

Directory Schema Registry – its Concept, Implementation and Future

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Peter Gietz, DAASI International GmbH
Peter.gietz@daasi.de



AGENDA

- Motivation
- Project Plan
- Survey of previous work on directory schema registry related technologies
- Existing LDAP schema
- Incorporation and usage policy
- Metadata format and DIT structure
- Software design
- Implementation progress
- Business Model
- Possible future steps

Motivation

- Common schema (attributes and object classes) are vital for directory interoperability
- There are a lot of standards already out there, people may not know about
- There are even more good schema proposals not (yet) standardized
- People still tend to reinvent the wheel
- You can find information on the web but at different places
- Applications cannot retrieve schema information via LDAP

Project aims

- to set up a LDAP schema registry with
 - an easy browsable and searchable Web interface
 - an LDAP interface for retrieval
 - an interface based on MIME types defined in RFC 2927 for submissions of new schema
- to define a policy defining the standards for inclusion into the registry
- to search for all schema definitions made within the IETF and include them into the registry
- to develop a business model to keep the registry alive after the end of the project.



Project Funding body

- TERENA
 - (Trans-European-Research and Education Networking Association)
- JISC
 - (Joint Information Systems Committee, UK)
- REDIRIS
 - (Spanish National Research Network)
- CESNET
 - (Czech National Research Network)
- POZMAN SUPERCOMPUTING
 - (Poznan Supercomputing and Networking Center, Poland)
- DAASI International

What was out there already

- The subschema mechanism defined in X.500
- The alternative mechanism of RFC 1804
- IANA procedures for registering LDAP elements
- The proposal of the IETF Schema Working Group
- LDAP Schema Viewer at <http://ldap.akbkhhome.com/>
- Novell schema registry
- Object Identifier Registry of Harald Alvestrand at www.alvestrand.no//objectid
- The Object identifier tree of ASN.1.Information site at <http://asn1.elibel.tm.fr/en/index.htm>
- XML.org registry at <http://www.xml.org/xml/registry.jsp>
- Some more on Metadata and RDFS

Work that was used

- IETF WG schema
 - provided specifications for a schema listing service for the directory technologies LDAP, Whois, Whois++ and Rwhois.
 - The idea was to provide a single point of discovery, to promote reuse, reduce duplication of effort and to promote interoperability.
 - This work is based on a document [RFC 2425] that defines a MIME Content-Type for holding directory information.

Schema WG docs

- Apple, C., "Directory Schema Listing File Names", <draft-ietf-schema-file-list-01.txt>, April 1998 (expired), <http://www.watersprings.org/pub/id/draft-ietf-schema-file-list-01.txt>
- Apple, C., "Directory Schema Listing Meta Data", <draft-ietf-schema-mime-metadata-01.txt>, April 1998, (expired), <http://www.watersprings.org/pub/id/draft-ietf-schema-mime-metadata-01.txt>
- Apple, C., "Directory Schema Listing Procedures", <draft-ietf-schema-proc-list-01.txt>, April 1998 (expired), <http://www.watersprings.org/pub/id/draft-ietf-schema-proc-list-01.txt>
- Apple, C., "Requirements for the Initial Release of a Directory Schema Listing Service", <draft-ietf-schema-rqmts-list-01.txt>, April 1998 (expired), <http://www.watersprings.org/pub/id/draft-ietf-schema-rqmts-list-01.txt>

