Transformations for aggregat~~ing~~ed Linked Open Data

The Local Amsterdam Cultural Heritage
Linked Open Data Network

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SWIB 2018 Bonn

AdamLink Project

AdamNet Foundation:

Amsterdam based Library Collaboration Association

33 member institutions

- public libraries
- higher education libraries
- special libraries
- museums
- archives
- documentation centers

AdamLink Project Goal

Create a linked open data infrastructure

for AdamNet member institutions collections

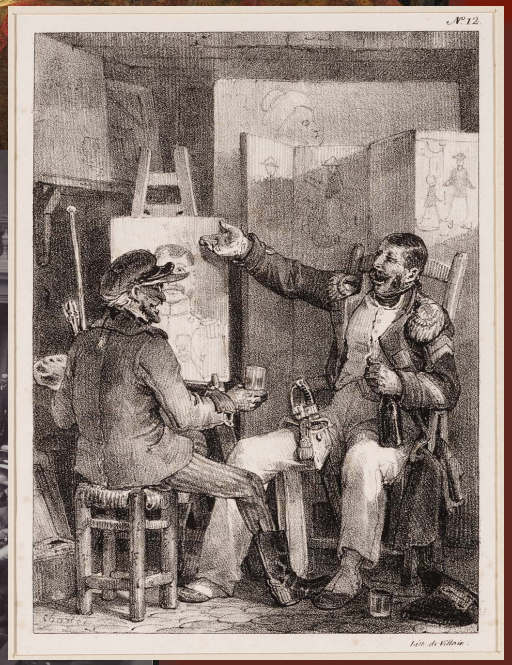
on the topic of "*Amsterdam*"

Data Only!

And some proof of concept apps

Target audiences

- Researchers
- Education
- General public
- Creative industry

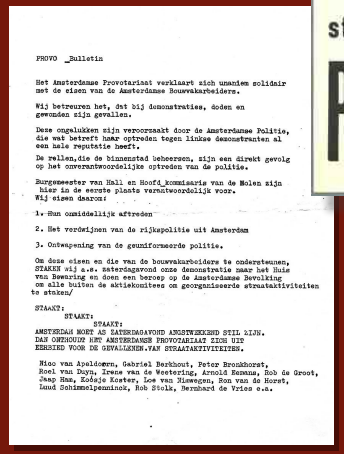


Initial Collections

Photographs, paintings, drawings, posters, maps, etc.

- Amsterdam Museum
  - *Image database*
- Amsterdam City Archive
  - *Image database*
- International Institute of Social History
  - *Image database*
  - *Interviews*
- University of Amsterdam
  - *Digitised maps*
- Amsterdam Public Library
  - *Books on topic "Amsterdam"*

Texts



PROVO _Bulletin

Het Amsterdamse Provotariaat verklaart zich unanieme solidair met de eisen van de Amsterdamse Bouwvakarbeiders.

Wij betreuren het, dat bij demonstraties, doden en gewonden zijn gevallen.

Deze ongelukken zijn veroorzaakt door de Amsterdamse Politie, die wat betreft haar optreden tegen linkse demonstranten al een hele reputatie heeft.

De rellen,die de binnenstad beheersen, zijn een direkt gevolg op het onverantwoordelijke optreden van de politie.

Burgemeester van Hall en Hoofd_kommisaris van de Molen zijn hier in de eerste plaats verantwoordelijk voor.
Wij eisen daarom:

1. Hun onmiddellijk aftreden

2. Het verdrijven van de rijkspolitie uit Amsterdam

3. Ontwapening van de geuniformeerde politie.

Om deze eisen en die van de bouwvakarbeiders te ondersteunen, STAKEN wij a.s. zaterdagavond onze demonstratie naar het Huis van Bewaring en doen een beroep op de Amsterdamse Bevolking om alle buiten de aktiekomitees om georganiseerde staataktiviteiten te stoken/

STAAKT:

STAAKT:

STAAKT:

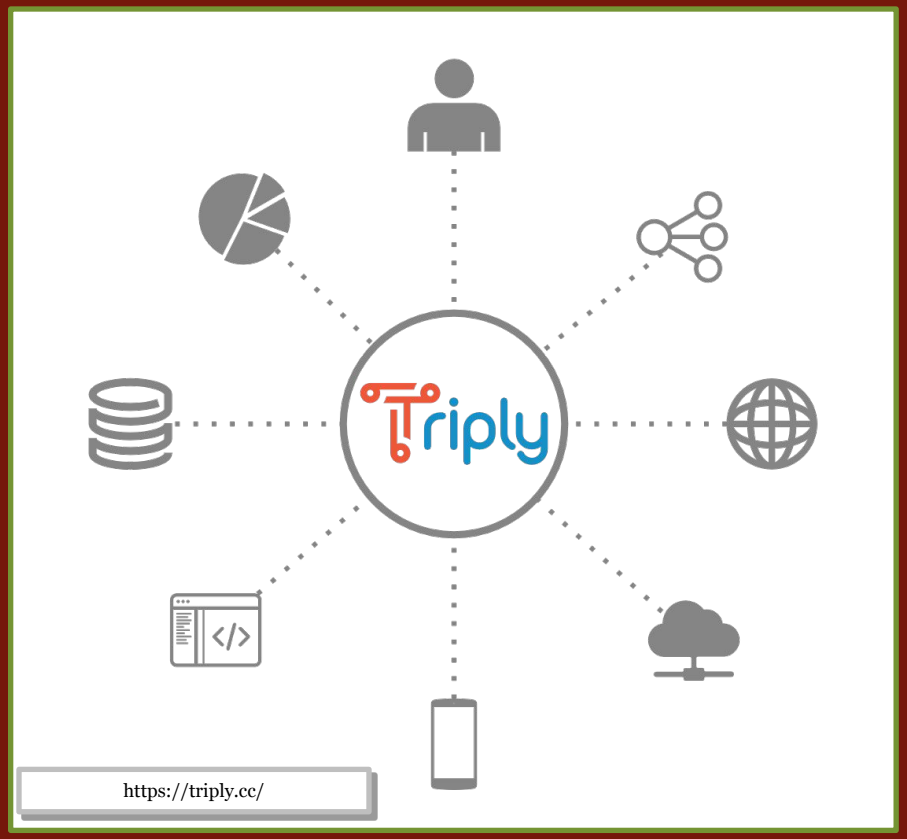
AMSTERDAM MOET AS ZATERDAGAVOND ANGSTWEKKEND STIL BLIJN.
DAN ONTHOUDT HET AMSTERDAMSE PROVOTARIAAT ZICH UIT
EERSTED VOOR DE GEVALLENEN.VAN STAAATAKTIVITEITEN.

Rico van Apeldoorn, Gabriel Berkhout, Peter Bronkhorst,
Roel van Duyn, Irene van de Westering, Arnold Kemna, Rob de Groot,
Jaap Haz, Eddsje Koster, Loe van Riewegen, Ron van de Horst,
Laud Schimmelpenninck, Rob Stolk, Bernhard de Vries e.a.

Catalogue records

Triply Linked Open Data Platform

- Triple Store
- Import Turtle
- Browser
- Tables
- Sparql Endpoints
- API
- Management
- Hosted



