



XML

# XML

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# XForms (XForms Profile)

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- XForms 1.0 (Second Edition)
  - W3C Recommendation 14 March 2006
  - XForms is an XML application
  - W3C: Represents the next generation of web forms
  - Idea: Model-View-Controller pattern
- Properties
  - Separation of Concerns – separates representation, control and content transfer
  - 3 models
    - XForms model
    - Instance data model
    - User Interface model
  - Enables reuse
  - Supports strong typing
  - Reduces interaction transfer and scripting
  - Device-independent
- Use – XForms should be integrated into existing markup languages
  - XForms requires a so-called host language
  - Examples of such host languages: XHTML or SVG



# XForms – Model

- Internal initial data space for the XForms processor
  - **XForms instance:** XML document
    - Initial form data – inline or externally referenced
    - Adheres to XML schema
  - Constraints are considered, i.e. for typing, visibility, simple formulae
  - Approach 80-20 to reduce scripting

Select Payment Method: ☒ Cash ☐ Credit

Credit Card Number:

Expiration Date:

```
<xforms:model>
  <xforms:instance>
    <ecommerce xmlns="">
      <method/>
      <number/>
      <expiry/>
    </ecommerce>
  </xforms:instance>
  <xforms:submission action="http://example.com/submit"
    method="post" id="submit"
    includenamespaceprefixes=""/>
</xforms:model>
```

Example: Excerpt from W3C XForms specification

# Interaction Structure & Elements

- XForms GUI model
  - Defines interaction structures and interaction elements
  - Defines device-independent interaction elements
  - Binds interaction elements to an XForms model

Select Payment Method: ☒ Cash ☐ Credit

Credit Card Number:

Expiration Date:

```
<select1 ref="method">
  <label>Select Payment Method:</label>
  <item>
    <label>Cash</label>
    <value>cash</value>
  </item>
  <item>
    <label>Credit</label>
    <value>cc</value>
  </item>
</select1>
<input ref="number">
  <label>Credit Card Number:</label>
</input>
<input ref="expiry">
  <label>Expiration Date:</label>
</input>
<submit submission="submit">
  <label>Submit</label>
</submit>
```

Example: Excerpt from W3C XForms specification

# Interaction Element Representation

- Interaction element
  - Representation-independent description
  - Representation is realized by the XForms-processor
- Examples
  - `<range>`
  - `<upload>`



Example: Excerpt from W3C XForms specification

# Interaction Transfer

## ■ Element **submit**

- **Defines transfer to the endpoint**
- Possibilities are currently very limited
- Only: HTTP-GET and HTTP-POST

```
<xforms:submission action="http://www.example.com/buy.rb" method="post" id="s00" />
<xforms:bind nodeset="my:cc" relevant="../@as='credit'" required="true()" />
<xforms:bind nodeset="my:exp" relevant="../@as='credit'" required="true()" />
```

Transferred Data

```
<ecommerce>
  <method>cc</method>
  <number>1235467789012345</number>
  <expiry>2001-08</expiry>
</ecommerce>
```

Example: Excerpt from W3C XForms specification

# XForms 1.1

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- XForms 1.1 (Second Edition)
  - W3C Recommendation 20 October 2009
  - <http://www.w3.org/TR/2009/REC-xforms-20091020/>
- Properties
  - Extensible interaction transfer process
  - Transfer of data to SOAP-, REST-, ATOM- and not XML services
  - New data types and instance-model properties
  - New functions and XPath expressions
  - More extensive action processing (Turing-complete)
  - And much more...



# Homework

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- Check out **XForms 2.0**
  - W3C Working Draft 7 August 2012
  - <https://www.w3.org/TR/xforms20/>
- What happened since then? How does Xforms 2.0 improve the current situation?
- What is trending and what's going on in general at W3C?





