Linked Data

for robust and decentralized applications

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Open Local Knowledge

- Geographic information
- Social and cultural events
- Organizations
- Infrastructure Status

Variety of different data
Interlink with other content

- Wikidata
- OpenStreetMap
  - Mapping between RDF and OSM data
- Almost any existing web content
Creating and maintaining data is a social activity!
Why Linked Data?

• Variety of data
• Interlink with other content
• Social interaction (via ActivityPub)
Problems

- Robustness
  - Reliance on single servers
  - Decentralize for robustness!

- Querying
URL → URN

• Content-addressing
  – For RDF: http://purl.org/ca-rdf

• Optimize for transport over P2P networks
  – ERIS (http://purl.org/eris)
  – IPFS / GNUNet
Authenticity

• Content-addressing
  – Sign the identifier of content-addressed content

• RDF Signify (http://purl.org/signify)
Mutability

- Content-addressed content is immutable
  - No persistent identifiers

- Commutative Replicated Data Types (CRDTs)
  - Distributed Mutable Containers
    (http://purl.org/dmc)
Querying

• Datalog
  – Logic Programming for Databases

• Extensible
  – Resolving of CRDT state
  – Authoritative Reasoning
  – Full-text search and geospatial indexing
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