DIGITAL BODLEIAN

Delivering IIIF services at the Bodleian Libraries

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This talk

- Intro to IIIF
- Digital Bodleian 1.0
- Digital Bodleian 2.0
- Micro-services(*ish*) architecture
- IIIF Manifest Server (Prezi 2.1 & 3.0 support)
- Digital Preservation + Delivery

51 founding member institutions

70+ implementing members

4Science
Art Institute of Chicago
ARTstor
Art Gallery of Ontario
Bayerische Staatsbibliothek (Bavarian State Library)
La Bibliothèque nationale de France
Biblissima
Boston Public Library
British Library
British Museum

Over

335,000,000

images

IIIF: The Basics

Two Parts:

Image API

and

Presentation API

IIIF: Image API

https://images.simssa.ca/iiif/image/cdn-hsmu-m2149l4/cdn-hsmu-m2149l4_002r.jp2/full/full/0/default.jpg

- Domain / Prefix
- Identifier
- Region
- Size
- Rotation
- Image Type

IIIF: Image API

https://cantus.simssa.ca/iiif/images/srv/images/cantus/cdn-hsmu-m2149l4/cdn-hsmu-m2149l4_002r.jp2/2000,5450,350,250/512,/0/default.jpg

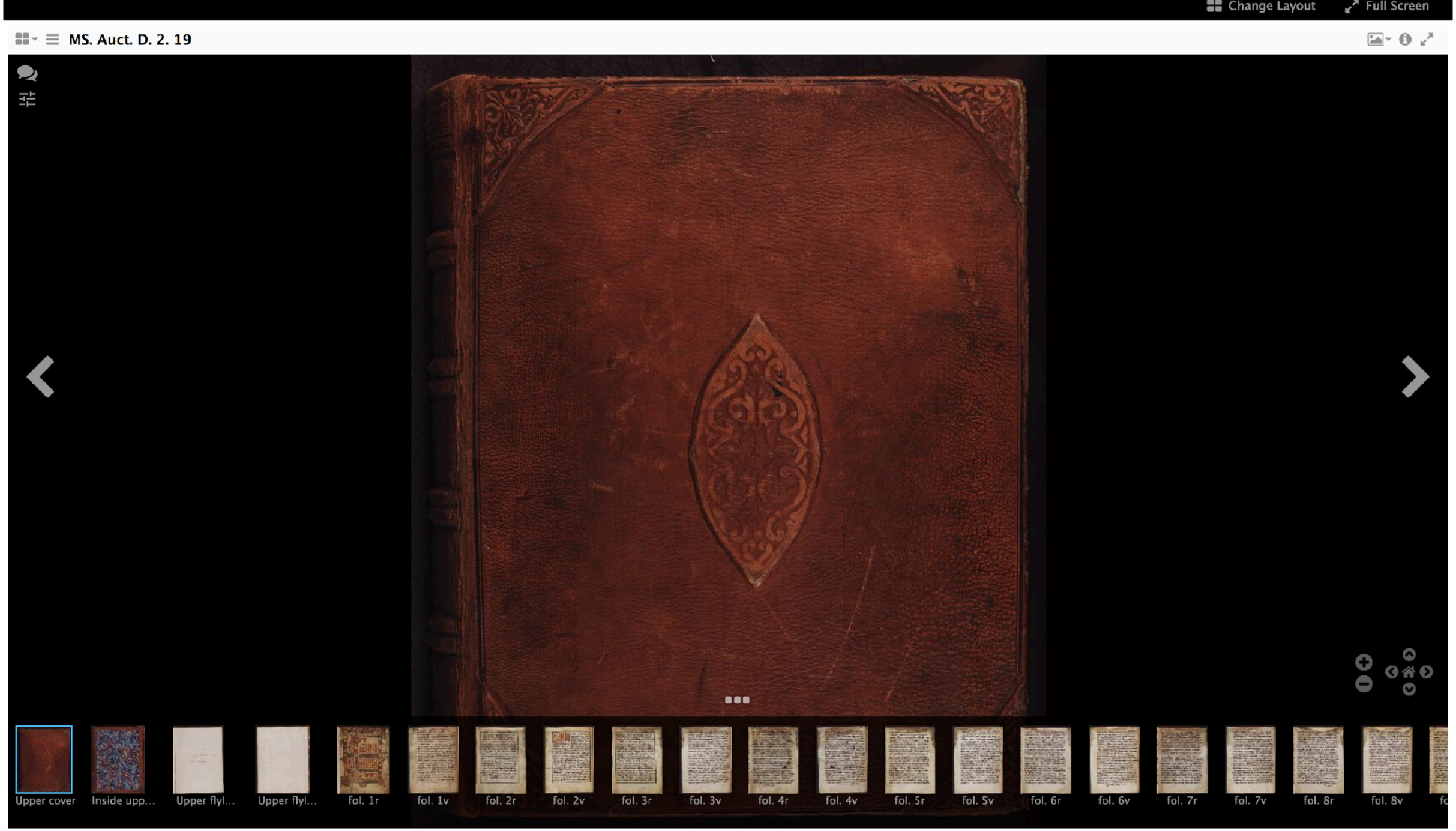
- Domain / Prefix
- Identifier
- Region
- Size
- Rotation
- Image Type

IIIF: Presentation API

Representation of document structure and metadata as a “manifest”

Functions like PDF, but points to images on external servers (***Image API***)