## Chapter 22

# WEB 3.0, LINKED DATA, AND THE LINKED DATA CLOUD



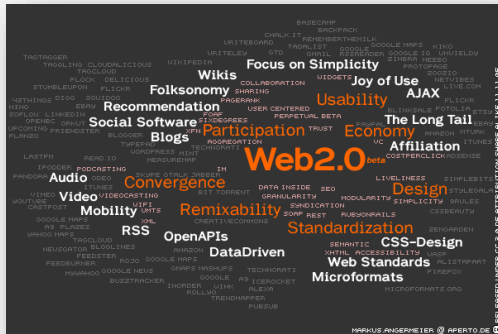
# Evolution of (World Wide) Web



## Tim Berners-Lee

- 1989/Nov. 1990 – Idea... Connecting people
- Information Management: Proposal
- Simple connection of distributed documents

**(Business) Proofs of concept:** 1994 Web applications (logs), 1995 Amazon, 1998 Google, 1999 RSS...



## Web 2.0 - Darcy DiNucci, Dale Dougherty, Tim O'Reilly

- 1999 "Fragmentation" (more channels), more interaction, 2004 Web2.0 Conference
- Collective intelligence

**(Business) Proofs of concept:** Amazon AWS-APIs, del.icio.us, wikipedia.com, blogs, flickr.com, youtube.com, programmable web, Devices, Social, Sharing, Mashups...

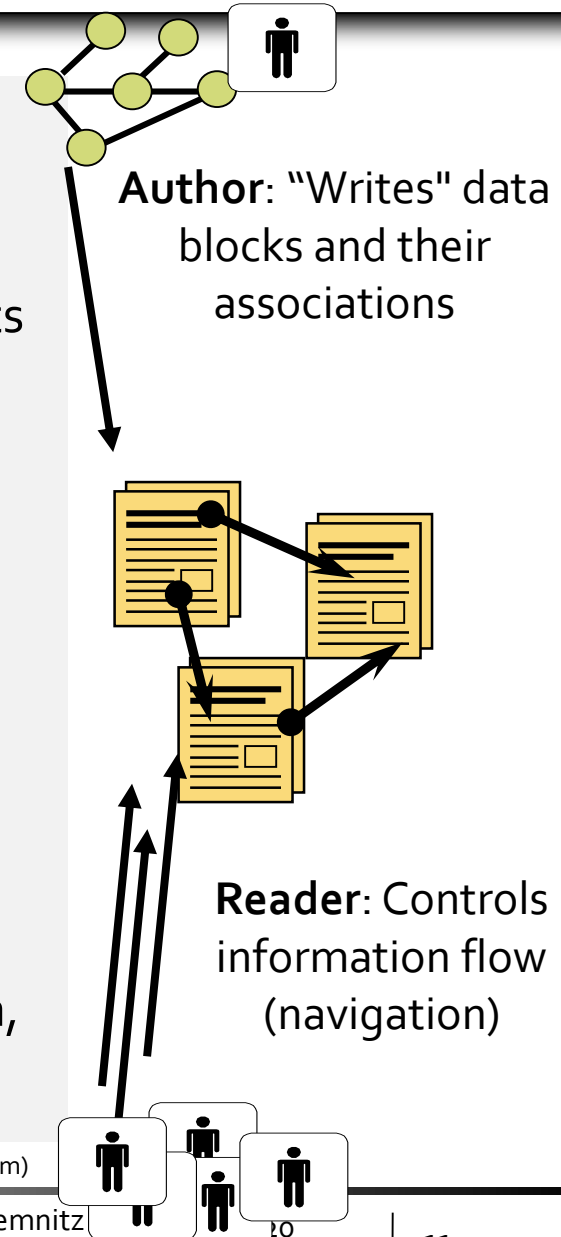


Photo Credits: Tim Berners-Lee(Enrique Dans, wikipedia.com); web2.0 (Markus Angermeier, flickr .com)

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Lecture XML ► Chapter 22: Web 3.0, Linked Data, and the Linked Data Cloud

# And... what's Web 3.0 #New??

Web 3.0 CONFERENCE  
WINTER  
January 26-27, 2010  
Santa Clara, CA  
PRESENTED BY MEDIABISTRO.COM  
Registration as low as \$345!

