

Wikimania 2009
Buenos Aires, August 26, 2009

**DBpedia - Extracting structured data from
Wikipedia**

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Hello

■ Name

- Christian Becker (beckr)

■ Job

- PhD Student at Freie Universität Berlin

■ Wikipedia Involvement

- OpenStreetMap integration

■ Semantic Web Projects

- DBpedia and DBpedia Mobile
- Marbles Browser
- BBC interlinking project
- D2RQ and D2R Server
- flickr™ wrappr

■ DBpedia.org is a community effort to

- extract structured information from Wikipedia
- make this information available on the Web under an open license
- interlink the DBpedia dataset with other open datasets on the Web

■ Contributors

- Freie Universität Berlin (Germany)
- Universität Leipzig (Germany)
- OpenLink Software (UK)
- Linking Open Data Community (W3C SWEO)



UNIVERSITÄT LEIPZIG



Extracting Structured Information from Wikipedia

Title

Description

Languages

Web Links

Categorization

The screenshot shows the Wikipedia page for Bristol. Red boxes highlight the following elements:

- Title:** The word "Bristol" in the article title.
- Description:** The first paragraph of the article, starting with "Bristol (pronunciation (help·info); /-A- brɪstəl) is a city, unitary authority and ceremonial county in South West England, 105 miles (169 km) west of London, and 44 miles (71 km) east of Cardiff."
- Languages:** A list of language options in the left sidebar, including "Български", "Català", "Česky", "Cymraeg", "Dansk", "Deutsch", "Eesti", "Español", "Esperanto", "Euskara", "Français", "हिन्दी", "Ido", "Bahasa Indonesia", "Iszenska", "Italiano", "עברית", "Latviešu", "Lëtzebuergesch", "Lietuvių", "Magyar", "Nederlands", "日本語", and "Polski (bokmål)".
- Coordinates:** "Coordinates: 51°28′N 2°35′W" located above the main image.
- Image:** A photograph of a bridge over a river, with the caption "Bridge and the Avon Gorge".
- Infoboxes:** A table of structured data on the right side of the page, including "sovereign state", "constituent country", "region", "ceremonial county", "historic counties", "administrative HQ", "royal charter", "county status", "government", "type", "governing body", "leadership", "executive", and "MPs".

Domain specific Data

Images

Infoboxes

The DBpedia Dataset

- **Web-scale identifiers for 2.6 million “things”**
 - 80 languages
 - including at least 213,000 persons
 - 328,000 places
- **Altogether 274 million pieces of information (RDF triples)**
 - 29 million triples extracted from infoboxes
 - 609,000 links to pictures
 - 3,150,000 links to relevant external web pages
 - 4,900,000 links to other LOD datasets
- **Categorizations**
 - DBpedia Ontology with 170 classes and 940 properties, based on the most frequently used classes
 - 415,000 Wikipedia categories
 - 75,000 YAGO categories
- **Updated from Wikipedia dumps; Live Update soon**

Example: RDF from an Infobox

Calgary
From Wikipedia, the free encyclopedia

Coordinates: 51°02′42″N 114°03′26″W﻿ / ﻿51.04500°N 114.05722°W﻿ / 51.04500; -114.05722

This article is about the Canadian city. For other uses, see Calgary (disambiguation).

Calgary (IPA: /ˈkælɡɜːri/) is the largest city in the province of Alberta, Canada. It is located in the south of the province, in an area of foothills and high plains, approximately 80 km (50 mi) east of the front of the Canadian Rockies. The city is located in the Parkland region of Alberta. Calgary is the third largest civic municipality, by population, in Canada. As of the 2008 civic census, Calgary's population was 1,042,892.^[1] The metropolitan population (CMA) was 1,162,310 in 2006,^[4] making Greater Calgary the fifth largest census metropolitan area in the country after Toronto, Montreal, Vancouver, and Ottawa. Because it is located 298 km (185 mi) due south of Edmonton, statisticians define the narrow populated area between these cities as the "Calgary-Edmonton Corridor."^[5] Calgary is the largest Canadian metropolitan area between Toronto and Vancouver.


Calgary is well-known as a destination for winter sports and recreation, with a number of major mountain resorts near the city and metropolitan area. Economic activity in Calgary is mostly centred on the petroleum industry; however, agriculture, tourism, and high-tech industries contribute to the city's fast economic growth. Calgary holds many annual festivals which include the Calgary Stampede, the Folk Festival, the Lilac Festival, One Yellow Rabbit High Performance Arts Festival, Calgary's International Festival of the Arts, Wordfest: Banff-Calgary International Writers Festival, Calgary International Spoken Word Festival, One World Festival (GlobalFest), and the fourth largest Caribbean festival in the country (Carifest). In 1988, Calgary became the first Canadian city to host the Olympic Winter Games, and one of the fastest long track speed skating ice rinks in the world was built at the University of Calgary to accommodate these Games.

Calgary was ranked the world's cleanest city by Mercer Quality of Living in a survey published in 2007 by *Forbes* magazine.^[6]

Contents (hide)

- History
 - 1.1 First settlement
 - 1.2 The oil boom
 - 1.3 Recent history
- Geography
 - 2.1 Calgary's neighbourhoods
 - 2.2 Climate
- Flora and fauna
- Culture

Calgary
City of Calgary



Downtown Calgary.