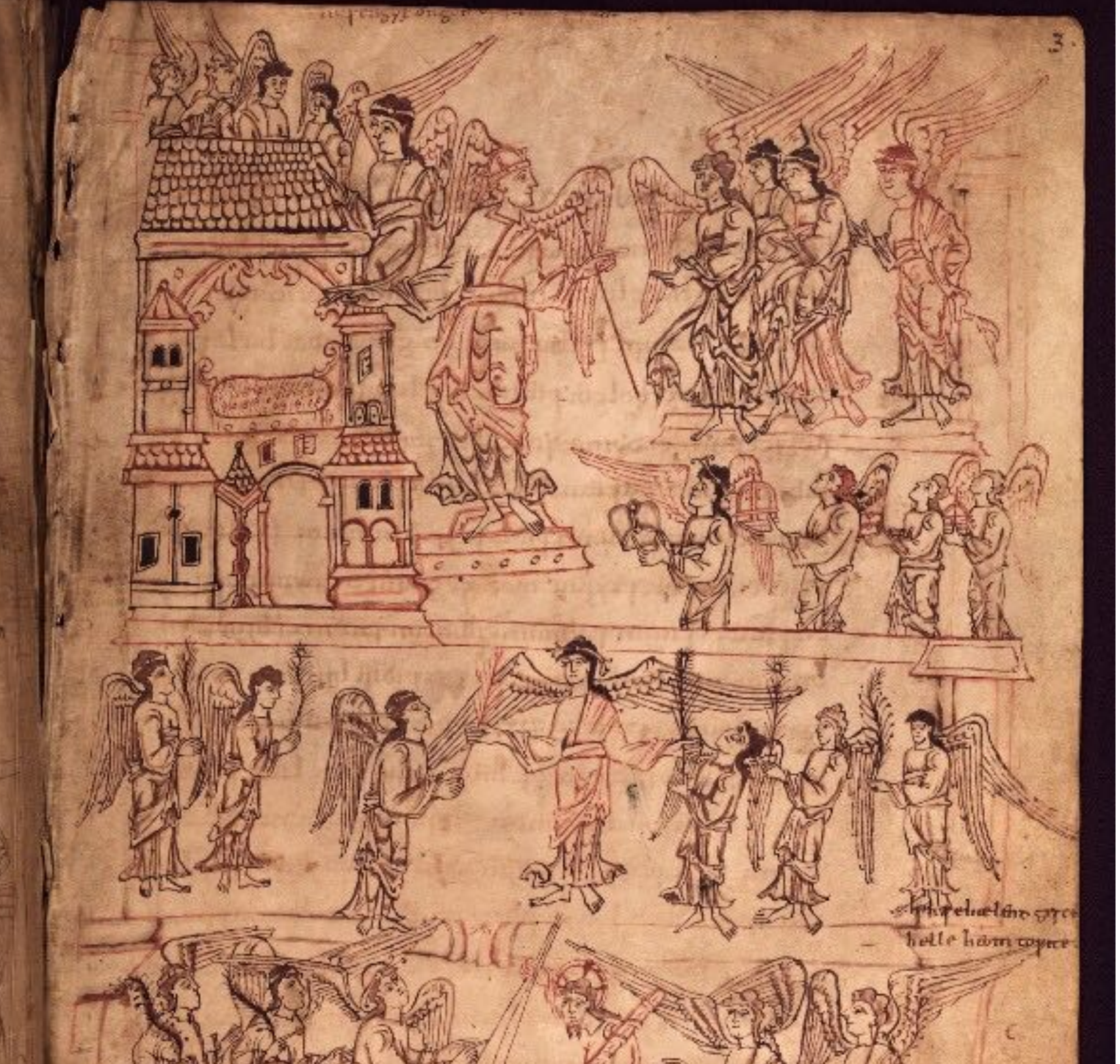
Used by IIIF-compatible image viewers (Mirador, Universal Viewer, Diva.js)


Change Layout
Full Screen
MS. Auct. D. 2. 19
Upper cover
Inside upp...
Upper flyl...
Upper flyl...
fol. 1r
fol. 1v
fol. 2r
fol. 2v
fol. 3r
fol. 3v
fol. 4r
fol. 4v
fol. 5r
fol. 5v
fol. 6r
fol. 6v
fol. 7r
fol. 7v
fol. 8r
fol. 8v

```
"sequences": [
  {
    "@id": "http://iiif.bodleian.ox.ac.uk/iiif/sequence/b708f563-b804-42b5-bd0f-2826dfaeb5cc_default.json",
    "@type": "sc:Sequence",
    "label": "Default",
    "canvases": [
      {
        "@id": "http://iiif.bodleian.ox.ac.uk/iiif/canvas/4aee97d4-0845-44fa-8dd7-8c4902090db2.json",
        "@type": "sc:Canvas",
        "label": "Upper cover",
        "height": 7364,
        "width": 6034,
        "images": [
          {
            "@type": "oa:Annotation",
            "motivation": "sc:painting",
            "resource": {
              "@id": "http://iiif.bodleian.ox.ac.uk/iiif/image/4aee97d4-0845-44fa-8dd7-8c4902090db2/full/full/0/default.jpg",
              "@type": "dctypes:Image",
              "format": "image/jpeg",
              "height": 7364,
              "width": 6034,
              "service": {
                "@context": "http://iiif.io/api/image/2/context.json",
                "@id": "http://iiif.bodleian.ox.ac.uk/iiif/image/4aee97d4-0845-44fa-8dd7-8c4902090db2",
                "profile": "http://iiif.io/api/image/2/level1.json"
              }
            },
            "on": "http://iiif.bodleian.ox.ac.uk/iiif/canvas/4aee97d4-0845-44fa-8dd7-8c4902090db2.json"
          }
        ]
      },
```

Digital Bodleian 1.0

- Launched July 2015: 125,000 images
- As of May 2018: 900,000 images
- Content from the Bodleian's collections and from Oxford college libraries.
- Consolidated data from many different legacy sources

