

bit.ly/Islandora17LODWkshop

Working with Linked Data & Ontologies

IslandoraCon 2017 Workshop

bit.ly/Islandora17LODWkshop

Your Workshop Facilitators

**Nick Ruest (York
University)**

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(Stanford Library)**

bit.ly/IslandoraI7LODWkshop

Link to Slides, Notes, & Other Ways to Get/Stay in
Touch

Also try IslandoraCon Twitter feed #islandoracon
or #islandora IRC channel on freenode
(i.e. rely on your community!)

Our Expectations of You

- Follow the IslandoraCon Code of Conduct
- Follow the Recurse Center Social Rules (a.k.a. "Hacker School Rules")
- Be ready to take part!

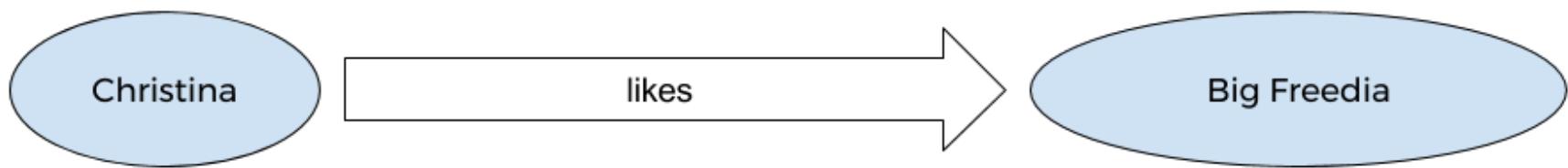
Resource Description Framework

The Resource Description Framework (RDF) is used to describe arbitrary things. RDF is based on the concept of triples. It is an abstract model for which several notations exist.