Government	
 - Mayor	Dave Bronconnier (Past mayors)
 - Governing body	Calgary City Council
 - Manager	Owen A. Tobert
Area ^[1]	
 - City	726.50 km ² (280.5 sq mi)
 - Metro	5,107.43 km ² (1,972 sq mi)
Elevation	1,048 m (3,438.3 ft)
Population (2006) ^[1]	
 - City	988,193
 - Density	1,360.2/km ² (3,522.9/sq mi)
 - Metro	1,079,310
 - Population rank	3rd
 - Metro rank	5th

```
<http://dbpedia.org/resource/Calgary>  
dbpedia:native_name "Calgary" ;  
dbpedia:altitude "1048" ;  
geo:lat "51.044998" ;  
geo:long "-114.057220" ;  
dbpedia:population_city "988193" ;  
dbpedia:population_metro "1079310" ;  
  
mayor_name  
dbpedia:Dave_Bronconnier ;  
governing_body  
dbpedia:Calgary_City_Council ;  
  
...
```



The DBpedia Ontology

- Hand-made
- 350 most frequently used templates ↔ 170 ontology classes
- 2350 template properties ↔ 940 ontology properties
- Currently tracking 882,000 resources (articles)
- We are currently moving the mappings to meta:
 - <http://meta.wikimedia.org/wiki/DBpedia/ontology>
- Great for cross-language fusion
 - e.g. comparing inhabitants of en:London with fr:Paris
 - en:London – settlement infobox
 - fr:Paris – Communes de France

DBpedia Use cases

- 1. Improving Wikipedia Search**
- 2. Improve Wikipedia Data quality through better template knowledge**
- 3. Data Source for other Applications and Mashups**
- 4. Nucleus for the Emerging Web of Data**

DBpedia Search: Buenos Aires...



[About DBpedia](#) | [About neofonie](#)

[Contact](#)

[First](#) | [Previous](#) | [Next](#) | [Last](#)

▼ item type

- Place (227059)
- Person (205390)
- Work (189671)
- PopulatedPlace (161634)
- Area (115930)
- MusicalWork (102047)
- Species (90789)
- Organisation (76089)
- Athlete (75791)
- Album (74089)
- Artist (69050)
- FootballPlayer (50947)
- City (40190)
- Film (34683)
- MusicalArtist (34483)
- Actor (25923)
- Single (24612)
- Building (23071)
- EducationalInstitution (21052)
- Company (20173)
- OfficeHolder (19974)
- Book (15679)
- RadioStation (13032)

Your Filters

No Filters selected

Results 1 to 1 of 1



Wikipedia

Wikipedia is a free, multilingual encyclopedia project operated by the non-profit Wikimedia Foundation. Its name is a portmanteau of the words wiki and encyclopedia. Wikipedia's 10 million articles, about a quarter of which are in English, have been written collaboratively by volunteers around the world, and almost all of its articles can be edited by anyone who can access the Wikipedia website. Launched in 2001 by Jimmy Wales and Larry Sanger, it is currently the largest and most popular general reference work on the Internet. Critics of Wikipedia target its systemic bias and inconsistencies and its policy of favoring consensus over credentials in its editorial process. Wikipedia's reliability and accuracy are also an issue. Other criticisms are centered on its susceptibility to vandalism and the addition of spurious or unverified information.

<http://dbpedia.neofonie.de>

Filter for films about Buenos Aires...



About DBpedia

About neofonie

Contact

Search

[First](#) | [Previous](#) | [Next](#) | [Last](#)

▼ item type

- Resource (1560)
- Person (918)
- Athlete (565)
- FootballPlayer (470)
- Place (259)
- PopulatedPlace (222)
- Area (206)
- Artist (201)
- Work (181)
- Organisation (166)
- Film (121)**
- SportsTeam (103)
- SoccerClub (103)
- Actor (91)
- OfficeHolder (80)
- MusicalArtist (72)
- RugbyPlayer (37)
- MusicalWork (35)
- Building (33)
- Album (32)
- Company (28)
- EducationalInstitution (23)
- FormulaOneRacer (23)

Your Filters

[Reset Filters](#) ✕

Results 1 to 5 of 1560

text search for buenos aires ✕

Oswaldo Soriano

, 1997 in Buenos Aires).

Plan 4

Plan 4 is a Heavy metal band from Buenos Aires, Argentina that formed in 2004.

Mad (band)

Mad is a hard rock band from Buenos Aires, Argentina. It was formed in 1997.

Refine: Films released between 2005 to 2008



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[Contact](#)

[First](#) | [Previous](#) | [Next](#) | [Last](#)

▼ item type

- Film (121)
- Work (121)
- Resource (121)

▼ language

- Spanish language (108)
- English language (8)
- Silent film (2)

[more](#)

▼ released in year

- 1939 (10)
- 2005 (6)
- 2000 (6)

[more](#)

▼ director

- José A. Ferreyra (8)

Your Filters

[Reset Filters](#) ✕

Results 1 to 5 of 121

text search for buenos aires ✕ **item type** Film ✕

La Chismosa

La Chismosa is a 1938 Argentine film. The film premiered in Buenos Aires.

Villa Discordia

Villa Discordia is a 1938 Argentine film directed by Arturo S. Mom. The film premiered in Buenos Aires.

Mientras Buenos Aires duerme

Mientras Buenos Aires duerme is a 1924 silent Argentine film directed and written by José A. Ferreyra. The film premiered in 1924 in Buenos Aires.

Results link to Wikipedia



About DBpedia

About neofonie

Contact

Search

[First](#) | [Previous](#) | [Next](#) | [Last](#)

▼ item type

- Film (8)
- Work (8)
- Resource (8)

▼ language

- Spanish language (6)
- English language (2)

▼ released in year

- 2005 (6)
- 2006 (1)
- 2007 (1)

▼ director

- Israel Adrián Caetano (2)
- Jorge Gaggero (1)
- Pablo José Meza (1)

[more](#)

Your Filters

[Reset Filters](#) ✕

Results 1 to 5 of 8

text search for buenos aires ✕ **item type** Film ✕ **released in year** 2005 to 2009 ✕



3 Américas

3 Américas is a 2007 Argentine/US dramatic film written and directed by Cristina Kotz Cornejo. Produced by Cristina Kotz Cornejo and Angela Counts. The story takes place in Boston, Massachusetts and Buenos Aires, Argentina.

Buenos Aires 100 Kilómetros

Buenos Aires 100 kilómetros is an Argentine, French, and Spanish, film, written and directed by Pablo José Meza. The picture features Juan Ignacio Perez Roca, Emiliano Fernández, Alan Ardel, Hernan Wainstein, Juan Pablo Bazzini, among others. The film, partly funded by INCAA, tells a coming-of-age story in a town 100 kilometers from Buenos Aires.