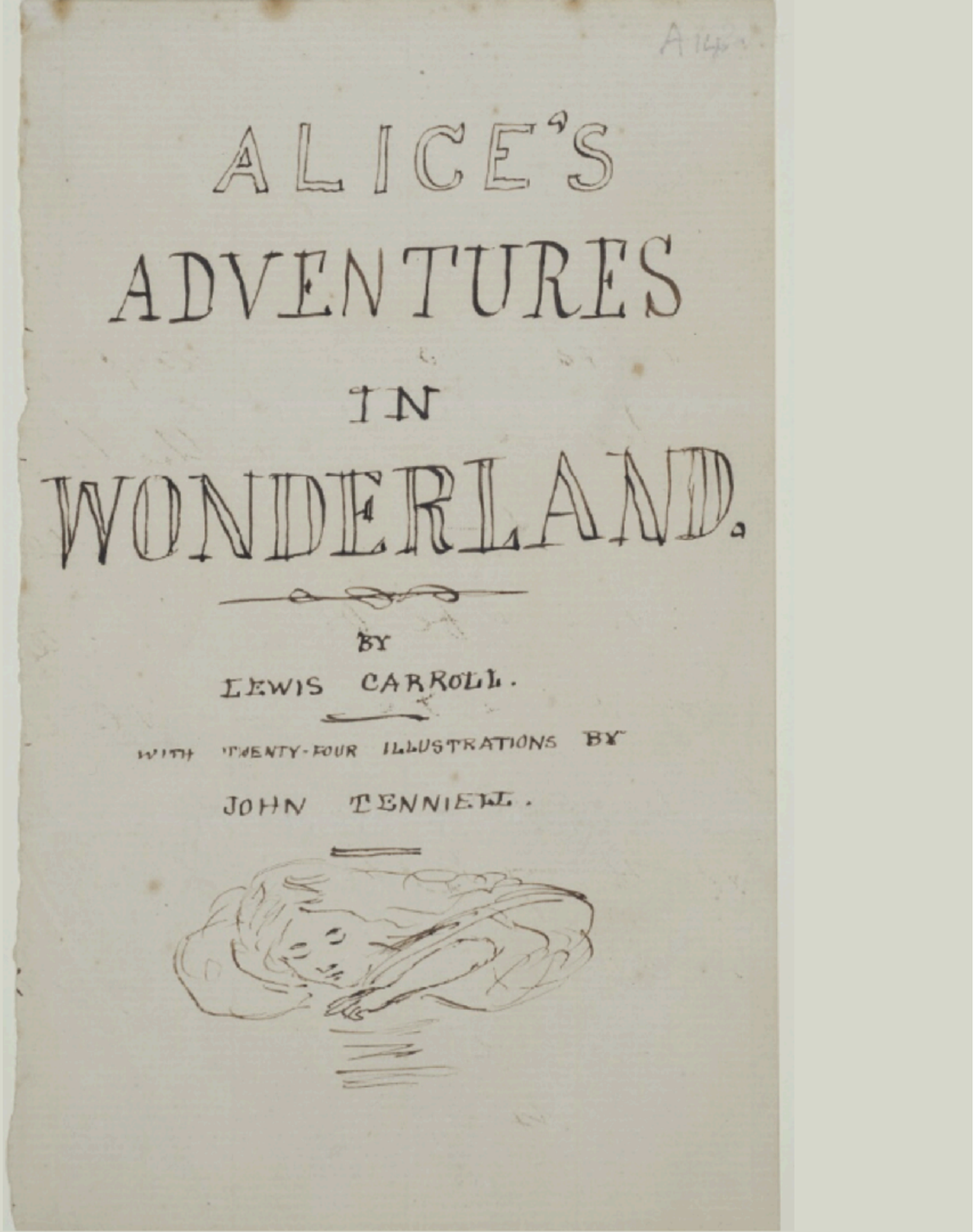


MS Junius 11

10th Century Old English Poetry

Detail f. 3r

One of four surviving sources
of Anglo-Saxon poetry, and
the only source that is illustrated.