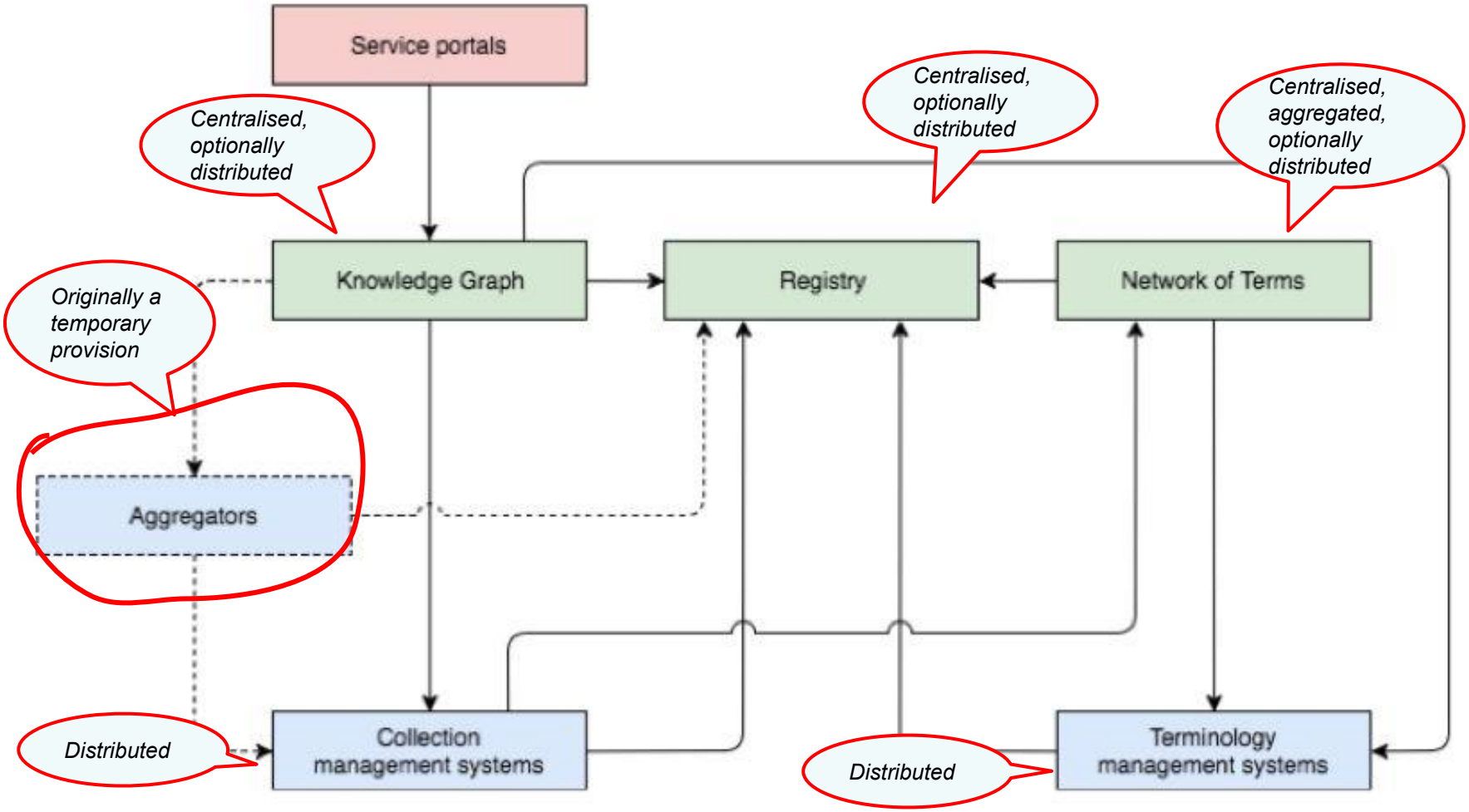
Challenge: Distribution vs. Aggregation

Distribution is up-to-date, but

- Often: no 'live' LOD at all
- Local differences in ontologies, vocabularies, data types, data quality
- Complicated data joining
- Performance issues

Dutch National Program "NDE" Digital Heritage Network

http://www.netwerkdigitaalerfgoed.nl/en



Aggregators: changing role

NDE: extension to the model - “service platforms”

