



DELIVERING IIF SERVICES AT THE BODLEIAN LIBRARIES

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This talk

- Intro to IIF
- Digital Bodleian 1.0
- Digital Bodleian 2.0
- Micro-services(*ish*) architecture
- IIF 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

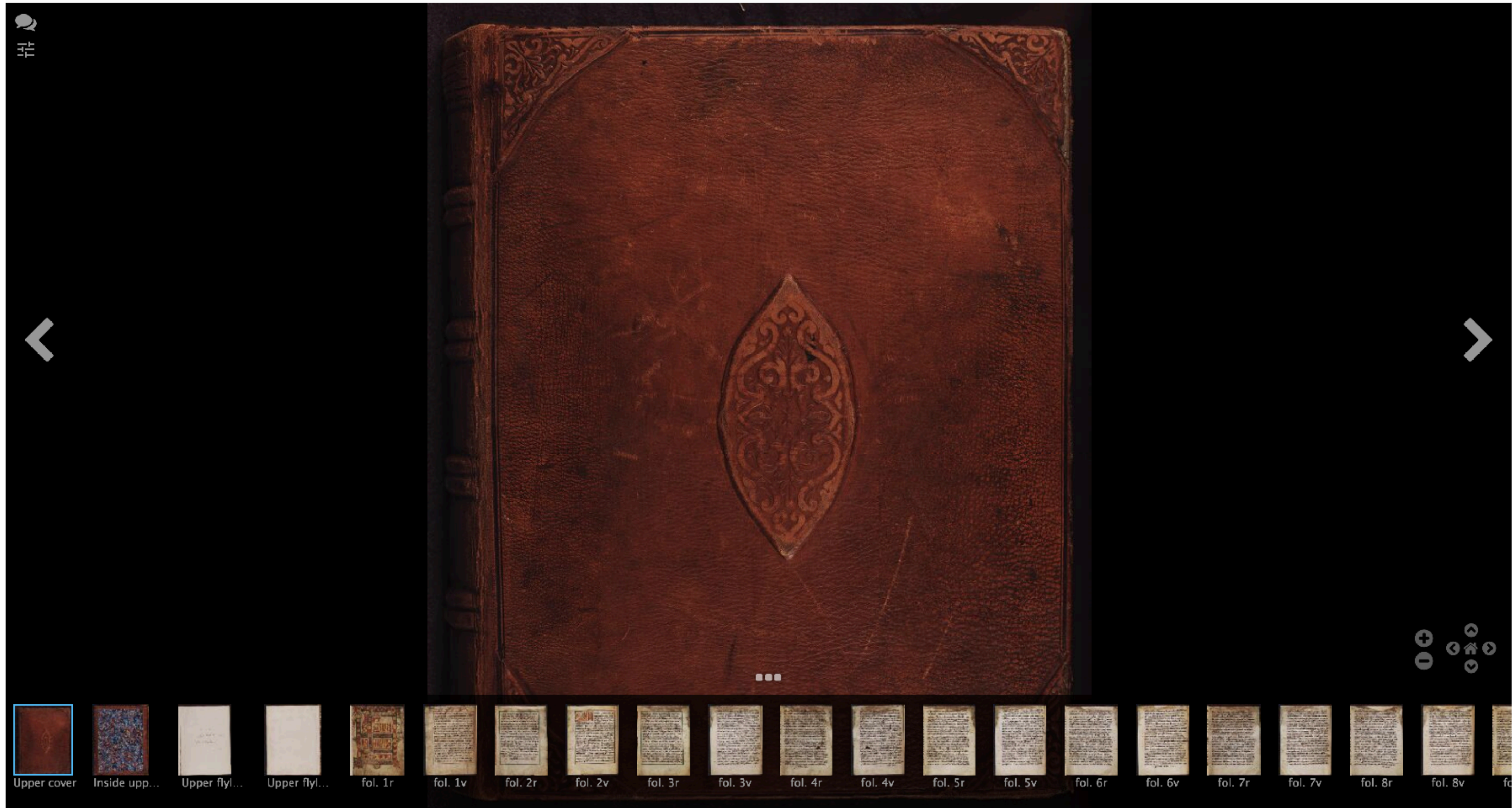