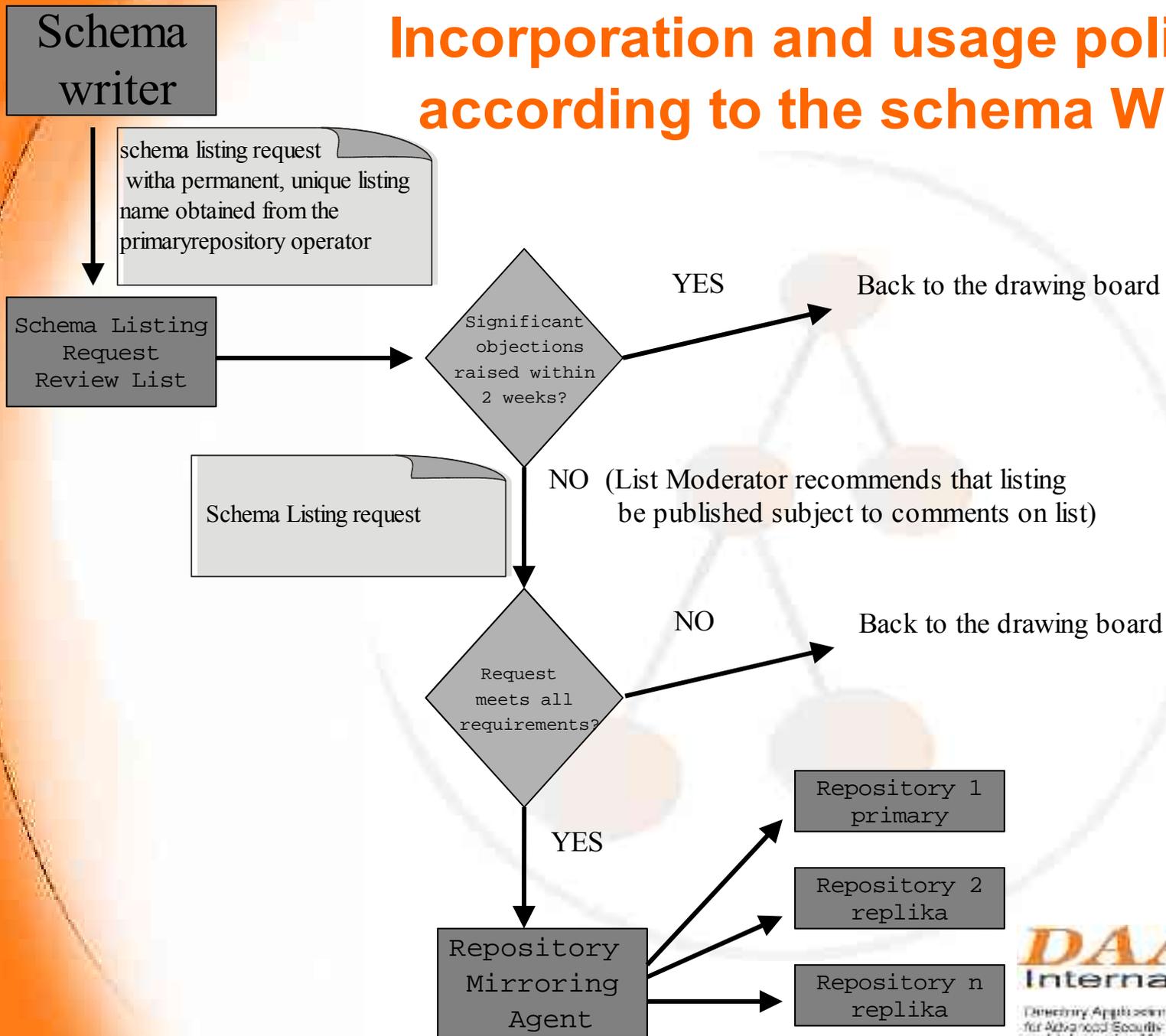


Existing X.500/LDAP schema that could potentially be incorporated

- X.500 schema standards ([X.520] and [X.521])
- IETF LDAP schema standards (27 RFCs from RFC 1274 to RFC 3296)
- DMTF CIM LDAP
- Open Group LDAP DCE
- Internet 2/EDUCAUSE EduPerson, eduOrg
- Proprietary schema from Novell, Netscape, SUN, Microsoft
- LDAP schema of research projects
- LDAP Schema for Grid Computing (Globus Toolkit)
- LDAP schema of Open Source Projects



