

The Web of Data and how we make use of it

Linked Data

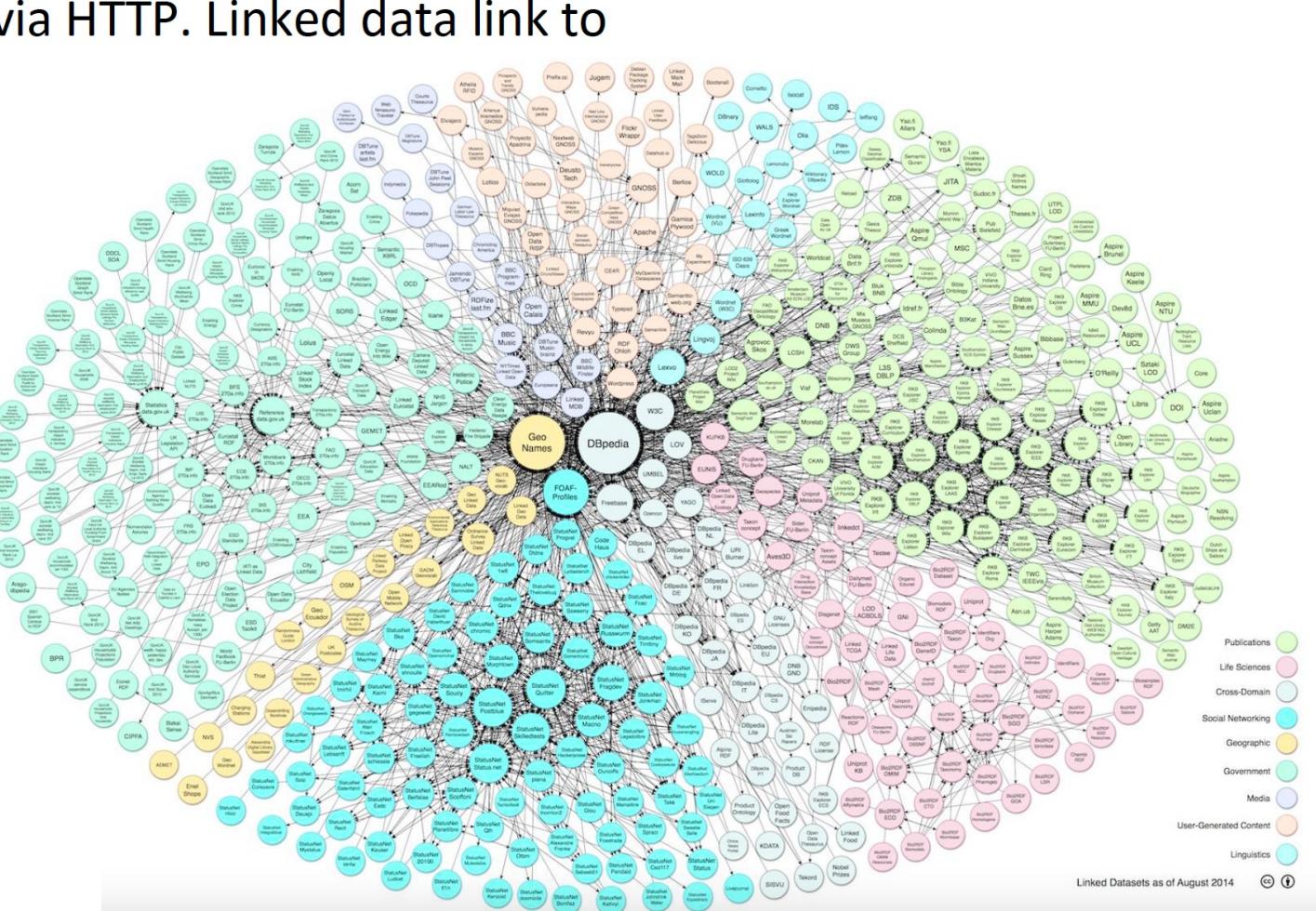
- Linked Open Data (LOD) denote publicly available (RDF) Data in the Web, identified via URI and accessible via HTTP. Linked data link to other data via URI.

The Web of Data

- 9,960 datasets
- >149 billion facts
- >800 million links

(Aug. 2016)

