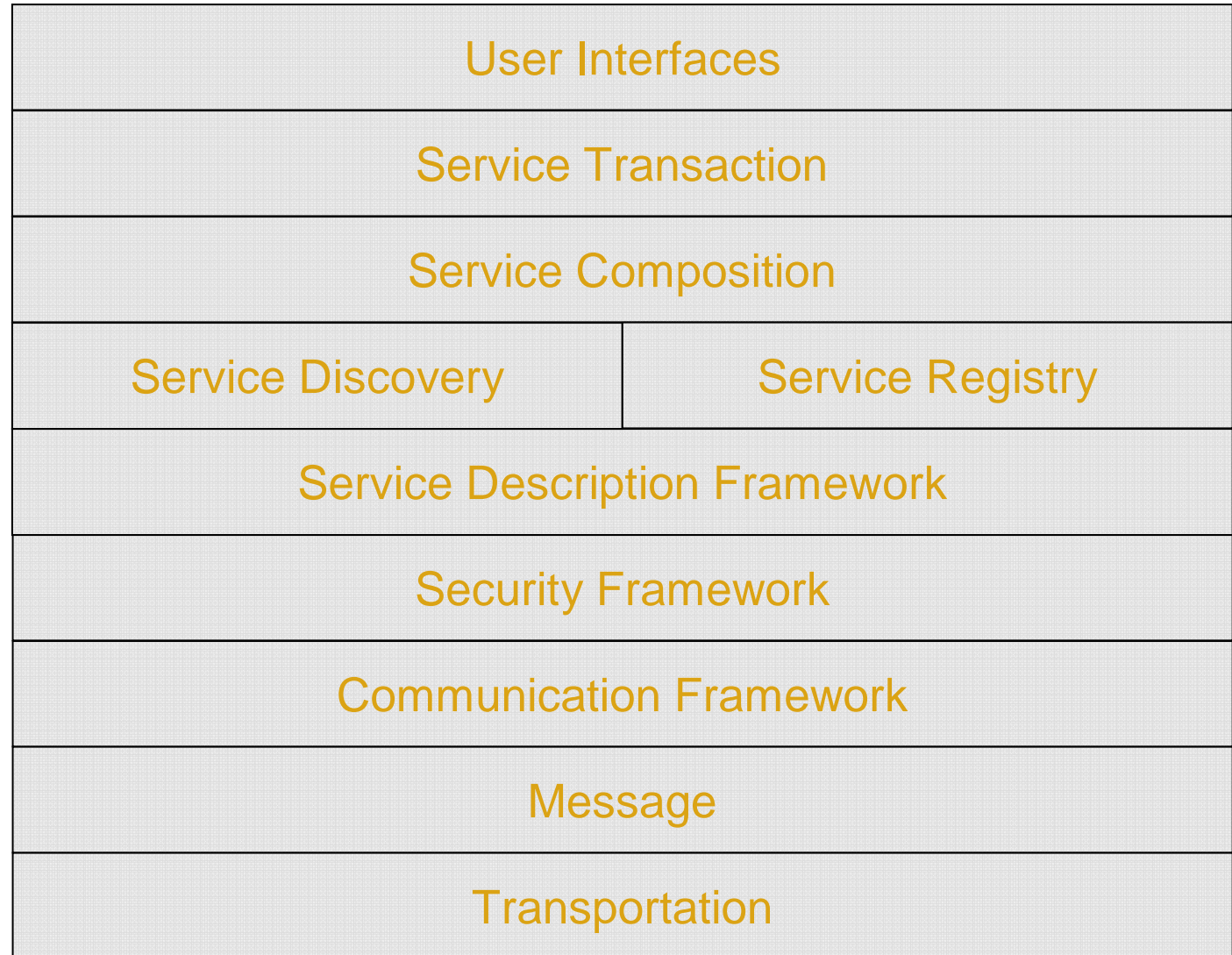
# WST Map

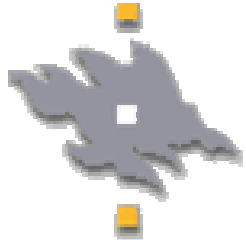
We need to cover non-greyed layers still