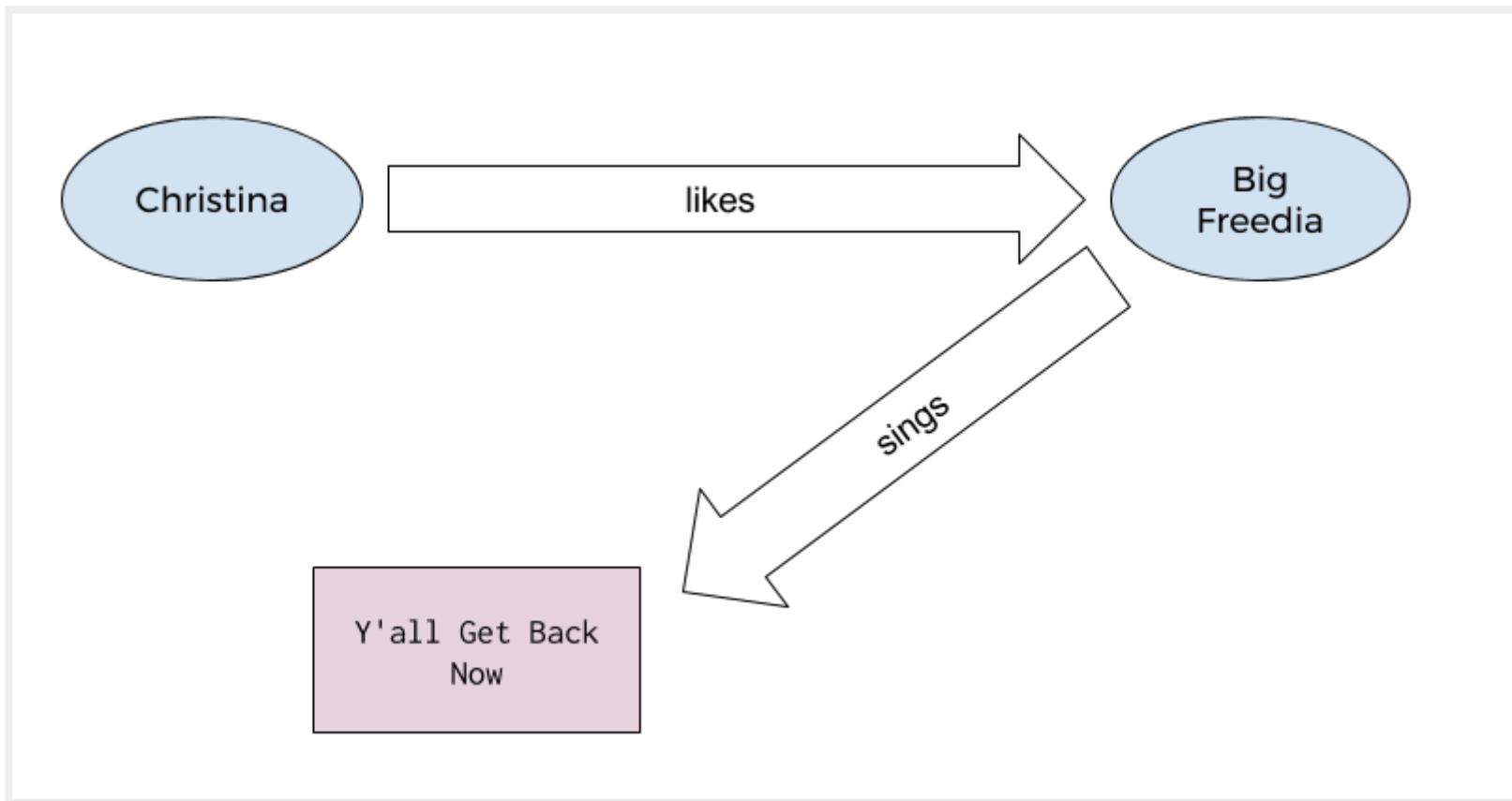
Resource Description Framework Origin

RDF is a W3C Recommendation (now, a suite of them) that originated to manage publishing & integrating metadata on the Web.