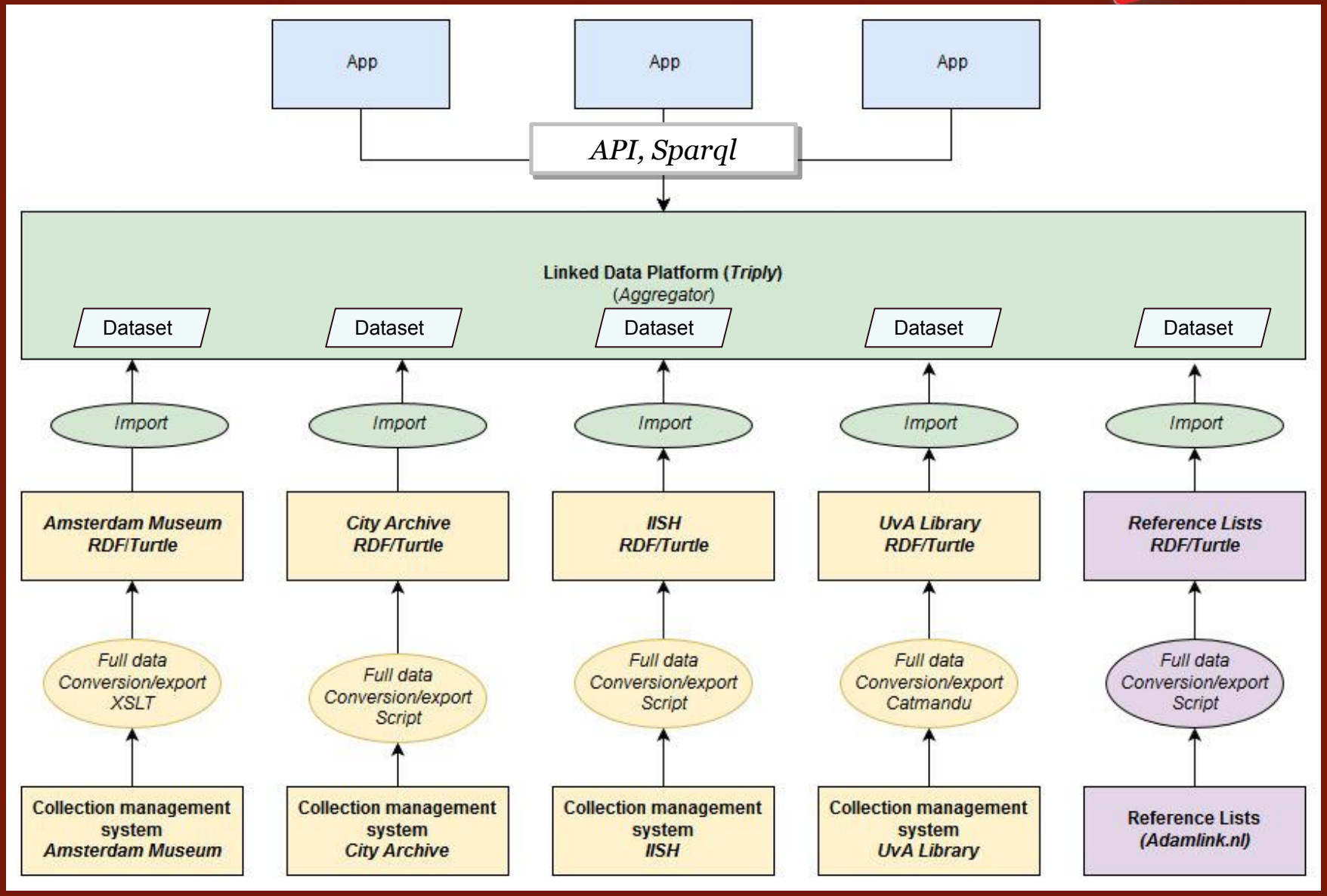
“*A service platform combines and enriches heritage information and makes it usable in a specific context*”
(https://github.com/netwerk-digitaal-erfgoed/high-level-design/blob/master/building-blocks.md#service-portal)

Ruben Verborgh: “*Decentralization needs replication for realistic performance*”

