MTA SZTAKI

Department
of Distributed
Systems

LODmilla: shared visualization of Linked Open Data

András Micsik
Zoltán Tóth
Sándor Turbucz

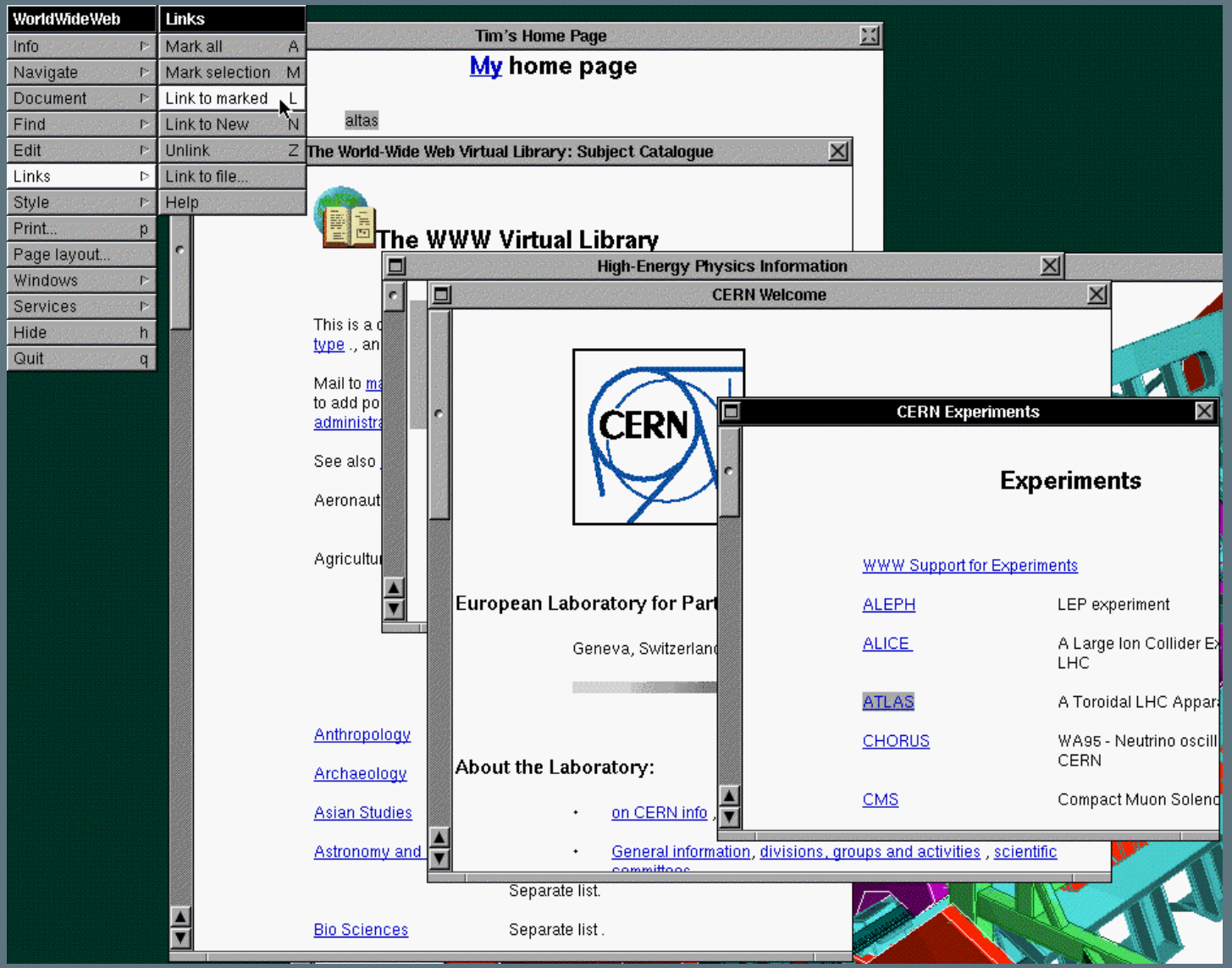
Introduction

- DSD = Department of Distributed Systems
  - We participated in DELOS1-3 and several other DL projects in the past
  - Metadata schema registries in CORES
- Context of current work
  - Past
    - lod.sztaki.hu: cultural assets of Hungary (via nda.sztaki.hu)
    - eprints.sztaki.hu: institutional publication repository
  - Future
    - Next generation of scientific journals
    - E-science text mining centre

Overview of the talk

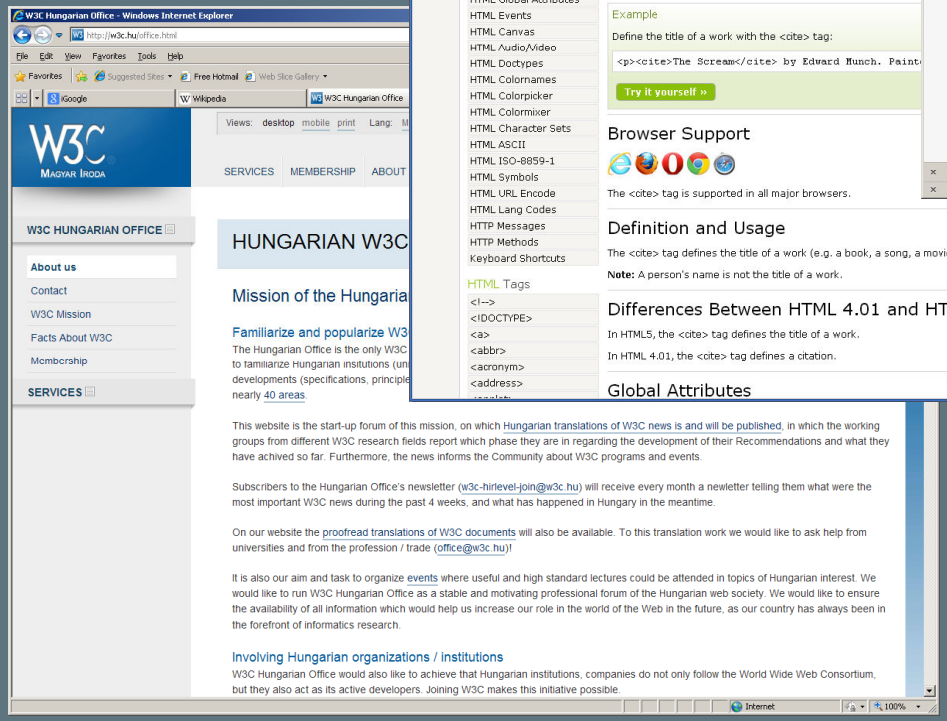
- Lessons from web browsing
- Visualisations for LOD
- What is generic LOD browsing?
- LODmilla: our LOD browser prototype

