DataConservancy

The
Data Conservancy

April 5, 2012

Data Conservancy Objectives

The Data Conservancy is a community that develops solutions for data preservation and sharing to promote cross-disciplinary re-use:

- Preserve – collect and take care of research data
- Share – reveal data's potential and possibilities
- Discover – promote re-use and new combinations

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Data Conservancy Partners

JOHNS HOPKINS
UNIVERSITY

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

NSIDC

MBL

Cornell University

SEAD

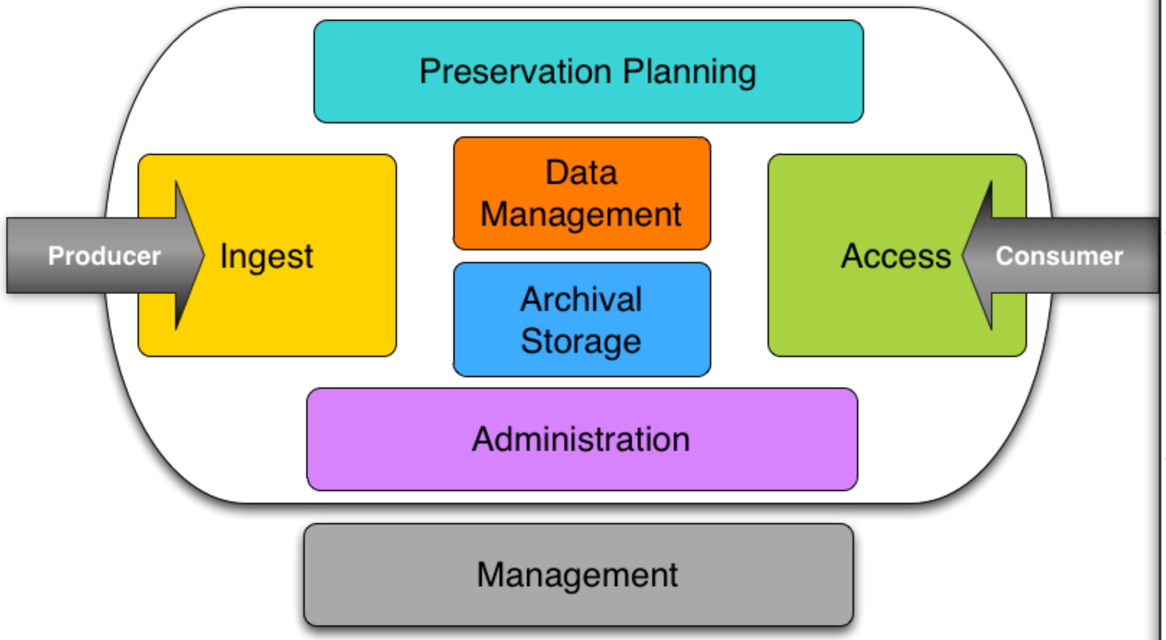
NCAR
NATIONAL CENTER FOR ATMOSPHERIC RESEARCH