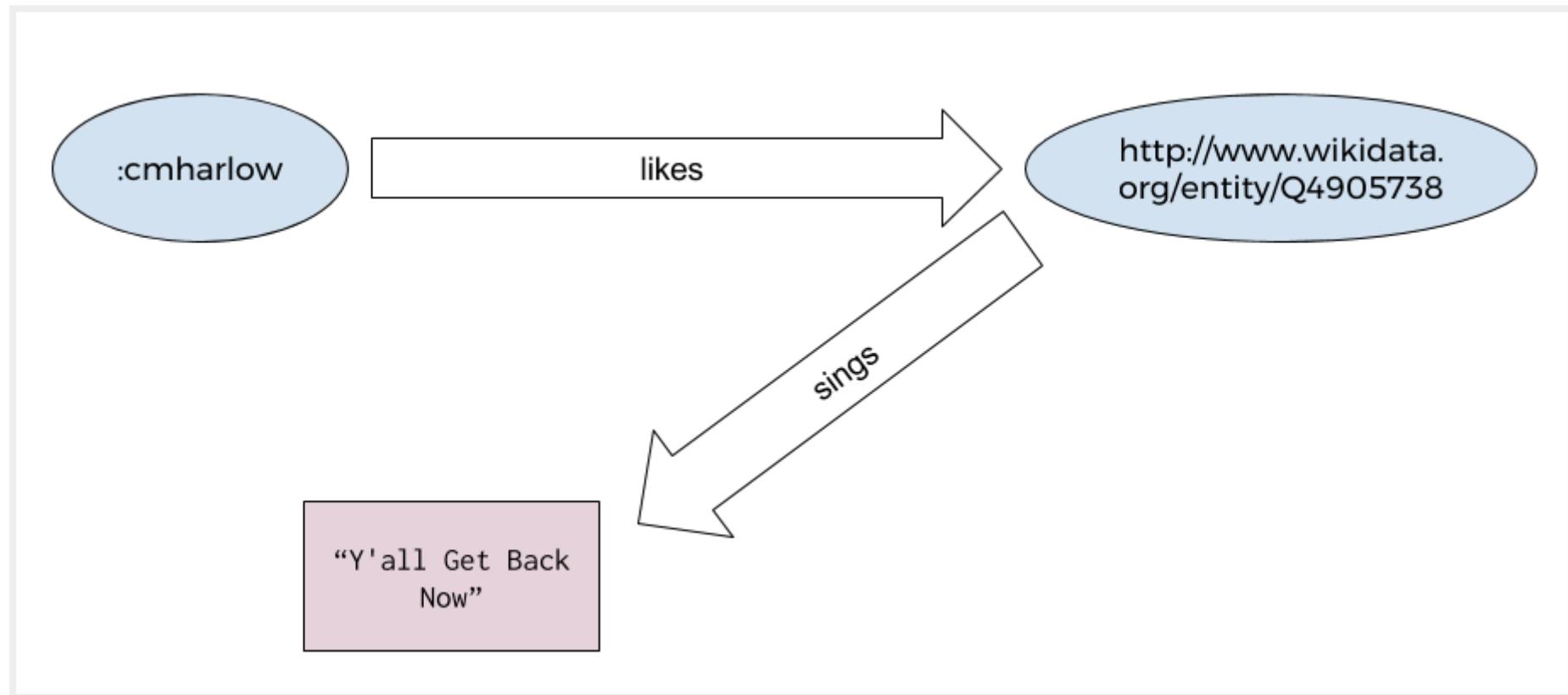
... i.e. Triples / RDF Statements



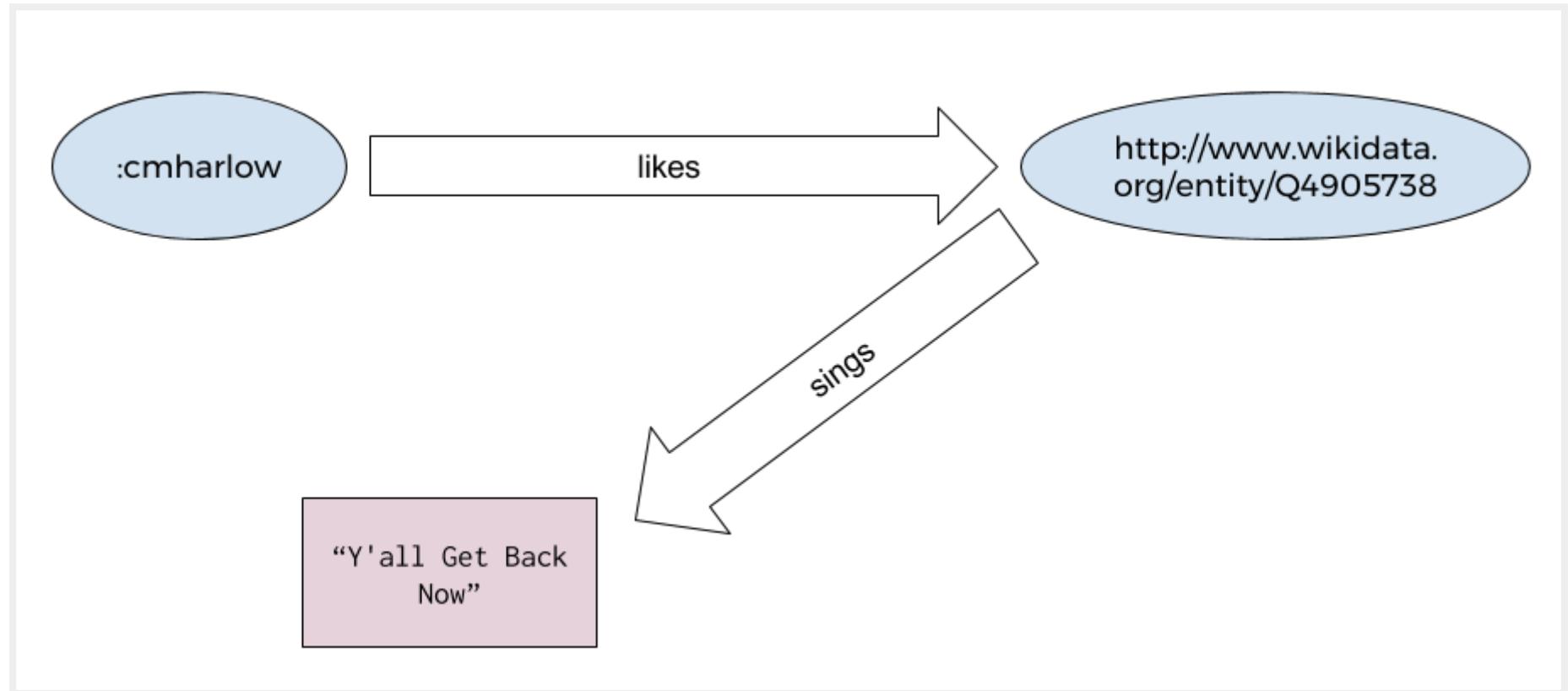
Entities to URIs



Entities to URIs



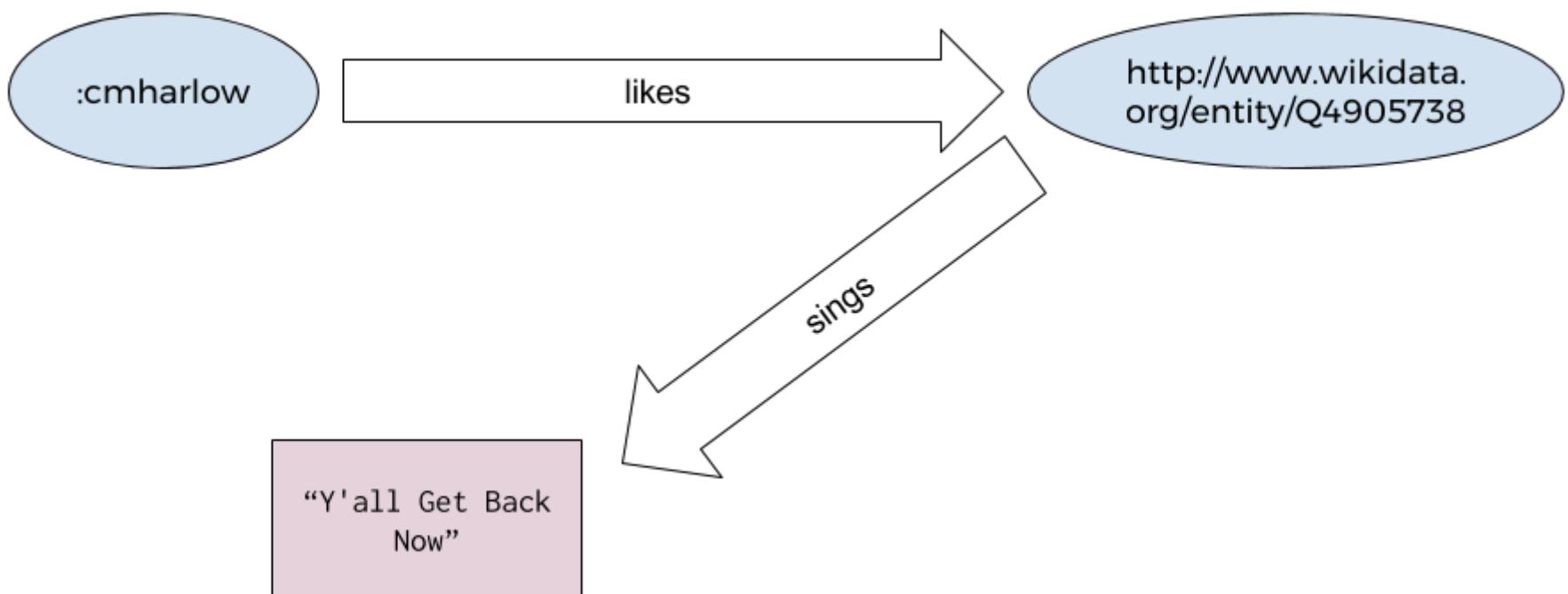
Literal Values



Blank Nodes



RDF Statement Representation



RDF Serializations: Turtle

```
@base <http://example.org/> .  
  
:cmharlow :likes <http://www.wikidata.org/entity/Q4905738> .  
<http://www.wikidata.org/entity/Q4905738> :sings "Y'all Get Back Now" .
```

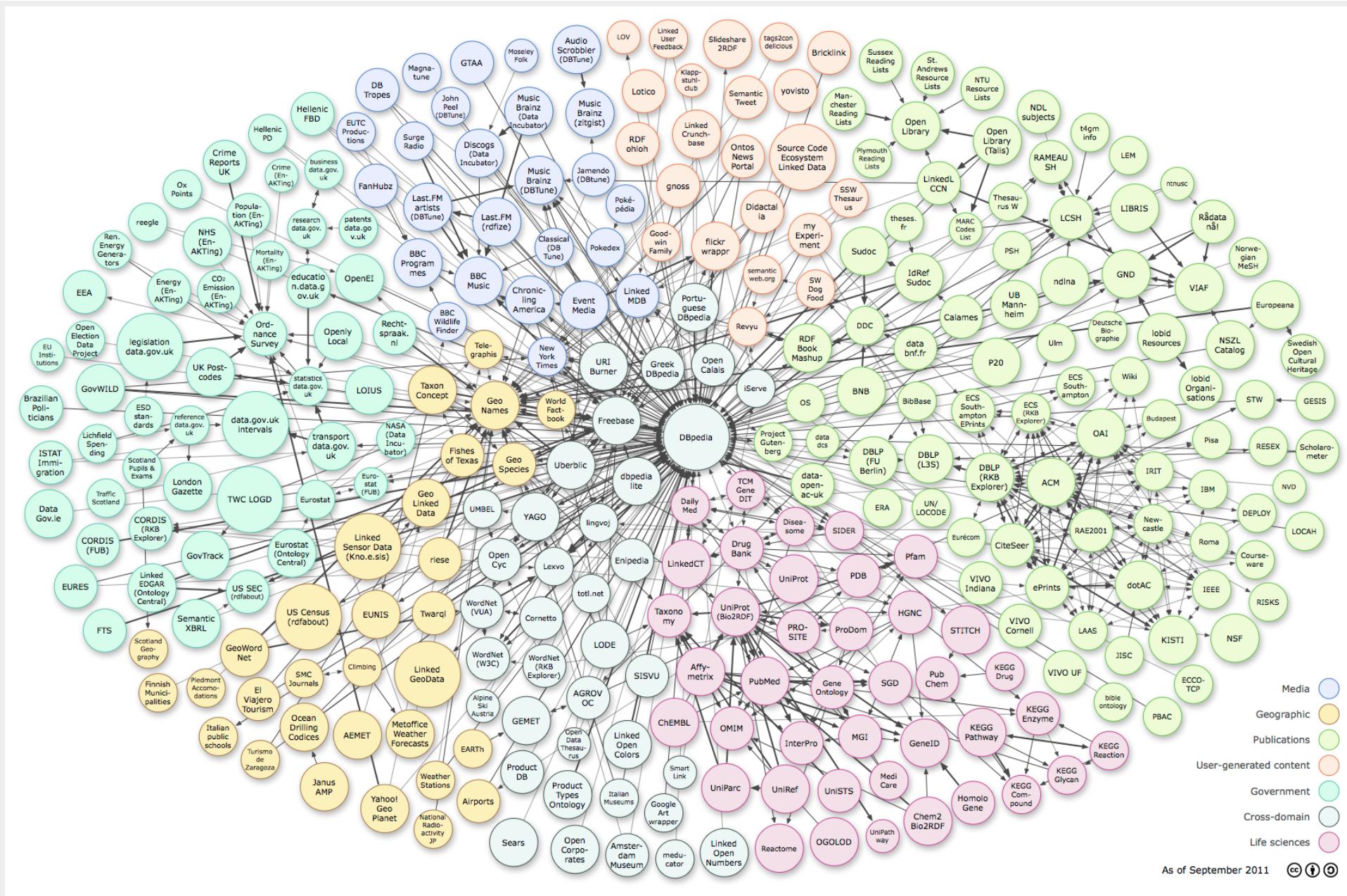
RDF Serializations: RDF/XML

```
<?xml version="1.0" encoding="utf-8" ?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
           xmlns:ns0="http://example.org/">

  <rdf:Description rdf:about="http://example.org/cmharlow">
    <ns0:likes>
      <rdf:Description rdf:about="http://www.wikidata.org/entity/Q4905738">
        <ns0:sings>Y'all Get Back Now</ns0:sings>
      </rdf:Description>
    </ns0:likes>

  </rdf:Description>
</rdf:RDF>
```


Make some simple statements!



