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SIMILE Demo

Objectives, Status and Future Plans

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Objectives

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SIMILE Goals

- Make semantic interoperability of metadata a reality for digital libraries by:
  - providing reusable software for browsing, searching and mapping heterogenous metadata
  - using semantic web technologies
  - identifying issues, gaps and best practices

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SIMILE Vision

- tools should help humans focus on their abilities, amplifying, not replacing them!
- metadata quality is a function of heterogeneity
- serendipitous discovery is a value that should not get lost
- empower recombinant metadata

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SIMILE Participants

- MIT Libraries (MacKenzie Smith)
- MIT CSAIL (David Karger)
- HP Labs (Mick Bass)
- W3C (Eric Miller)

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Status

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Longwell

- faceted metadata browser
  - aimed at end users
  - goal is to show max functionality with min complexity (maximize usability)

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Knowle

- RDF browser
  - aimed at semantic web specialists
  - goal is to enable simple browsing of complex models

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Datasets

- ARTStor: works of art
- MIT OpenCourseWare: MIT courses that discuss visual images
- Wikipedia: bibliographic background on artists
- CIA World Fact Book (in progress): geographic information

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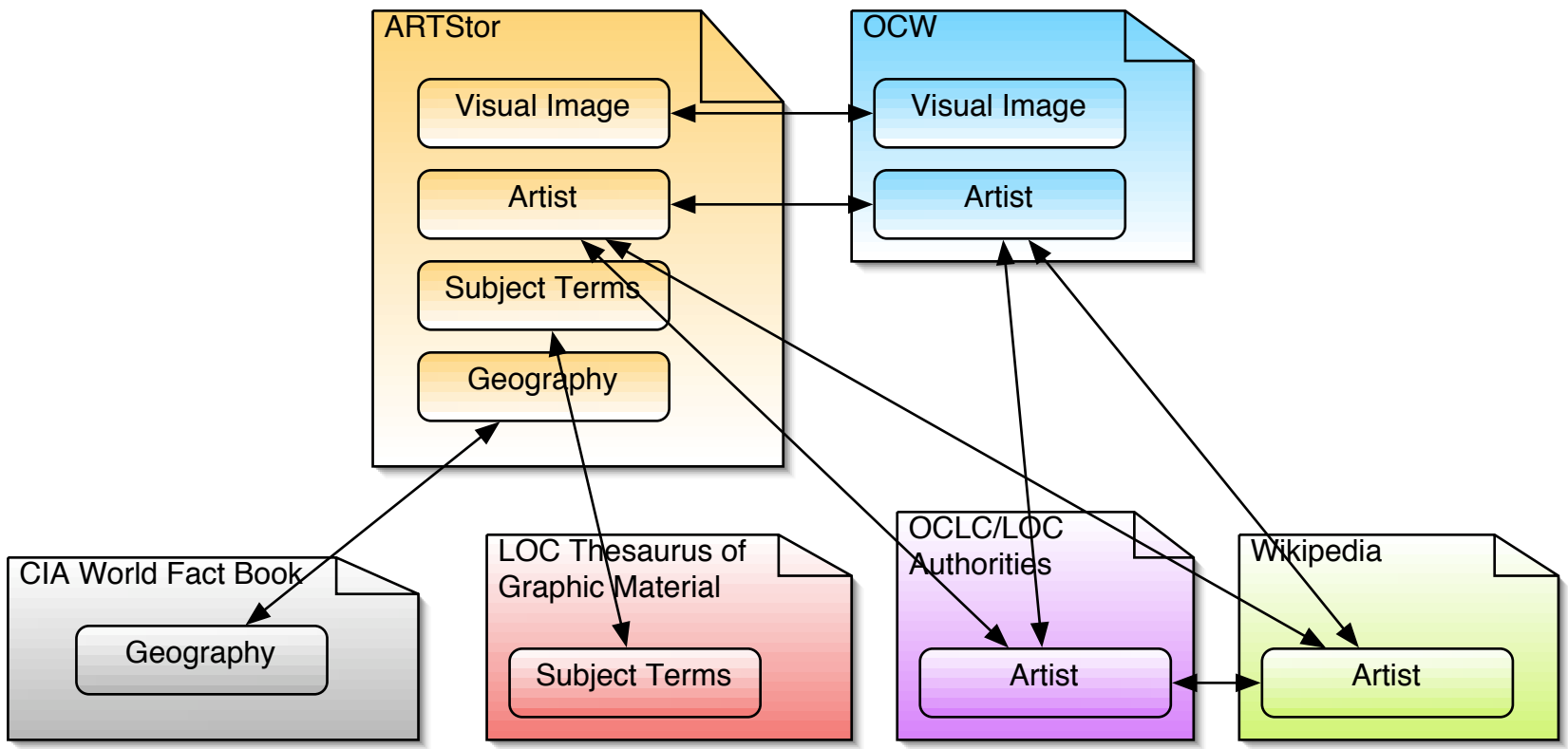
Datasets Map



