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Implementing OAI Data and Service Providers

Our instutute has implemented (on the basis of sources by the HU Berlin) an OAI data provider for the collections of PhysDoc, a heterogenous repository of physics documents around the world. I will talk about specific problems of heterogenous collections and present our way to cope with these.

We are currently developing a subject specific (physics) OAI Service Provider, which will not only collect data from other data providers but will search through other metadata collections which are not otherwise publically available. There I will present present
this service provider and explain our way implement this service.

OAI for Archives without Structured Data

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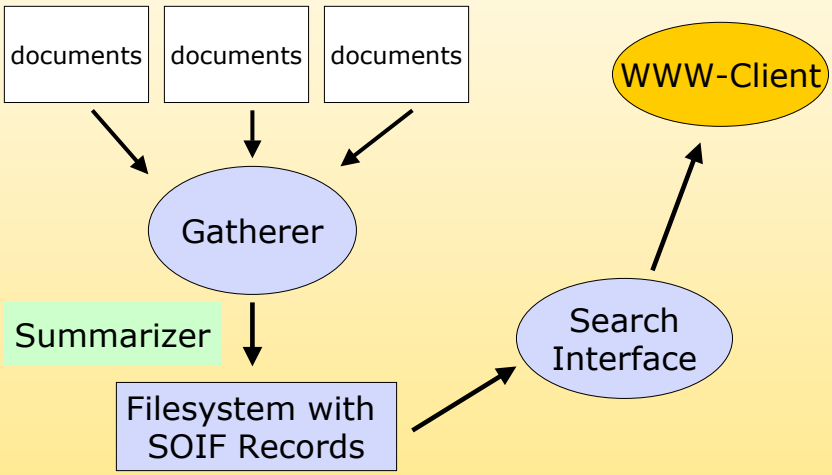
Overview

- Without databases it will not work…
- Short introduction to PhysDoc
- *Harvest* Gatherer
- PhysDoc as OAI Data-Provider

PhysDoc

- PhysDoc itself is a distributed document database, which is in service since 1995
- Aims to authors, small institutions and small departments and other small institutions
- *Harvest* Gatherer collects documents from physics servers europe-wide
- 40000 documents

PhysDoc together with Harvest



Dublin Core Extension

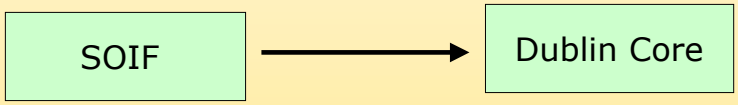
- Extension of the summarizer to Dublin Core
- HTML-pages describe PDF or PostScript documents

```
<META NAME="DC.Title" CONTENT="OAI Talk">
<META NAME="DC.Author"
    CONTENT="H. Stamerjohanns">
```

- DC is embedded in the SOIF format
- search interface is extended accordingly

PhysDoc und OAI

- PhysDoc was supposed to deliver data in an OAI-compliant form
- prinicipal possibility to directly use SOIF-Records, and to create by mapping



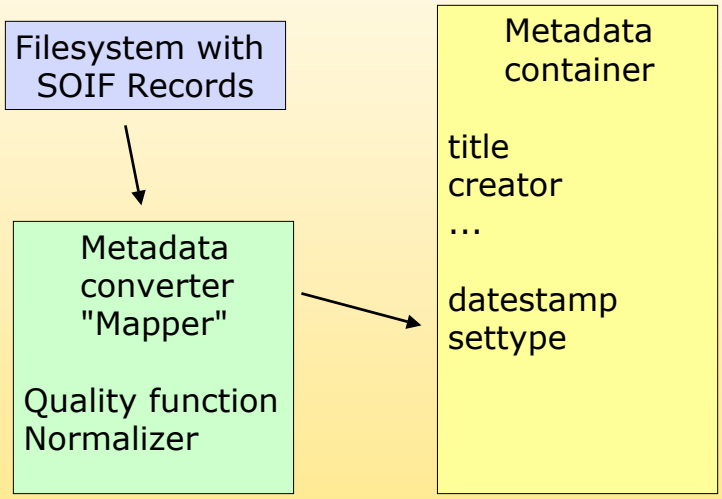
  OAI-compliant responses
- not a useful solution
- bad control of the mapping

Metadata Container

- different approach
- definition of metadata container
- preferably extensive description of the elements (here documents)