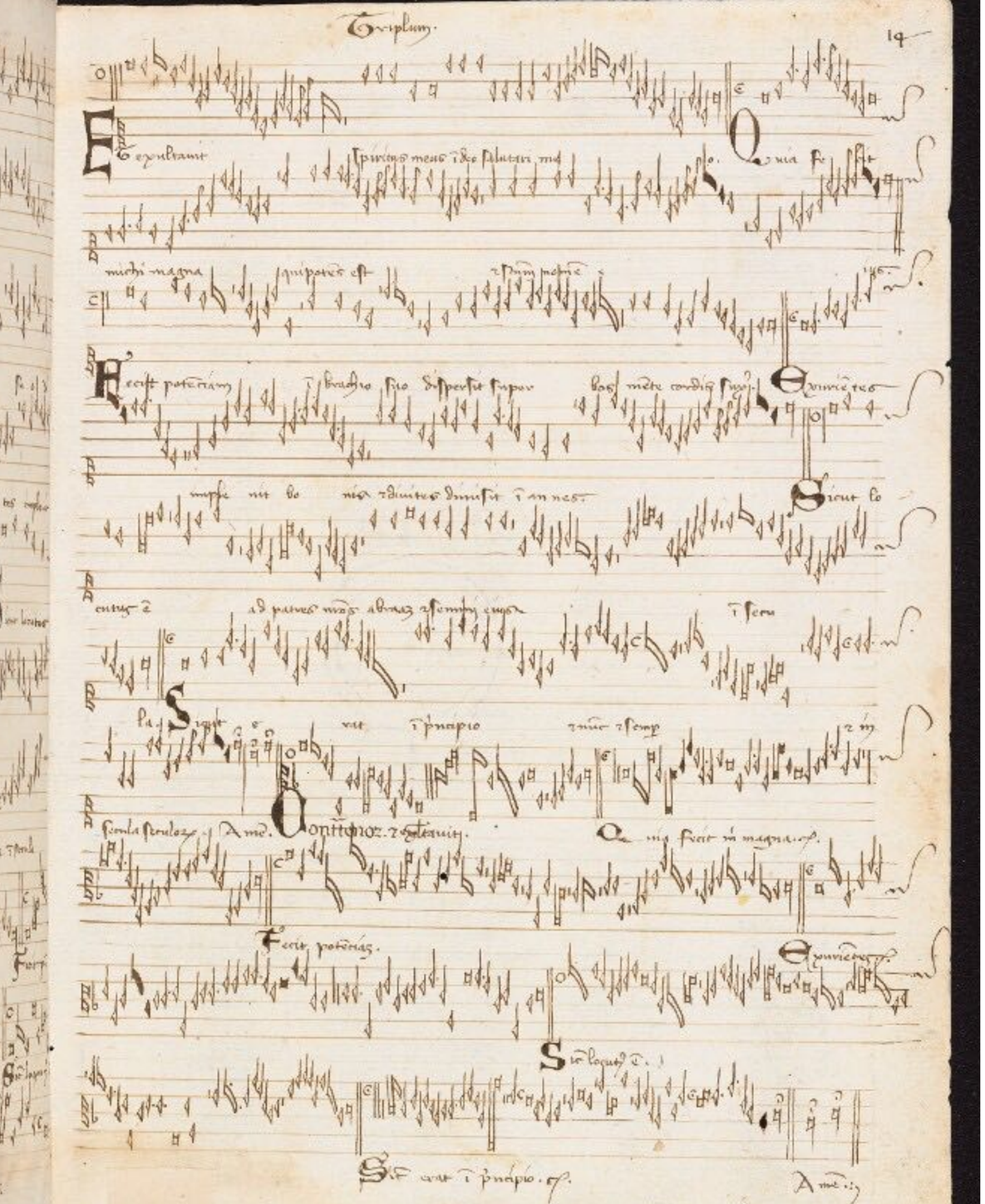
Alice in Wonderland

Draft for Title page in author's hand

Dodgson, Charles Lutwidge [aka Lewis Carroll]

Christ Church Carroll-A14

Part of the papers of Charles Dodgson, held at Christ Church and delivered via Digital Bodleian.

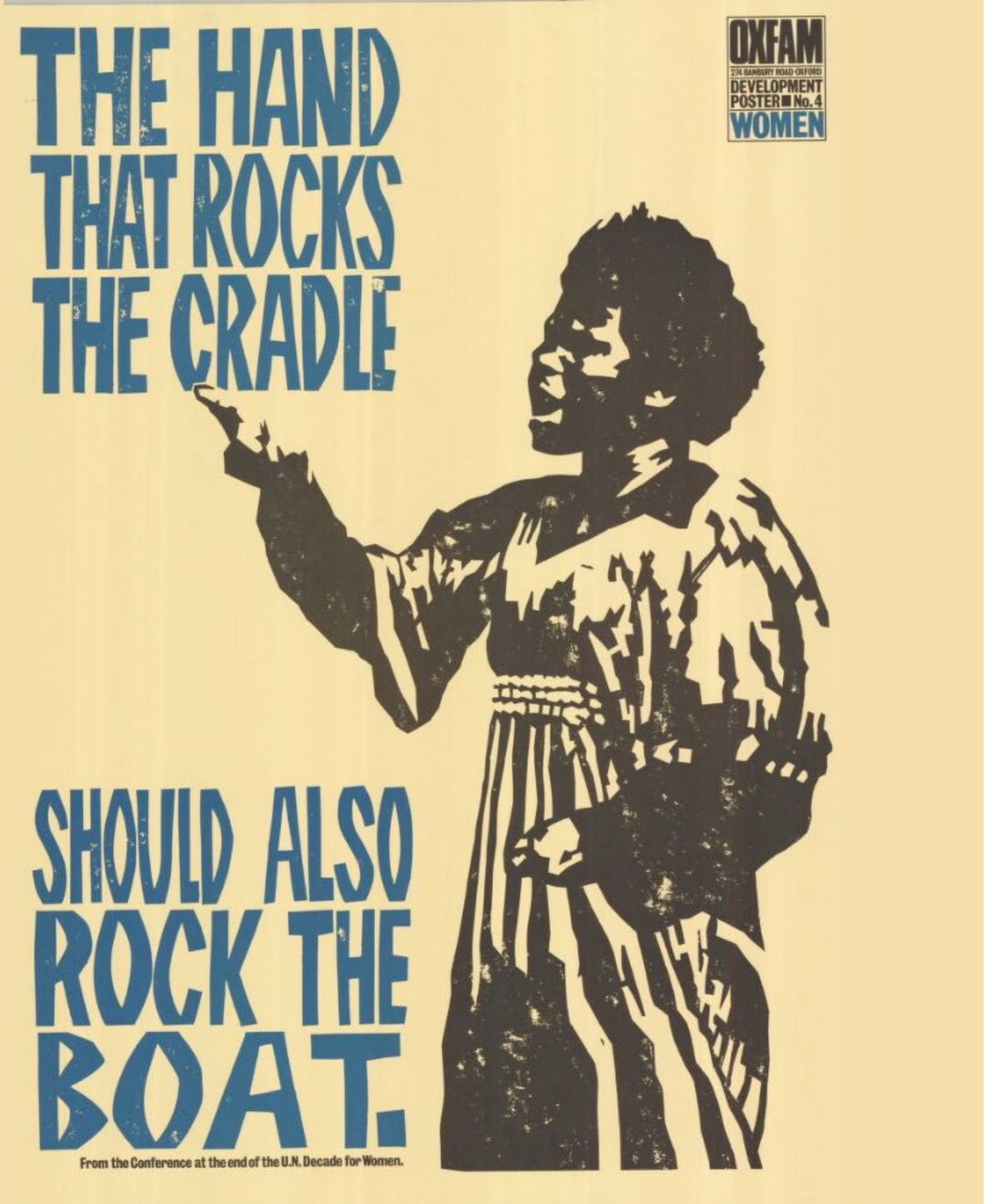


MS Canon Misc. 213

15th Century Music Source

Detail f. 14r

Contains 326 works, of which 216 are only found in this source. Works by Binchois, Ciconia, Dufay, de Lantins.