8TH INTERNATIONAL SEMANTIC WEB CONFERENCE  
25 - 29 OCTOBER 2009  
WESTFIELDS CONFERENCE CENTER  
IRFAX, VIRGINIA USA

Or: Web 3.0 is the 20 years of  
Connecting People...  
in a more intelligent way

Linked Data  
From Wikipedia, the free encyclopedia

Linked Data is a sub-topic of the **Semantic Web**. The term **Linked Data** is used to describe a method of exposing, sharing, and connecting **data** via **dereferenceable URIs** on the **Web**.

Contents [hide]

- 1 Principles
- 2 Components

data is constructed with documents on the web. where links are relationships anchors in hypertext by links between arbitrary things described by RDF, concept. But for HTML or RDF, the same yw:

n look up those names.

provide useful information, using the standards

at they can discover more things.

ount of data isn't linked in 2006, because of

This article discusses solutions to these problems, ffecting choices about how you publish your data.

# Linked Data #New #NotReallyNew



Img: **Tim Berners-Lee**, TED 2009 -- [http://www.w3.org/2009/Talks/o2o4-ted-tbl/#\(7\)](http://www.w3.org/2009/Talks/o2o4-ted-tbl/#(7))

# Linked Data... Closer Look

Web Address or URL – HTTP URI, to be precise

[http://en.wikipedia.org/wiki/Freiberg,\\_Saxony](http://en.wikipedia.org/wiki/Freiberg,_Saxony)

The screenshot shows the Wikipedia page for Freiberg, Saxony. Red boxes highlight the following elements:

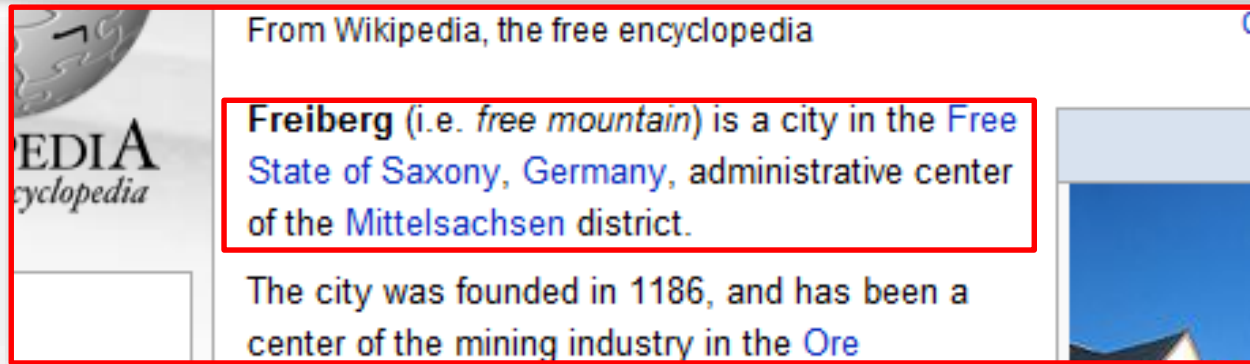
- The title "Freiberg, Saxony" and the introductory sentence: "Freiberg (i.e. *free mountain*) is a city in the Free State of Saxony, Germany, administrative center of the Mittelsachsen district."
- A paragraph describing the city's history and its role as a center of the mining industry.
- A map of Saxony with Freiberg marked.
- A callout box titled "From Wikipedia, the free encyclopedia" containing the introductory sentence and a paragraph about the city's founding in 1186.
- A table titled "Basic statistics" with the following data:

Basic statistics	
Area	48.05 km <sup>2</sup> (18.55 sq mi)
Elevation	400 m (1312 ft)
Population	42,524 (31 July 2007)
- Density	885 /km <sup>2</sup> (2,292 /sq mi)

Other visible elements include the Wikipedia logo, navigation links, a search bar, and a list of languages.