As of September 2011 

Linked Data Vocab & Instance Data

- DBpedia, Wikidata
- BNF, BL, BNE, DNB ...
- GeoNames, Getty TGN
- VIAF, Getty ULAN, LCNAF
- See [datahub.io](#) for more ...

Linked Data "Element Sets"

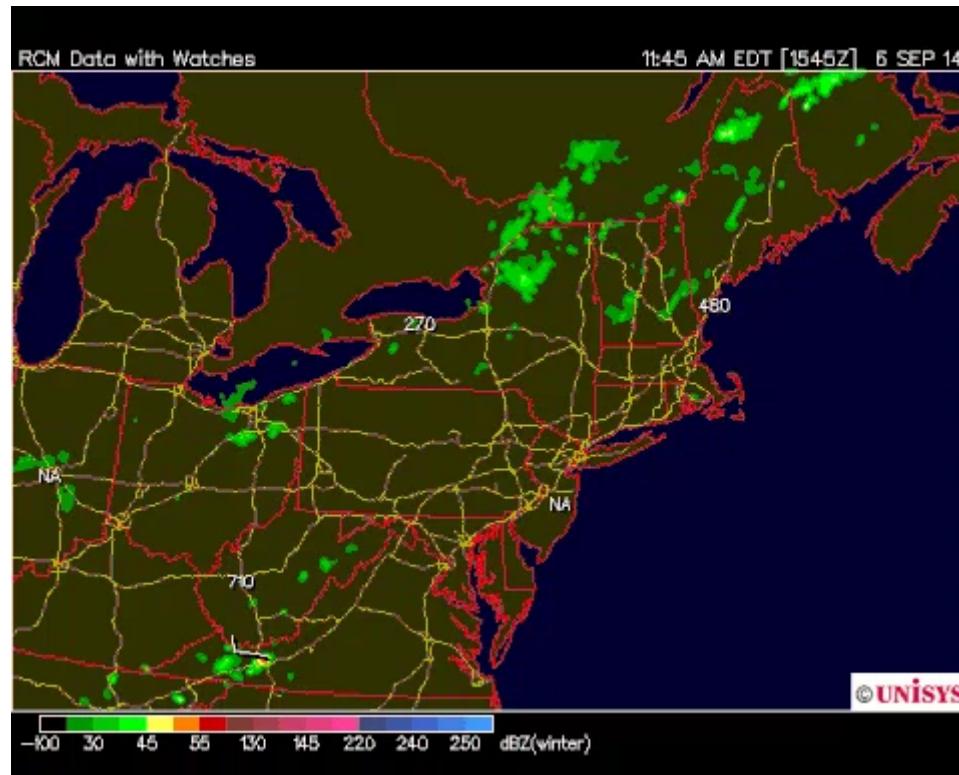
- FOAF (Friend of a Friend)
- vcard (people and organisations)
- schema.org
- geo (to express geo-coordinates)
- Dublin Core
- Simple Knowledge Organisation System (SKOS)
- See [Linked Open Vocab](#) & [prefix.cc](#) for help.

RDF Serializations: Turtle

```
@base <http://example.org/> .  
  
:cmharlow :likes <http://www.wikidata.org/entity/Q4905738> .  
<http://www.wikidata.org/entity/Q4905738> :sings "Y'all Get Back Now" .
```