<http://stats.lod2.eu/>
<http://lod-cloud.net/>



The Web of Data and how we make use of it

Linked Data

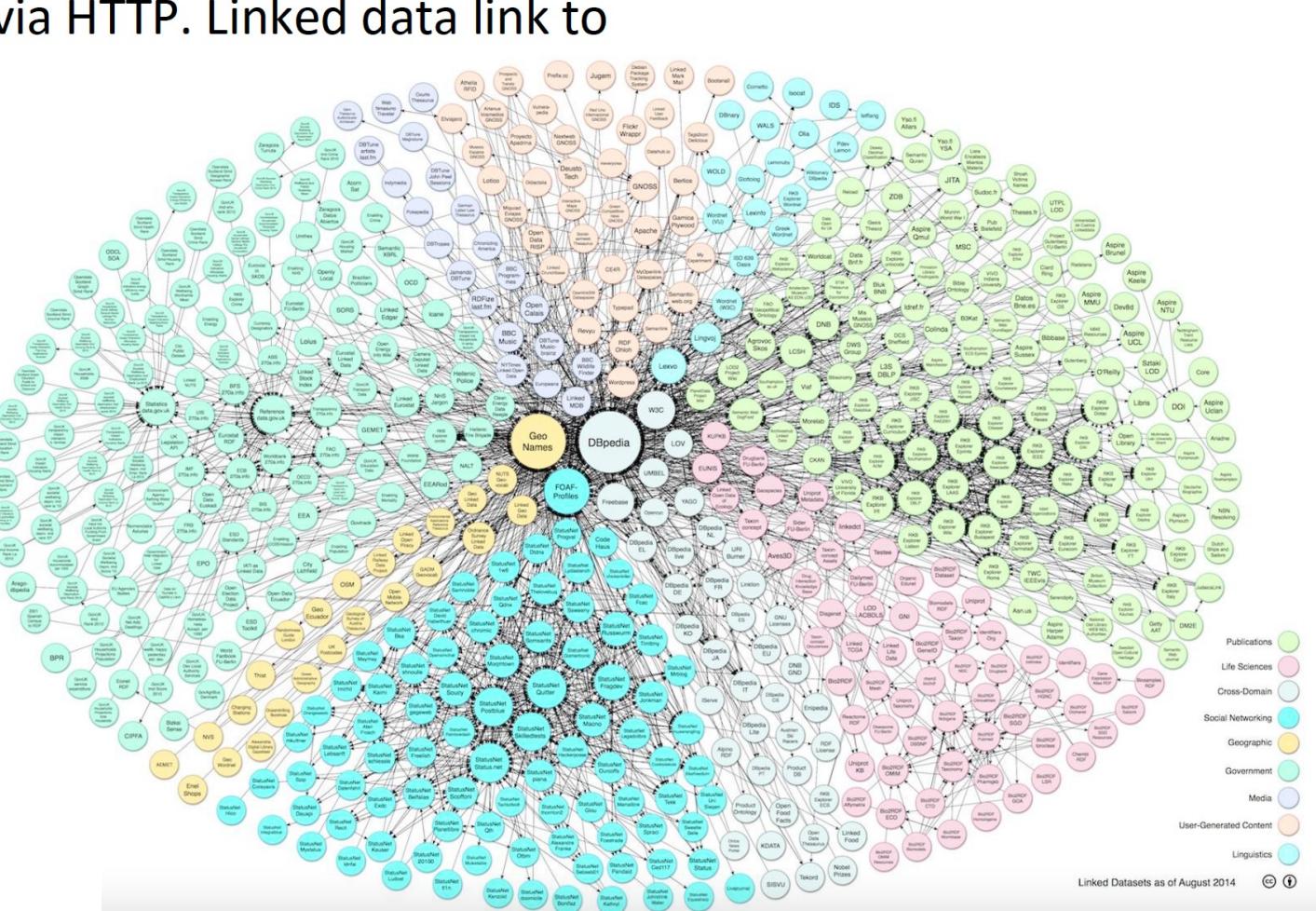
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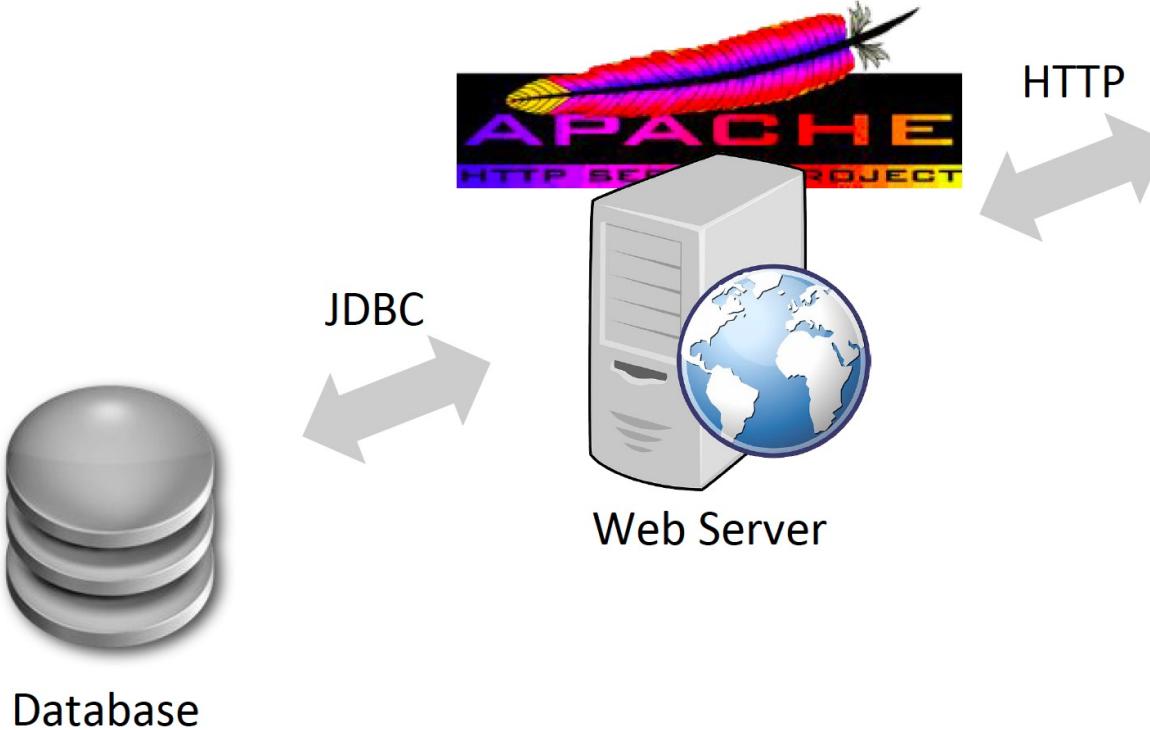
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How to get Data from the (traditional) Web?

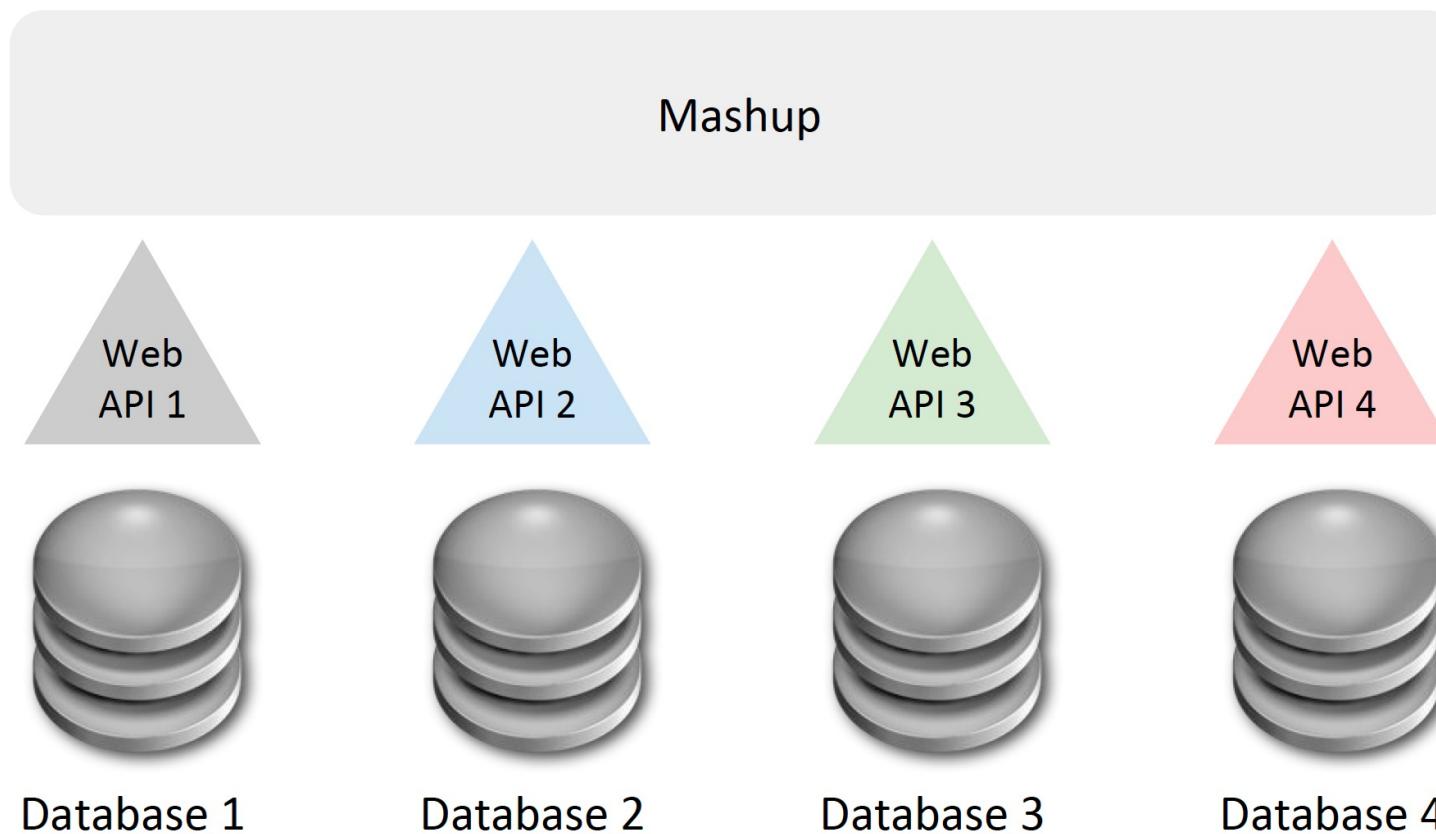
- Data can only be found on the Web, if it is available at some website