Web  
Services  
Administration

Web Services  
Standardization

Web Services  
Platforms



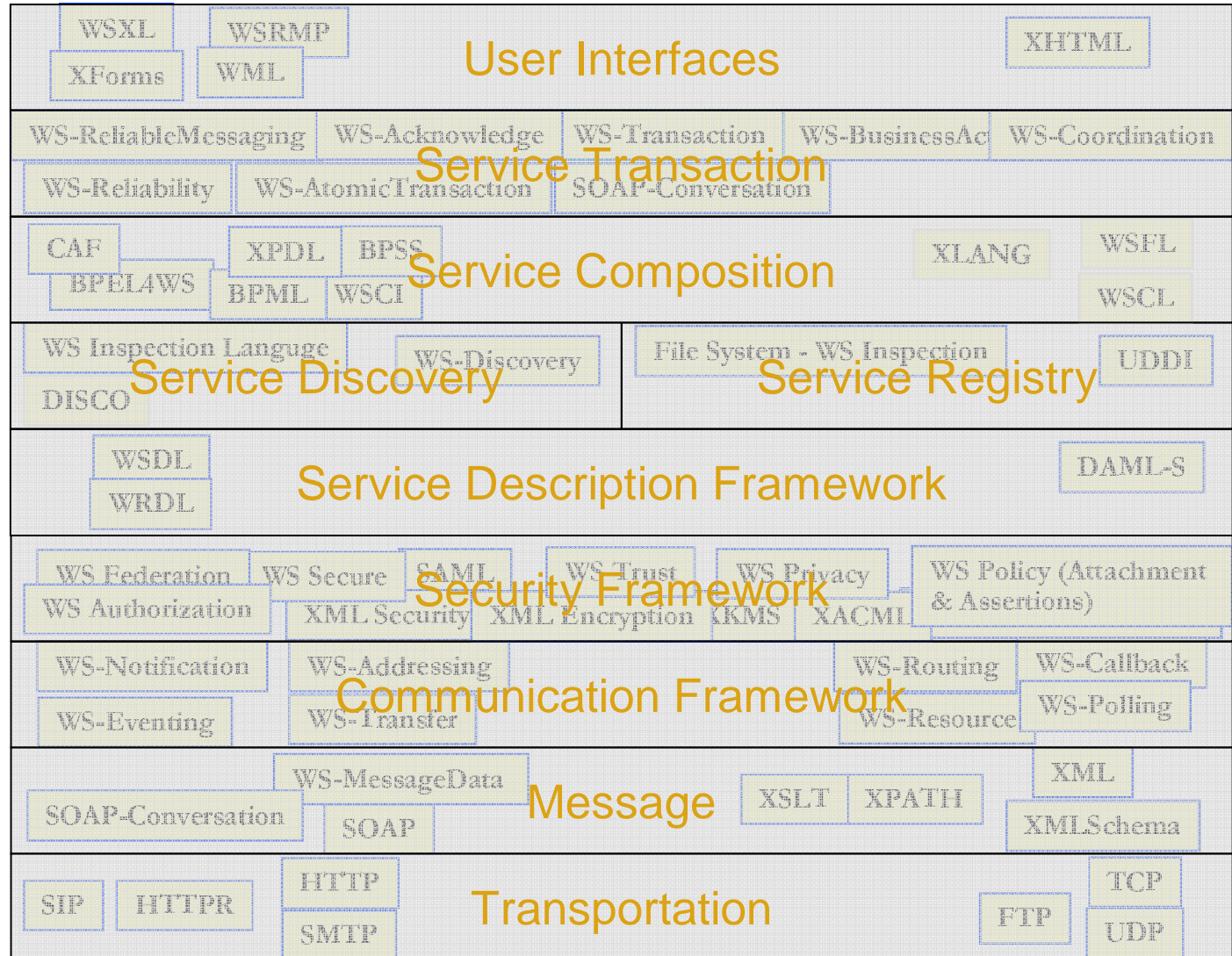


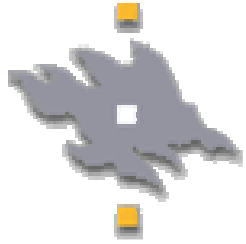
# Web Services Technology WST-Map

Web Services Administration

Web Services Standardization

Web Services Platforms

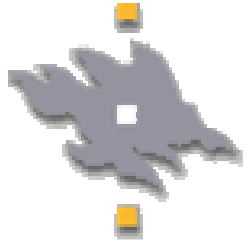




# Web Services Administration

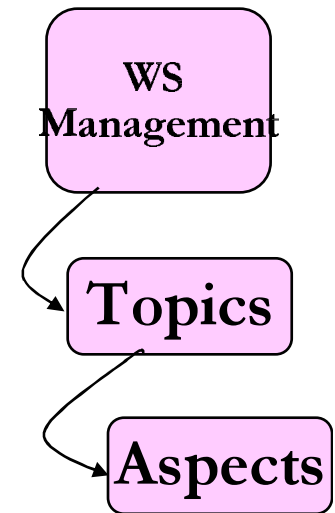
- As web services start to become pervasive the manageability of web services become even more important
- Ability to **Manage Web Services with Web Service technologies**
- Standardization Activities:
  - WS-Manageability Specification, September 2003, submitted to OASIS by IBM, Computer Associates International Inc., and Talking Blocks, Inc.
  - Web Services Distributed Management Technical Committee in OASIS is specifying How to use Web Services to:
    - Manage any resources (MUWS)
    - Access the management Information (MOWS)

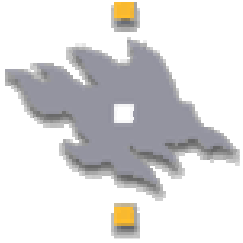




# WS-Manageability

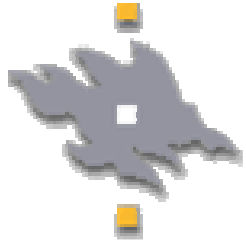
- This Specification was a pre-cursor to the activities in OASIS WSDM TC
- WS management is driven by manageable concerns consisting of capabilities depicted as specific topics.
- Specification provides means for Discovering the existence, availability, health, performance, and usage, as well as the control and configuration of a Web service within the Web services architecture.
- This specification addresses the following topics:
  - **Identity, State, Configuration, Metrics & Relationships**
- A Topic represents a functional capability that can be managed and is represented by aspects:
  - **Properties, Operations and Events**
- Further Reading:  
<ftp://www6.software.ibm.com/software/developer/library/ws-manage.pdf>





# OASIS WSDM

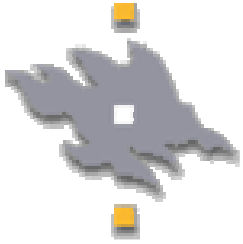
- WSDM; Web Services Distributed Management:
- This is an OASIS Standard released on March 9th 2005, Version 1.0
- WSDM contains 2 sets of specification:
  - **MUWS: WSDM Management using Web Services**
