WEB OF DATA

Linked Data technology provides a standard solution

Growing amounts of data are changing today's interconnected world. Data integration and unified software systems, as well as the visibility in search engine results, are increasingly important for organizations in order to stay relevant and ahead of competition.

Today, a sustainable digital strategy is essential for almost every sector, would it be publishing industry, cultural institutions, government agencies, life science research, product manufacturing, or retail.

Choosing the right direction early will result in long term management optimisation, cost efficiency, and new business opportunities.

Linked Data technology provides a standard solution for this complex Web of data. We have developed AtomGraph, the leading Linked Data platform.

> We're entering a new world in which data may be more important than software
> *— Tim O'Reilly (Founder and CEO, O'Reilly Media)*

ATOMGRAPH TEAM

Our young globally-oriented team is led from two offices based in Kaunas, Lithuania, and Copenhagen, Denmark. The main partners have completed their studies in Denmark at the Aarhus University, Copenhagen Business School and the IT University of Copenhagen. Prior to starting a company of their own, they gained experience in such companies as A.P. Møller–Mærsk and Wulffmorgenthaler in the fields of Finance and IT.

Our small team is specializing in Linked Data technologies and is highly focused on the tasks of rapid Web application building, data modeling, structuring, and integration. We are constantly monitoring the data industry and only use up-to-date resources for our professional development.

We are partnering with business and technology professionals from Berlin, Copenhagen, and London.

UAB LINKED DATA · E. OŽEŠKIENĖS G. 47, KAUNAS, LITHUANIA · ATOMGRAPH.COM · INFO@ATOMGRAPH.COM
BIT2MEDIA · KONG GEORGSVEJ 26, DK-2950 VEDBÆK, DENMARK · +45 24656858 · NIELS@BIT2MEDIA.DK

LINKED DATA

Publishing and interlinking structured data on the Web

Linked Data applies the principles of the Web for sharing data: Each resource in the data is uniquely identified. Then relationships can be created between the resources, and statements can be made about them.

COMPONENTS

The Linked Data technology builds on mature industry standards such as RDF and SPARQL. These are developed by W3C – the same organization that brought HTML to the world.

RDF is a graph data model for which the basic building block is a triple: a statement that relates one thing to another, or to data value, using a specific property.

SPARQL is the RDF query language – similar to SQL in syntax, but optimized for graph data access.

> SPARQL will make a huge difference
> *— Sir Tim Berners-Lee (director of the W3C, inventor of the Web)*

FEATURES

Graphs and networks are a natural way to describe our world and RDF provides the technology to do that with some unique features:

- **Standard** The only open and standard NoSQL solution with an expressive query language.
- **Effortless** Integration of RDF datasources is achieved by a trivial zero-cost merge operation.
- **Flexible** Unlike relational databases, RDF is flexible and requires no fixed schema.
- **Canonical** RDF can be used as the canonical data model to which other data formats are mapped, instead of mapping them directly to each other

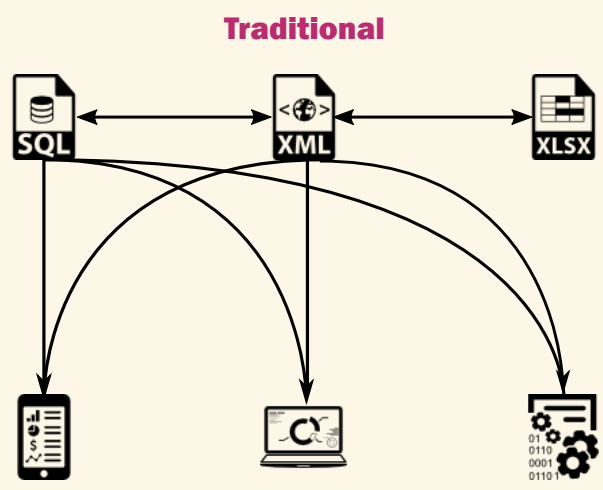
UAB LINKED DATA · E. OŽEŠKIENĖS G. 47, KAUNAS, LITHUANIA · ATOMGRAPH.COM · INFO@ATOMGRAPH.COM
BIT2MEDIA · KONG GEORGSVEJ 26, DK-2950 VEDBÆK, DENMARK · +45 24656858 · NIELS@BIT2MEDIA.DK