Browser

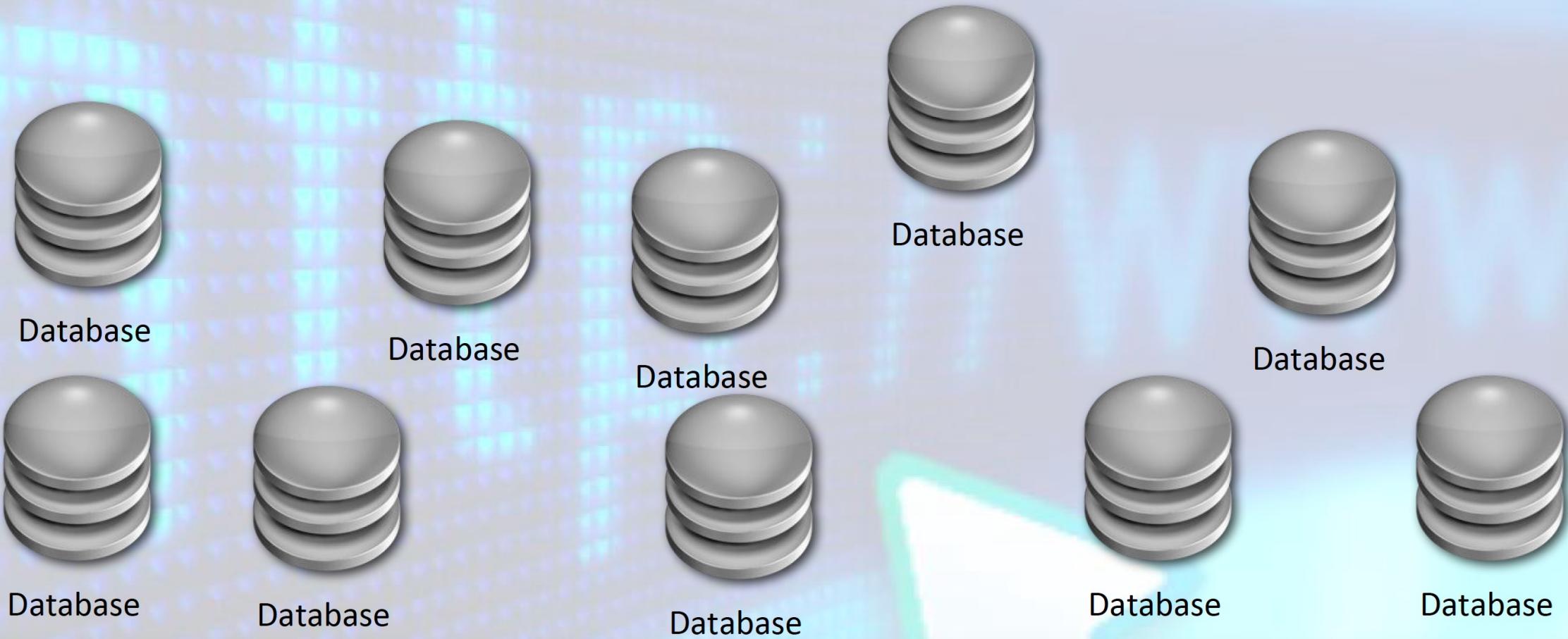
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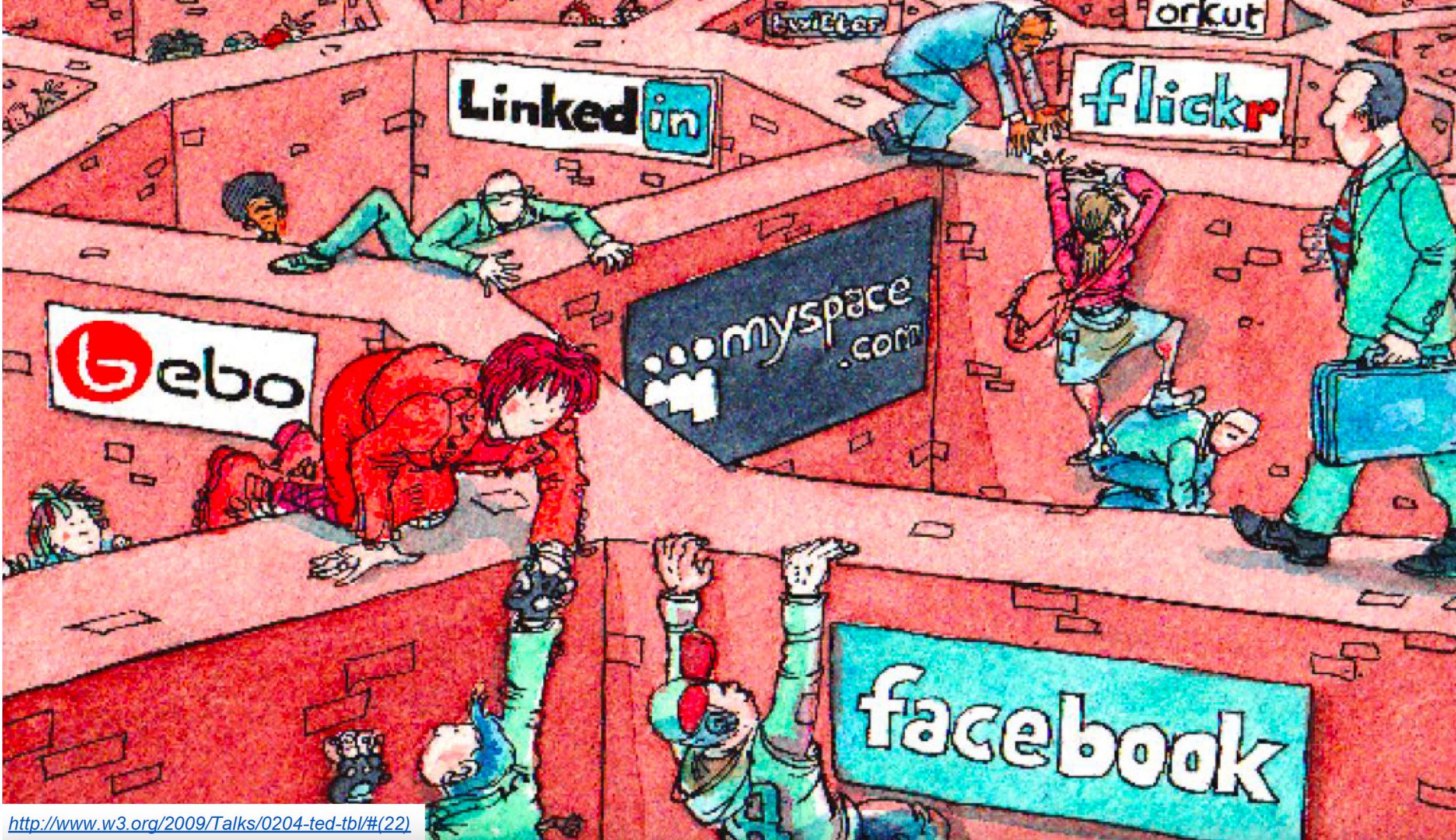
- There is a number of different (proprietary) **Web APIs**, data exchange formats, and **Mashups** on top of that



In the Web today...