# [http://en.wikipedia.org/wiki/Freiberg,\\_Saxony](http://en.wikipedia.org/wiki/Freiberg,_Saxony)



Subject  
Predicate  
Object

1186

<http://concept.example.org/City>

<http://concept.example.org/founded>

<http://concept.example.org/is>

[http://en.wikipedia.org/wiki/Freiberg,\\_Saxony](http://en.wikipedia.org/wiki/Freiberg,_Saxony)

<http://concept.example.org/belongsTo>

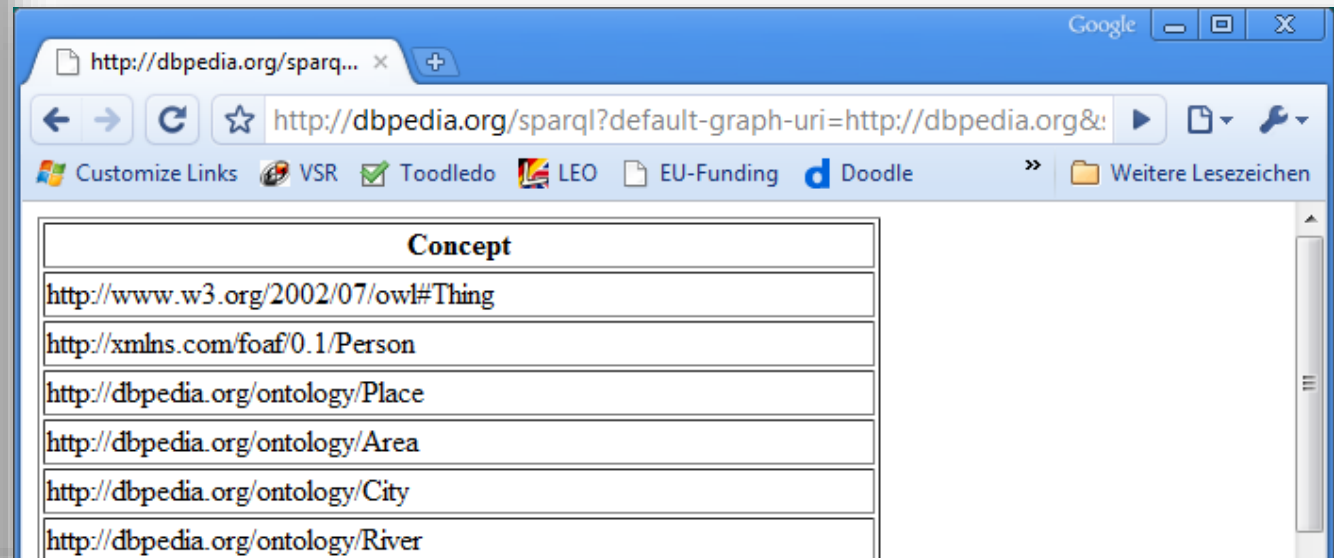
<http://concept.example.org/Saxony>

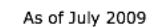