Oxfam Poster Collection

Oxfam COM/1/8/134/5, mid-1980s

703 Posters from the Oxfam archives

Digital Bodleian 1.5

- Rolled out August 2017
- No visible changes, but large improvements in service reliability and update-ability.
- HTTPS and HTTP/2 support across the board
- Staging stack, Release process, Ansible orchestration

DIGITAL BODLEIAN 2.0

Improving service delivery, data integration, content curation, and long-term preservation

Development Themes

Capture

Increased capacity and throughput for digitization workflows.

Curate

Improved tools and standards compliance for managing data and metadata.

Preserve

Integrating long-term digital preservation as a core component.

Discover

Refreshing and improving our public-facing interfaces, search tools, and data APIs.

MS. Selden supra 38, f. 87r

Architecture for Service Delivery

Curzon b.11(37)

IIIF Delivery: The Components

Metadata in XML: METS (+ some Dublin Core)

Lossless JPEG 2000 Images

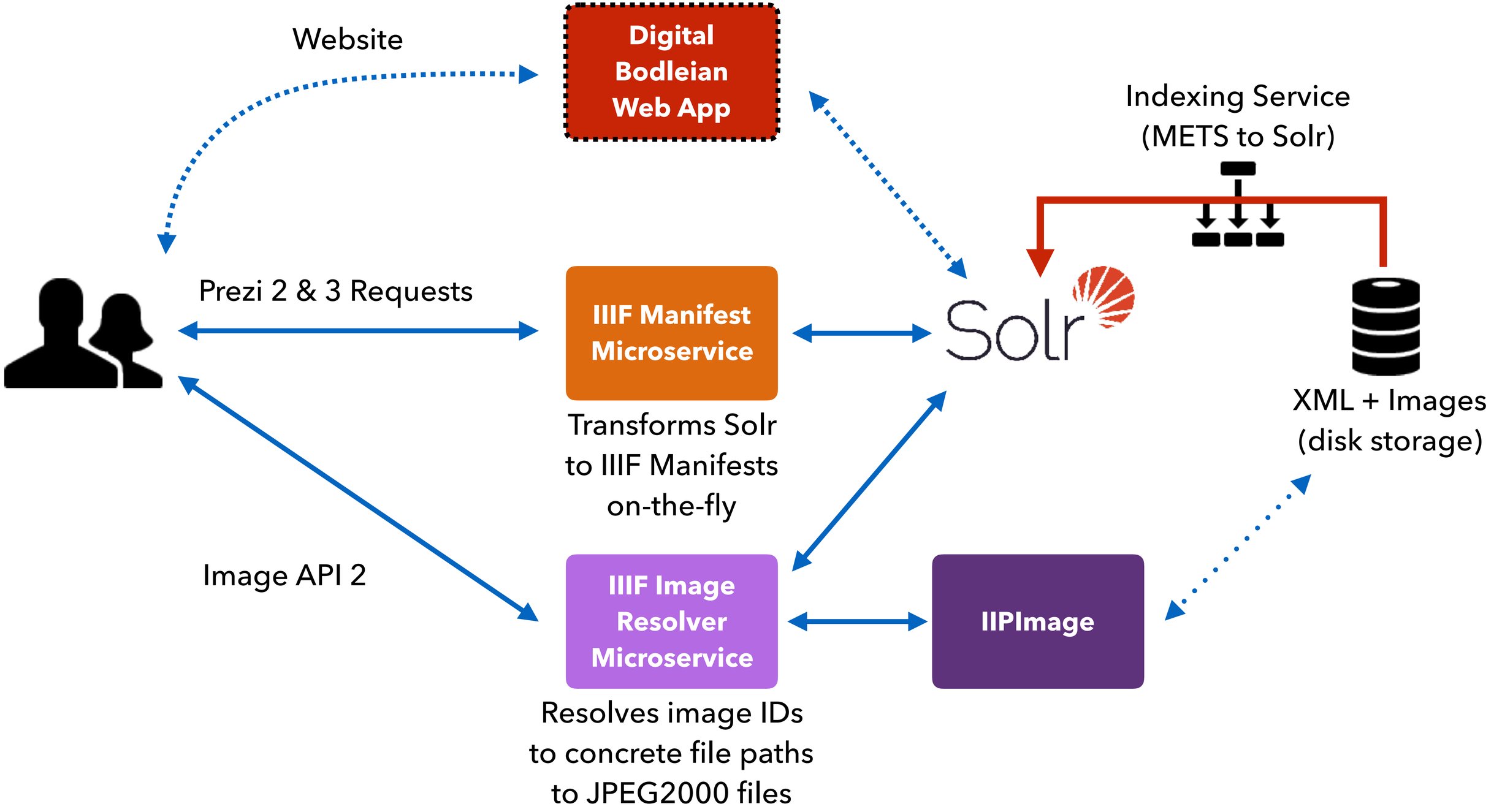
IIP Image Server

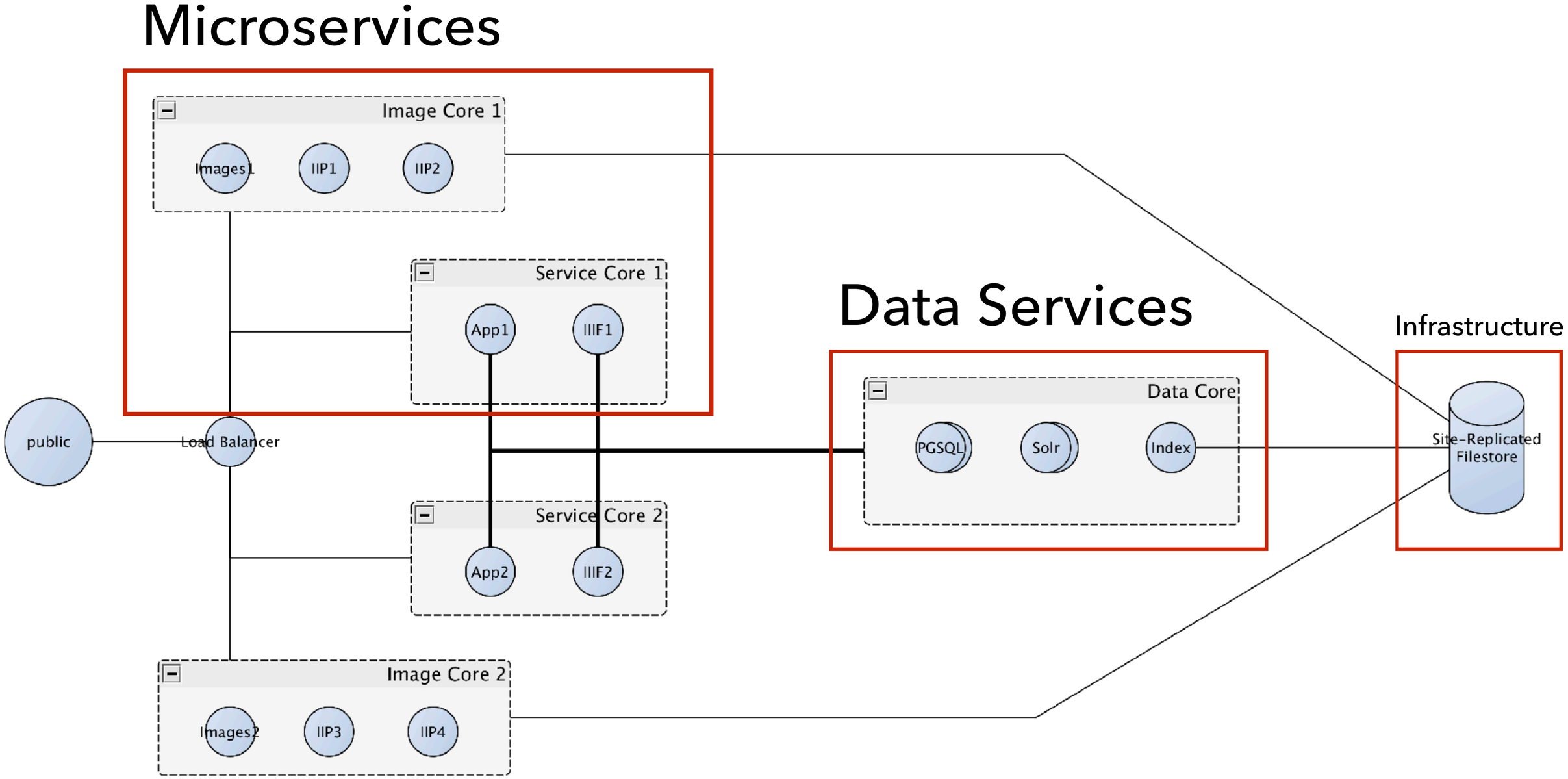
Solr

(Bespoke) Manifest Microservice

(Bespoke) METS Indexing Service

(Bespoke) Image Resolver Microservice


Website
Digital Bodleian Web App
Indexing Service (METS to Solr)
Prezi 2 & 3 Requests
IIIF Manifest Microservice
Solr
XML + Images (disk storage)
Transforms Solr to IIIF Manifests on-the-fly
Image API 2
IIIF Image Resolver Microservice
IIPImage
Resolves image IDs to concrete file paths to JPEG2000 files