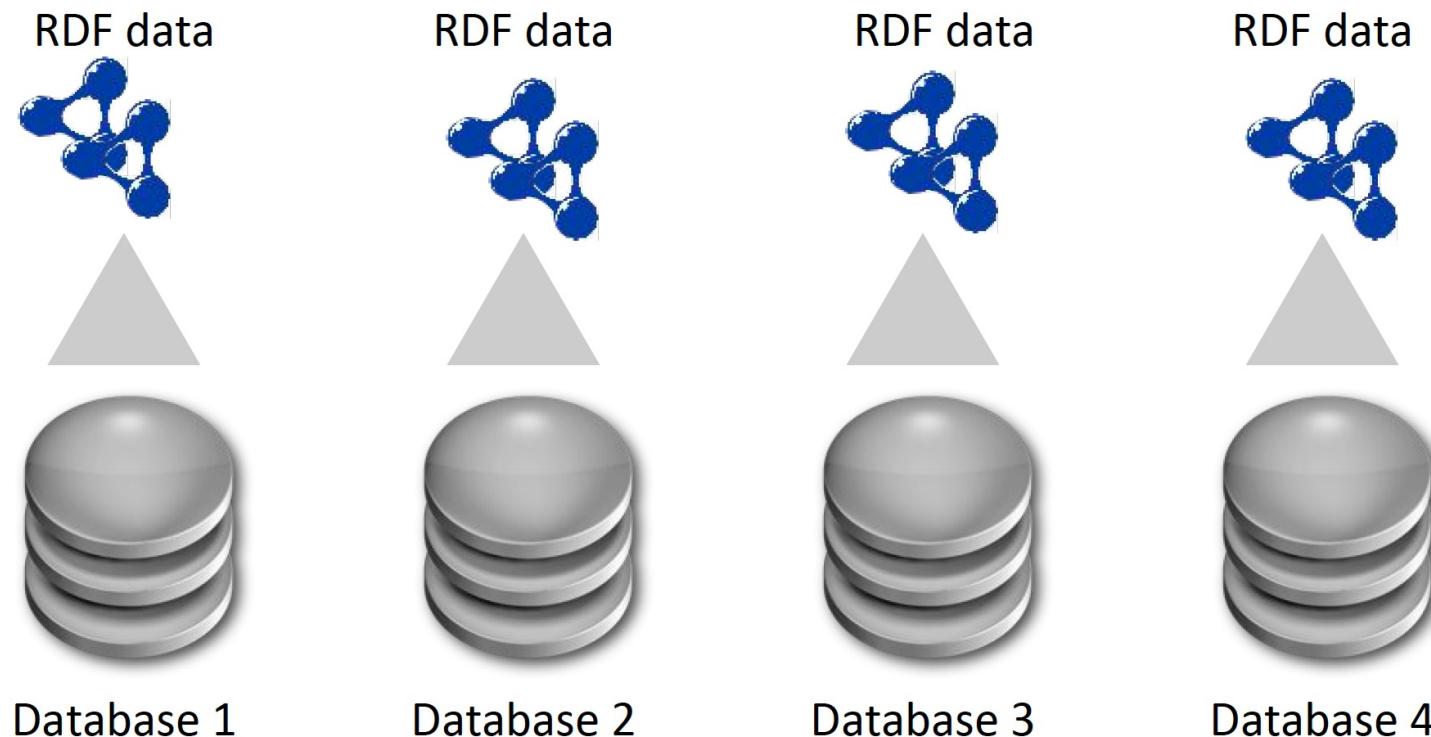
- Data is locked up in **small data islands**
 - Other applications usually cannot access this data...

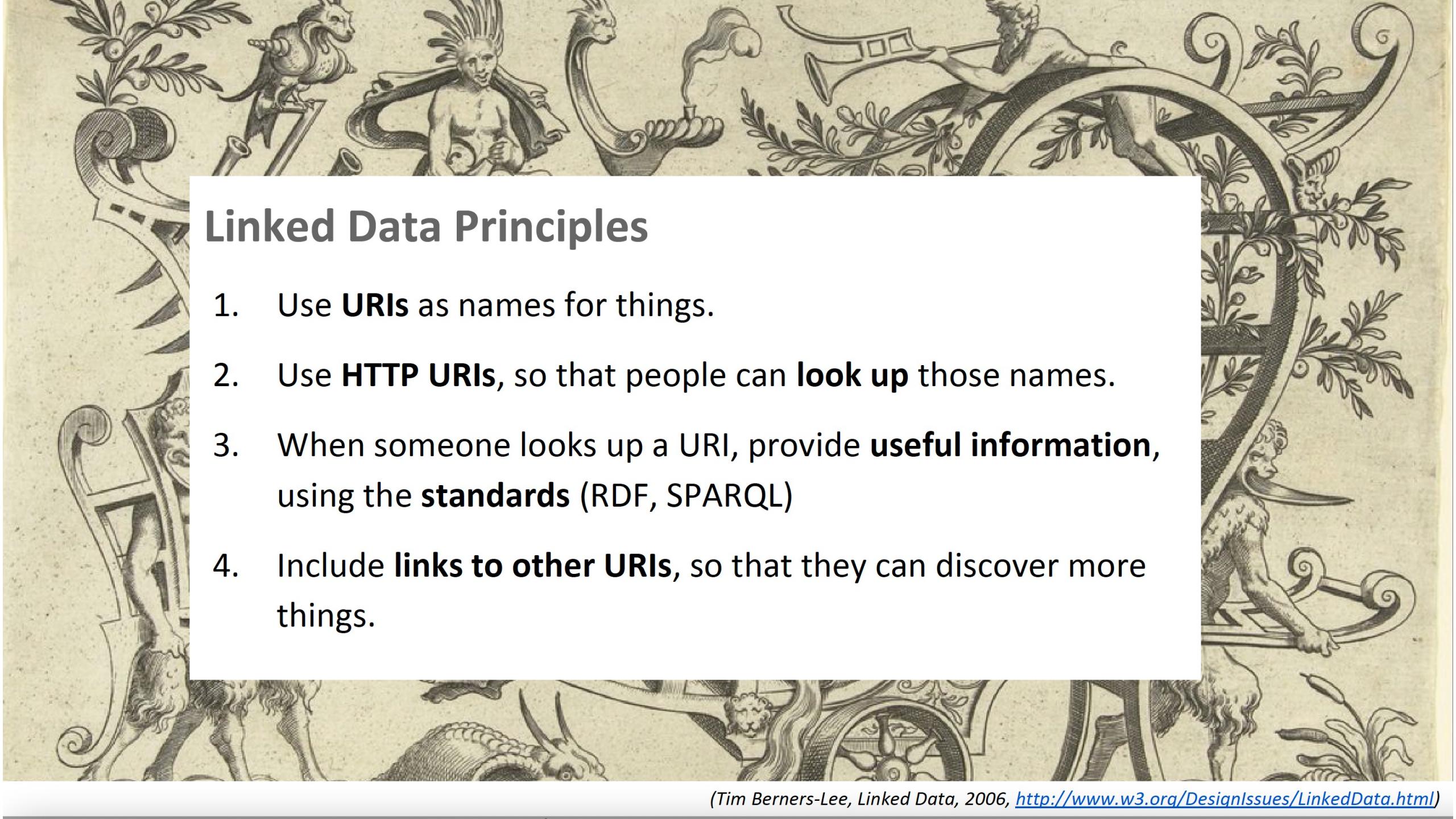




How to get rid of Closed Data Islands?