<http://concept.example.org/belongsTo>

<http://concept.example.org/Germany>

# Linked Data... is simple

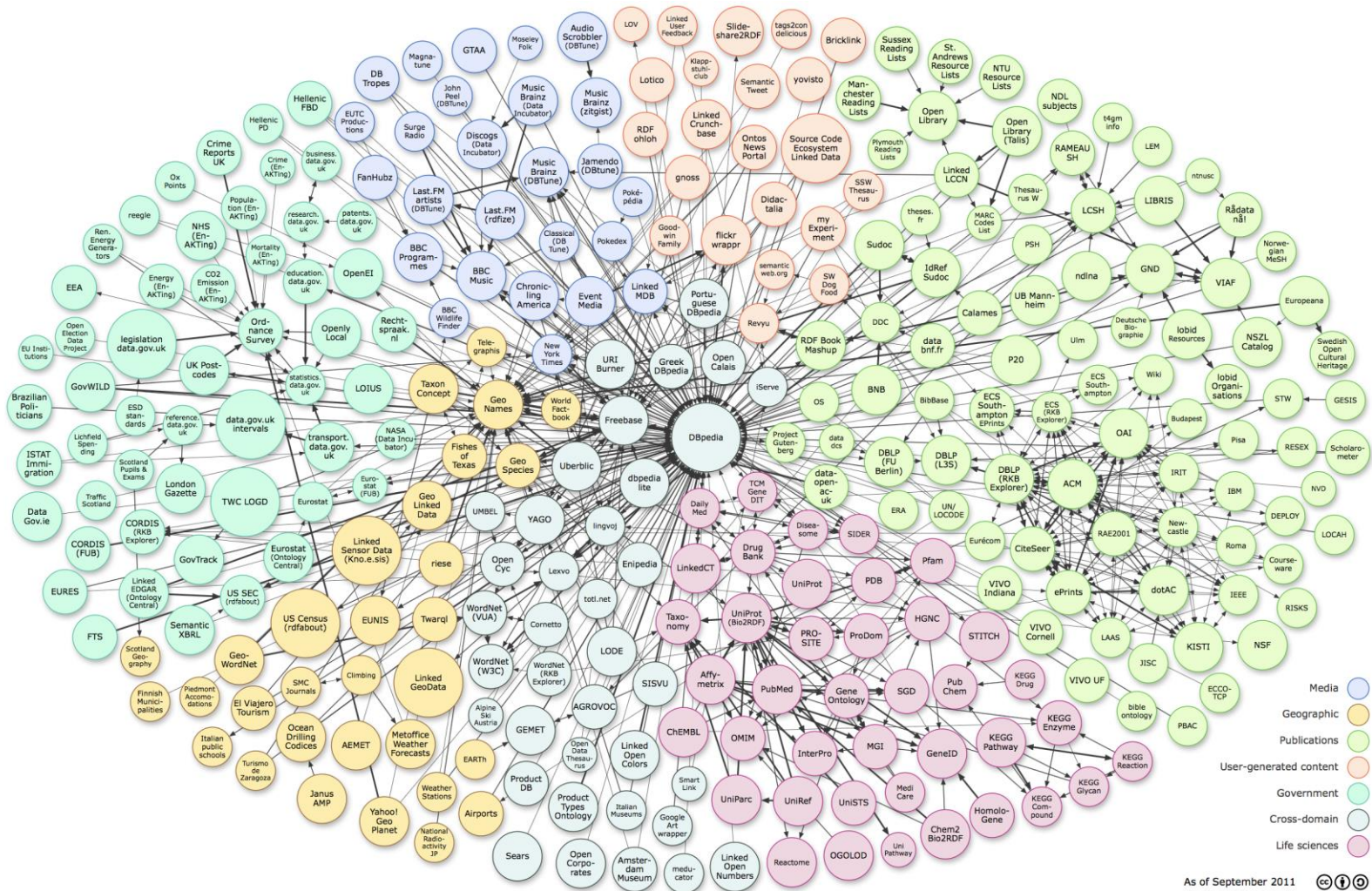
- Triple: **Subject**, **Predicate (Property)**, **Object**
  - i.e. <HTTP-URI>, <HTTP-URI>, <HTTP-URI>
- Works with abstraction concepts
  - Subjects, predicates are concepts, i.e. "belongs to" or "city"







# Linked Open Data (LOD)



Picture by: Richard Cyganiak Anja Jentzsch - <http://richard.cyganiak.de/2007/10/lod/>