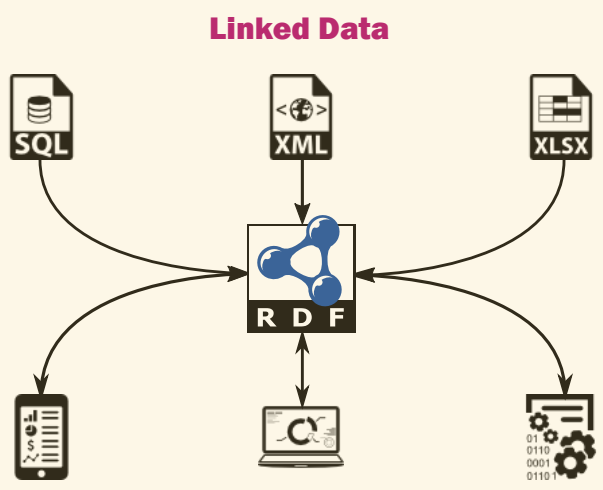
LINKED DATA

Publishing and interlinking structured data on the Web

Linked Data applies the principles of the Web for sharing data: Each resource in the data is uniquely identified. Then relationships can be created between the resources, and statements can be made about them.

ARCHITECTURE





BENEFITS

Linked Data technology substantially reduces data integration costs over the long term. As a result, adoption of Linked Data, RDF and SPARQL is steadily growing worldwide. Wikipedia already lists around 50 triplestore (RDF database) implementations, both commercial and open-source.

Governments, municipalities, research institutes, manufacturers, software providers and crowd-sourced projects alike are choosing RDF to publish and integrate data and develop applications for it.

UAB LINKED DATA · E. OŽEŠKIENĖS G. 47, KAUNAS, LITHUANIA · ATOMGRAPH.COM · INFO@ATOMGRAPH.COM
BIT2MEDIA · KONG GEORGSVEJ 26, DK-2950 VEDBÆK, DENMARK · +45 24656858 · NIELS@BIT2MEDIA.DK

PUBLISHING

And cultural institutions

Legacy data systems have reached their limits of utility and efficiency and are not integrated with Web resources. At the same time, publishers and institutions of cultural heritage want to expose their information to the Web community and make it easily discoverable.

To address this divide and integrate them into the Web of data, multiple initiatives are adopting Linked Data technology. However, there are currently no production-level software systems that natively support the transition to, and management of, Linked Data.

ATOMGRAPH PLATFORM

We have developed a native Linked Data management solution for publishers and cultural institutions. It can seamlessly plug into existing lifecycles and address the needs of organizations required to create, publish, and analyze structured data or build data-driven applications on it.

A range of adapters can be used to import data from existing systems. A user-friendly Web interface allows staff and other authorized users to effectively edit data without being exposed to the technical features of the data model.

- **Cost reduction** Our solution requires no installation and integrates into systems without disruption. Standards-based technology ensures future compatibility and minimizes vendor lock-in.
- **Enhanced efficiency** Our unique RDF editor interface allows both free-form editing and pre-configured templates, so data curators never have to edit data syntax by hand.

Support for industry-standard vocabularies such as SKOS is built-in, and organizations can develop vocabulary profiles and application layouts tailored to their data. The software can be accessed in the cloud or deployed on premises.

With AtomGraph, libraries, museums and other cultural institutions can rapidly move towards managing data as entities and publishing it as Linked Data, which makes it sharable, extensible, and easily re-usable. It is a new data management paradigm, which has multiple benefits:

- **New and personalized services** Faceted search is provided for any type of data. Users can save personalized search results, make custom queries and integrate them with social media.
- **Increased visibility** Publishing of structured data and reuse of established vocabularies improves SEO, enables rich search results and standard machine-readable access for application

AtomGraph Platform simplifies the curation of Linked Data, and organizations benefit from the visibility of their content on the Web.

UAB LINKED DATA · E. OŽEŠKIENĖS G. 47, KAUNAS, LITHUANIA · ATOMGRAPH.COM · INFO@ATOMGRAPH.COM
BIT2MEDIA · KONG GEORGSVEJ 26, DK-2950 VEDBÆK, DENMARK · +45 24656858 · NIELS@BIT2MEDIA.DK

THE DANISH NEWSPAPERS

From printed books to Linked Data with AtomGraph

Danish Newspapers is a registry of newspapers with historical and factual metadata records, curated by the State and University Library of Denmark.