- **Apply Linked Data technology**
 - to publish (structured) data on the web
 - to draw connections from one data source to data from other data sources





Linked Data Principles

1. Use **URIs** as names for things.
2. Use **HTTP URIs**, so that people can **look up** those names.
3. When someone looks up a URI, provide **useful information**, using the **standards** (RDF, SPARQL)
4. Include **links to other URIs**, so that they can discover more things.

Born in the German town of Eisenach, J. S. Bach was a chorister then violinist before taking his first organist post at Arnstadt while still a teenager. It was in Weimar, as court organist from 1708, that Bach began to produce monthly cantatas, and wrote many of his great organ works.

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Discogs entry on [Johann Sebastian Bach](https://www.discogs.com/artist/Johann-Sebastian-Bach)

MusicBrainz entry on [Johann Sebastian Bach](https://musicbrainz.org/artist/0000-0000-0000-0000)



Keyboard Concertos (piano: Alexandre Tharaud)

1 Concerto for keyboard and orchestra BWV1054 in D minor - I Allegro



2 Concerto for keyboard and orchestra BWV1054 in D minor - II Adagio



Radio 3

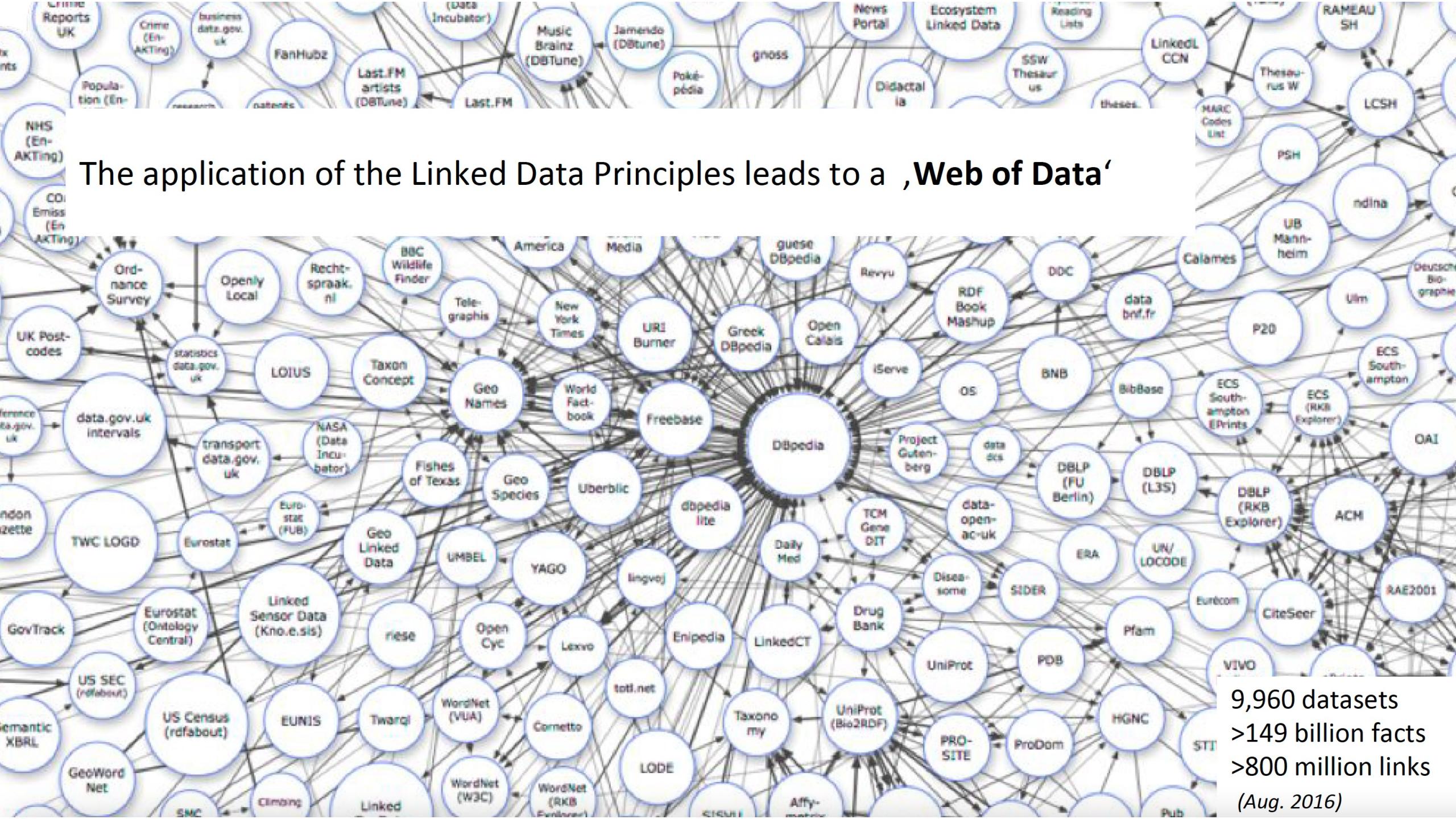
Island Discs
Radio 4

Radio 3



The Benefit of using Linked Data at BBC Music Website

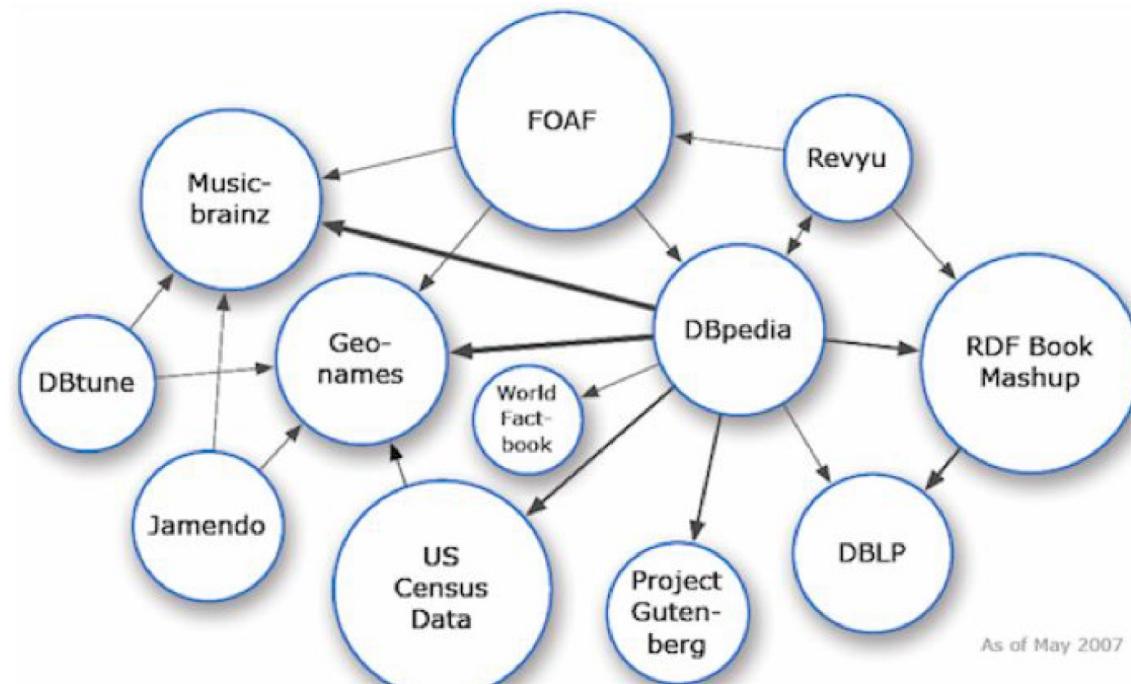
- Information is dynamically aggregated from external, publicly available data (Wikipedia, MusicBrainz, Last.FM, Discogs,...)
- no Screen Scraping
- no specialized API
- all data available as Linked Open Data
- data access via simple HTTP Request
- data is always up-to-date without manual interaction



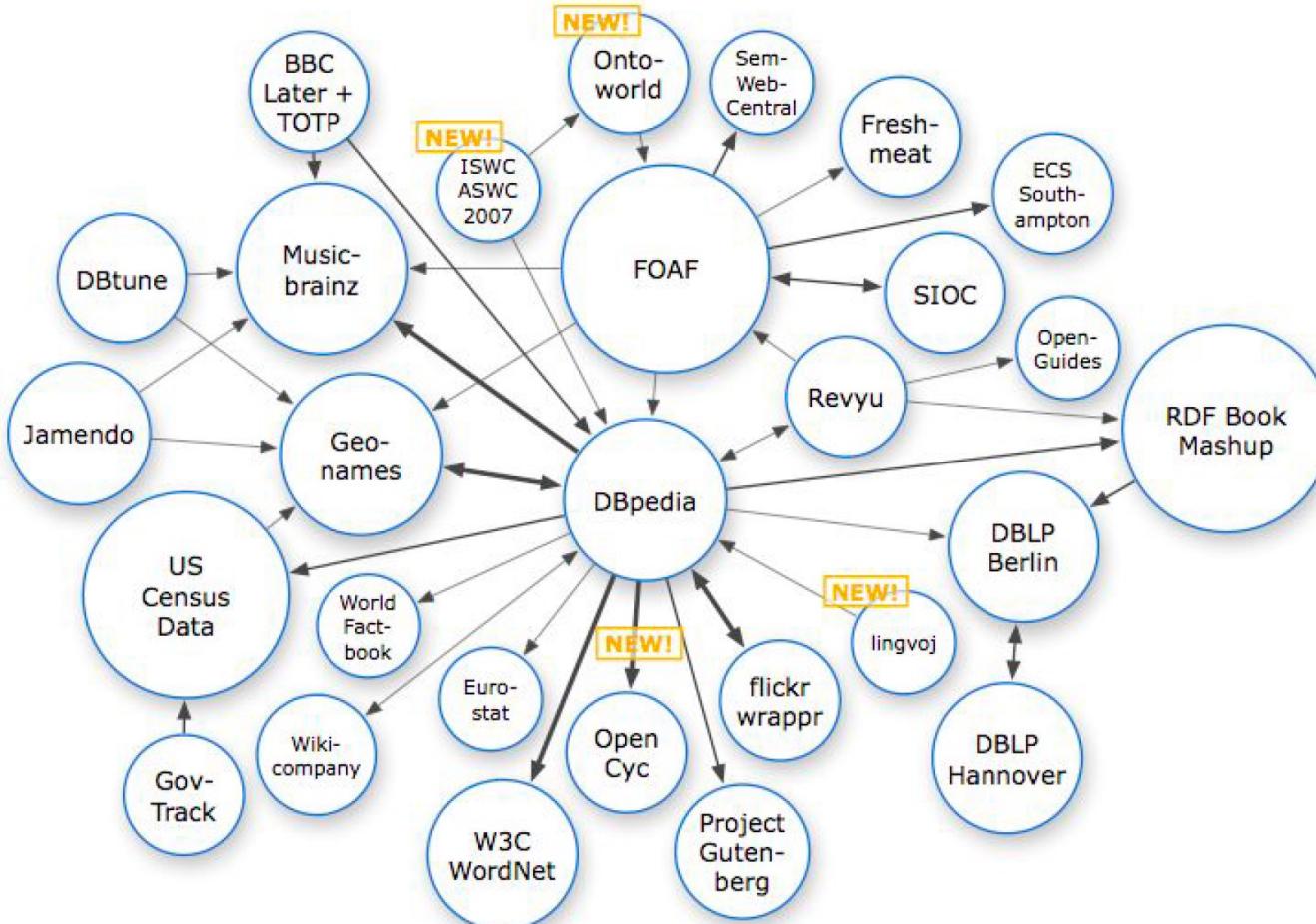
The application of the Linked Data Principles leads to a **‘Web of Data’**

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(Aug. 2016)