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Schemata

- Dublin Core
- VRA
- LOM
- SKOS
- SKOS extension
- SIMILE's own glue ones

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ARTStor Example

```
@prefix vra:    <http://web.mit.edu/simile/www/2003/10/vraCore3#> .
@prefix art:    <http://web.mit.edu/simile/www/2003/10/artstor#> .
@prefix vc:     <http://www.w3.org/2001/vcard-rdf/3.0#> .
@prefix person: <http://web.mit.edu/simile/www/2003/10/person#> .
@prefix dc:     <http://purl.org/dc/elements/1.1/> .
@prefix rdfs:   <http://www.w3.org/2000/01/rdf-schema#> .
@prefix rdf:    <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix :       <#> .

[...]

art:ControlledTerm
  a rdfs:Class ;
  rdfs:label "Controlled Term"@en .

art:Collection
  rdfs:subClassOf art:ControlledTerm ;
  rdfs:label "An element from the controlled list of
collections"@en .
```

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MIT OpenCourseWare

```
@prefix rdfs:   <http://www.w3.org/2000/01/rdf-schema#> .
@prefix rdf:    <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix lomEdu: <http://www.imsproject.org/rdf/
imsmd_educationalv1p2#> .
@prefix ocw:    <http://web.mit.edu/simile/www/2004/01/ocw#> .
@prefix dc:     <http://purl.org/dc/elements/1.1/> .
@prefix dcq:    <http://dublincore.org/2000/03/13/dcq#> .
@prefix :       <#> .

[...]

ocw:Lecture
  rdfs:subClassOf lomEdu:LearningResourceType ;
  rdfs:label "Lecture"@en .

ocw:Bibliography
  rdfs:subClassOf lomEdu:LearningResourceType ;
  rdfs:label "Bibliography"@en .
```

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OWL Mappings

Using String Distance Metrics (Levenshtein)

```
<http://web.mit.edu/simile/www/metadata/ocw/
Contributor#picasso,_pablo,1881-1973>
  rdf:type disp:PreferredTerm ;
  owl:sameAs <http://web.mit.edu/simile/www/metadata/artstor/
Subject#picasso,_pablo,1881-1973> ;
  .

<http://web.mit.edu/simile/www/metadata/artstor/
site#1new_york,_metropolitan_museum_of_art>
  rdf:type disp:PreferredTerm ;
  owl:sameAs <http://web.mit.edu/simile/www/metadata/artstor/
site#new_york,_metropolitan_museum_of_art> ;
```

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Achieved Results

- Usable implementation of both Longwell and Knowle as web-based general purpose RDF browsers
- Passed the 0.5 Megatriples wall (100k original, 400k inferred)
- Successful use of XSLT2 as XML->RDF bridge
- Use of the Levenshtein distance on literals to evaluate potential mappings between datasets

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Demo

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Here we go!

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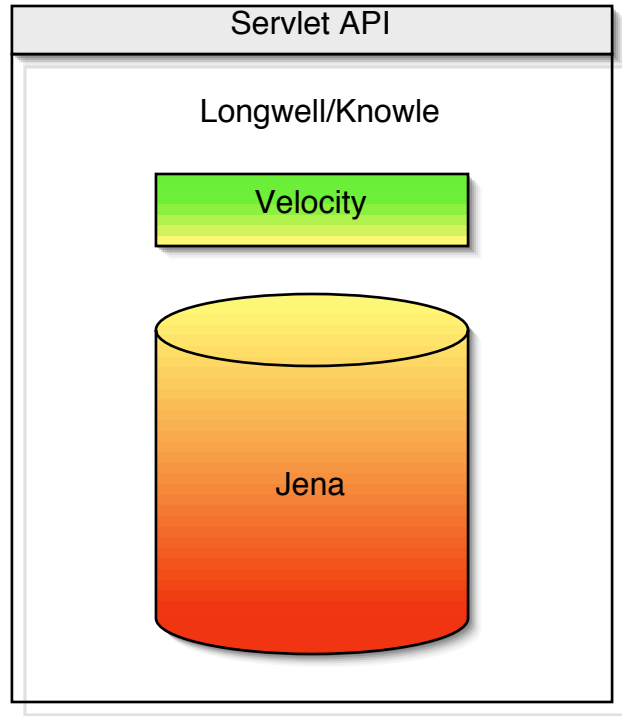
Current Architecture



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Open Source!
Available Today!

http://simile.mit.edu/longwell/

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Open Questions

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Scalability

- How more complex can the model grow before saturating our computational capacity?
- How can we design a distributed architecture and still be fast enough to be useable?

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Connectivity

- How can we increase the connectivity when merging models with reasonable costs and without compromising perceived metadata quality?

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Provenance

- How should provenance influence the reasoning on aggregated models?

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Evolution

- How can we deal with the evolution of models and their impact on previous inferenced interpretations?
- Can time be another provenance or we need a different dimension?

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Disagreement

- How well can the semantic web model cope with disagreement?
- How do we distinguish disagreement from mistakes?

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Thanks!

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Q&A