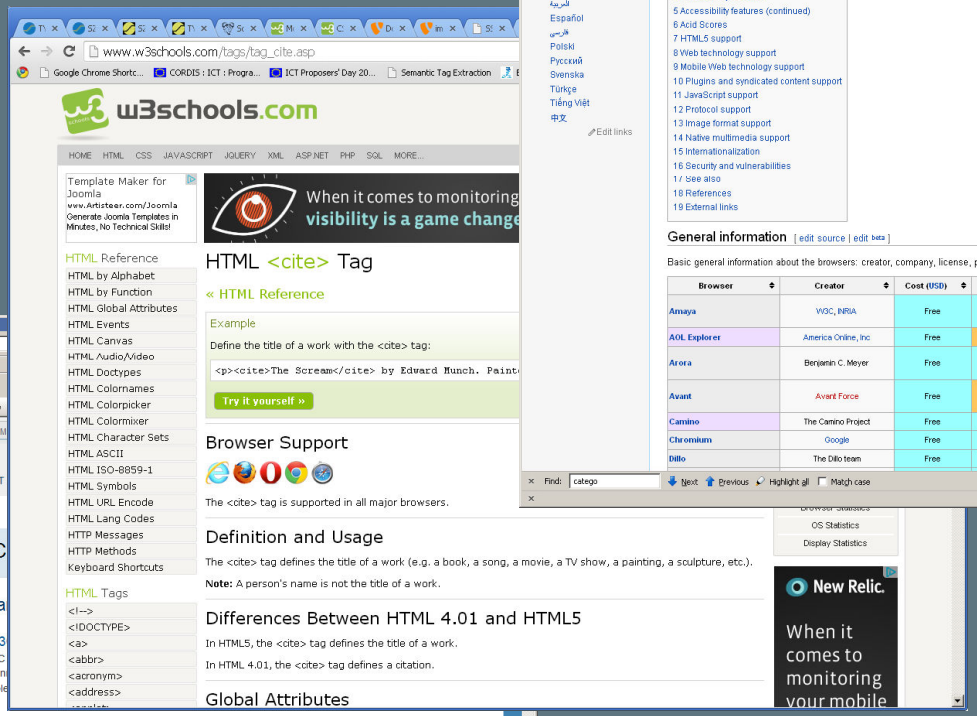
The first WWW browser (1990)