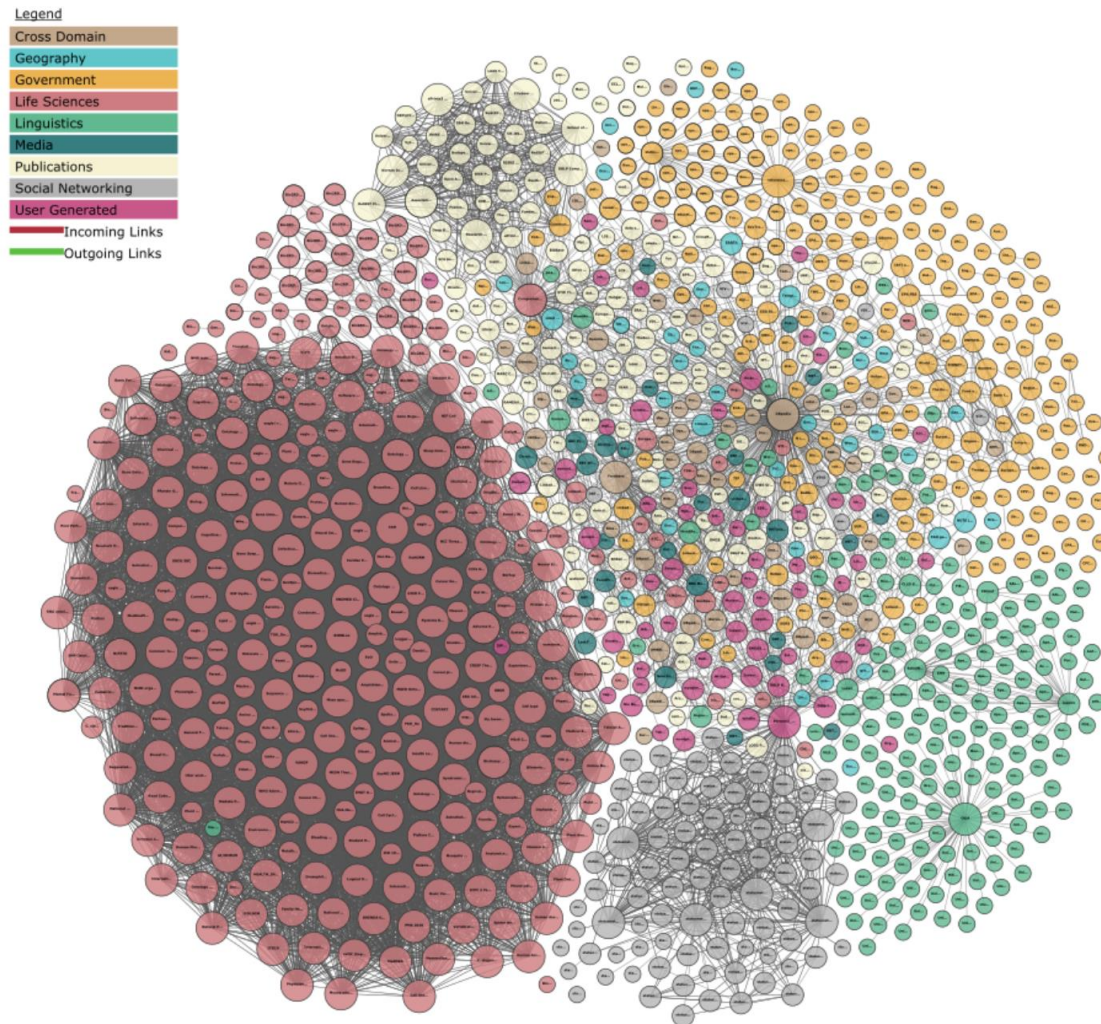
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# The Linking Open Data cloud diagram

Last updated: 2017-08-22



CC-BY-SA: Linking Open Data cloud diagram 2017, by Andrejs Abele, John P. McCrae, Paul Buitelaar, Anja Jentzsch and Richard Cyganiak. <http://lod-cloud.net/>

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# Linked Data... Business #Chances

- <http://dbpedia.org> – Search in Wikipedia's Linked Data

- SELECT ?name ?person  
WHERE

{

?person dbpedia2:birthPlace

<<http://dbpedia.org/resource/Freiberg>> .

?person foaf:name ?name .

}

The screenshot shows a web browser with a SPARQL query and its results. The query is:

```
SELECT ?name ?person
WHERE
{
  ?person dbpedia2:birthPlace
  <http://dbpedia.org/resource/Freiberg> .
  ?person foaf:name ?name .
}
```

The results table is:

name	person
Elector of Saxony Maurice I	<a href="http://dbpedia.org/resource/Maurice%2C_Elector_of_Saxony">http://dbpedia.org/resource/Maurice%2C_Elector_of_Saxony</a>
Caroline Gülke	<a href="http://dbpedia.org/resource/Caroline_G%C3%BClke">http://dbpedia.org/resource/Caroline_G%C3%BClke</a>