Use DBpedia locations as starting points ...



Choose between 14 languages ...



Get more details ...



Accessing the DBpedia dataset

■ Linked Data

- e.g. <http://dbpedia.org/resource/London>

■ SPARQL Interface

- <http://dbpedia.org/sparql>

■ Download RDF Dumps

- <http://wiki.dbpedia.org/Downloads>

■ Amazon Public Datasets


Linked Data Interface

- **The project follows the Linked Data principles**
 - All concepts are identified using URI references
 - All URIs are dereferencable over the Web into a small RDF snippet

- **The Linked Data interface can be used by**
 - Semantic Web Browsers, like
 - Tabulator Browser
 - Marbles
 - OpenLink RDF Browser
 - Semantic Web Crawlers, like
 - Zitgist (Zitgist LLC, USA)
 - SWSE (DERI, Ireland)
 - Swoogle (UMBC, USA)

Berlin

URI:

Property	Value	Sources
population	3398888	G2
type	http://dbpedia.org/City	G2
comment	Berlin is the capital city and one of the sixteen Federal States of Germany. It is the country's largest city in area and population, and the second most populous city in the European Union.	G2
comment	Berlin ist die deutsche Bundeshauptstadt und als Stadtstaat ein eigenständiges Land der Bundesrepublik Deutschland. Berlin ist die bevölkerungsreichste und flächengrößte Stadt Deutschlands und nach Einwohnern die zweitgrößte Stadt der EU.	G2
label	Berlin	G2
sameAs	http://sws.geonames.org/2950159/	G2
subject	http://dbpedia.org/resource/category/Berlin	G2
subject	http://dbpedia.org/resource/category/Capitals_in_Europe	G2
subject	http://dbpedia.org/resource/category/Cities_in_Germany	G2
subject	http://dbpedia.org/resource/category/German_state_capitals	G2
subject	http://dbpedia.org/resource/category/Host_cities_of_the_Summer_Olympic_Games	G2
subject	http://dbpedia.org/resource/category/States_of_Germany	G2
sourceURL	Berlin	G1
depiction		G2
page	http://en.wikipedia.org/wiki/Berlin	G2
is birthplace of	Adolf von Baeyer	G2
is birthplace of	http://dbpedia.org/resource/person/Albert_Speer_%28the_younger%29	G2

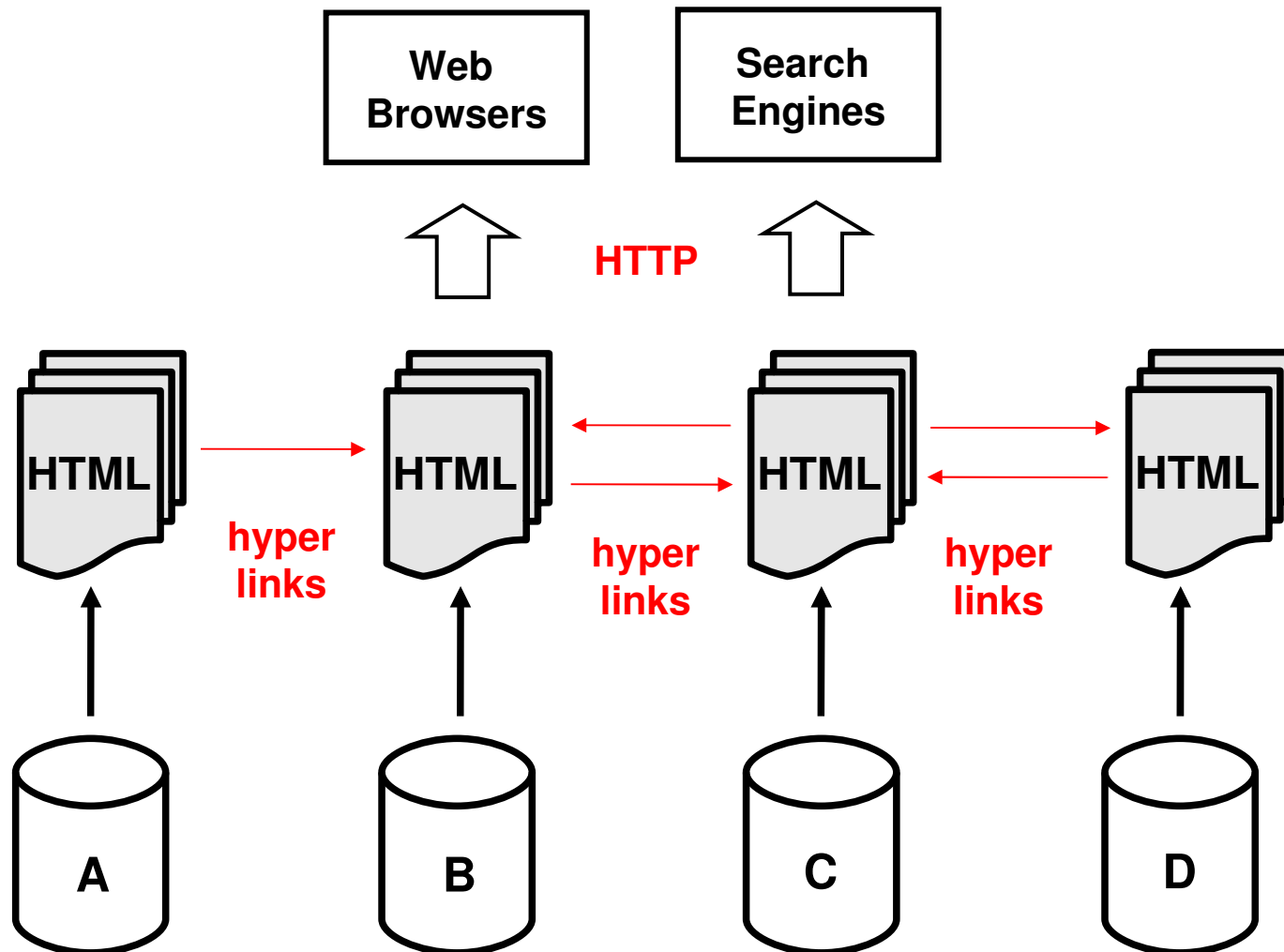
The DBpedia SPARQL Endpoint

- <http://dbpedia.org/sparql>
- hosted on a OpenLink Virtuoso server
- can answer SPARQL queries like
 - Give me all Sitcoms that are set in NYC?
 - All German musicians that were born in Berlin in the 19th century?
 - All tennis players from Moscow?
 - All films by Quentin Tarentino?
 - All soccer players with tricot number 11, playing for a club having a stadium with over 40,000 seats and is born in a country with over 10 million inhabitants?