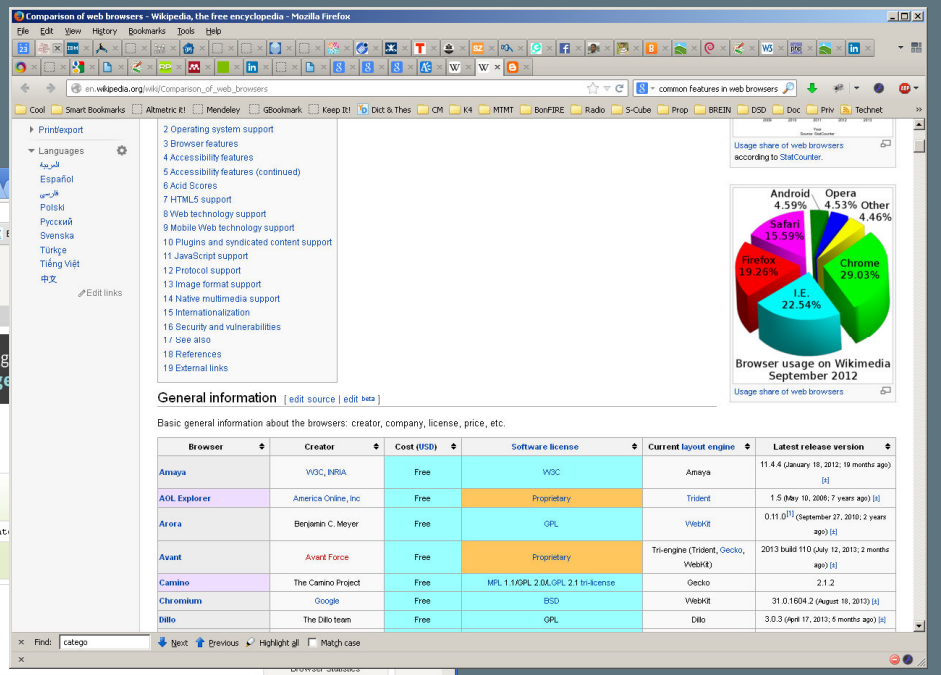


Web browsers today

Bookmarks
Tabs
History
Toolbars
Plug-ins
…

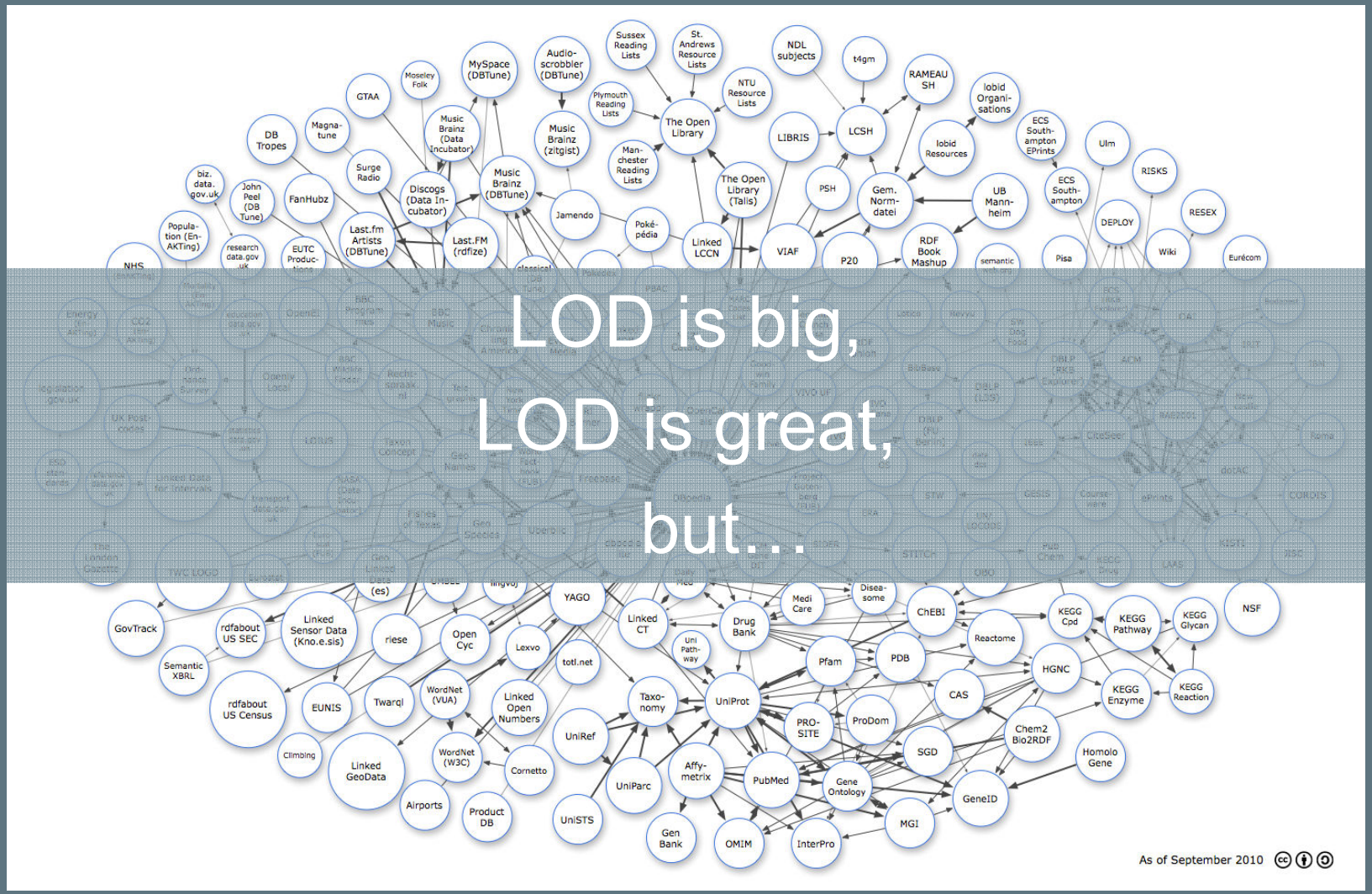




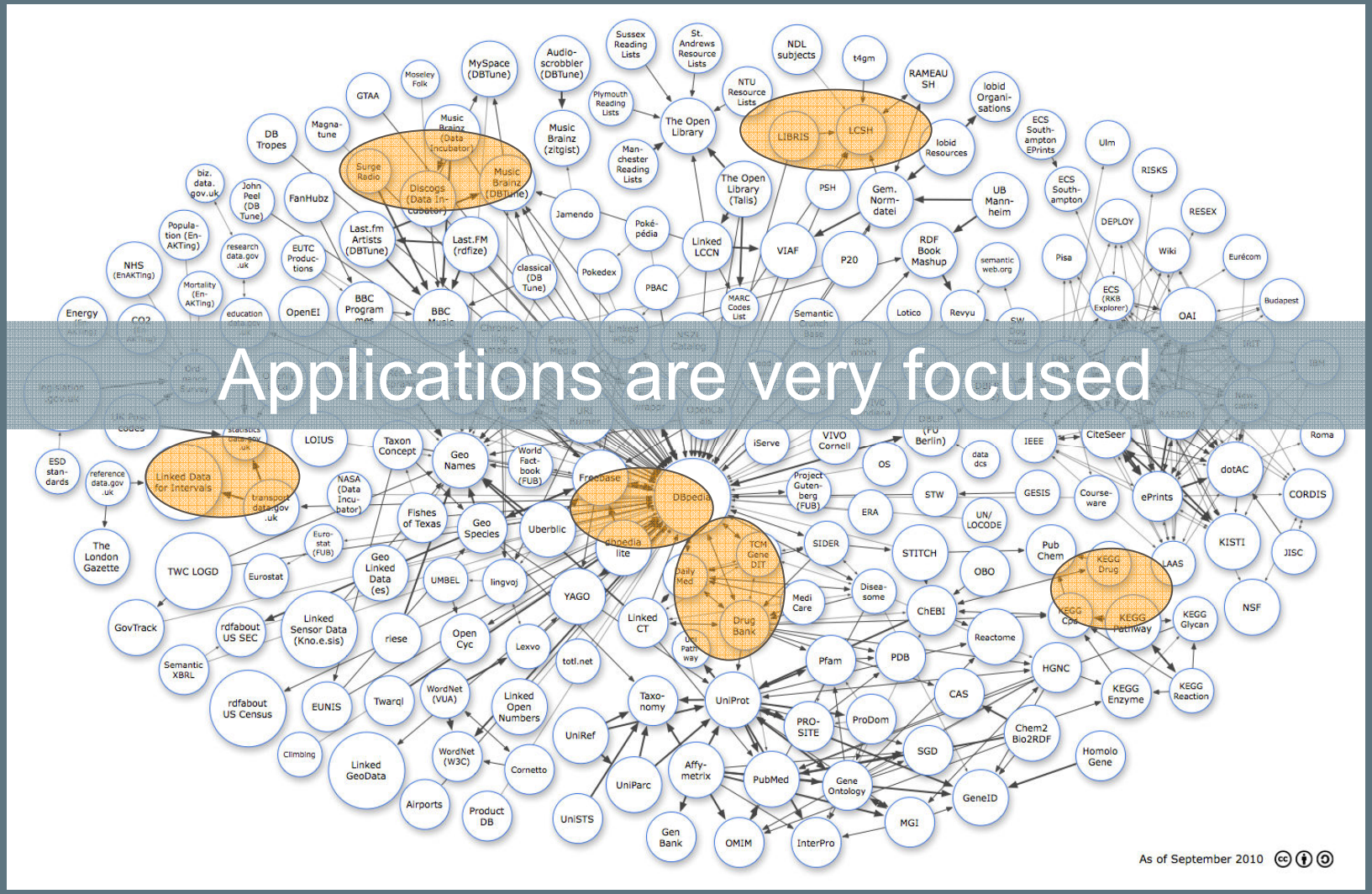


Open
Reload
Save
Zoom
Find
…

The LOD Cloud



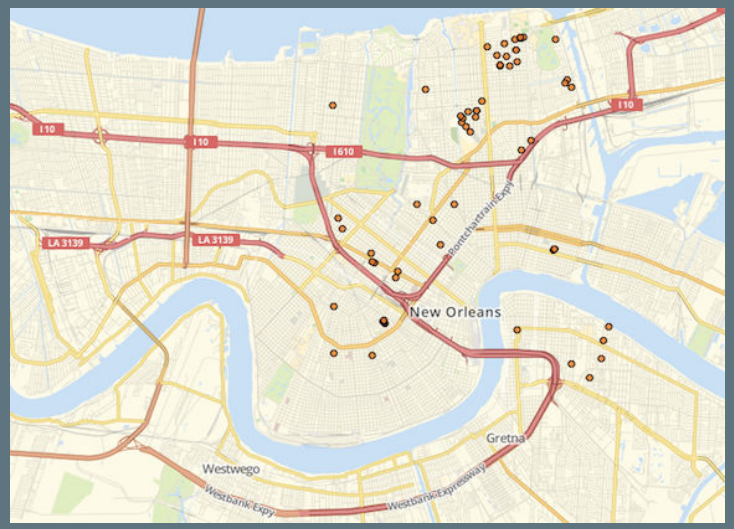
The LOD Cloud 2



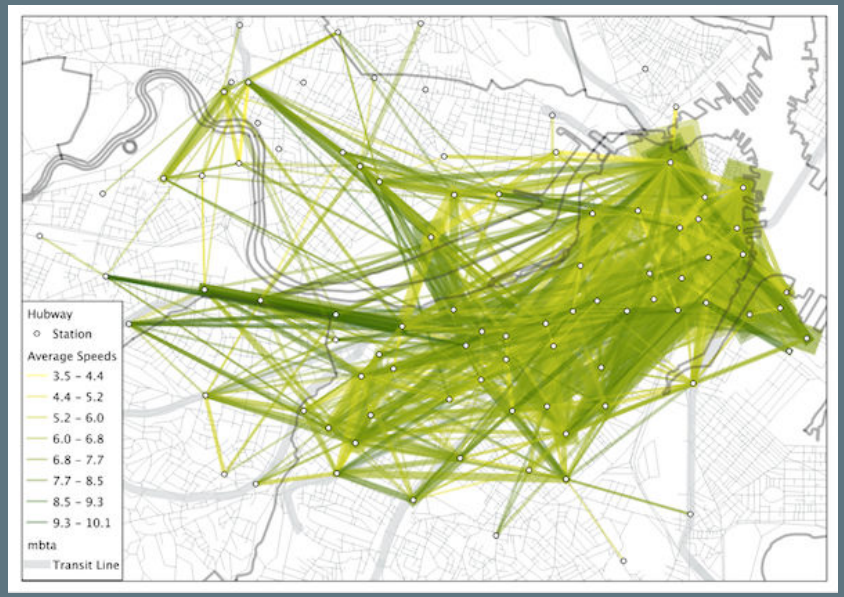
(Ovals are placed randomly with illustration purpose only)