ESIP

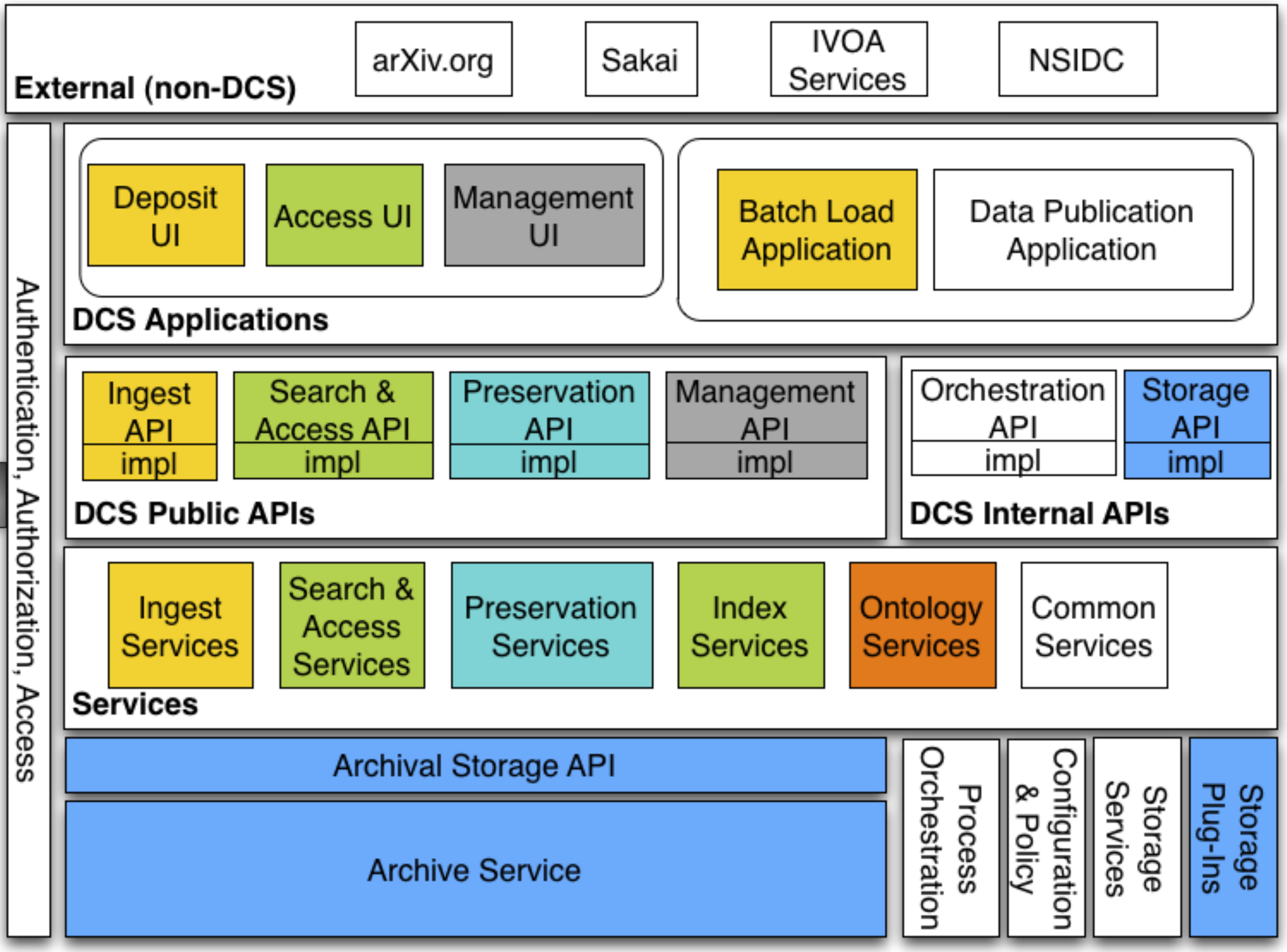
UCLA

Tessella
Technology & Consulting

Architecture mapped to OAIS



Open Archival Information System
Functional Entities



Data Conservancy Service
Architecture Block Diagram

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Service Oriented Architecture

- Well-defined APIs
  - Public HTTP-based APIs
  - Internal Java APIs
- Loosely coupled
  - Minimal dependencies between system components
- Principle adhered to throughout the Data Conservancy, not just at the Service layer
- Facilitates interoperability
- Promotes sustainability
  - (e.g. update the archival storage module to leverage more cost-effective storage)
- Allows independent evolution and extension of Data Conservancy modules

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Some Definitions

Curation – adding value to foster re-use and unanticipated use (e.g., feature extraction, query framework)

Preservation – policy and actions to ensure long-term (perhaps as short as 5 years) access and sharing (e.g., metadata, format migration)

Archiving – actions to support long-term data protection (e.g., storage, backup, media migration, fixity)

