

FAIR Data Point (FDP) Metadata Service

Python-based implementation
(prototype)

Arnold Kuzniar
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Installation & Deployment

- Python 2.7.*

```
git clone https://github.com/DTL-FAIRData/ODEX-FAIRDataPoint.git
```

```
pip install -r requirements.txt
```

```
python -m bottle -b fdp.biotools.nl:8080 fdp
```

- OSes

- OS X 10.11.2

- VM: Ubuntu 14.04 LTS



HPC Cloud

FDP Back-end

- Bottle: Python micro web-framework
 - build web apps with REST APIs
 - pluggable WSGI capable HTTP servers
- fdp.py (web app)
 - v0.1: metadata served in static files *.ttl
 - v0.3: metadata provided in dict() → serialize triples (rdflib)
 - content negotiation (HTTP Accept): rdf/xml, turtle, n3, json-ld
- metadata.py (module)
 - generic FAIRGraph class for metadata
 - three methods to set FDP/catalog/dataset-level metadata

Swagger UI: REST API

The screenshot displays the Swagger UI for the FAIR Data Point Service. At the top, there is a green header with the Swagger logo, the API URL `http://fdp.biotoools.nl:8080/doc/swagger.json`, an API key field containing `api_key`, and an `Explore` button. Below the header, the service title **FAIR Data Point Service** is shown, followed by a description: "Provides metadata about the FAIR Data Point (FDP) itself, data catalogs and data sets available via the FDP." Further down, it mentions "Created by Netherlands eScience Center" and provides links to <https://www.esciencecenter.nl>, [Contact the developer](#), and [Apache 2.0](#). A section titled **default** contains a table of endpoints. To the right of this section are links for `Show/Hide`, `List Operations`, and `Expand Operations`. At the bottom left, it shows `[BASE URL: / , API VERSION: 0.2]`, and at the bottom right, there is a `VALID` button and a `{...}` icon.

Method	Path	Description
GET	<code>/fdp</code>	FDP metadata
GET	<code>/catalog/{catalogID}</code>	Catalog metadata
GET	<code>/dataset/{datasetID}</code>	Data set metadata

Note: path redirects: `/`, `/doc`, `/doc/` → documentation

From FDP to BreeDB (WUR-PB)

About: <http://fdp.biotoools.nl:8080/fdp> [Goto](#) [Sponge](#) [NotDistinct](#) [Permalink](#)
An Entity of Type : [dct:Agent](#), within Data Space : [virtuoso.biotoools.nl:8888](#) associated with source [document\(s\)](#)

Type: Command:

Attributes	Values
rdf:type	dct:Agent
rdfs:label	FAIR Data Point of the Plant Breeding Group, Wageningen UR
rdfs:seeAlso	http://fdp.biotoools.nl:8080/doc http://fdp.biotoools.nl:8080/catalog/catalog-01
dct:description	This FDP provides metadata on plant-specific genotype/phenotype data sets.
dct:title	FAIR Data Point of the Plant Breeding Group, Wageningen UR
dct:language	http://id.loc.gov/vocabulary/iso639-1/en
dct:identifier	FDP-WUR-PB
is http://vocab.deri.ie/void#inDataset of	http://virtuoso.biotoools.nl:8888/about/id/http/fdp.biotoools.nl:8080/fdp

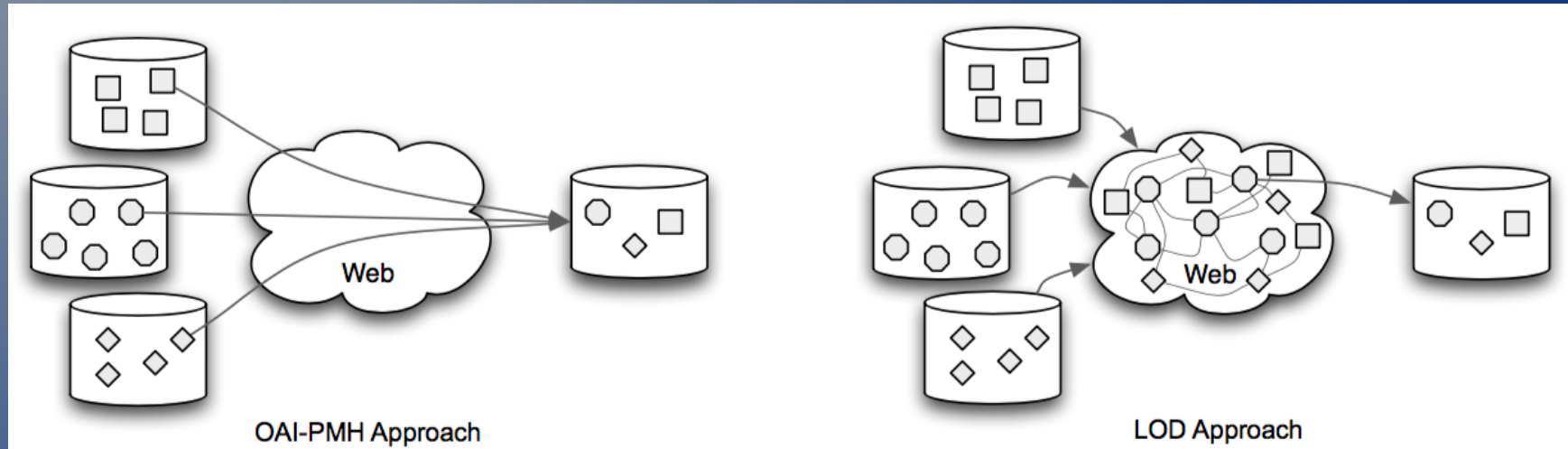
Note: metadata harvested by Virtuoso Universal Server

Open Archives Initiative Protocol

- widely used for exchanging bibliographic metadata and repository interoperability (Lagoze and van de Sompel, 2002)
- OAI-PMH compliant systems: EPrints, Fedora, Dspace, Invenio, B2FIND (EUDAT), PMC etc.
- Two roles: Data providers and Service providers (harvested metadata)
- Web technologies used: HTTP, XML and URIs
- MUST support Dublin Core metadata and MAY support others (e.g. DCAT)
- Main concepts: Item, Set, Record and MetadataFormat
- OAI-PMH requests = six verbs ! not resource oriented as REST !

```
GET /cgi-bin/oai2_0?verb=GetRecords&metadataPrefix=oai_dc&
identifier=oai:lcoal.loc.gov:loc.gdc/gcfr.0101 HTTP /1.1
```

OAI-PMH vs. LOD



Transport layer for items

Items part of Web

(Haslhofer and Schandl, 2010)

OAI2LOD Server (wrapper)