Focused visualisations

Crime events
in Philadelphia



Blighted properties
in New Orleans



Bike sharing
in Boston

Graphity

- Text only
- One node at a time

Tim Berners-Lee

Source | RDF/XML | Turtle

Sir Timothy John "Tim" Berners-Lee, OM, KBE, FRS, FREng, FRSA (born 8 June 1955), also known as "TimBL", is an English computer scientist, MIT professor and the inventor of the World Wide Web. He made a proposal for an information management system in March 1989 and on 25 December 1990, with the hel

Agent | AlumniOfTheQuEEn'sCollege,Oxford | ComputerPioneers | EnglishComputerScientists | EnglishExpatriatesInTheUnitedStates | EnglishInventors | FellowsOfTheBritishComputerSociety | FellowsOfTheRoyalAcademyOfEngineering | FellowsOfTheRoyalSociety | FellowsOfTheRoyalSocietyOfArts | JapanPrizeLaureates | LivingPeople | MacArthurFellows | PeopleFromBarnes | PeopleFromLondon | Person | Person | Person | Person100007846 | PersonWithOccupation | Thing

Person

Alma mater
The Queen's College, Oxford
Birth date
8 June 1955
Birth name
Timothy John Berners-Lee
Birth year
1955-01-01T00:00:00+02:00
Occupation
Computer scientist
Tim Berners-Lee 1
Residence
Massachusetts

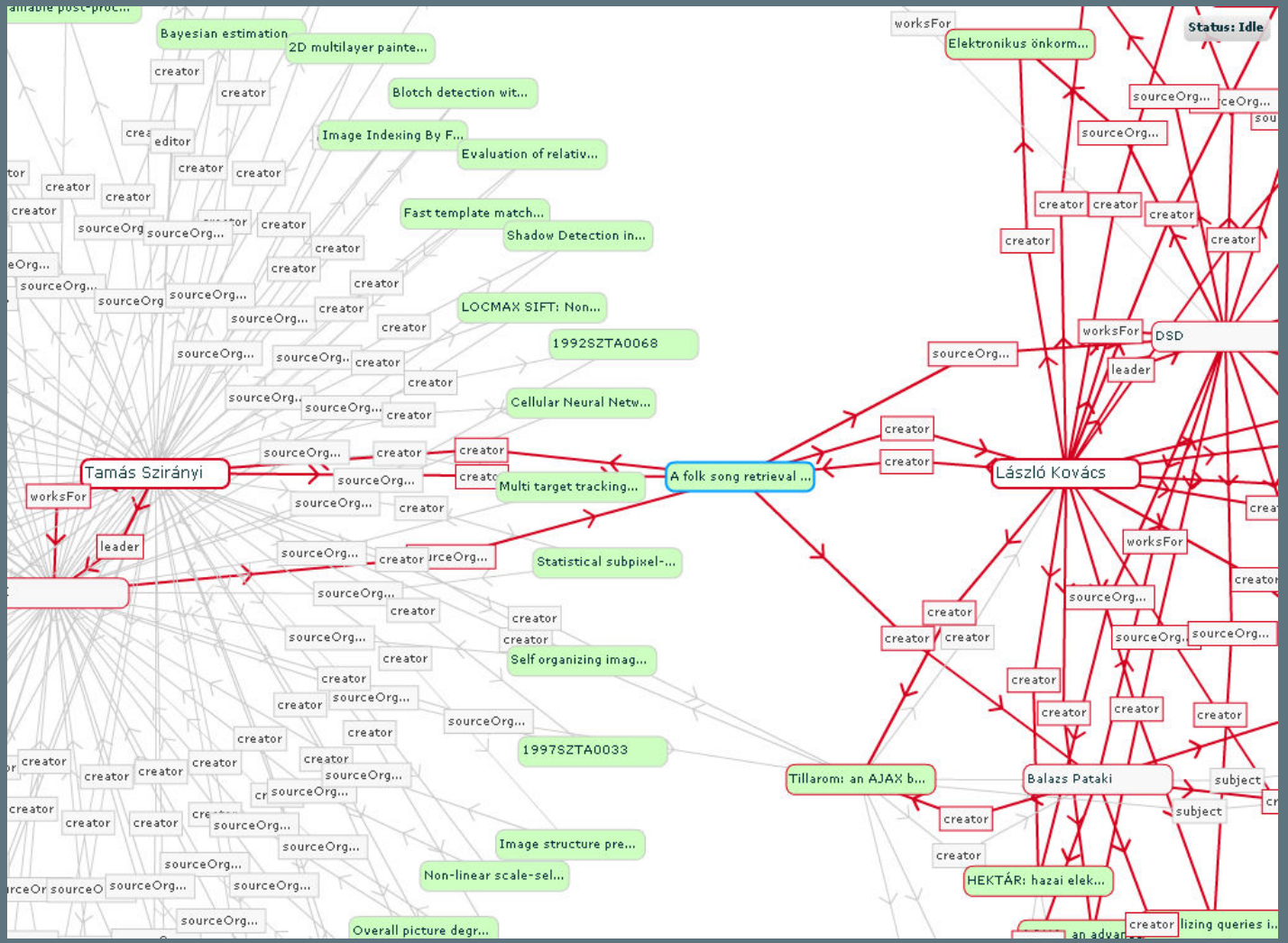
Person

Surname
Berners-Lee

Category:Fellows of the American Academy of Arts and Sciences
Category:Fellows of the British Computer Society
Category:Fellows of the Royal Academy of Engineering
Category:Fellows of the Royal Society
Category:Free software people
Category:HTTP
Category:Internet Hall of Fame inductees
Category:Internet pioneers
Category:Japan Prize laureates
Category:Knights Commander of the Order of the British Empire
Category:Living people
Category:MacArthur Fellows
Category:Members of the Order of Merit
Category:Members of the United States National Academy of Engineering
Category:People educated at Emanuel School
Category:People from Barnes, London
Category:People from London
Category:Royal Medal winners
Category:Unitarian Universalists
Category:World Wide Web Consortium