IIIF: Presentation API

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)

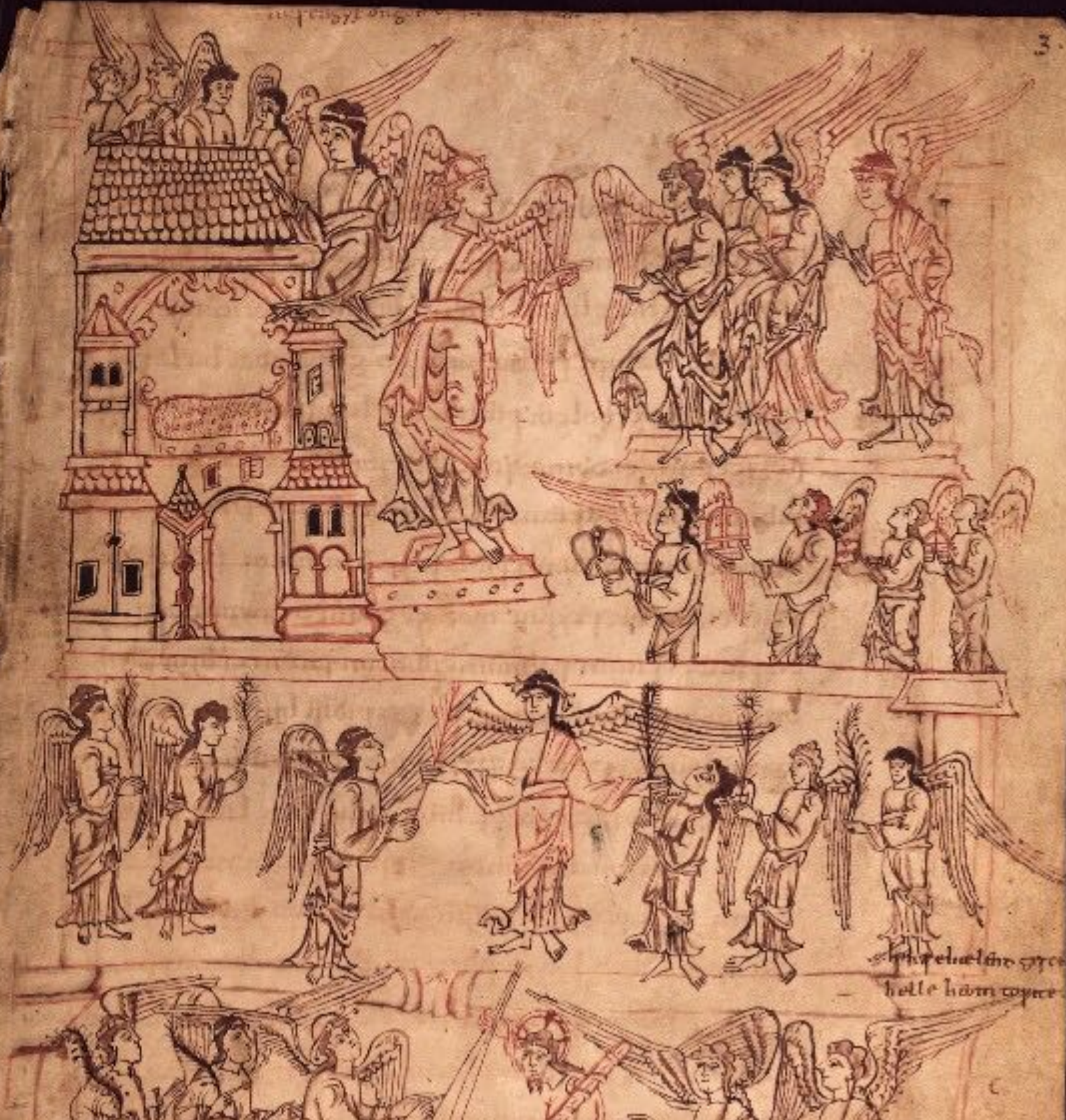



```

    "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's
ADVENTURES
IN
WONDERLAND.

BY
LEWIS CARROLL.

WITH TWENTY-FOUR ILLUSTRATIONS BY
JOHN TENNIEL.