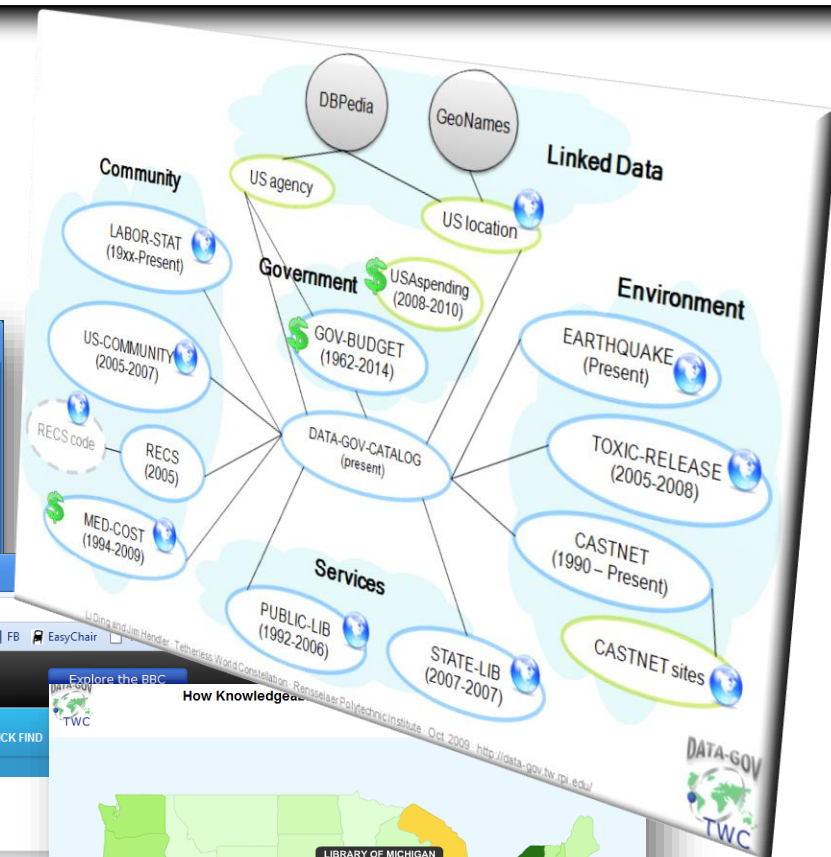
A red box highlights the query URL in the browser's address bar, and a red arrow points from the query to the results table.

The screenshot shows the Wikipedia page for Maurice, Elector of Saxony. The page includes a biography, a list of events, and a list of references. A red box highlights the page title and the biography text.

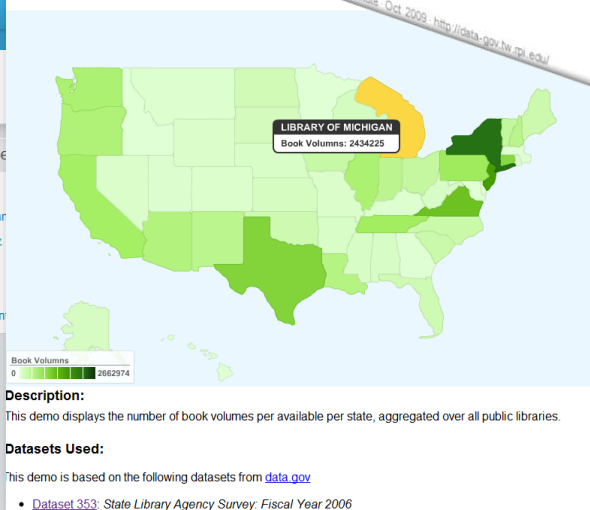
# Linked Data... Business #Trends

## ■ Linked (Open) Data – developments & users

The screenshot shows the New York Times Linked Open Data website. The header includes the New York Times logo and the title "Linked Open Data BETA". The main content area is titled "data.nytimes.com" and contains text about the project's history and goals. It lists various data sources like LIBRIS, Open Calais, and DBpedia. A sidebar on the left shows a network diagram of linked data sources. The bottom of the page features a "New York Times Sem" logo.