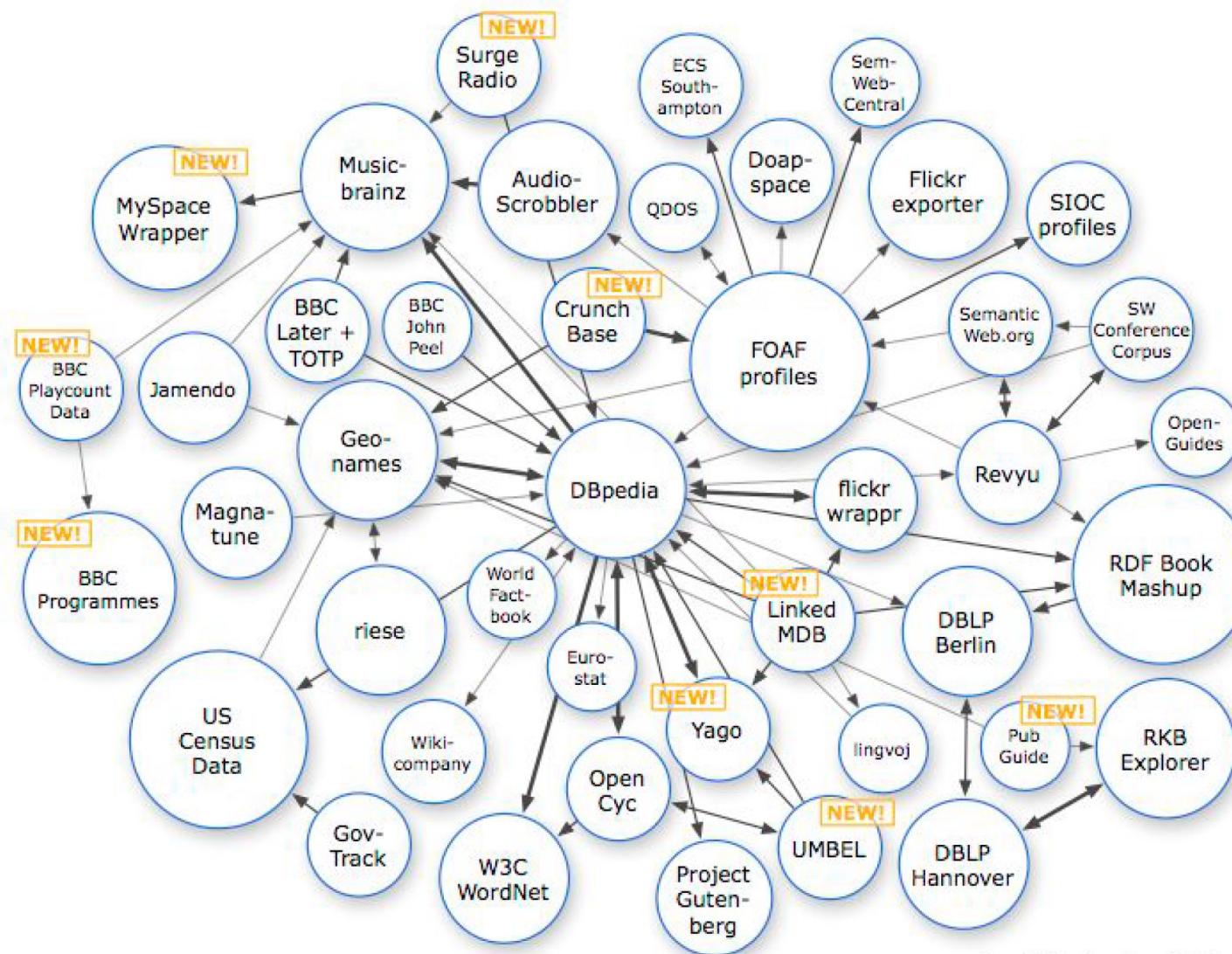
The Development of the Web of Data



The Development of the Web of Data

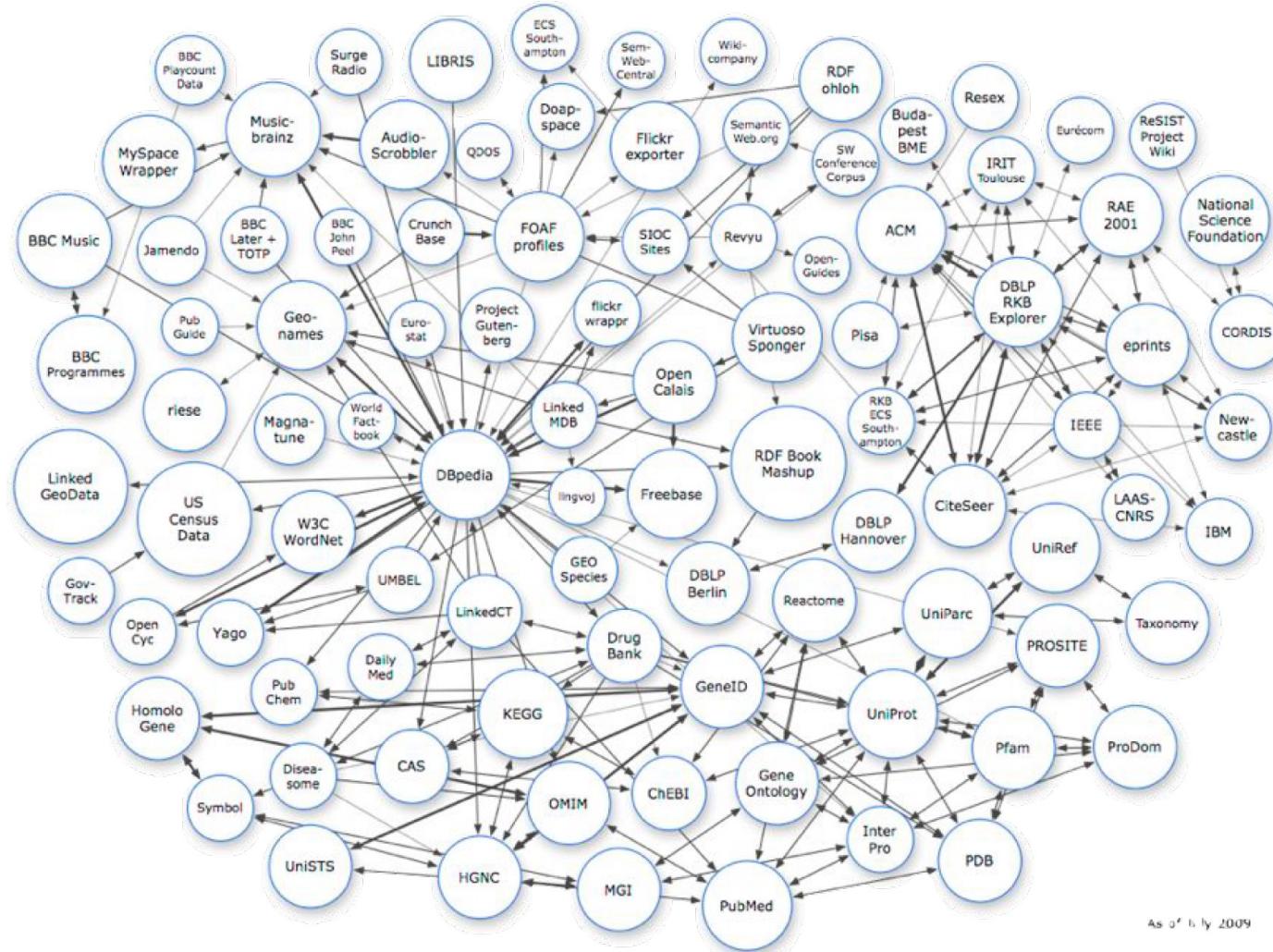


The Development of the Web of Data



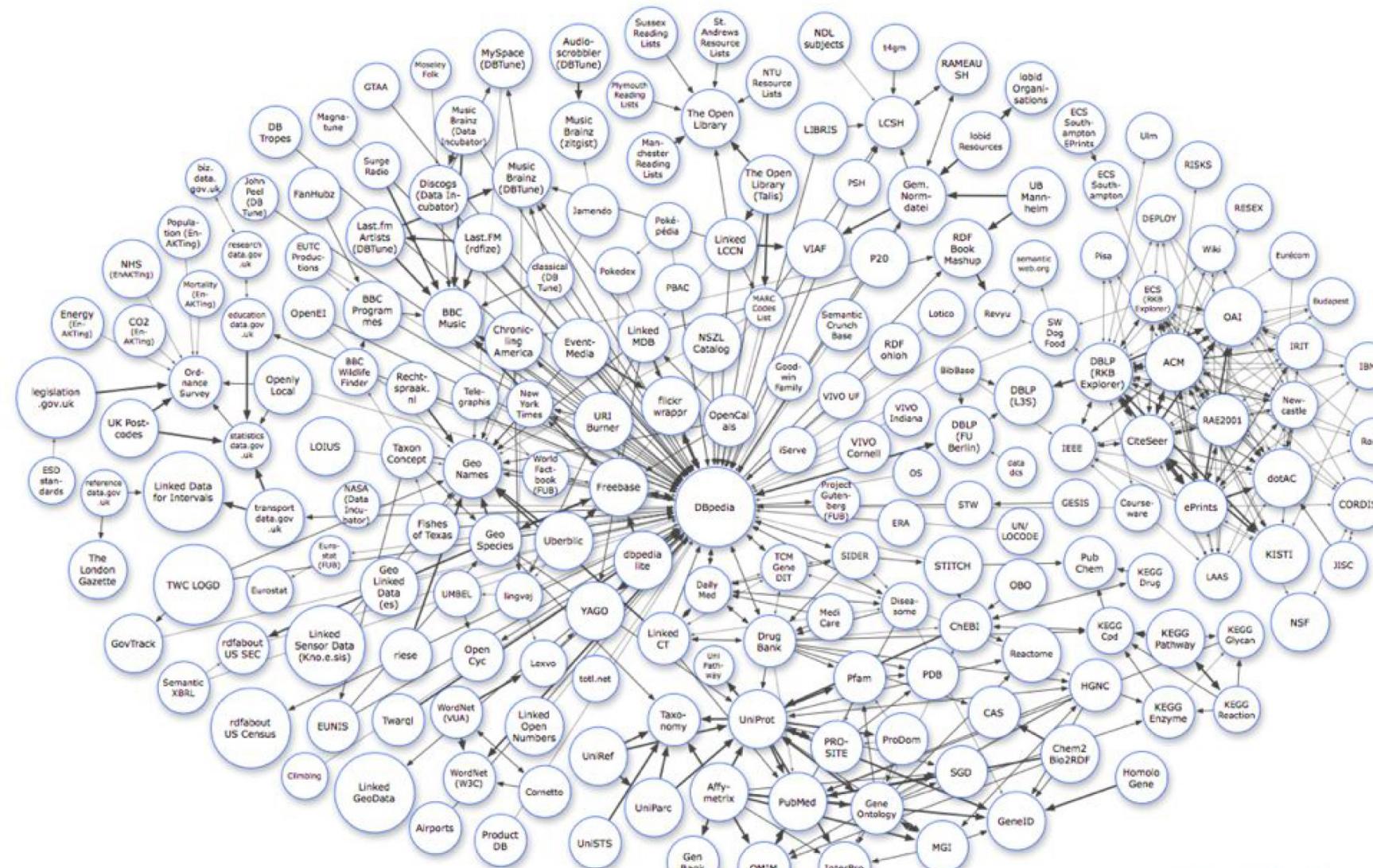
As of September 2008

The Development of the Web of Data



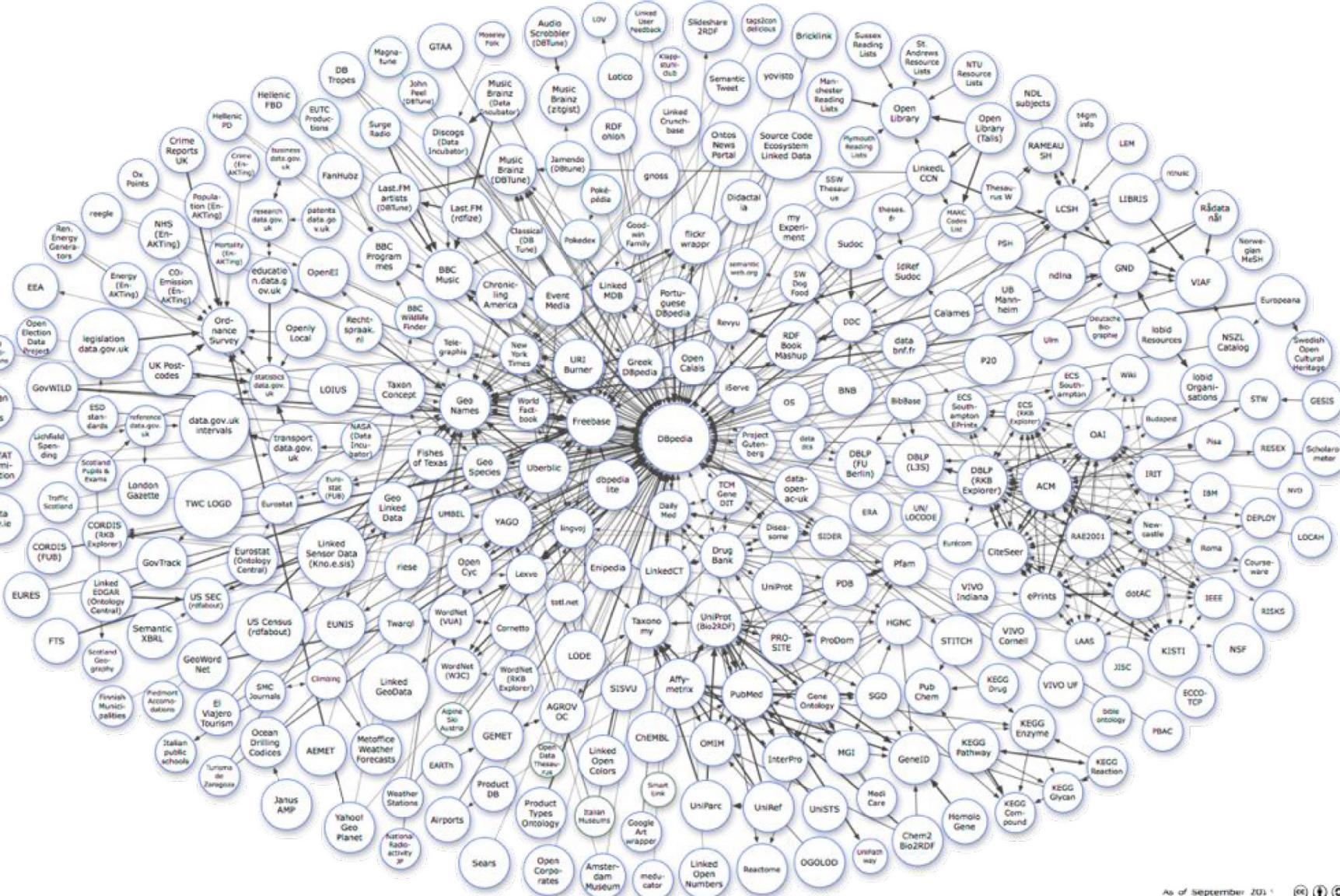
As of 1998, 200

The Development of the Web of Data



As of September 2010

The Development of the Web of Data



Linked Open Data

- Public Linked Data resources in the Web, licensed as Creative Common CC-BY
- Tim Berners-Lee's 5-Star Criteria for Linked Open Data
 - ★ Available on the web (whatever format) but with an **open licence**, to be Open Data
 - ★★ Available as **machine-readable structured data**
(e.g. excel instead of image scan of a table)
 - ★★★ as (2) plus **non-proprietary format** (e.g. CSV instead of excel)
 - ★★★★ All the above plus: use **open standards from W3C**
(RDF and SPARQL) to identify things, so that people can point at your stuff
 - ★★★★★ All the above, plus: **link your data to other people's data** to provide context