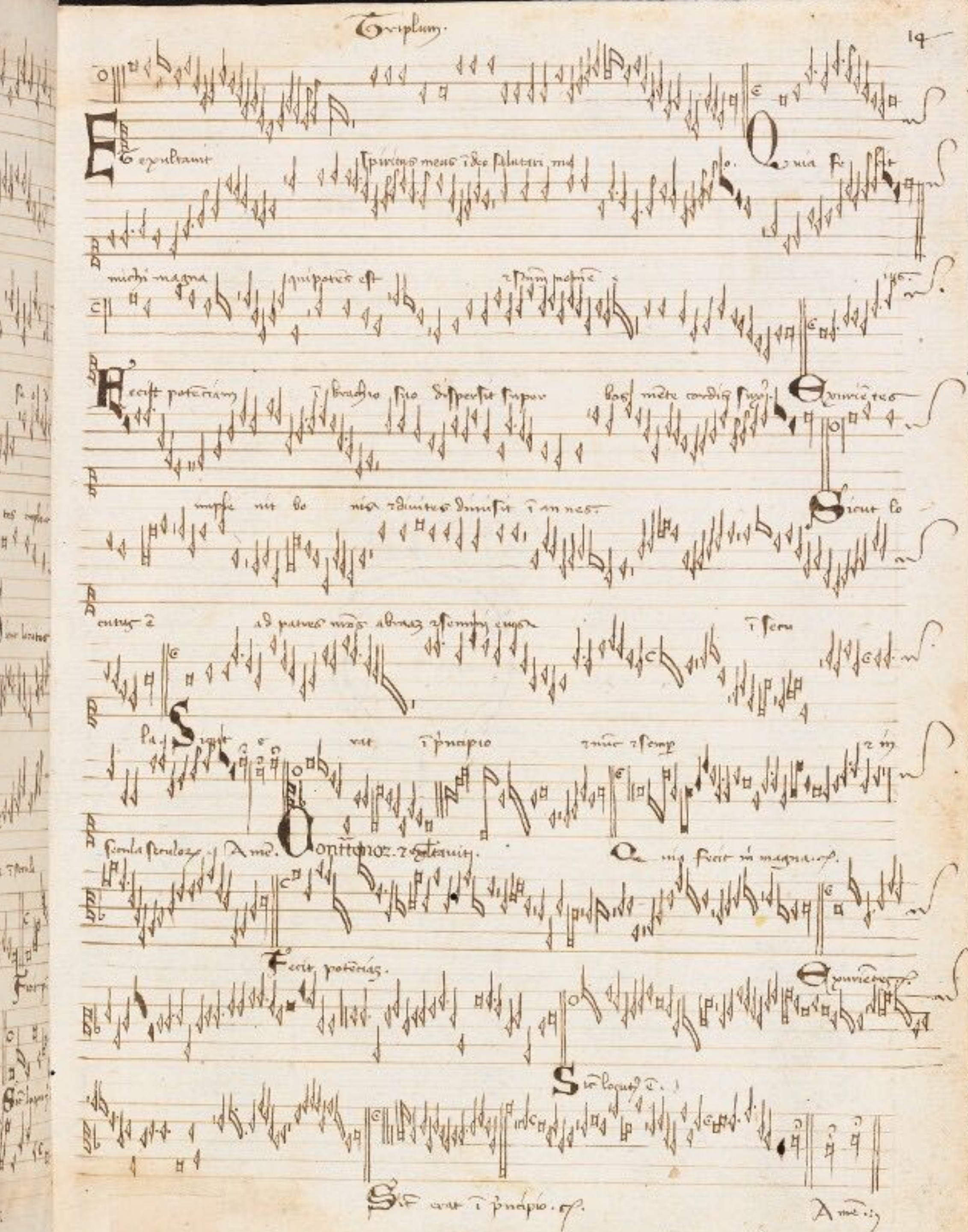
Alice in Wonderland

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.

THE HAND
THAT ROCKS
THE CRADLE

OXFAM
234 BANBURY ROAD OXFORD
DEVELOPMENT
POSTER No. 4
WOMEN



SHOULD ALSO
ROCK THE
BOAT.

From the Conference at the end of the U.N. Decade for Women.

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.



Eleo vi un des set testes ausi cō mort
tolas et la place de la morte est gaire
et tote la tye se esmeille et silvent la bes
te et ahurerent le dragon pur ceo qe il
dona tele poeste ala beste et ahurerent la
beste et disent . ki est semblable ala beste

Architecture for Service Delivery

Curzon b.11(37)



A GENTLE SALUTE from the BRITISH LION.