DBpedia and the web of data

The Web of Documents

The Web is a single information space build on open standards and hyperlinks.

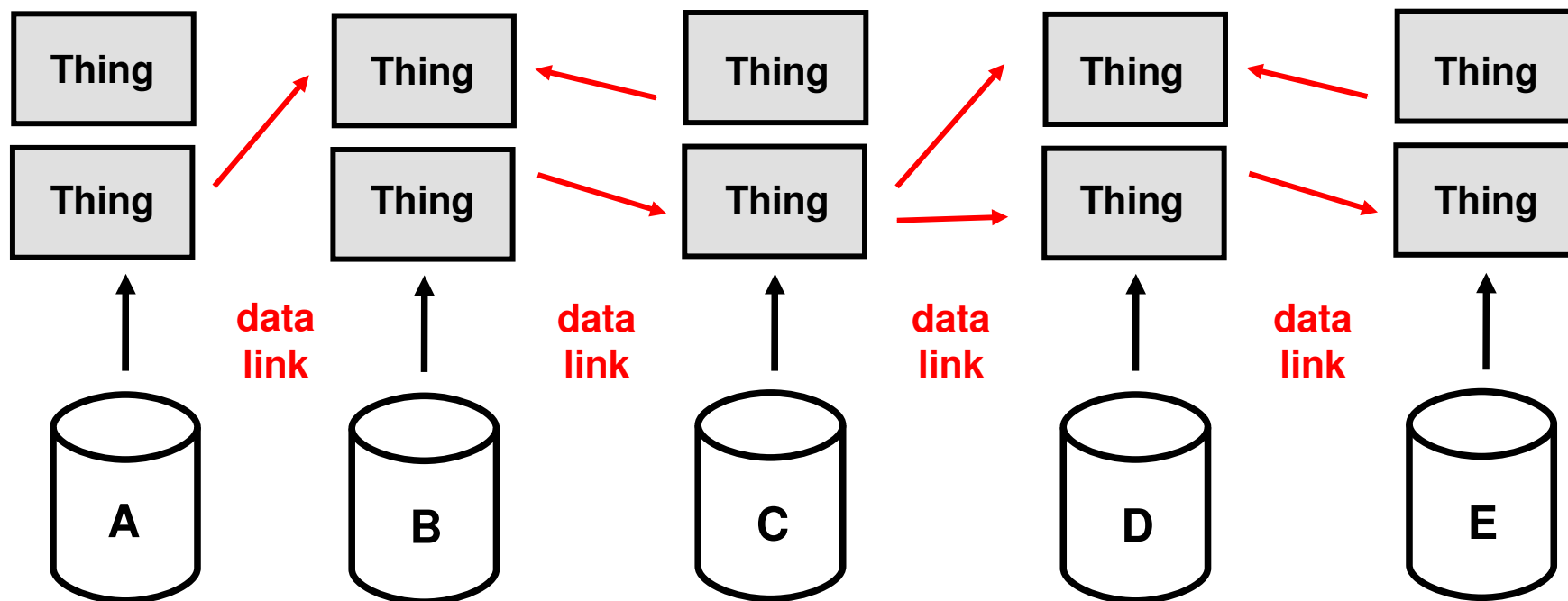


Linked Data

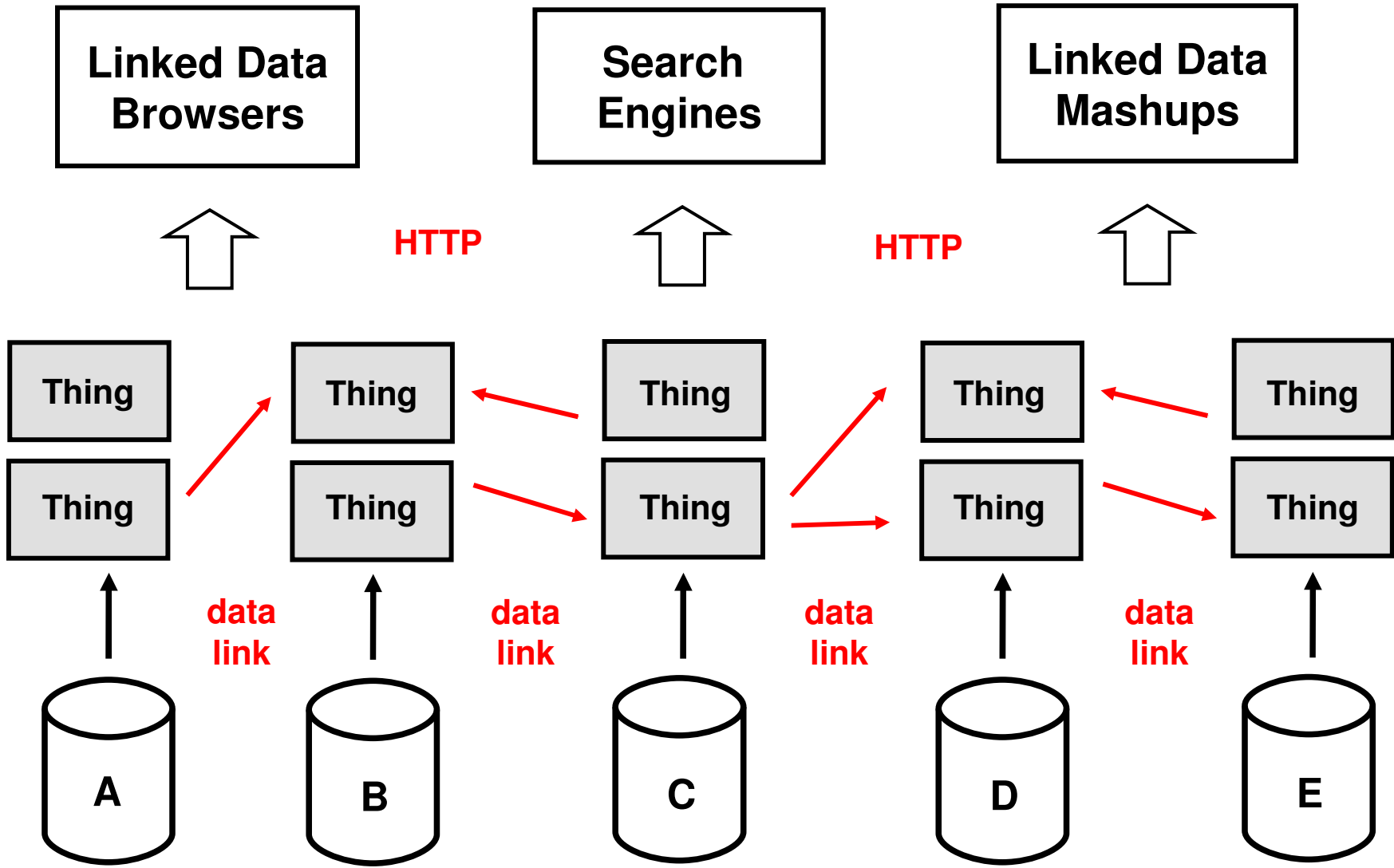



























































Use RDF and HTTP to

1. publish structured data on the Web,
2. set links between data from one data source to data within other data sources.



What can I do with this?



label	<ul style="list-style-type: none"> • http://www.w3.org/2000/10/swap/pim/contact#Male  
sameAs	<ul style="list-style-type: none"> • Tim Berners-Lee     • Tim Berners-Lee (also at www4.wiss.fu-berlin.de)  
image	  
Weblinks	<ul style="list-style-type: none"> • http://www.w3.org/People/Berners-Lee/    
name	<ul style="list-style-type: none"> • Tim Berners-Lee       • Timothy Berners-Lee     • Tim Berners Lee 
Given name	<ul style="list-style-type: none"> • Timothy  
family name	<ul style="list-style-type: none"> • Berners-Lee  
sha1sum of a personal mailbox URI name	<ul style="list-style-type: none"> • 965c47c5a70db7407210cef6e4e6f5374a525c5c   
workplace homepage	<ul style="list-style-type: none"> • http://www.w3.org/  
nickname	<ul style="list-style-type: none"> • TimBL    
nickname	<ul style="list-style-type: none"> • TimBL     • timbl  
personal mailbox	<ul style="list-style-type: none"> • mailto:timbl@w3.org   
seeAlso	<ul style="list-style-type: none"> • Tim Berners-Lee's FOAF file   • Tim Berners-Lee's FOAF file 
is <i>seeAlso</i> of	<ul style="list-style-type: none"> • Tim Berners-Lee  • Tim Berners-Lee 
openid	<ul style="list-style-type: none"> • http://www.w3.org/People/Berners-Lee/  
is primary topic of	<ul style="list-style-type: none"> • http://en.wikipedia.org/wiki/Tim_Berners-Lee 
knows	<ul style="list-style-type: none"> • Coralie Mercier 

Example: Integrating Wikipedia content into BBC News

The image is a collage of four screenshots illustrating the integration of Wikipedia content into BBC News:

- Top Left:** A screenshot of a BBC News article titled "In pictures: Obama in Berlin". The article features a large photograph of a crowd in Berlin. A red arrow points from the Wikipedia article below to this image.
- Top Right:** A screenshot of a campaign website for Barack Obama, featuring a large photo of him and the text "TOGETHER WE CAN HELP THE VICTIMS OF HURRICANE GUSTAV".
- Middle Left:** A screenshot of the Wikipedia article for "Barack Obama". A red arrow points from this article to the BBC News article above.
- Middle Right:** A screenshot of the Wikipedia article for "Berlin". A red arrow points from this article to the search results page below.
- Bottom:** A screenshot of a search engine results page for the query "berlin". It shows a grid of image thumbnails with captions like "From Earthlink", "From Sebastian Re...", "From Ocean™", "From manganite", "From Kytlan...", "From gbdolgo", "From Jan Warkig", "From globalindex", "From sara2008", "From rabeberl", "From Steinhilber", "From gnananilo", "From Stefan D2", and "From sylvain024". A red arrow points from this search results page to the Wikipedia article above.

Based on simple tags, a BBC News article about Barack Obama in Berlin could automatically import Berlin photos and Weblinks for Barack Obama

Mockup: Integrating BBC content into Wikipedia



WIKIPEDIA
The Free Encyclopedia

navigation

- Main page
- Contents
- Featured content
- Current events
- Random article

search

Go Search

interaction

- About Wikipedia
- Community portal
- Recent changes
- Contact Wikipedia
- Donate to Wikipedia
- Help

toolbox

- What links here
- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link
- Cite this page

languages

- ★ Afrikaans
- Alemannisch

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Berlin

From Wikipedia, the free encyclopedia

This article is about the capital of Germany. For other uses, see [Berlin \(disambiguation\)](#).