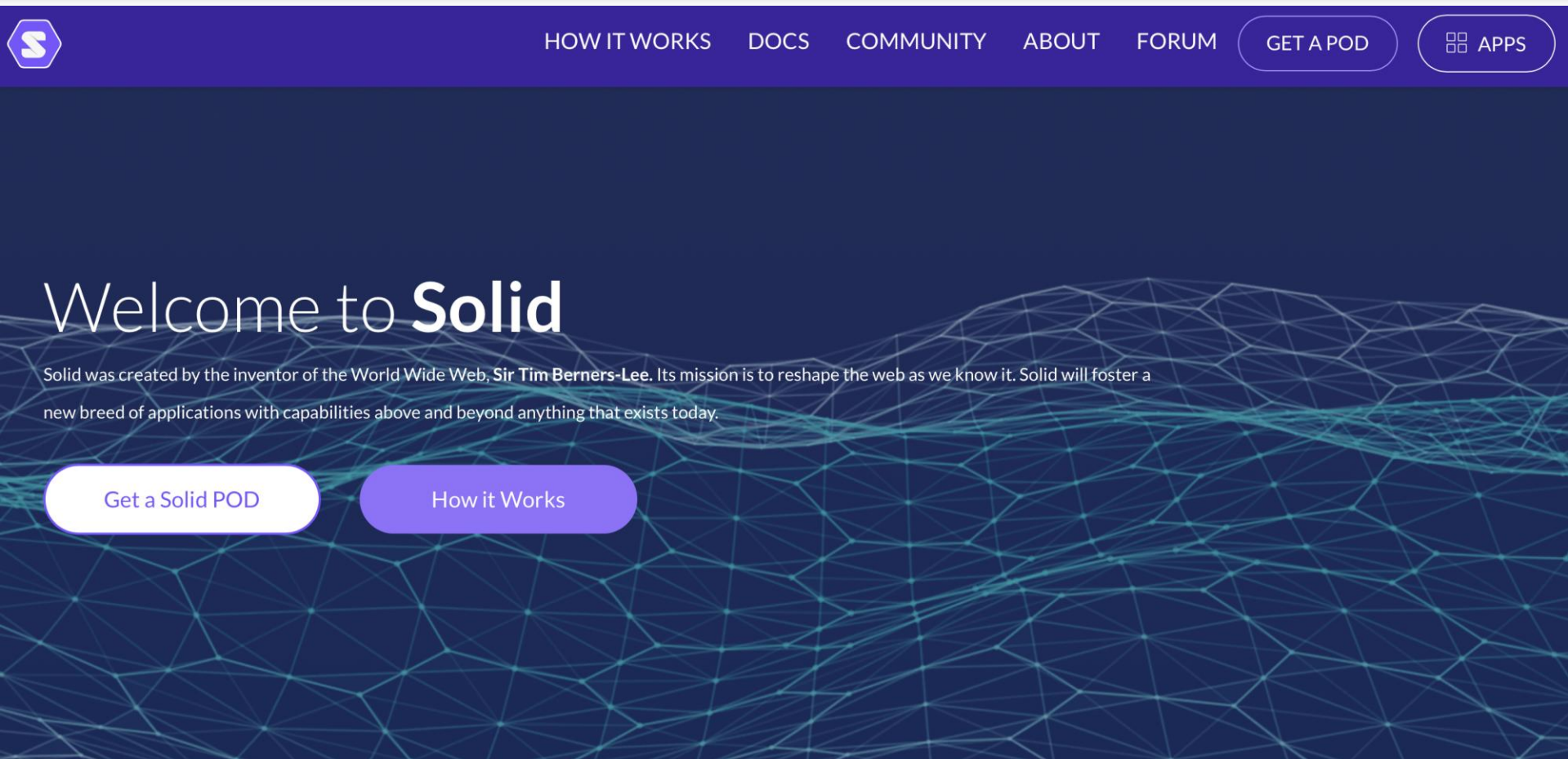


The screenshot shows the BBC Music Developers website. The header includes the BBC logo and the title "Music BETA". The main content area is titled "Developers" and contains text about the site's purpose and features. It lists various data sources like MusicBrainz and Wikipedia. A sidebar on the left shows a network diagram of linked data sources. The bottom of the page features a "New York Times Sem" logo.





# Next topic at the moment is SoLiD



THIS IS FOR EVERYONE

Source: Screenshot <https://solid.inrupt.com>



# Chapter 23

## **A LITTLE LOOK BEHIND THE SCENES**