IIIF Delivery: The Components

Metadata in XML: METS (+ some Dublin Core)

Lossless JPEG 2000 Images

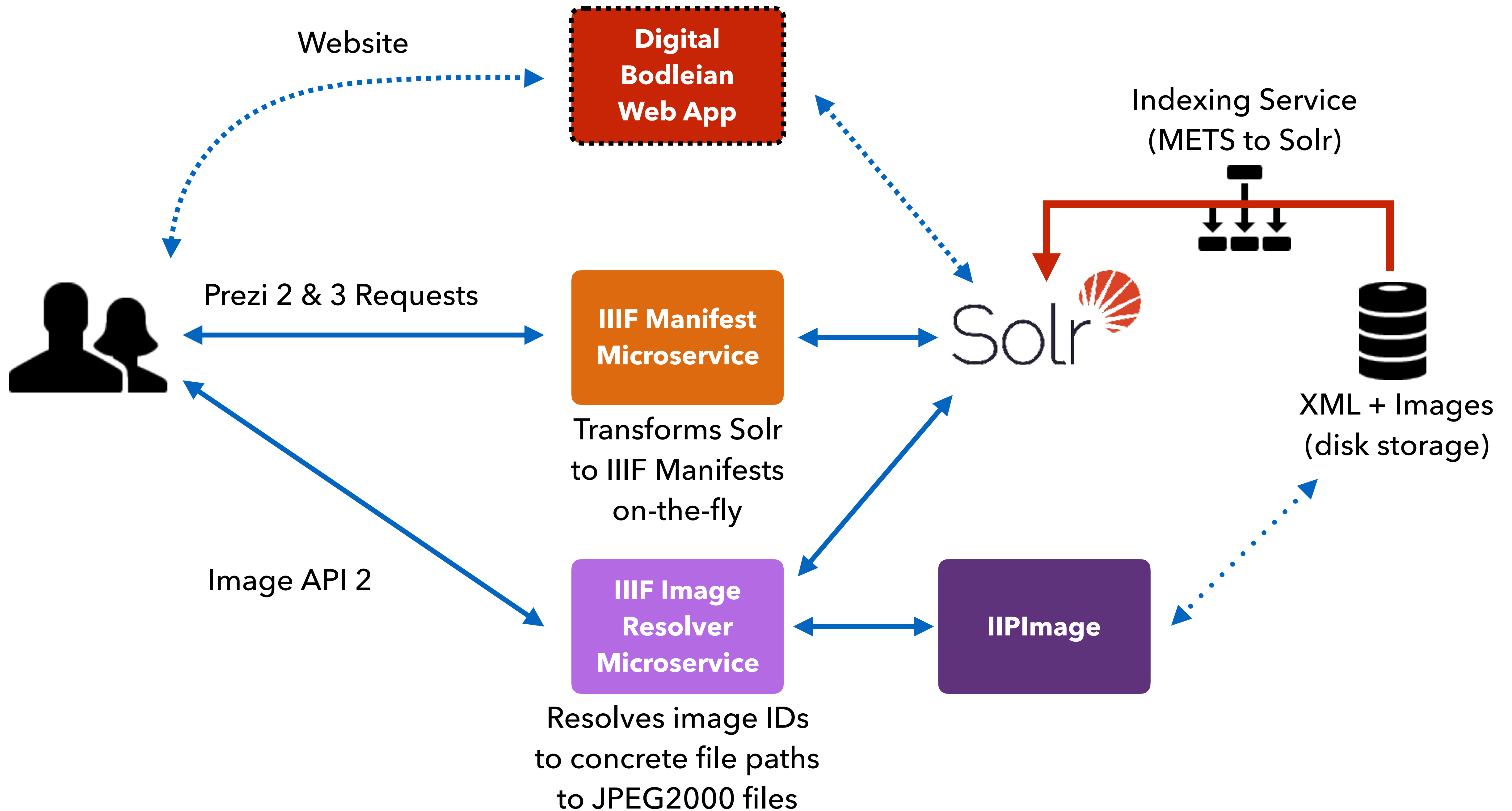
IIP Image Server

Solr

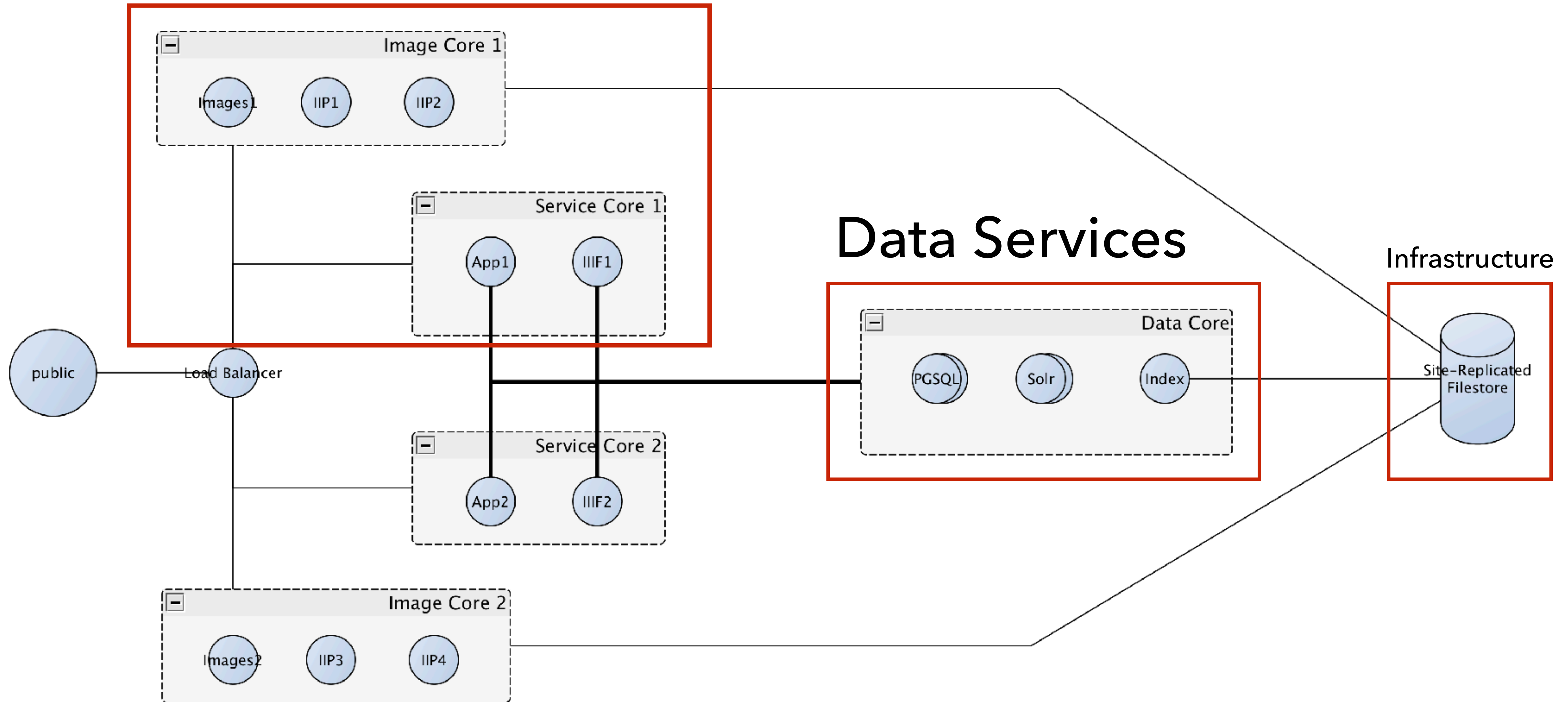
(Bespoke) Manifest Microservice

(Bespoke) METS Indexing Service

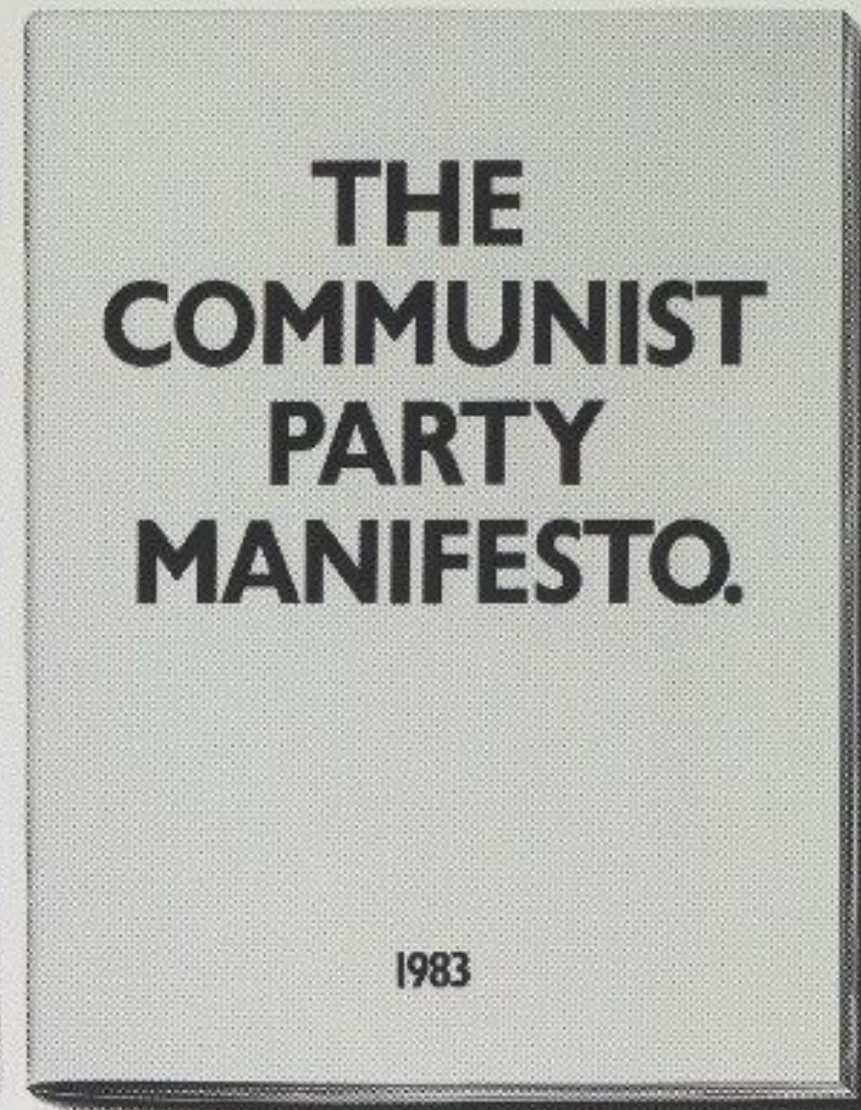
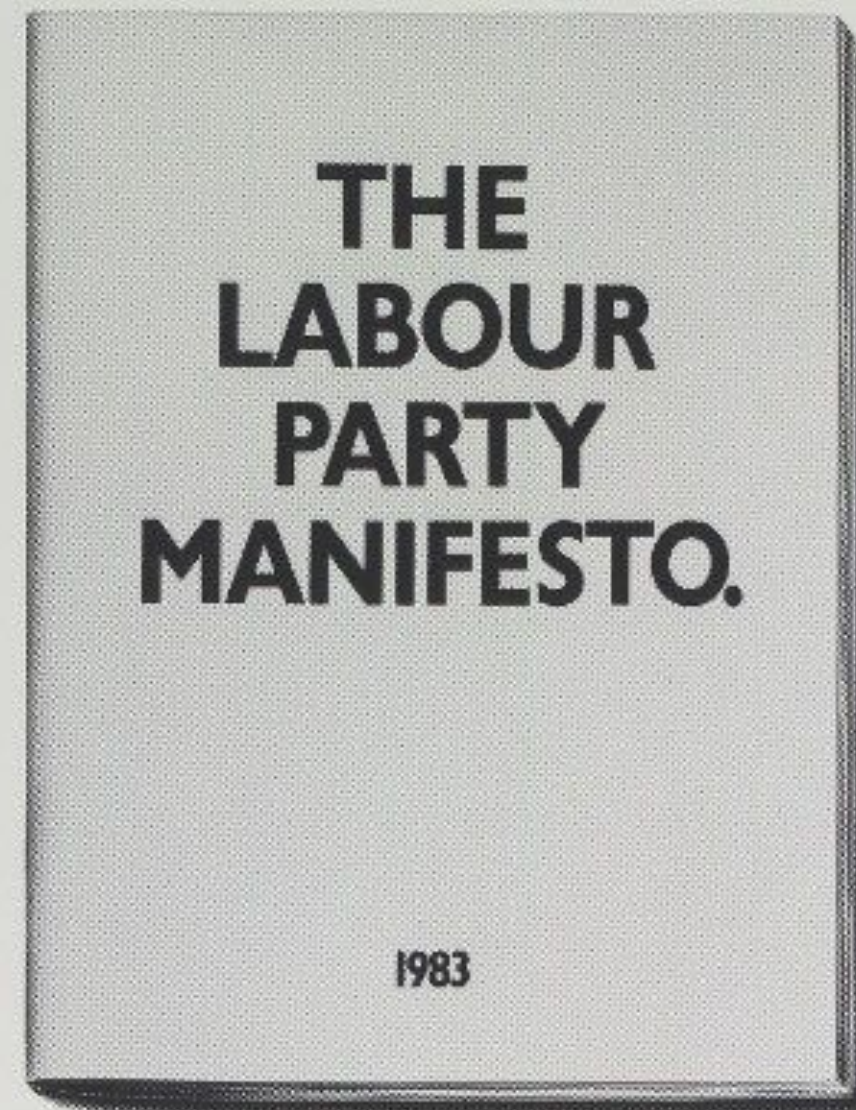
(Bespoke) Image Resolver Microservice



Microservices



“Like your manifesto, Comrade.”



1. Withdrawal from the Common Market.
2. Massive increase in Nationalisation.
3. Cancel Trident, remove nuclear defences.
4. Cancel tenants' rights to buy their own council houses.
5. Oppose secret ballots for union members on selecting union leadership.
6. Abolish restraints on union closed shops.