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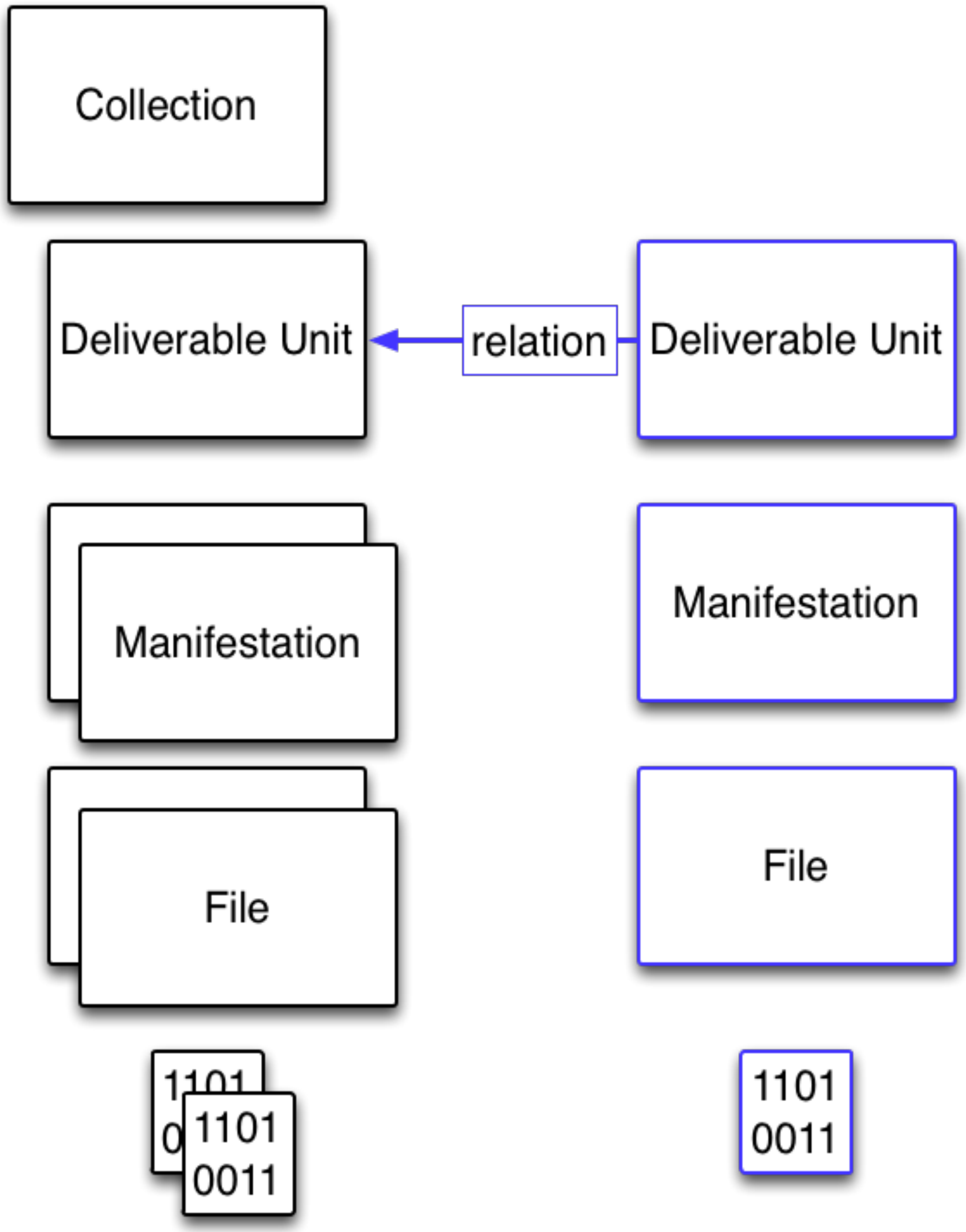
Data Model

- Multiple Data Models
- Content models for describing the contents of a Manifestation
- General Model used to correlate model entities across heterogeneous datasets
  - geo-reference, time of observation, etc…