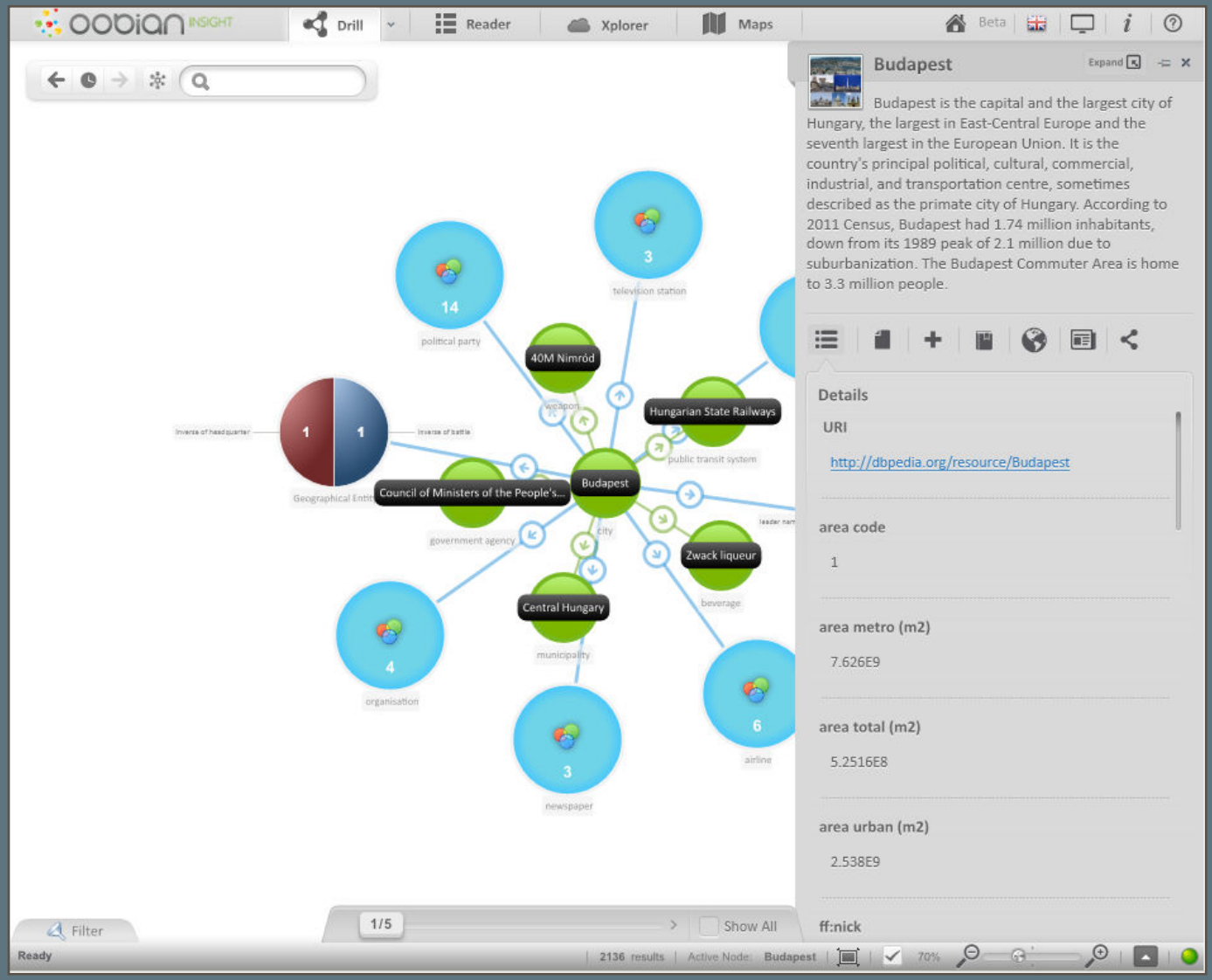
RelFinder

- No text
- Not config free
- Works only on a single site
- Limited path depth
- Works only with SPARQL