Incorporation and usage policy according to the schema WG



Policy of the Directory Schema Registry (DSR)

- Establishment of an open list for discussion about schema inclusion
- Specification of a moderator who interacts with the DSR operator
- Specification of the Policy Board
- Specification of the syntactical requirements for schema submission: formats, encoding, naming, process for checking syntax and OID.
- Specification of semantic requirements for schema submission defining a mandatory minimal set of metadata for single schema elements and a whole schema, bibliographical data and additional information on author and contact person
- Specification of a version control
- Specification of the registration process
- Specification of the comment mechanism
- Specification of the update process
- Specification of the actions and responsibilities of the DSR operator

DSR Policy Board

- finalises the decisions about the processes
- controls the whole process
- appoints experts for review
- reassigns responsibility for a schema
- moderates the discussion list
- decides about schema inclusion and classification of its status



DSR Operator

- Provides and runs the technical infrastructure for operating the DSR (hardware, LAP-Server, Webgateway, Mailinglist)
- Provides OIDs and additional numbers for uniquely identifying schema submissions, including versioning
- Performs the specified schema checks.
- Forwards schema registration requests to the policy board.
- Includes schema according to the instructions of the policy board.
- Provides technical advice to the policy board.
- Contributes to the dissemination of project results and to Public Relations of the DSR.
- Acts as a communication mediator between different interest groups.



What info can be stored

- Metadata on specification document
- LDAP compliant definitions of the schema elements
- Single parts of schema element definitions, e.g., MUST attributes in Object Classes
- Metadata as specified by the IETF WG schema
- Separate OID tree
- Additional metadata