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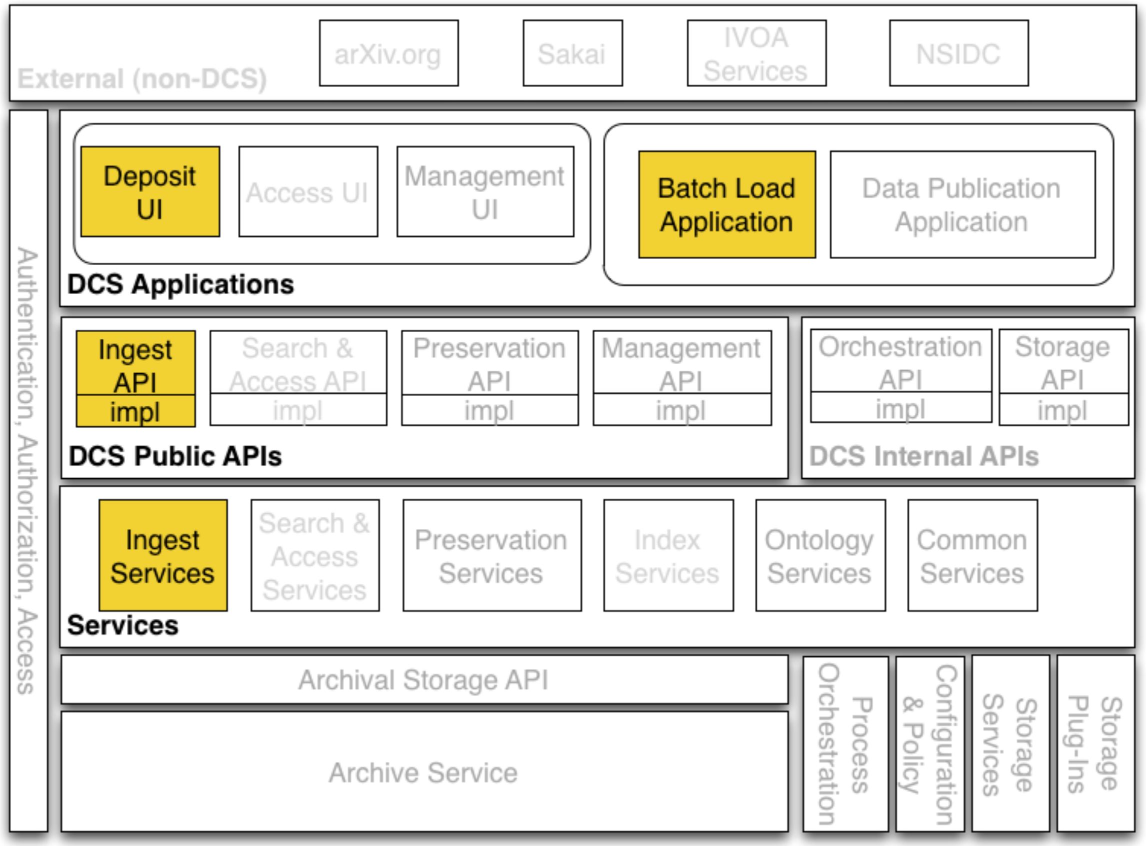
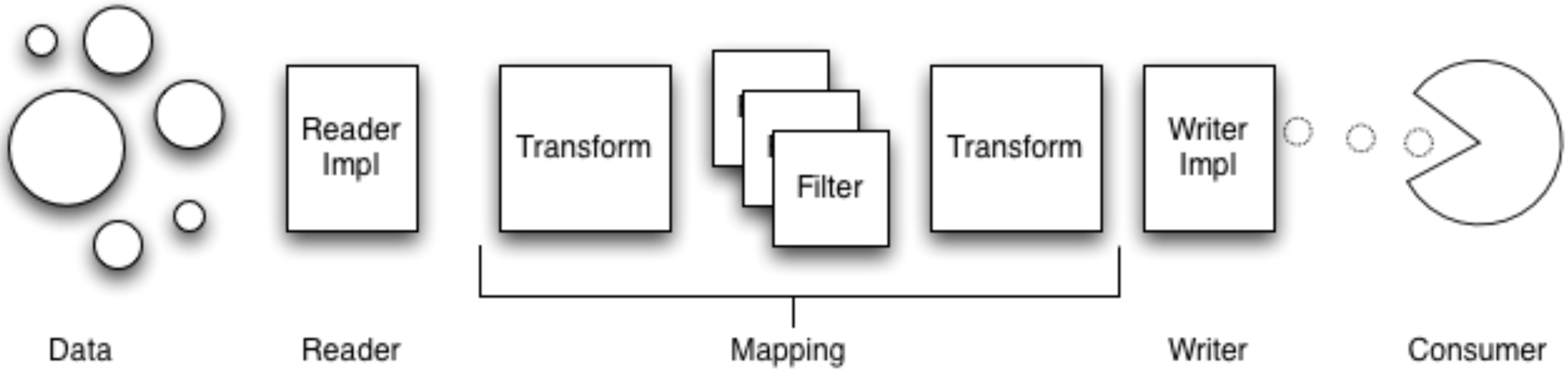
Feature Extraction Framework