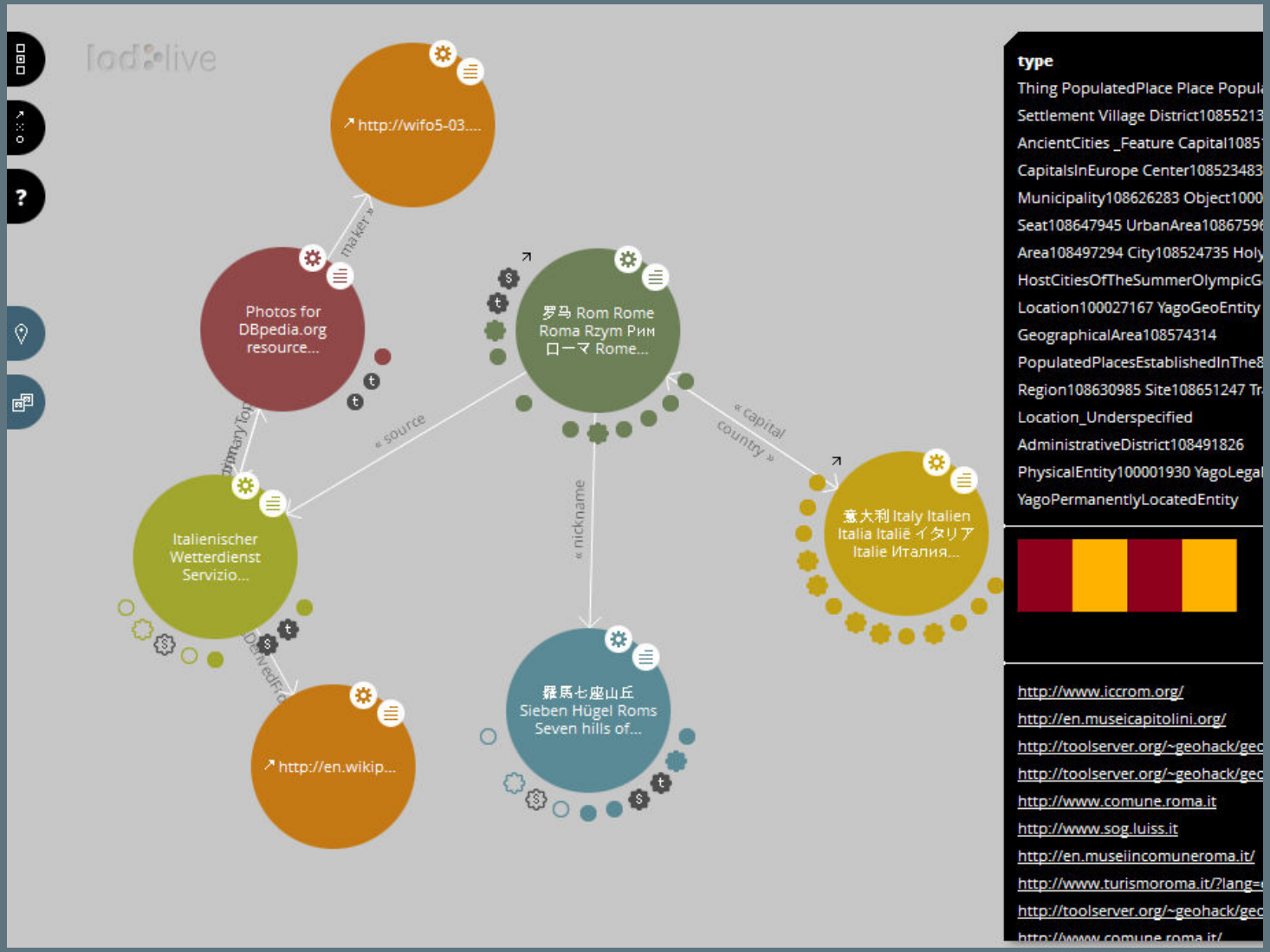
oobian

- One node at a time
- Works only on a single site



lodlive

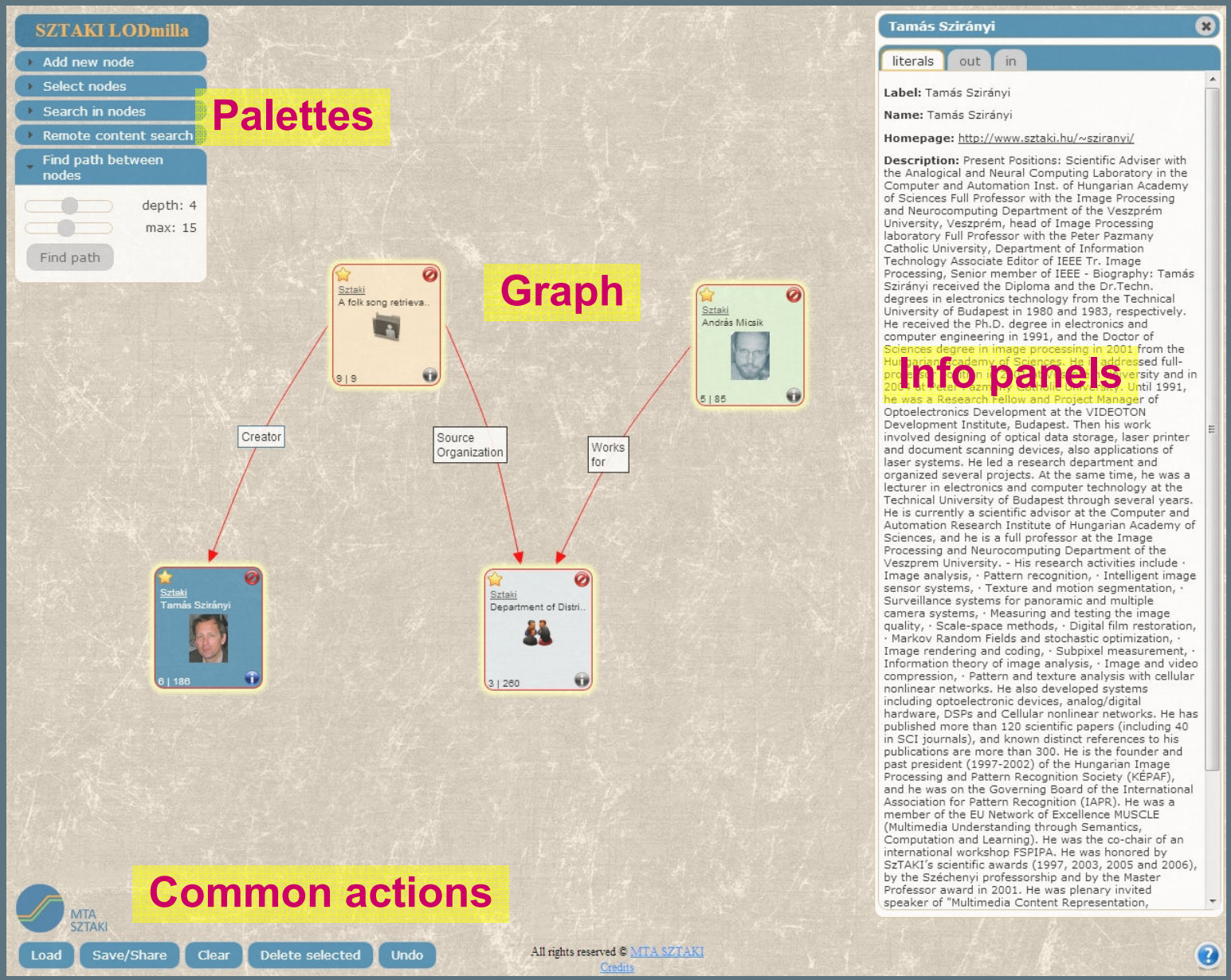
- Hard to navigate
- Not config free
- Works only with SPARQL



Desired generic functionality

- Managing the graph
  - Open/close/select nodes
  - Zoom/pan
- Managing RDF
  - Read triples (contents and links in and out)
- Social features
  - Save/share graphs
  - Comment nodes
- Flexible exploration (via plug-ins)
  - Search by text in properties and literal values
  - Search paths between nodes
  - …