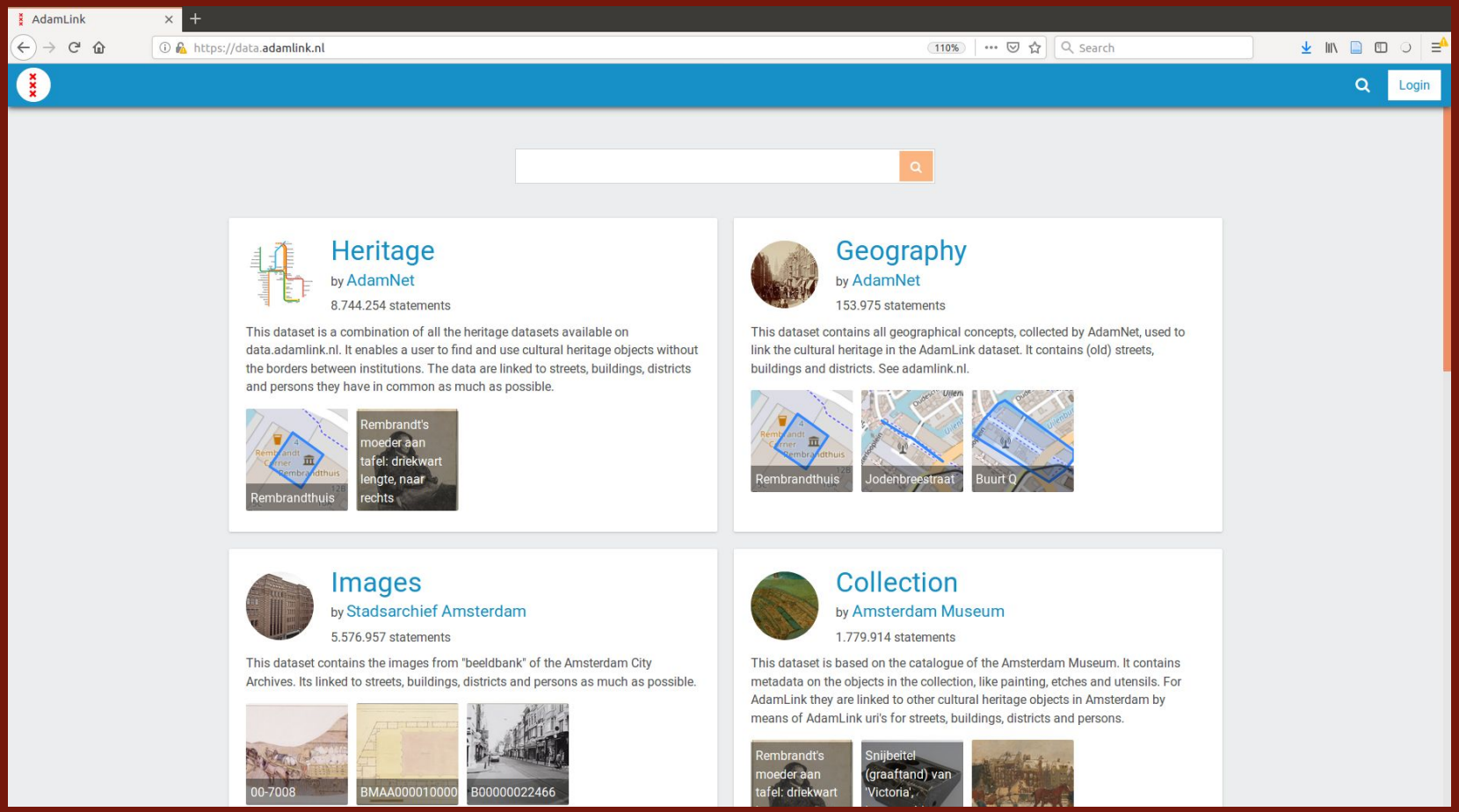
“*...transparent layers in network of nodes...*”

(http://slides.verborgh.org/ELAG-2018/#)