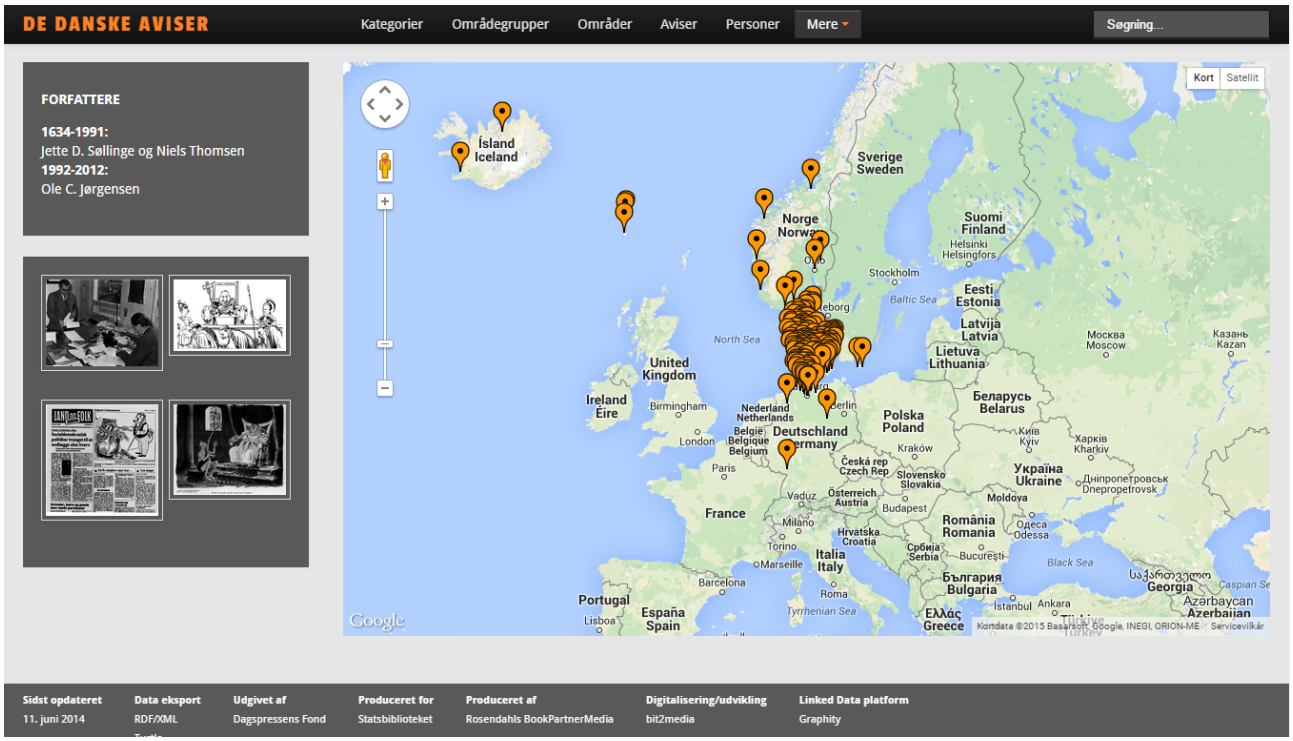
The library was looking for a vendor that could digitize three existing printed volumes and turn them into a modern online solution with an option to edit existing data and add new data, both structured and rich-text.

SOLUTION

We designed and implemented the transition from printed books to TEI XML and then to RDF data. We also developed a Web application that publishes Linked Data as well as user-friendly XHTML. Implemented on AtomGraph Platform, it features:

- interactive maps
- faceted and text search
- autocompletion of resource lookups
- complex content creation and editing
- user accounts and authentication
- multi-language and mobile-ready interface
- machine-readable access

To our knowledge, it is the first and still the only publishing project in Denmark built on and for Linked Data. It was presented at the Semantic Web in Libraries 2014 conference in Bonn, Germany.



UAB LINKED DATA · E. OŽEŠKIENĖS G. 47, KAUNAS, LITHUANIA · ATOMGRAPH.COM · INFO@ATOMGRAPH.COM
BIT2MEDIA · KONG GEORGSVEJ 26, DK-2950 VEDBÆK, DENMARK · +45 24656858 · NIELS@BIT2MEDIA.DK