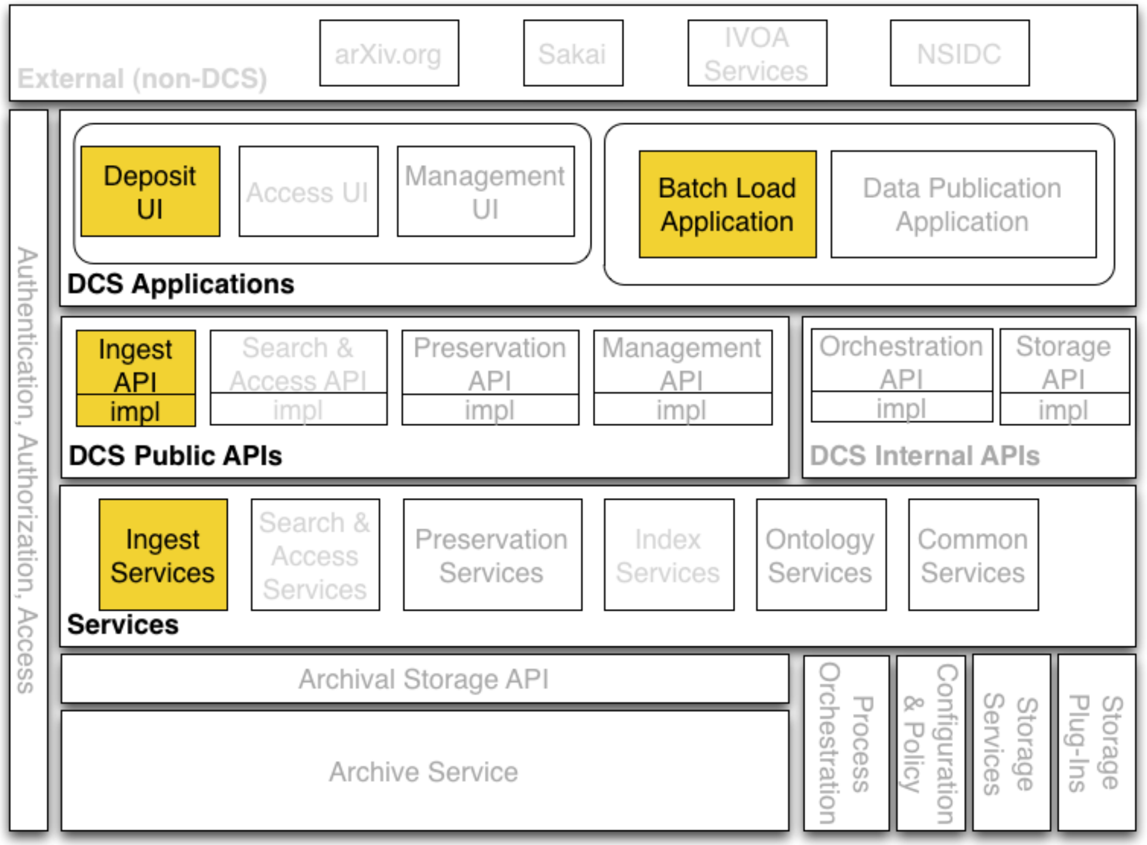
- Must accommodate a variety of data formats
- No assumption made regarding the form of data input or output
- Not coupled to a specific execution model





Feature Extraction Framework

- Subsetting
  - Returning a portion of a dataset
- Indexing
  - Output suitable for indexing by the Query Framework
- Workflows
  - Process Orchestration, Meandre, Taverna, Kepler
- Execution environment for analysis
  - Stateless Mappings basis for MapReduce



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Status

- First version of the software to be publicly released in August
- Probably quarterly releases there after
- arXiv.org and NSIDC pilots operational for more than 1 year
- JHU Data Management Services
- SEAD collaboration
- NSIDC/CU instance

Powered by the Data Conservancy

- JHU Data Management Service (DMS) represents the culmination of two years of research, design, development and implementation of Data Conservancy
- Service launched in July 2011
- DC instance launched in October 2011
- Important, essential foundations in place
- There remains work to be done so join the community!

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Citation in the Data Conservancy

- Citable locator technology agnostic design
  - However DOI's through EZID will be the first locators supported
- All collections will have a citation, but two use cases have been identified
  - User enters a citation
  - Citation auto-generated based on entered metadata

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Acknowledgements and Resources

- NSF Award OCI-0830976
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- Johns Hopkins University financial support

- http://dataconservancy.org
- http://dmp.data.jhu.edu

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