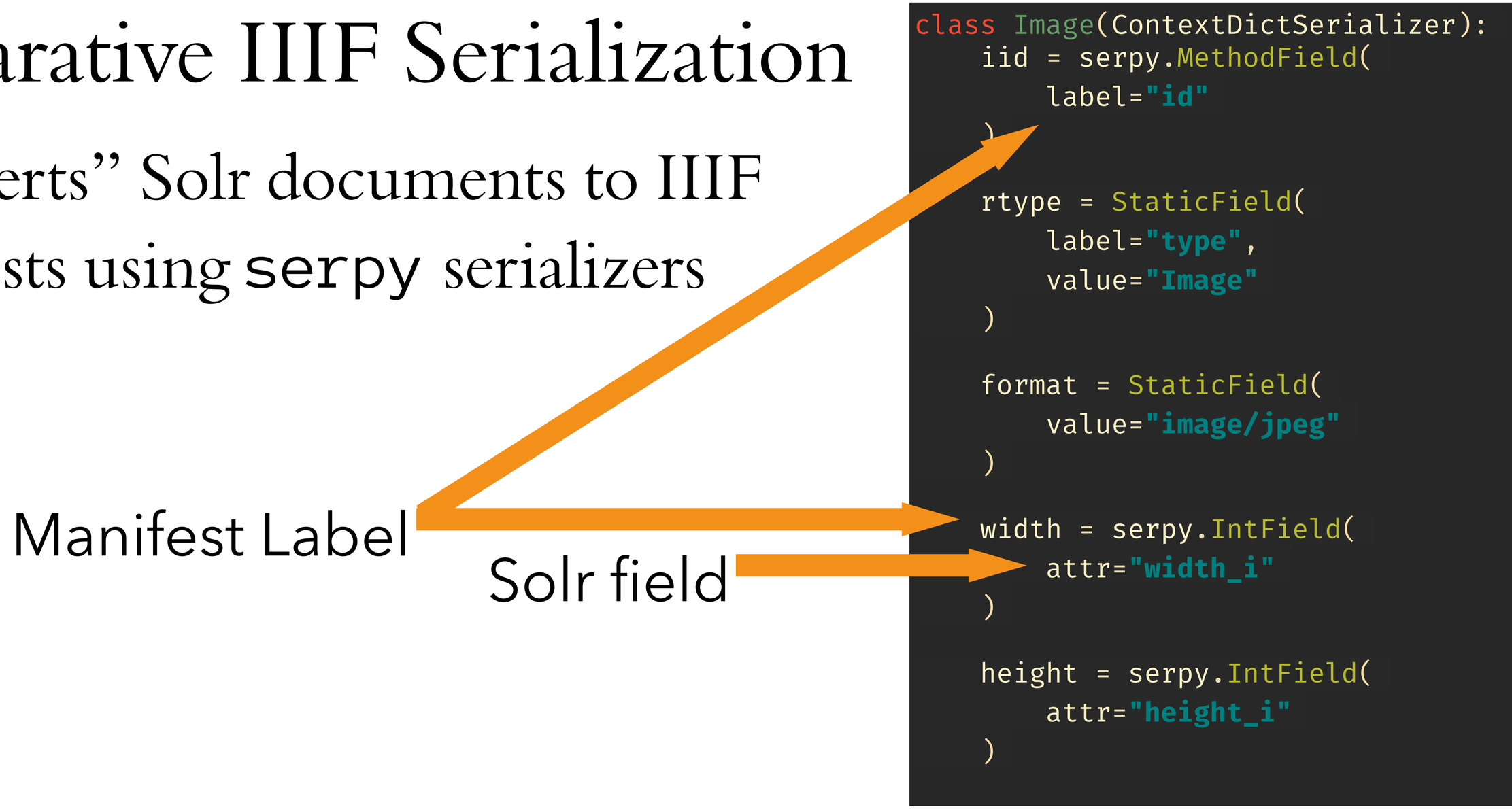

Microservices
Image Core 1
Images1
IIP1
IIP2
Service Core 1
App1
IIIF1
public
Load Balancer
Service Core 2
App2
IIIF2
Image Core 2
Images2
IIP3
IIP4
Data Services
Data Core
PGSQL
Solr
Index
Infrastructure
Site-Replicated Filestore

POSTER 1983-15, Conservative Party Archives

Manifest Server

Declarative IIIF Serialization

"Converts" Solr documents to IIIF Manifests using `serpy` serializers



Content Negotiation

Presentation API 2.1.1 by default.

Content Negotiation for Presentation API 3.0

Send `Accept` header with Prezi 3.0 Profile:

```
Accept: application/ld+json;profile=http://
  iiif.io/api/presentation/3/context.json
```

Manifest navigation linking

De-referenceable canvases, sequences, annotation pages

De-referenced canvases provide ‘partOf’ (v3) and ‘within’ (v2) to point back to their manifests.

Manifests point to multiple collections (v3)

Digital Preservation

Images captured in TIFF

Use JPEG 2000 as long-term preservation format

Same content for both preservation and delivery

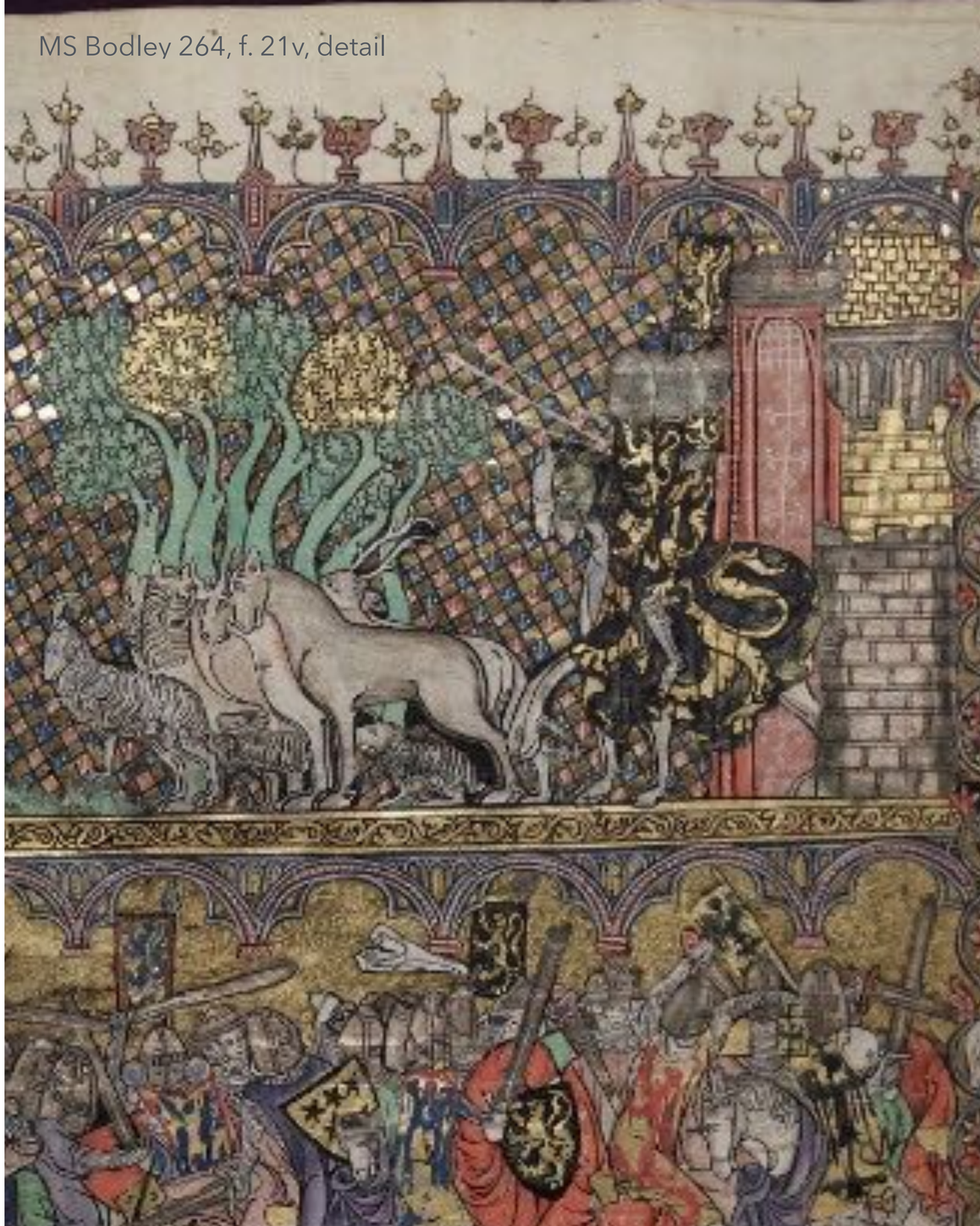
Requires careful attention to conversion processes:

https://github.com/bodleian/image-processing

https://image-processing.readthedocs.io

Open-source tool for converting and testing conversion.

Talk: Friday, Track 2, 9-10:30
“When is lossless not lossless?”


MS Bodley 264, f. 21v, detail

Digital Preservation

Oxford Common File Layout (OCFL) project

Application-independent digital object file storage specification

Rebuildability: Import repository contents just from objects-on-disk.

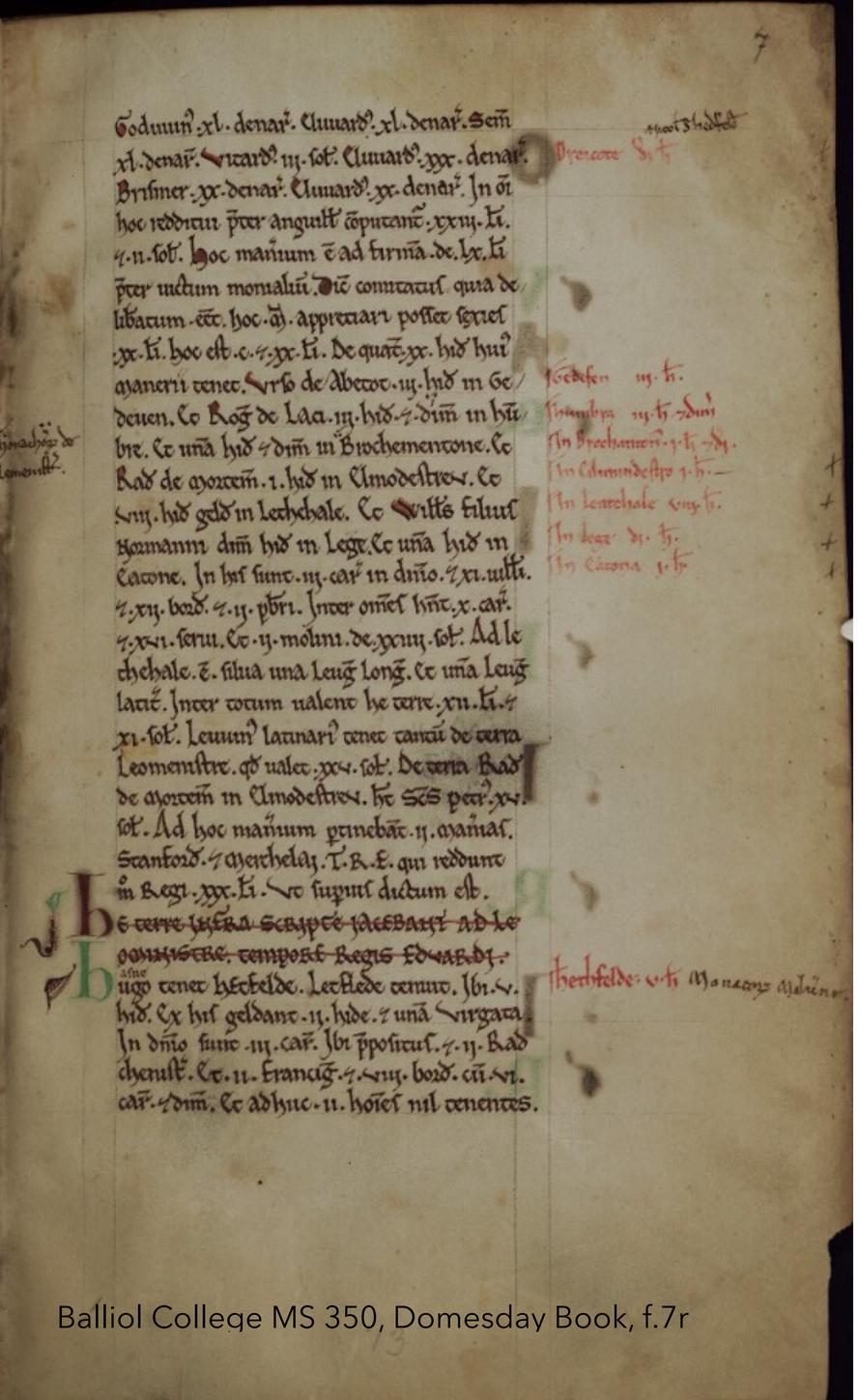
Supports traditional filesystems, or filesystem-like object storage.

Supports versioning, de-duplication, validation

Use-case: Point a IIIF Microservice at an OCFL store and auto-generate manifests and serve images.

https://ocfl.io

MS. Jap. b.2



Balliol College MS 350, Domesday Book, f.7r

Coming Up

New Manifest & Image Services go live this summer

- Includes Range structures for logical navigation
- Improvements to metadata usability

Activity Streams for recently accessioned items: Q4 2018

New Digital Bodleian Discovery UI: 2018-2019

Improved service delivery to support content reuse and integration in research projects

Integration with Preservation activities and OCFL work

Continually adding new content

DIGITAL BODLEIAN

Thank you

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https://digital.bodleian.ox.ac.uk

@bdlss

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UNIVERSITY OF OXFORD

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