    - This specification defines how an IT resource connected to a network can provide a manageability interfaces such that the resource can locally or remotely managed using Web Services technologies
    - Resource Representation
    - Enables Managing of Resources using Web Standards: QoS, Monitoring, SLA, control Managements(Tasks, Lifecycle)
    - This is specified as two sets of specifications
      - a).Part 1: Architectural Concepts and required components
      - b).Part 2: Standard Manageable capabilities
  - **MOWS: WSDM Management of Web Services, Management of Web Services**
    - Model for managing Web Service as a resource
    - Describe and access the resources
    - Provides means to manage Web Services Endpoints using Web Services Protocols



# Web Service Standardization Efforts

- **W3C:** Core Web Services Technologies
- **OASIS:** Advanced and business Critical Web Services
- **OMA:** Open and Inter-operable Mobile Web Services
- **Liberty:** Single Signon and Web Services federated Identity framework
- **WS-I:** Web Services Inter-operability
- Many Sub-Industry coalitions/ Consortiums between major IT players
  - IBM, Microsoft, HP, BEA, Oracle, Sun, many others...





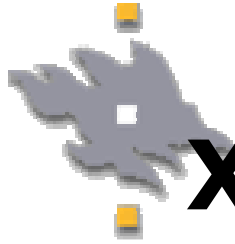
# W3C Web Services Standardization

**Web services activities in W3C are carried out into 3 working groups and 1 interest group:**

- **XML Protocol Working Group.**
  - SOAP1.2: Primer, Messaging Framework, Adjuncts, Specification Assertions and test Collection
  - XML Binary Optimization
  - SOAP Message Transmission Optimizaiton Mechanism
  - Resource representation SOAP Header Block
- **XML Schema Patterns for Databinding working Group(new)**
- **Web Services Description Working Group.**
  - WSDL2.0, Part:premier , Part 1 :Core Language, Part3: Adjuncts
- **Web Services Choreography Working Group.**
  - Web Services Choreography: Requirements, overview & Description Language
- **Web Services Addresssing Working Group**
  - WS-Addressing 1.0 - Core
  - WS-Addressing 1.0 - SOAPBidning
- **Semantic Web Services Interest Group**