Berlin is the **capital city** and one of sixteen states of Germany. With a population of 3.4 million within its city limits, Berlin is the country's largest city. It is the second most populous city and the ninth most populous urban area in the European Union.^[2] Located in northeastern Germany, it is the centre of the Berlin-Brandenburg metropolitan area, comprising 5 million people from over 180 nations.^[3]

First documented in the 13th century, Berlin was successively the capital of the Kingdom of Prussia (1701-1918), the German Empire (1871-1918), the Weimar Republic (1919-1933) and the Third Reich (1933-1945).^[4] After World War II, the city was divided; East Berlin became the capital of East Germany while West Berlin became a Western enclave, surrounded by the Berlin Wall from 1961-1989.^[5] Following German reunification in 1990, the city regained its status as the capital of all Germany.^[6]

Berlin is a major center in European politics, culture, media, and science.^{[7][8]} Its economy is primarily based on the service sector, encompassing a diverse range of creative industries, media corporations, environmental services, congress and convention venues; it also serves as a continental hub for air and rail transport.^{[9][10]} Berlin is the third most-visited tourist destination in the EU.^[11] Other industries include traffic engineering, optoelectronics, IT, vehicle manufacturing, health care, biomedical engineering, and biotechnology.

The metropolis is home to world-renowned universities, research institutes, sporting events, orchestras, museums and personalities.^[12] Berlin's urban landscape and historical legacy has made it a popular setting for international film productions.^[13] The city is recognized for its festivals, diverse architecture, nightlife, contemporary arts and a high quality of living.^[14] Berlin has evolved into a global focal point for young individuals and artists attracted by a liberal lifestyle and modern zeitgeist.^[15]

Contents [\[hide\]](#)

- 1 History
 - 1.1 17th to 19th century

BBC Home

[Text only](#) | [Accessibility Help](#) | [Help with BBC](#)

Search in: [All of the BBC](#)

Search for:

Results from BBC Audio & Video

Page 1 of 58 pages for Berlin

Beta Version The BBC Audio & Video se

 **Dining reaches dizzy heights**
[▶ VIDEO](#)

Diners looking for a meal with a difference can enjoy a Dinner in the Sky high above **Berlin** on top of a crane.
28 Aug 2008

 **Stasi theme bar causes uproar**
[▶ VIDEO](#)

A bar in **Berlin**, which uses the former East German secret police, or Stasi, as its theme has triggered protests.
8 Aug 2008

DERI Semantic Web Pipes

Designer source code

The workflow consists of the following components:

- RDF Fetch 1:** URL: `http://dblp.l3s.de/d2r/r`, Format: `RDF/XML`
- RDF Fetch 2:** URL: `http://dbpedia.org/resource/Tim_Berners-Lee`, Format: `RDF/XML`
- RDF Fetch 3:** URL: `http://www.w3.org/People/Berners-Lee/card#i`, Format: `RDF/XML`
- Construct 1:** Query: `CONSTRUCT {<http://www.w3.org/People/Berners-Lee/card#i`
- Construct 2:** Query: `CONSTRUCT {<http://www.w3.org/People/Berners-Lee/card#i ?o. ?s2 ?p2 <http://www.w3.org/People/Berners-Lee/card#i> where {{<http://dbpedia.org/resource/Tim_Berners-Lee: UNION {?s2 ?p2 <http://dbpedia.org/resource/Tim_Berners-L`
- Simple Mix:** Receives input from the Construct nodes and the RDF Fetch nodes.
- Output:** Receives input from the Simple Mix node.

table view

predicate	subject	object
<code>http://dblp.l3s.de/d2r/resource/publications/www.org/w3/http1-1</code>	<code>http://purl.org/dc/elements/1.1/creator</code>	<code>http://www.w3.org/People/Berners-Lee/card#i</code>
<code>http://dblp.l3s.de/d2r/resource/publications/journals/cacm/WeitznerABFHS08</code>	<code>http://purl.org/dc/elements/1.1/creator</code>	<code>http://www.w3.org/People/Berners-Lee/card#i</code>