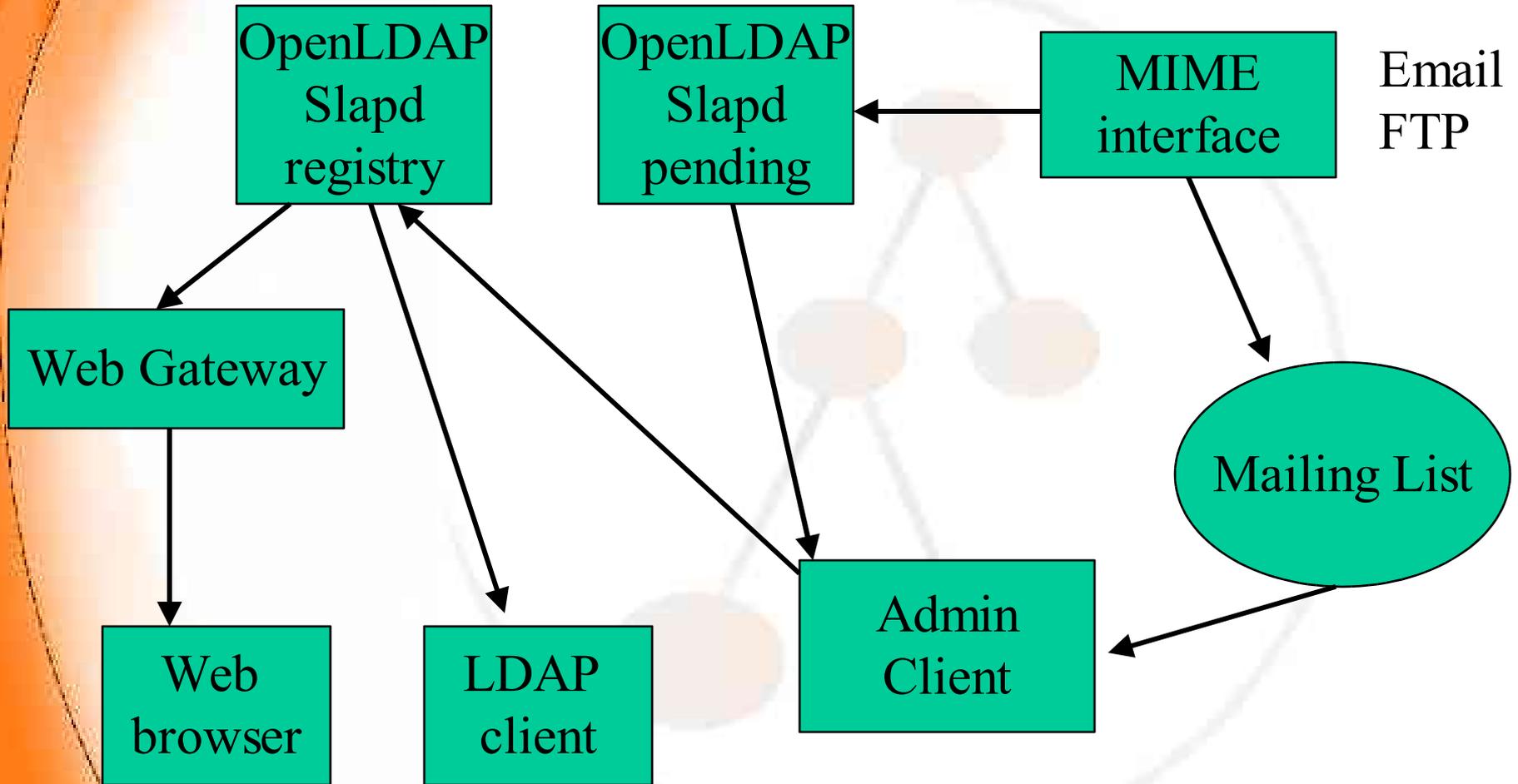


LDAP Schema specified

- Metadata for bibliographical references
 - The Dublin Core Metadata set and its LDAP representation
 - Additional schema for person information
 - The front matter elements of RFC 2629
- Metadata specified by the IETF schema WG
 - MIME types for schema metadata and their LDAP representation (draft-ietf-schema-mime-metadata-01.txt)
 - MIME types for LDAP schema elements and their LDAP representation (RFC 2927)
- Additional schema for the DSR
 - Schema for additional schema elements not specified in RFC 2927
 - Schema for storing an OID tree
 - Schema for storing the single parts of schema element definitions
 - Schema for additional metadata



Workflow



Email
FTP

Business Modell

- After the project there has to be a funding model for running the registry
- Either Organisations pay for registering their schema
- Or users pay for retrieving schema information
- Or Organisations just sponsor the registry
- It should not be too costly to run the service as DSR operator (~ € 10.000 per year)
- Until a solution is found DAASI will run it on its own costs

What happened after the project

- Since end of the project (August 2003) there had been some discussions but no decisions
 - Lots of interest from Internet2
 - Schema-ng Bar BoF at the 57th IETF, Vienna, July 16, 2003
- Some people use the pilot service
- But no feedback thus no enhancements
- Since the effort funded by DAASI already exceeded any tolerable border, funding for next steps is needed

Ways to go forward

1. Do some little tweaks, include some more LDAP schema and leave it as it is (best DAASI effort service, no policy in place)
2. Find some people interested in LDAP Schema for the technical board that decides about schema inclusion:
 - Basically a mailing list.
 - TF EMC2 seems the best place for this
 - But are the NRNs interested?
 - This could be *the* organized way to discuss schema

New ways to go forward

1. Make a proposal for enhancing the DSR:
 - Include XML DTDs/Schema/Relax specifications
 - Include a VO/Federation registry where pointers to the schema used by the VO/Fed can be set
 - Is the Grid community interested?
2. Do something better
 - Design and implement a schema registry based on a schema meta language (UML/CIM/EML)
 - With (automatic) representations in LDAP, XML, ...
 - It seems Internet2 is interested in this



Thank you for your attention

Questions?

- Project documentation and pilot service at:
 - <http://www.SchemaReg.org>
 - Info@daasi.de

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