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Interoperability
in
The NSDL

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How Big might the NSDL be?

The NSDL aims to be comprehensive -- all branches of science, all levels of education, very broadly defined.

Five year targets:

1,000,000	different users
10,000,000	digital objects
1,000	independent sites

Requires: **low-cost, scalable, technology**
automated collection building and maintenance

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Levels of Interoperability: Federation

Standardization on sophisticated protocols, formats, metadata, authentication, etc.

Examples:

Library catalogs with MARC and Z 39.50
DLESE (NSDL)
smete.org (NSDL)

- High-quality interoperability of services
- High cost of entry to participating sites

Smallish numbers of tightly integrated partners

Has difficulty scaling

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Levels of Interoperability: Metadata Harvesting

Agreements on simple protocol and metadata standard(s)

Example:

Metadata harvesting protocol of
the Open Archives Initiative (MHP)

- Moderate-quality services
- Low cost of entry to participating sites

Moderately large numbers of loosely collaborating sites

Promising but still an emerging approach

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Levels of Interoperability: Gathering

Robots gather collections automatically with no participation from individual sites

Examples:

Web search services (e.g., Google)

CiteSeer (a.k.a. ResearchIndex)

- Restricted but useful services
- Zero cost of entry to gathered sites

Very large numbers of independent sites

Only suitable for open access collections

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Technology Demonstrations

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Technology Demonstrations

1. One Library, Many Portals

- Standard portals provided by NSDL
- Users can configure their own portals using ***Tuner*** application (not yet implemented)
- Users can save their preferences in database, which are retrieved on login
- Underlying technology is W3C's Channel architecture

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Technology Demonstrations

2. Coherent Services across Heterogeneous Collections

- Normalized metadata in a central metadata repository
- NSDL-wide services will include searching, browsing, reference linking, annotation, etc.
- Distinctive features of collections preserved

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Technology Demonstrations

3. Easy Integration of Participating Collections

- Dublin Core, IMS, FGDC, etc.
- XML mark-up with simple RDF
- Metadata can be harvested (MHP), gathered, or obtained from a federation
- Collections can be presented in a channel using W3C's Rich Site Summary (RSS)

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Technology Demonstrations

4. Variable Levels for Integrating Collections

- Collection-level metadata
- Separate widows for independent collections

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Technology Demonstrations

5. Tools to Create New Collections

- Automatic creation of metadata records, with optional editing
- Collections recommended by users
- Focused web crawling (unimplemented)

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