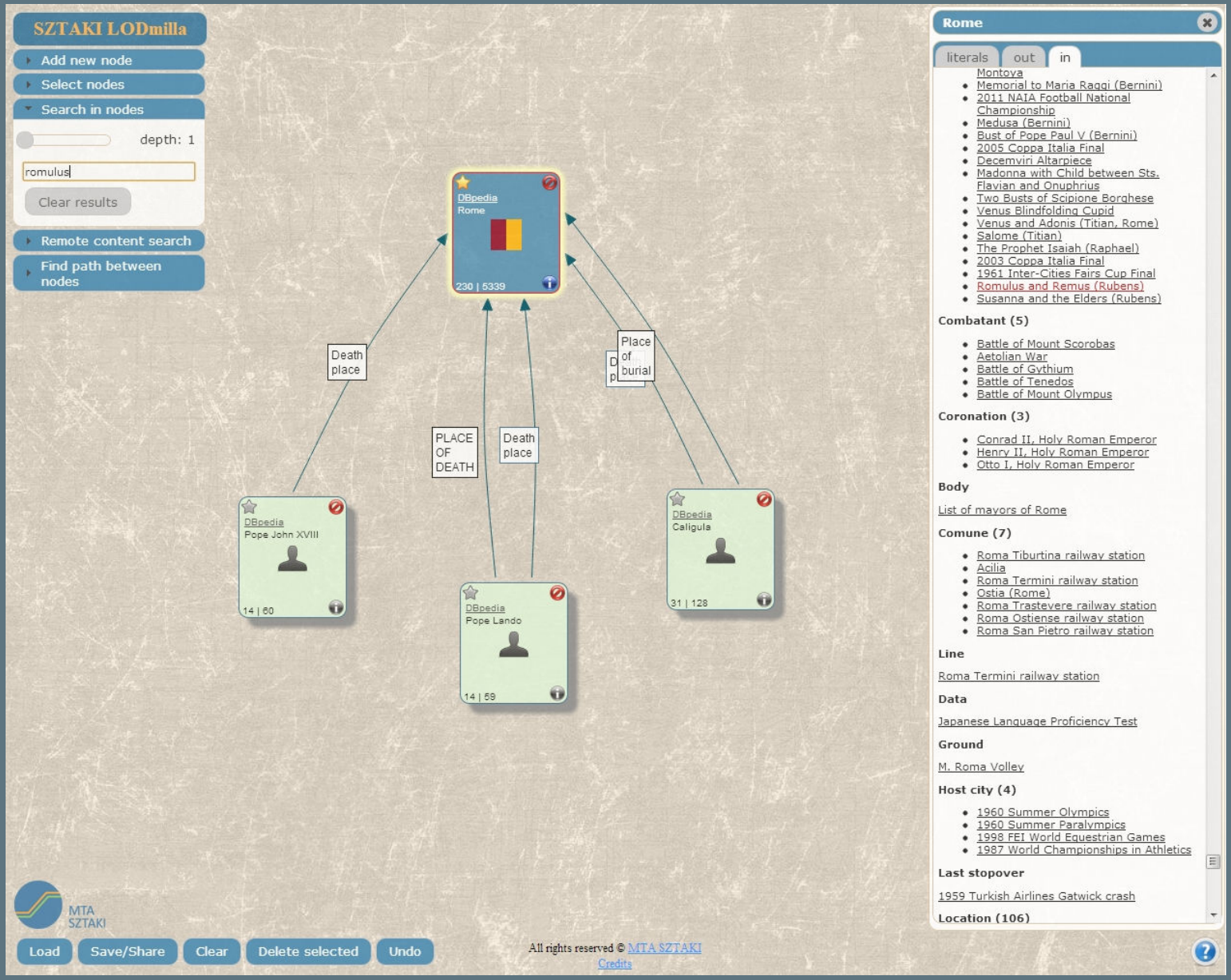
LODmilla frontend



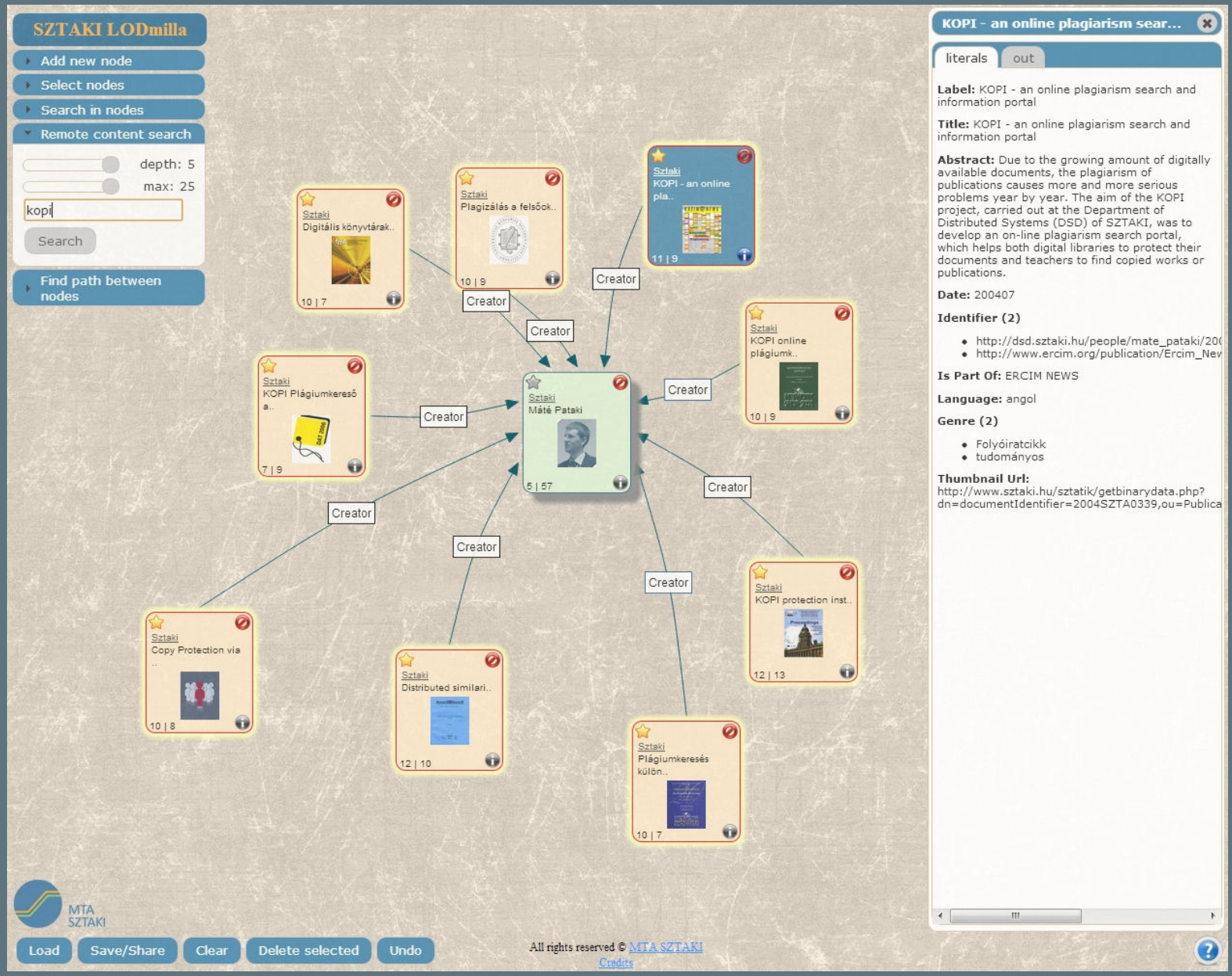
Useful features implemented

- Find a starting point using autocomplete
- Find text occurences in a node
- Expand via given properties
- Find text occurences in neighbour nodes
- Undo
- Share graph view via URI
- Select/unselect nodes by type
- Find paths between selected nodes