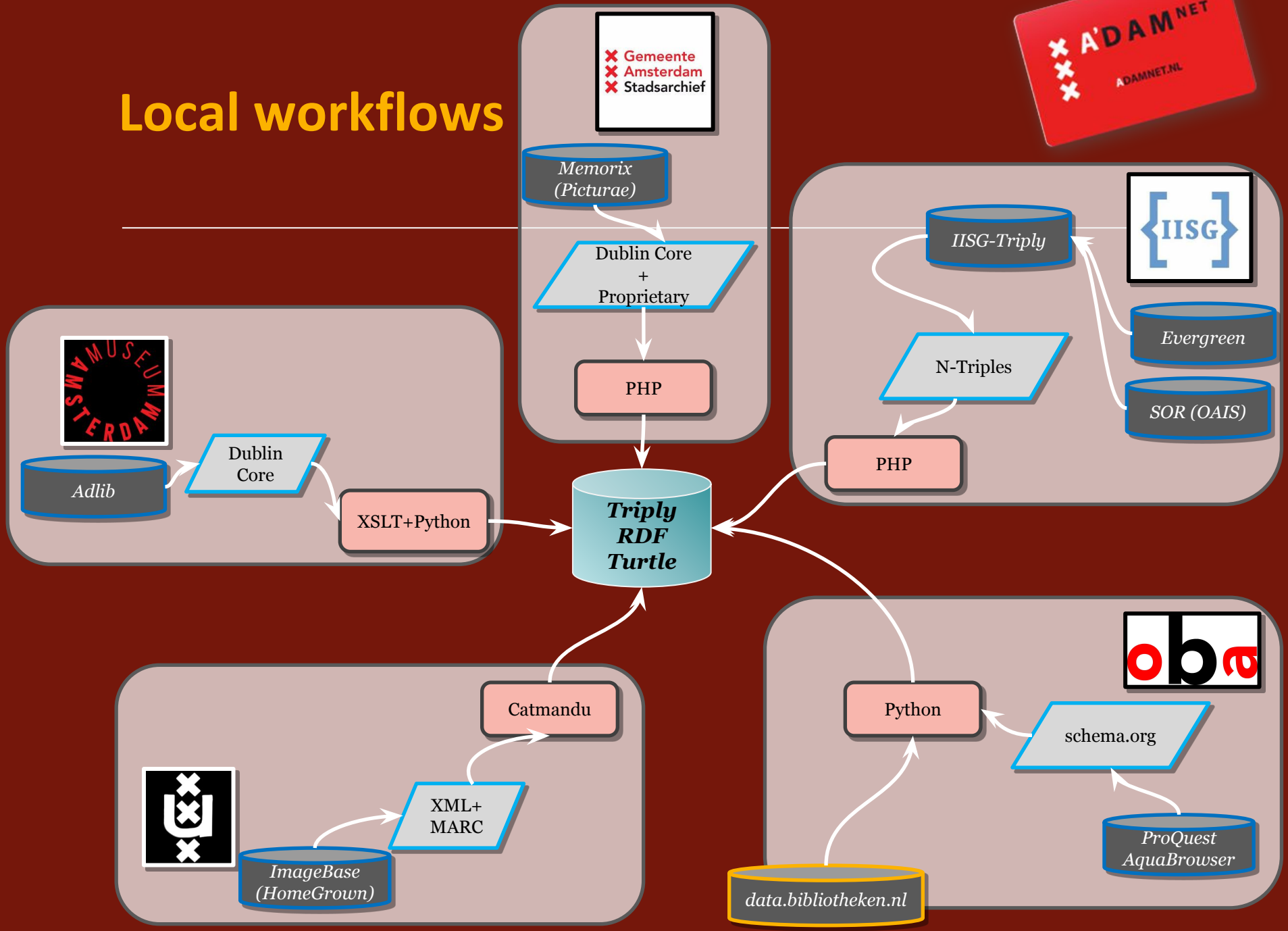
Central Platform: Current situation



http://data.adamlink.nl/