7. Abolish parents' rights to choose their children's school.
8. Oppose secret ballots for union members on strikes.
9. Abolish Immigration Act and British Nationality Act.
10. Exchange controls to be introduced.
11. Abolish Prevention of Terrorism Act.

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CONSERVATIVE ☒

Manifest Server

Declarative IIIF Serialization

“Converts” Solr documents to IIIF
Manifests using `serpy` serializers

Manifest Label

Solr field

```
class Image(ContextDictSerializer):
    iid = serpy.MethodField(
        label="id"
    )

    rtype = StaticField(
        label="type",
        value="Image"
    )

    format = StaticField(
        value="image/jpeg"
    )

    width = serpy.IntField(
        attr="width_i"
    )

    height = serpy.IntField(
        attr="height_i"
    )
```


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://  
iif.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:

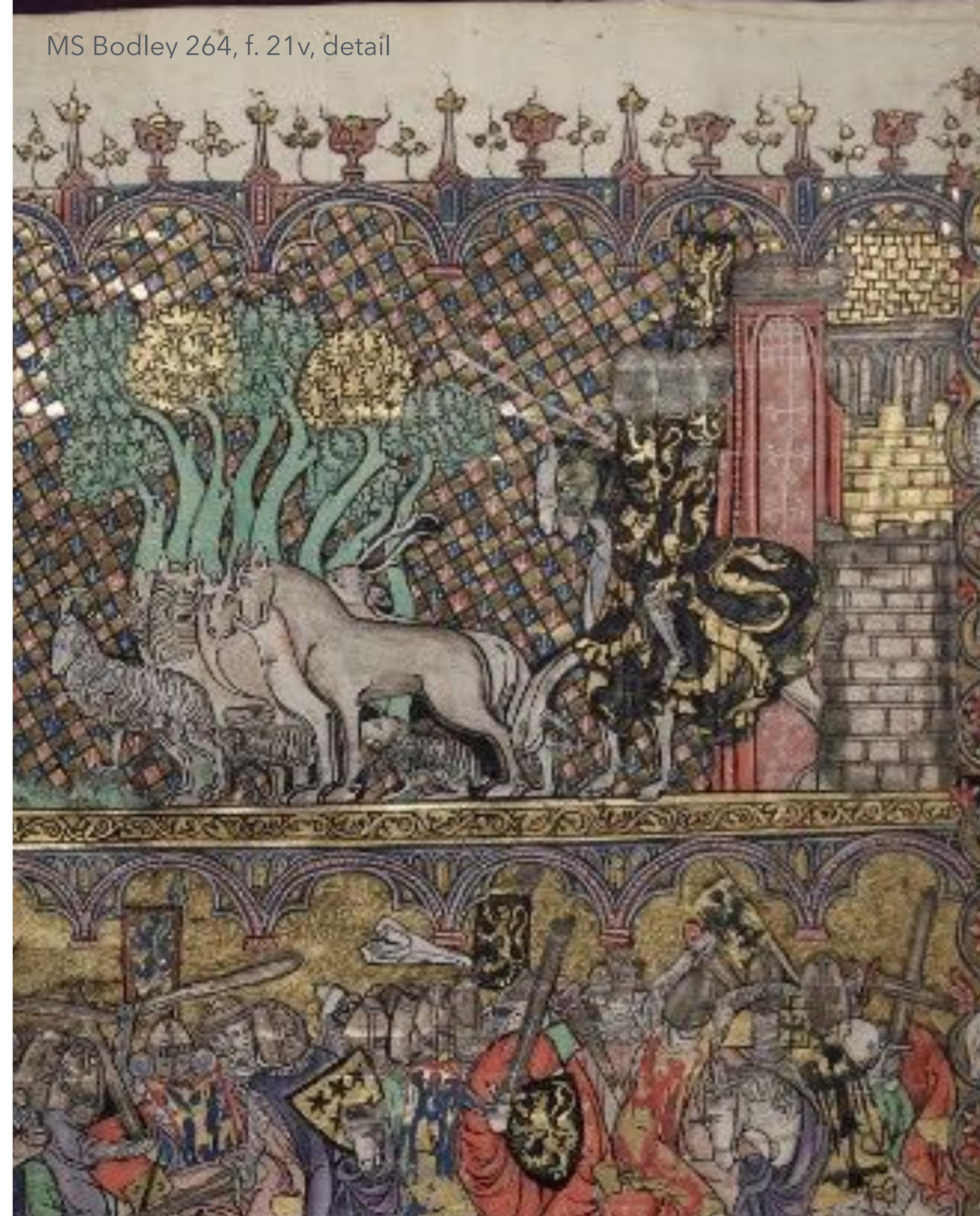
<https://github.com/bodleian/image-processing>

<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?”



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 IIF Microservice at an OCFL store and auto-generate manifests and serve images.

<https://ocfl.io>



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

Godinum xl. denar. Cluuard xl. denar. Sem
xl. denar. Vicard. iij. sot. Cluuard. xxx. denar.
Brismer. xx. denar. Cluuard. xx. denar. In oi