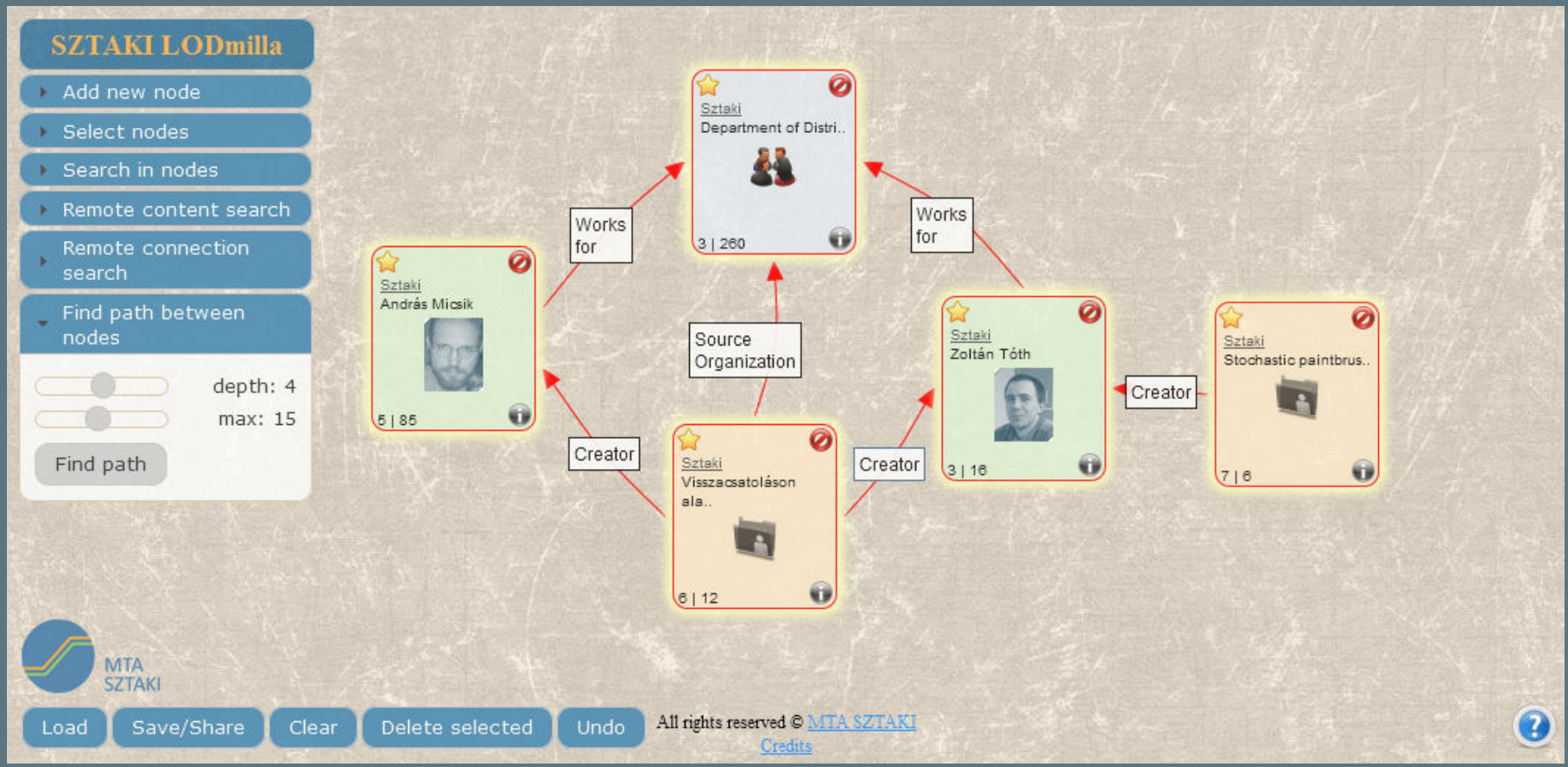
Searching text inside a node



Searching text in neighbourhood



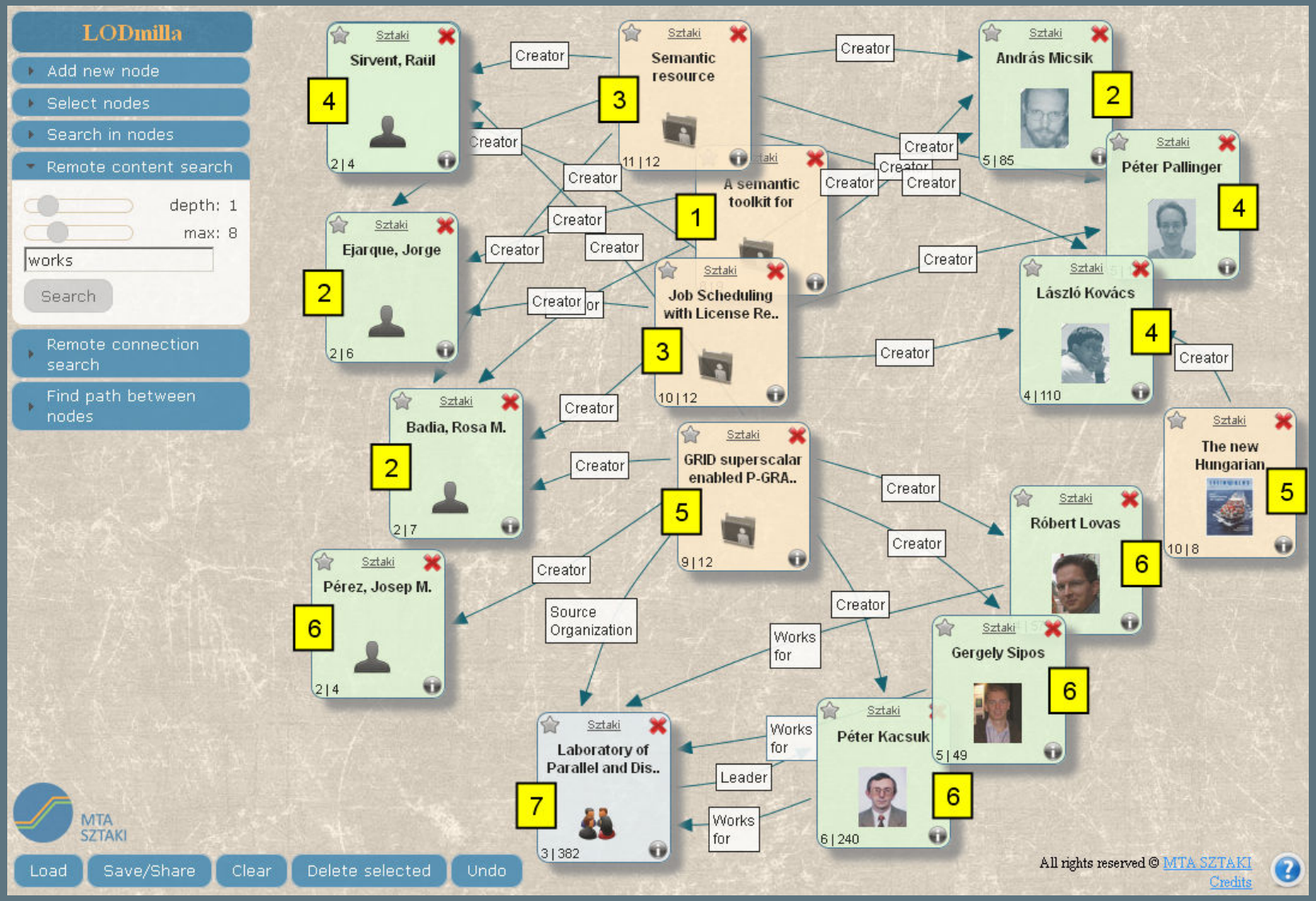
Finding a path



Implementation details

- Frontend
  - jQuery + jsPlumb (HTML, CSS, SVG)
  - Jsonp and/or proxy
- Backend
  - Java + Jena
  - SPARQL or graph traversal via dereferenceable URIs
  - Caching

Use case example



Find paper => Expand creator links =>
Content search on keywords => Find paths between authors

Conclusions

- LODmilla: generic LOD browsing
  - Graph+text visualisation
  - Extensible actions
  - Save and share graphs
  - Works out-of-the-box (no config)
  - Works across LODs
    - having either dereferencable URIs
    - or SPARQL endpoints
- Future plans
  - Annotations
  - Plug-in mechanism
- Wanted:
  - developers to improve the prototype
- Contact:
  micsik (at) sztaki.mta.hu