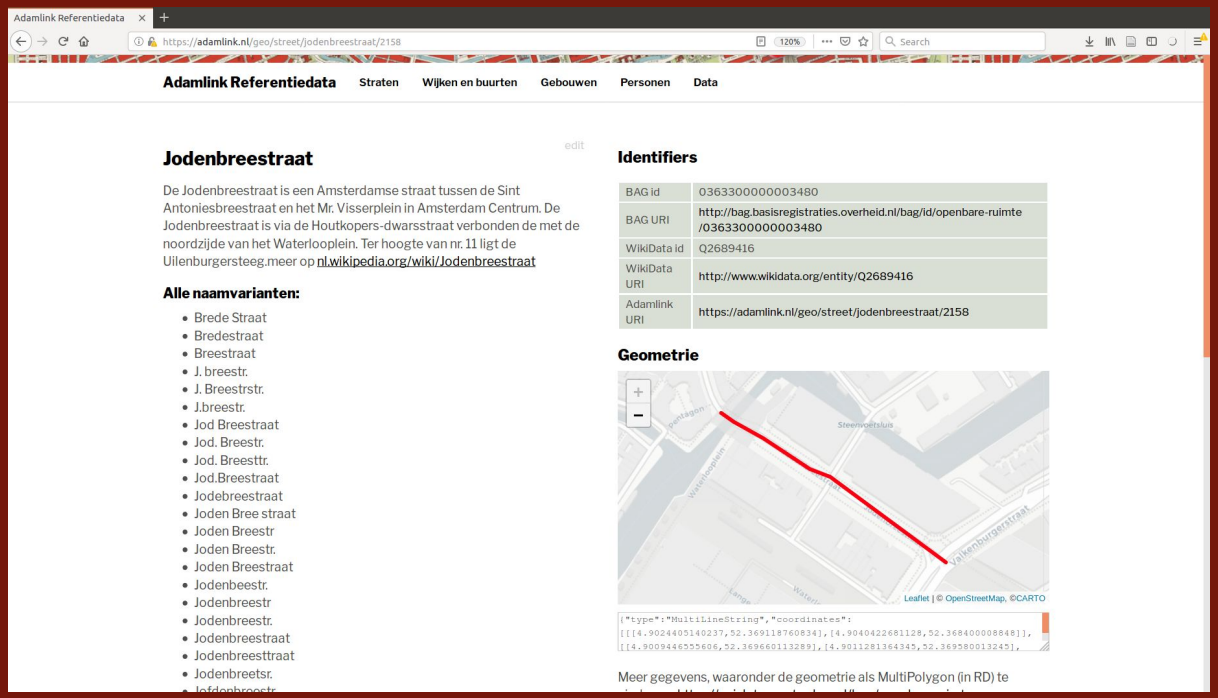


Local workflows



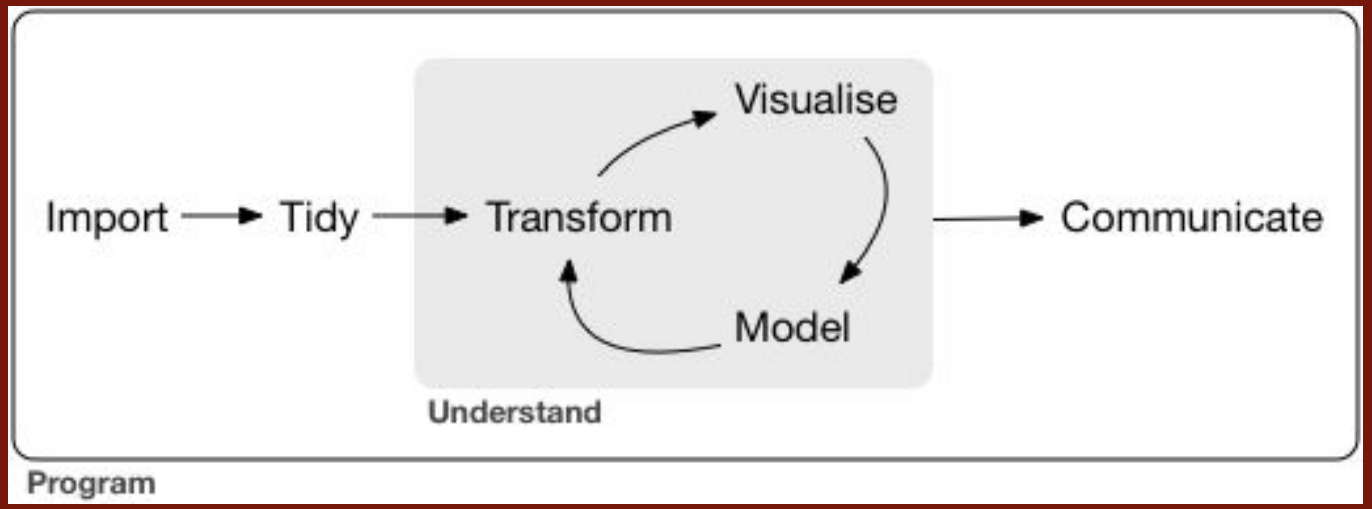
adamlink.nl: "linking points"