- contains Dublin Core elements
- can be easily extended to local requirements

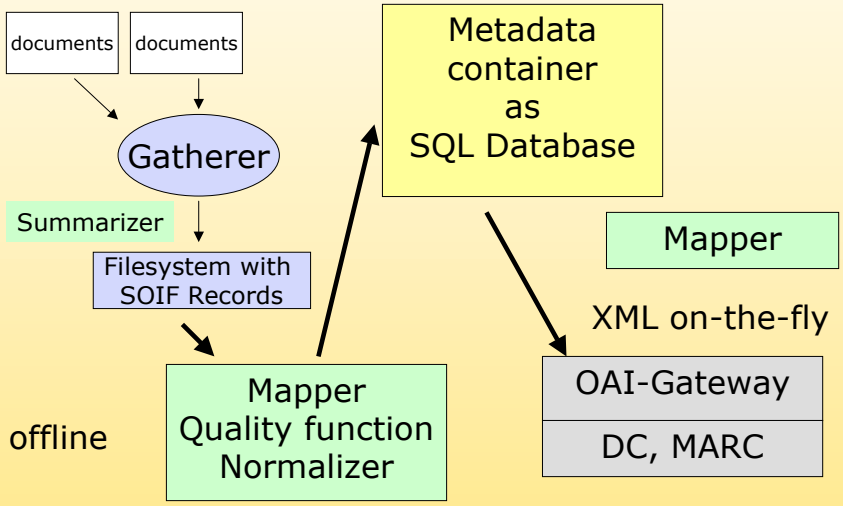
Metadata Container



Metadata Converter

- Data is converted offline
- Normalization
- use DC if possible, otherwise SOIF
  - different representations of single metadata elements in one common format
  - DC.language "GER" → "de"
  - DC.date "1.02.1999" → "1999-02-01"
- simple quality function
- better possibility to check consistency, if data is available in a structured form

PhysDoc together with OAI



PhysDoc together with ???

- Use of metadata container yields many advantages
- consistency check of data
- quality assurance
- static HTML export
  - any desired export format besides DC/OAI possible

  →is prepared for any other exchange protocols than OAI

Summary

- Authors deposit their pages on their own WWW-server ("self-archiving")
- may enrich these (hopefully) with DC
- *Harvest* collects metadata
- Metadata are normalized offline and stored in SQL-database in metadata container
  - local development in PHP
  - mySQL database, check XML-database
  - OAI-Gateway queries database and delivers OAI-compliant output (XML on-the-fly)
  - modified version of PHP-scripts of HU Berlin

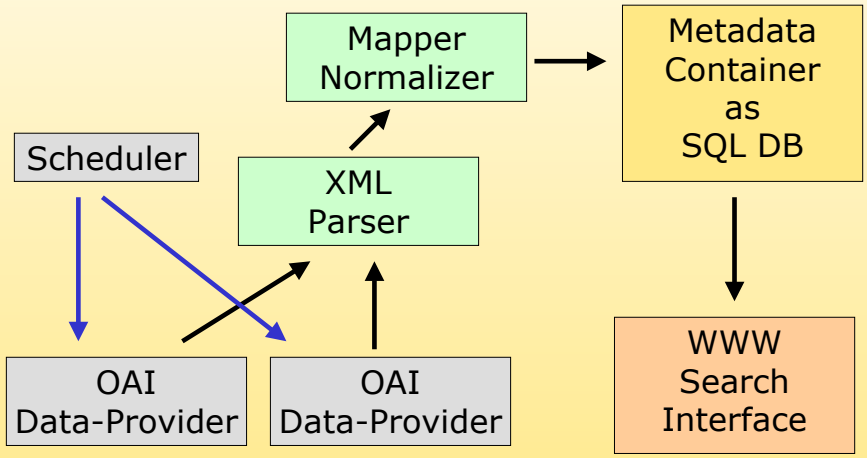
PhysDoc Service-Provider

- short clarification of terms
- OAI is not a protocol for the end user
- OAI **data-provider** runs web server, which provides its metadata by OAI-protocol
- OAI **service-provider** queries by OAI-protocol other data-provider and uses the collected metadata to provide extended services (e.g. a query)

PhysDoc as Service-Provider

- PhysDoc wants to provide OAI Services to the physics community
- includes freely accessible documents (e.g. arXiv) as well as metadata (and only metadata) of commercial providers
- local development in PHP
- successful test on own data-provider
- as well as the OAI-interface of arXiv
- other providers are included with proprietary interfaces (IOP)

PhysDoc as Service-Provider



Technical Details

- local development
- all written in PHP4
- scheduler is based on database
- *expat* library is used as XML-Parser for OAI and proprietary interfaces
- database is again mySQL
  - with "tricks"
  - full text extensions
- XML database should be checked

Technical Details

- successful implementation by testing on the local data-provider
- Added another data-provider within five minutes
- but yet problems
  - vagueness in protocol definition
  - 503 flow control…
  - bad choice, because it depends on layout
- normalization is again necessary (might raise further technical, textual and legal problems)

Thank You

- OAI at the Institute for Science Networking, Oldenburg:
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