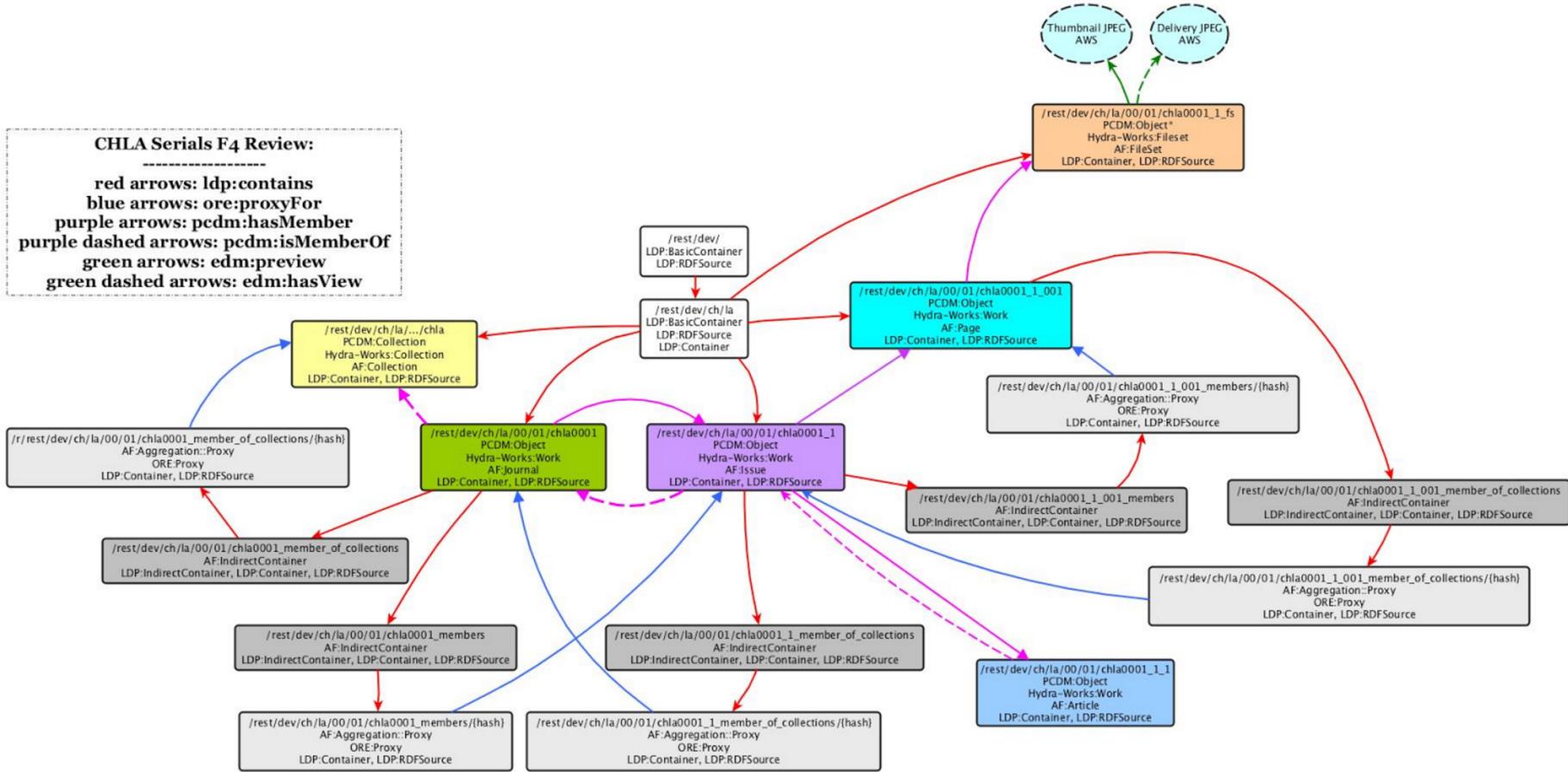

Link your simple statements to the world!

What is a Model?



CHLA Serials F4 Review:

red arrows: ldp:contains
 blue arrows: ore:proxyFor
 purple arrows: pcdm:hasMember
 purple dashed arrows: pcdm:isMemberOf
 green arrows: edm:preview
 green dashed arrows: edm:hasView