- **Locations**
  - *Streets*
  - *Buildings*
- **Creators/contributors**
  - *people*
  - *organisations*
- **Types**
- **Subjects**
  - *including*
  - *people*
  - *organisations*



What we need is *transformation*

"Aggregation" into one dataset at one endpoint



- https://r4ds.had.co.nz/introduction.html

Transformations

1. Ontology alignment
2. Authority alignment
3. Object types alignment
4. Additional statements
5. Restructuring data
6. Data typing

Example: Herengracht / Springer, C.

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```
<http://hdl.handle.net/11259/collection.37414>
    rdf:type          edm:ProvidedCHO ;
    rdfs:label        "De bocht in de Herengracht"^^xsd:string ;
    dc:identifier     "SA 286"^^xsd:string ;
    dc:title          "De bocht in de Herengracht"^^xsd:string ;
    sem:hasBeginTimeStamp  "1882"^^xsd:string ;
    sem:hasEndTimeStamp    "1882"^^xsd:string ;
    foaf:depiction  <http://amasp.adlibhosting.com/wwwopacx_images...>;
    dc:creator    <https://adamlink.nl/person/springer-cornelis/2220> ;
    dc:subject    "wintergezicht"^^xsd:string ;
    dc:type       <http://vocab.getty.edu/aat/300177435> ;
    dct:spatial   <https://adamlink.nl/geo/street/herengracht/1768> ;
    edm:isShownAt <http://hdl.handle.net/11259/collection.37414> ;
    dc:rights     <http://creativecommons.org/publicdomain/mark/1.0/> ;
    void:inDataset  <https://data.adamlink.nl/am/collection/> .
```

(1/6) Ontology alignment: Common Data model?

- Europeana Data Model?
  - Targeted at data aggregation/consolidation
  - Focused on internal Europeana workflow
  - Mainly DC properties
  - EDM properties: internal procedures
- Dublin Core?
  - Not rich enough
- CIDOC-CRM?
  - Not simple enough

(1/6) Ontology Alignment: Common properties

- rdf:type
- foaf:depiction
- rdfs:label
- dc:creator — schema:author, …
- dc:contributor
- dc:type
- dc:subject — schema:about, …
- dct:spatial
- dct:temporal
- dc:date
- sem:hasBeginTimeStamp
- sem:hasEndTimeStamp

(2/6) Authority alignment: Common vocabularies

- Type
  - AAT
- People
  - VIAF
  - WikiData
  - RKD-Artists
  - …
- Subjects
  - WikiData
  - (spatial) Geonames, TGN
  - …

(2/6) Authority alignment: sameAs

- types - AAT URI
- creator/contributor -> AdamLink URI
- subject (for persons) -> AdamLink URI
- location -> AdamLink URI

(3/6) Object types alignment

rdf:type:

- edm:ProvidedCHO
- schema:Person, schema:Organization
- hg:Street, hg:Building, hg:District

(4/6) Additional statements

Data management metadata

organisations, datasets

- void:inDataset - AdamLink dataset URI
- dcterms:publisher - AdamLink Org URI
- dc:type - AAT URI, derived from rdf:type

(5/6) Restructuring data

eg. From EDM to DC:

- Rijksmuseum data
- complex path (via ore:Aggregation-edm:WebResource) between object-uri and the location of an image
- transformed into foaf:depiction

(6/6) Data typing

Complex, not fully developed:

xsd:string, xsd:int, xsd:date

or should this be the responsibility of data provider?

Conclusion

- decentral vs central
- aggregation or not
- transformation

… all depend on the use case!

We tried to develop an overview of the steps needed in transformation

Discussion: who is responsible for what?

That's all Folks!

https://tinyurl.com/adamlinkSWIB18