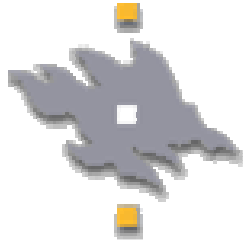
Old: (Web Services Architecture Working Group)

For Further Reference and Reading: <http://www.w3.org/2002/ws/>



# XML Protocol Working group

- Move or renew the principal usage of the Web from human centric to application centric
- The four main topics are :
  - An envelope for XML encapsulation
  - Data serialization based on the datatypes of XML Schema.
  - An optional transportation mechanism over HTTP
  - This working group has delivered the next version of SOAP
    - [SOAP Version 1.2 Part 0: Primer](#) (Recommendation)
    - [SOAP Version 1.2 Part 1: Messaging Framework](#) (Recommendation)
    - [SOAP Version 1.2 Part 2: Adjuncts](#) (Recommendation)
    - [SOAP Version 1.2 Specification Assertions and Test Collection](#) (Recommendation)
    - XML Binary optimized Packaging
    - SOAP Message Transmission Optimization Mechanism
    - Resource Representation SOAP header block



# Web Services Description Working Group

- The main aim of this working group is to specify:
  - The message along with the definition of the internal structure and data types that are being communicated
  - The different message exchange patterns.
  - The protocol binding to different and give us a free services
- The WSDL is in the Last Call 2.0, 19 September ( 1.2 older numbering), Believe should be a recommendation by the turn of the year..



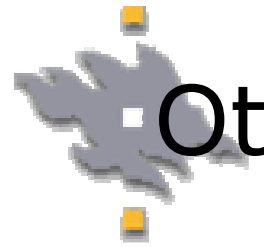
# Web Services Choreography Working group

- Web services will require the ability to compose and describe the relationships between lower-level services
- This working group had begun to ensure that the space of choreography was headed or was leading into a number of non-interoperable sub-networks with several proposals floating around (WSCI, WSCL, BPML, BPSS, WSFL, XLANG, BPEL4WS+WS-Coordination+Transaction )
- Co-ordination with the similar efforts being carried out under the OASIS
- This working group will look into the defining the :
  - Composition features
  - Associations between the different services
  - Message Exchange patterns
  - State Management



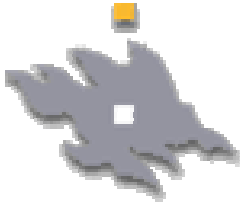
# Semantic Web Services Interest group

- Application of Semantics in the discovery, composition, relocatability and other aspects of Web services needs.
- Guidance and advice to the Web services Working Groups on charter requirements for mapping to Semantic Web technologies.
- Ensure that research issues for next-generation Web services, e.g. relationship with autonomous agent technology, distributed query protocols, etc.
- Share experiences with creation and deployment of Web services created using SOAP, WSDL, REST, RDF



# Other relevant Technologies from W3C

- XML(1.0/1.1), XML Schema, XLink, XPath, XForms, XSLT.

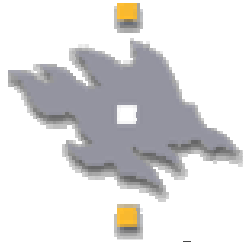


# OASIS

- OASIS complements the work of other standard bodies
- OASIS members are defining many of the infrastructure standards that enable Web services as well as the implementation standards that are used in specific communities and across industries.
- OASIS is Specifying Web Service standardizations within Technical Committee's , specifically in the areas of :
  - OASIS Asynchronous Service Access Protocol (ASAP) Technical Committee
  - Web Services Business Process Execution Language TC
  - Web Services Composite Application Framework TC
  - Web Services Notification (WSN) TC
  - Web Services Security
  - Framework for Webservices implementation TC
  - Web Services Security TC
  - Web Services Business Process Execution Language TC
  - Web Services for Remote Portlets TC
  - Web Services Reliable Messaging TC
  - Web Services Reliable Exchange (WS-RX)
  - Web Services Transaction
  - Web Services Quality Model TC
  - [OASIS Web Services Resource Framework \(WSRF\) TC](#)
  - UDDI Specification