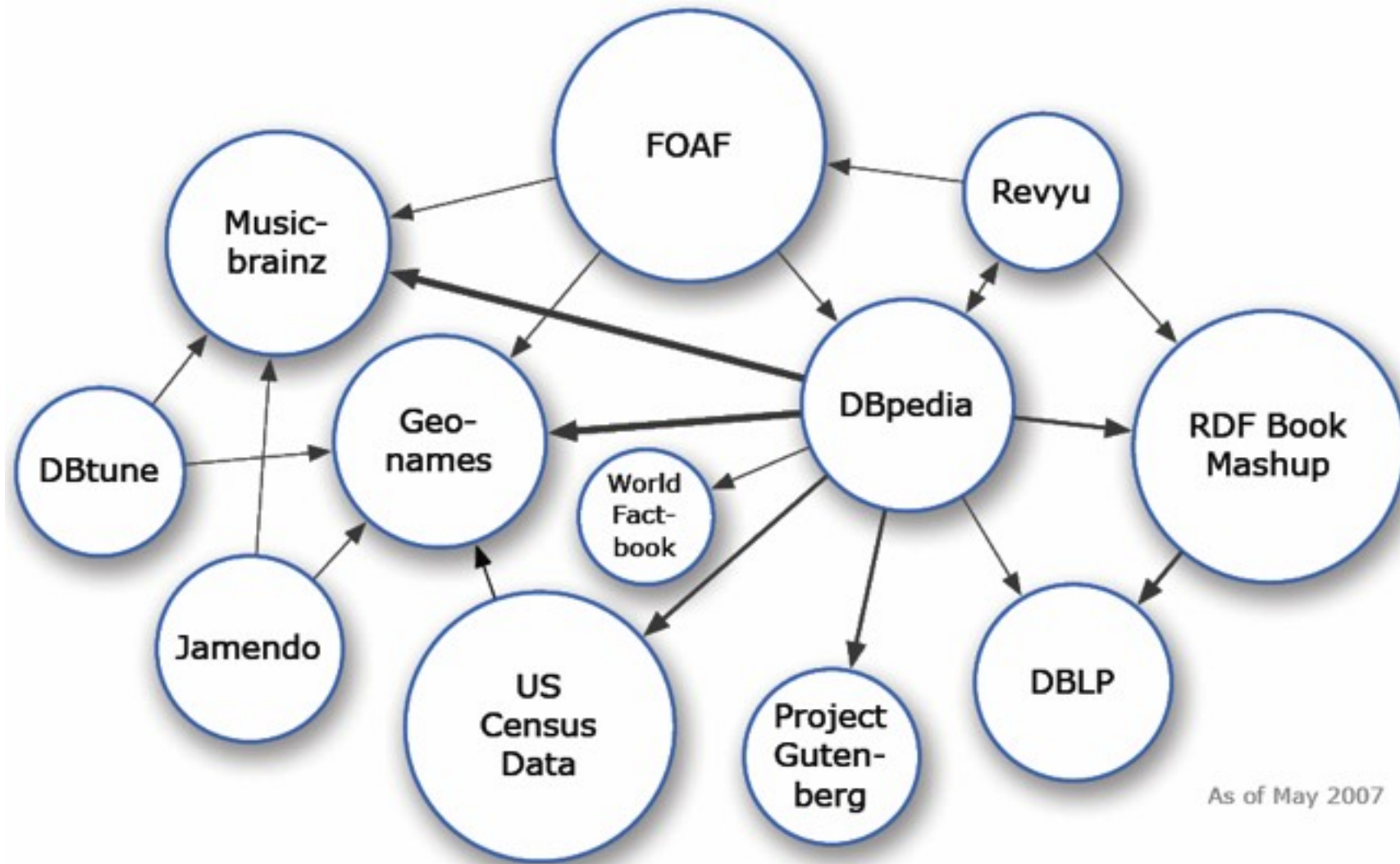
W3C Linking Open Data Project



■ Community effort to

- publish existing open license datasets as **Linked Data on the Web**
- interlink things between different data sources