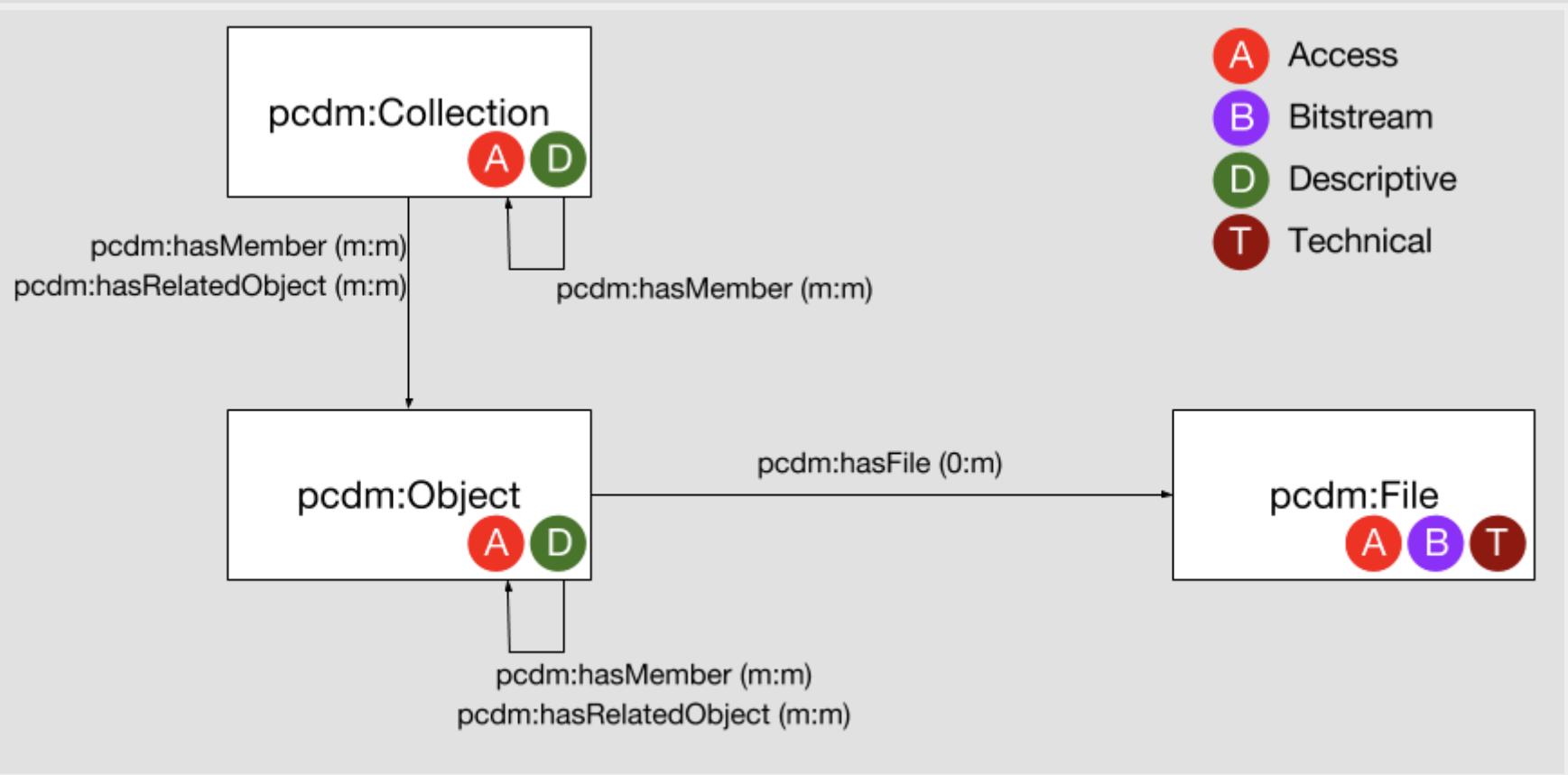
RDF & RDFS

Construct	Syntactic form	Description
<u>Class</u> (a class)	C <code>rdf:type rdfs:Class</code>	C (a resource) is an RDF class
<u>Property</u> (a class)	P <code>rdf:type rdf:Property</code>	P (a resource) is an RDF property
<u>type</u> (a property)	I <code>rdf:type C</code>	I (a resource) is an instance of C (a class)
<u>subClassOf</u> (a property)	C1 <code>rdfs:subClassOf C2</code>	C1 (a class) is a subclass of C2 (a class)
<u>subPropertyOf</u> (a property)	P1 <code>rdfs:subPropertyOf P2</code>	P1 (a property) is a <u>sub-property</u> of P2 (a property)
<u>domain</u> (a property)	P <code>rdfs:domain C</code>	domain of P (a property) is C (a class)
<u>range</u> (a property)	P <code>rdfs:range C</code>	range of P (a property) is C (a class)

SKOS Snippet

```
<rdf:Description rdf:about="#ConceptScheme">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class">
    <rdfs:label xml:lang="en">Concept Scheme</rdfs:label>
    <rdfs:isDefinedBy
      rdf:resource="http://www.w3.org/2004/02/skos/core">
        <skos:definition xml:lang="en">A set of concepts, optionally including statements about semantic relationships between those concepts.</skos:definition>
        <skos:scopeNote xml:lang="en">A concept scheme may be defined to include concepts from different sources.</skos:scopeNote>
        <skos:example xml:lang="en">Thesauri, classification schemes, subject heading lists, taxonomies, 'folksonomies', and other types of controlled vocabulary are all examples of concept schemes
        ...</skos:example>
```

PCDM Core Model



Europeana Data Model (OWL)

Vocabularies Are Perspectives

1. DC Terms (generalisms)
2. FOAF & BIBO (concretizations)
3. SKOS (nominalisms (bridged with foaf:focus))
4. FRBR (ideal forms)
5. PROV (entities, activities, agents; qualified roles)
6. OpenAnnotation (descriptions of descriptions)
7. BibFrame (nominal things)
8. Schema.org (a potpourri of perspectives)