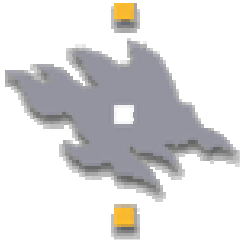
## **Others being:**

- Web Services Distributed Management TC
- Web Services Interactive Applications TC
- Web Services Remote Portal TC
- ebXML



# Open Mobile Alliance (OMA)

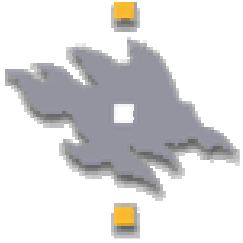
- **Mission:** Facilitate global user adoption of mobile data services by specifying market driven mobile service enablers that ensure service interoperability across devices, geographies, service providers, operators, and networks, while allowing businesses to compete through innovation and differentiation.
- **Intention:**
  - Develop a specification that defines the application of web services within the OMA architecture.
  - Generate a recommendation and/or specification and a set of best practices that describe how to apply web services with the OMA Architecture.
  - Drives Open standards for inter-operable Mobile Services
- Mobile web services working group within OMA will create guidelines on how the interfaces should be specified
- The Mobile Web Services group is addressing :
  - A specification Suite that will aid developer to apply Web Services :
    - Web Services Discovery
    - Access &
    - Leverage Service enablers with OMA Framework
- OMA mobile Web Services framework standardisation
  - How to use Web Service technologies and specifications in the mobile domain
  - Use existing specifications and work as much as possible (don't re-invent the wheel)
    - Actual specification done in other forums (e.g. OASIS, WS-I and W3C)



# Liberty Alliance Project

- Specifies an Liberty Identity Web Services Framework
- Based on SOAP1.1, WSDL1.1, SAML and WS-Security
- Three distinct Liberty Identity efforts :
  - Federation Framework (ID-FF)
    - Provides core protocols, schemata and profiles. This allows implementers to create standardized, multi-vendor identity federation network.
  - Web Services Framework (ID-WSF)
    - Provides a set of protocols, schemata and profiles to provide a basic framework of identity services, such as: Identity Service discovery and invocation.
  - Service Interface Specification (ID-SIS)
    - Utilize the ID-FF and ID-WSF to provide network Identity services, such as contacts, presence detection or wallet services that depend on networked identity.

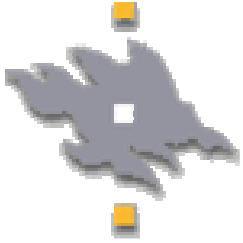
**Ref: <http://www.projectliberty.org/specs/draft-lib-idwsf-overview-v1.0-07.pdf>**



# Liberty Alliance Project

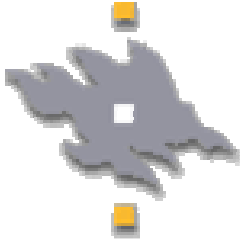
- Web Services Framework (ID-WSF)
  - **SOAP Binding**
  - **Security Profiles**
  - **Discovery Services**
  - **Data service template**
  - **Interaction Service**
  - **Liberty Enabled userAgent**
  - **Metadata**
  - **Reverse HTTP / PAOS**
  - **Authentication services**

Ref: <http://www.projectliberty.org/specs/draft-lib-idwsf-overview-v1.0-07.pdf>



# WS-I

- “The Web Services Interoperability Organization is an open industry effort chartered to promote Web Services interoperability across platforms, applications, and programming languages. The organization brings together a diverse community of Web services leaders to respond to customer needs by providing guidance, recommended practices, and supporting resources for developing interoperable Web services.”
- The community actively develop tools, resources, and other guidance to support Web service implementation
- Assist in creations and deployment of inter-operable Web Services
- Development of common best practices for Web Services usage in the development, deployment and integration of business applications
- Deliverables for WS-I being :
  - Interoperability Profile
  - Testing tools
  - Sample Applications
- The Basic Profile1.0 consists of SOAP1.1, WSDL1.1, UDDI2.0
  - The Lastest profile is BP 1.1
- WS-I and OMA do complementary work in mobile web services IOP area



# WS-I

- Tools to make web services simpler:
  - Profiles
  - Sample implementation
  - Implementation Guide Lines ?
  - Sniffer
  - Analyser