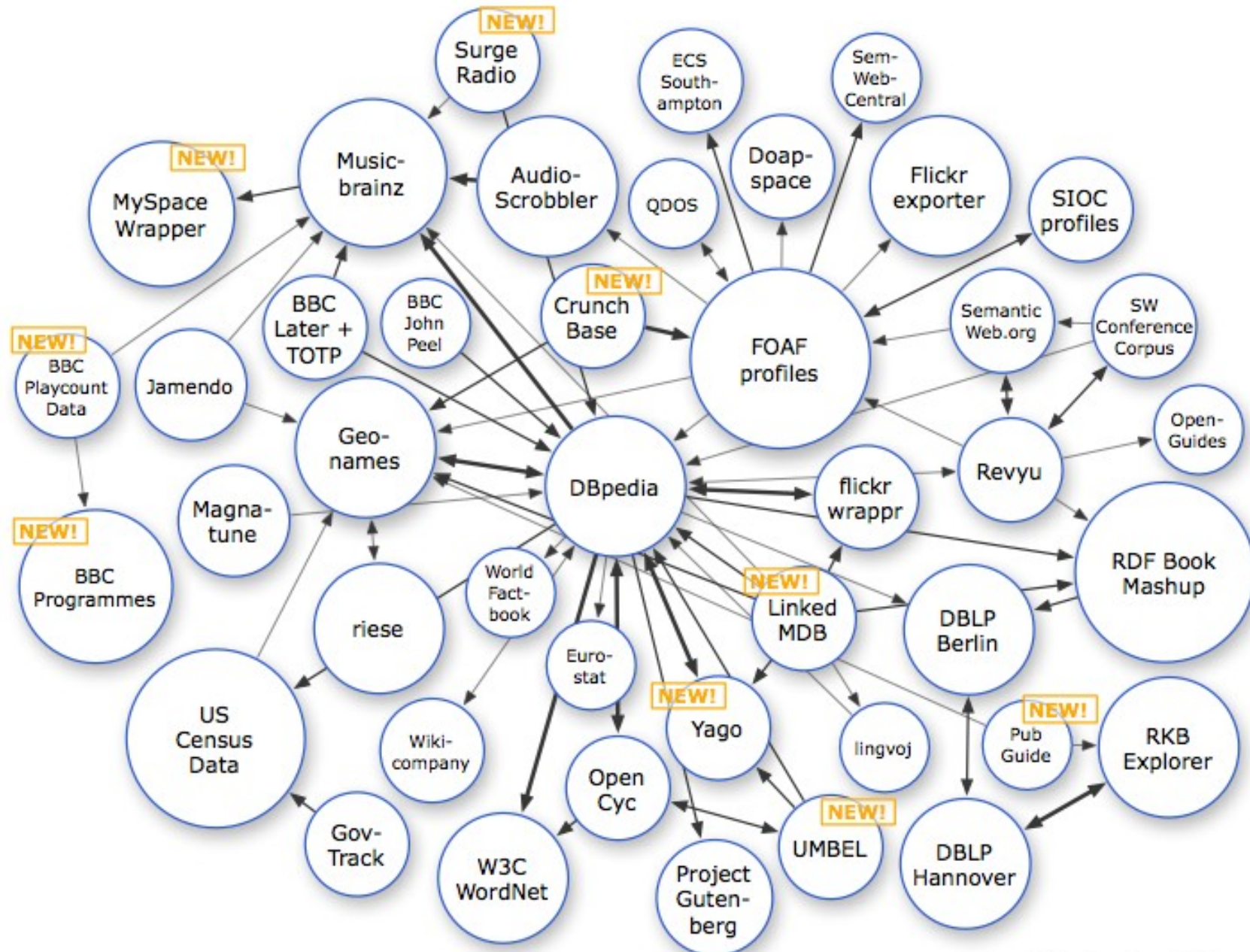
LOD Datasets on the Web: May 2007



500 million RDF triples

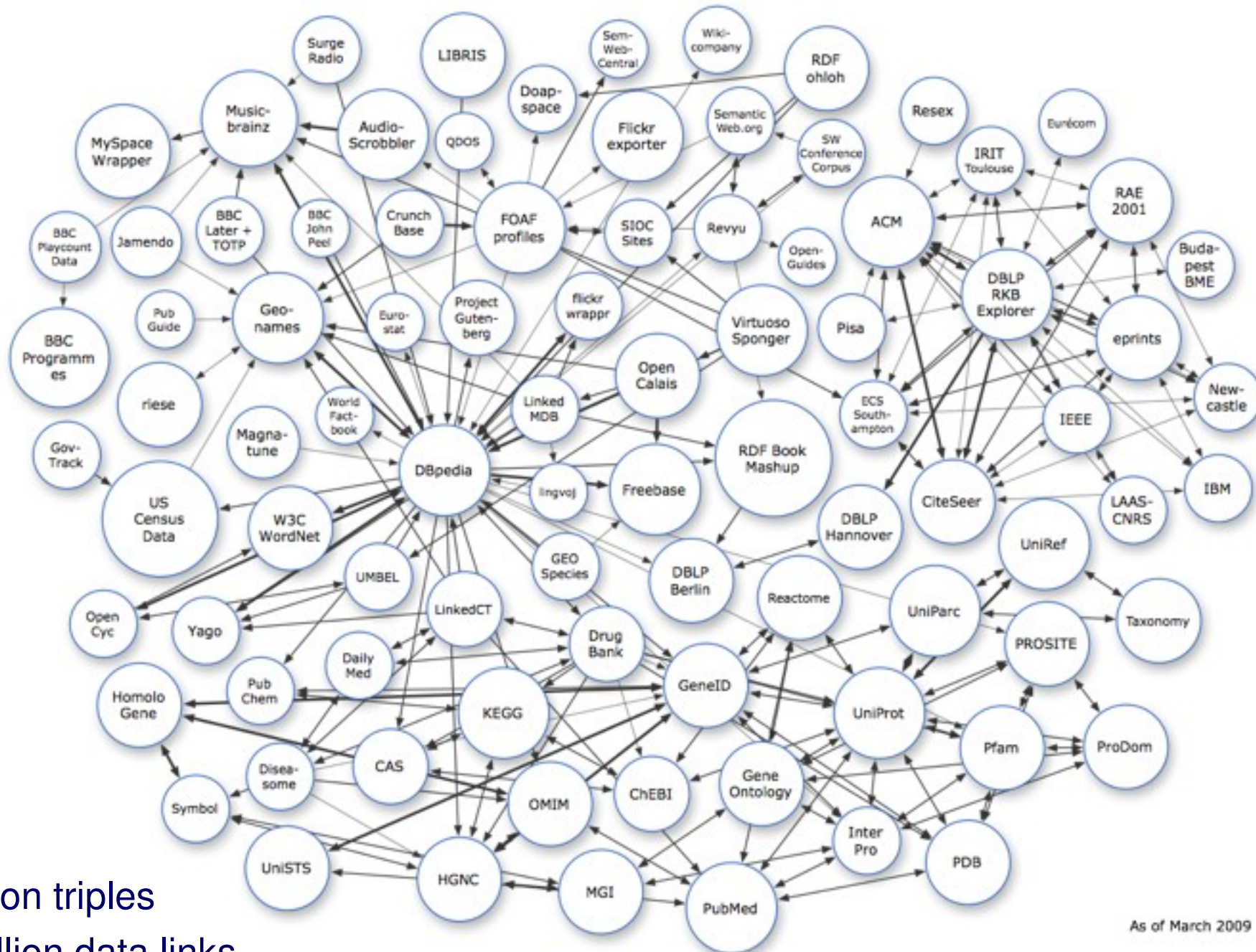
120,000 data links between data sources

LOD Datasets on the Web: September 2008



As of September 2008

LOD Datasets on the Web: July 2009



LOD data set statistics as of July 2009

<i>Domain</i>	<i>No of Triples</i>	<i>% of Cloud</i>	<i>No of Links</i>	<i>% of Links</i>
Media	698.000.000	10,4%	1.238.000	0,8%
Publications	212.000.000	3,2%	4.922.000	3,3%
Life Sciences	2.429.000.000	36,1%	133.199.000	89,4%
Geographic Data	3.097.000.000	46,0%	4.038.000	2,7%
User Generate Content	76.000.000	1,1%	1.559.000	1,0%
Cross-Domain	214.000.000	3,2%	3.992.000	2,7%
<i>Total</i>	<i>6.726.000.000</i>		<i>148.948.000</i>	

+ 2 billion triples from Data.gov published recently.

Linked Data Adoption

- **Who's publishing / supporting Linked Data? (excerpt)**
 - **BBC**
 - **Cyc Foundation**
 - **Freebase**
 - **MusicBrainz**
 - **Thomson Reuters**
 - **UK Ordnance Survey**
 - **Zemanta**
 - **Life Sciences Community**
 - **Announced: New York Times and CNET**

- **Yahoo! and Google have started to crawl Linked Data in its RDFa serialization as well as Microformats.**

DBpedia interlinks (exemplary)

- **MusicBrainz**
- **OpenStreetMap (via LinkedGeoData.org)**
- **BBC Programmes, Music**
- **Semantic CrunchBase**
- **Geonames**
- **WordNet**
- **World Factbook**
- **EuroStat**
- **Flickr (via flickrwrappr)**
- **FreeBase**
- **OpenCyc**
- **US Census**
- **Amazon, Google Base (via Book Mashup)**
- **Dailymed. Diseasome. Drugbank. Sider**

Thanks

■ Questions?

■ References

- [DBpedia.org](http://dbpedia.org)
- [LinkedData.org](http://linkeddata.org)
- **DBpedia Browser: <http://dbpedia.neofonie.de>**
- <http://meta.wikimedia.org/wiki/DBpedia/ontology>
- **Tim Berners-Lee's TED Talk**
http://www.ted.com/index.php/talks/tim_berniers_lee_on_the_next_web.html
- **DBpedia Mobile:**
<http://beckr.org/DBpediaMobile>