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i. n. sot. Hoc manum e ad firma. de. lx. li
pter uctum monialiu. Die comitatus quia de
libatum. ecc. hoc. q. appreciari posset sexiel
xx. li. hoc est. c. i. xx. li. De quat. xx. hid hui
ayaneri tenet. Vrs de abetor. iij. hid in Ge
deuen. Co Rog de Lac. iij. hid. i. dim in hui
bre. Et una hid i. dim in Brochementone. Co
Rad de ayocein. i. hid in Elmolestre. Co
Sny. hid geld in Lechehale. Co Swills filius
Hormanni dim hid in Lege. Et una hid in
Eacone. In his sunt. iij. car in dno. i. xi. uilli.
i. xij. bord. i. ij. pbr. Inter omes hnt. x. car.
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latie. Inter totum ualent he terre. xii. li. i.
xi. sot. Leuun latinari tenet tantu de terra
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sot. Ad hoc manum ptebat. ij. ayamaf.
Stanford. i. Werchelay. T. R. E. qui reddunt
in Regi. xxx. li. Et supus dictum est.
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i. ugo tenet hechele. Lechele tenuit. Ibi. v.
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440013140000

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In Elmolestre. i. li.
In Lechehale. iij. li.
In Lege. i. li.
In Eacone. i. li.

hechele. v. li. Monach. Malina.

Thank you

With Emma Stanford, Mel Mason, Tim Dungate

andrew.hankinson@bodleian.ox.ac.uk

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

 **@bdlss**



Bodleian Libraries
UNIVERSITY OF OXFORD