Metadata Application Profiles

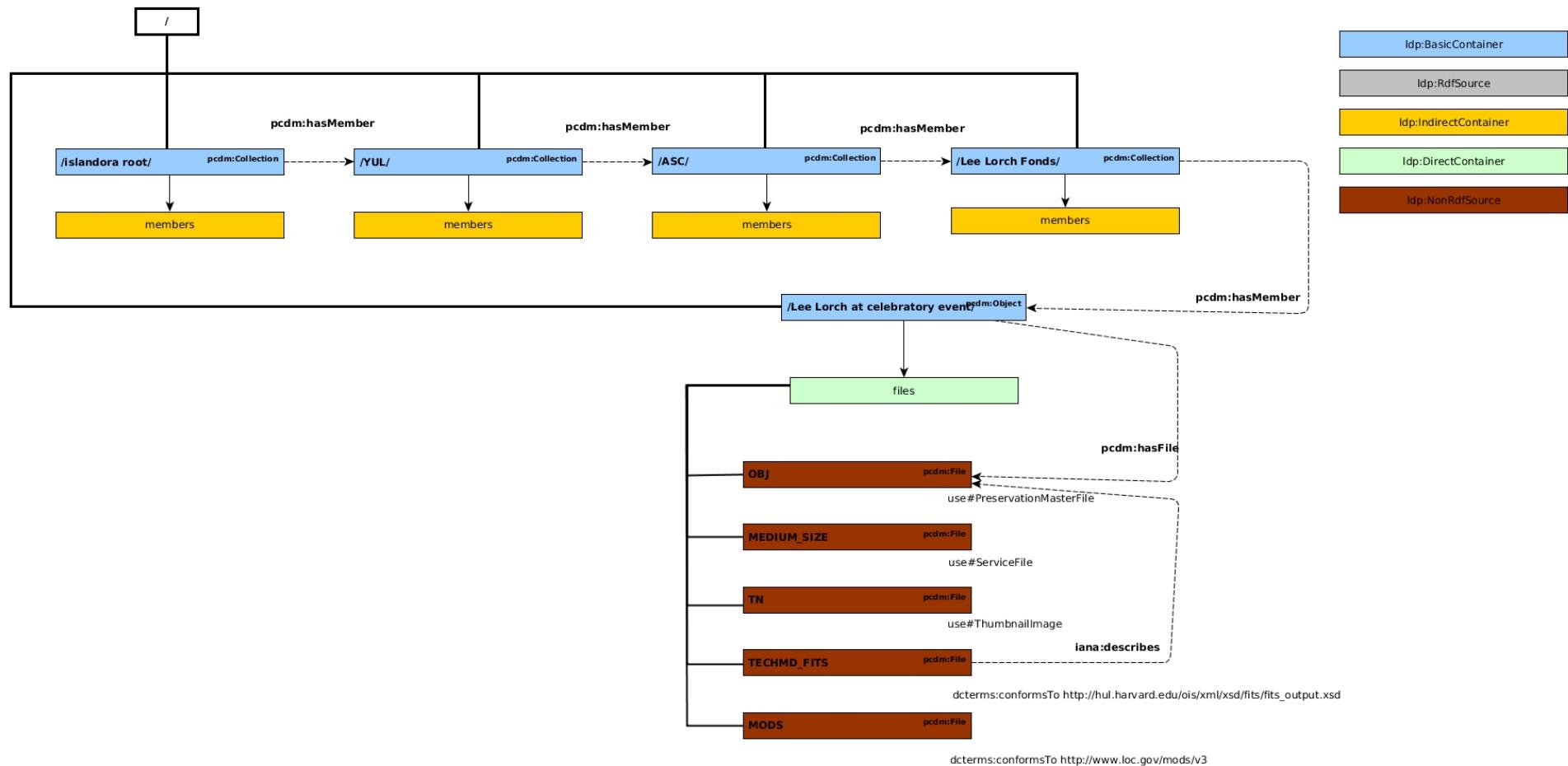
Field Name	AF Model	Subject (can be iterated)	Domain	Predicate	Range	Obligation	"Concept"
Collection Abstract	BasicMetadata	Digital Collection	HydraWorks:Collection	dcterms:abstract	literal	{0,1}	abstract
Collection Date	BasicMetadata	Digital Collection	HydraWorks:Collection	dcterms:date	literal (EDTF)	{0,1}	date
Collection Identifier	models/collection.rb	Digital Collection	HydraWorks:Collection	dcterms:identifier	literal	{1,n}	identifier
Collection Publisher	BasicMetadata	Digital Collection	HydraWorks:Collection	dc:publisher	literal	{0,n}	publisher
Collection Publisher URI	BasicMetadata	Digital Collection	HydraWorks:Collection	dcterms:publisher	URI < dcterms:Agent	{0,n}	publisher_URI
Collection Related URL	models/collection.rb	Digital Collection	HydraWorks:Collection	dcterms:relation	URL	{0,n}	relatedURL
Collection Title	RequiredMetadata	Digital Collection	HydraWorks:Collection	dcterms:title	literal	{1,1}	title
Collection Subject	PROPOSED	Digital Collection	HydraWorks:Collection	dc:subject	literal	{0,n}	subject
Collection Subject URI	PROPOSED	Digital Collection	HydraWorks:Collection	dcterms:subject	URI	{0,n}	subject_URI
Collection Curator	PROPOSED	Digital Collection	HydraWorks:Collection	rdau:P60376	literal for now	{0,n}	curator
Collection	PROPOSED	Digital Collection	HydraWorks:Collection			{0,1}	

Islandora & PCDM

Islandora, LDP, PCDM, and Fedora 4

(Islandora Basic Image Object)

Last Modified: December 14, 2015



Europeana SPARQL

Getty Authorities SPARQL

