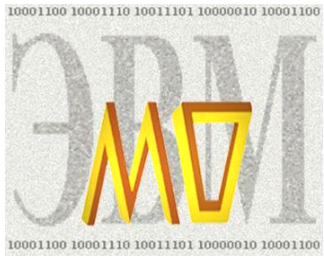


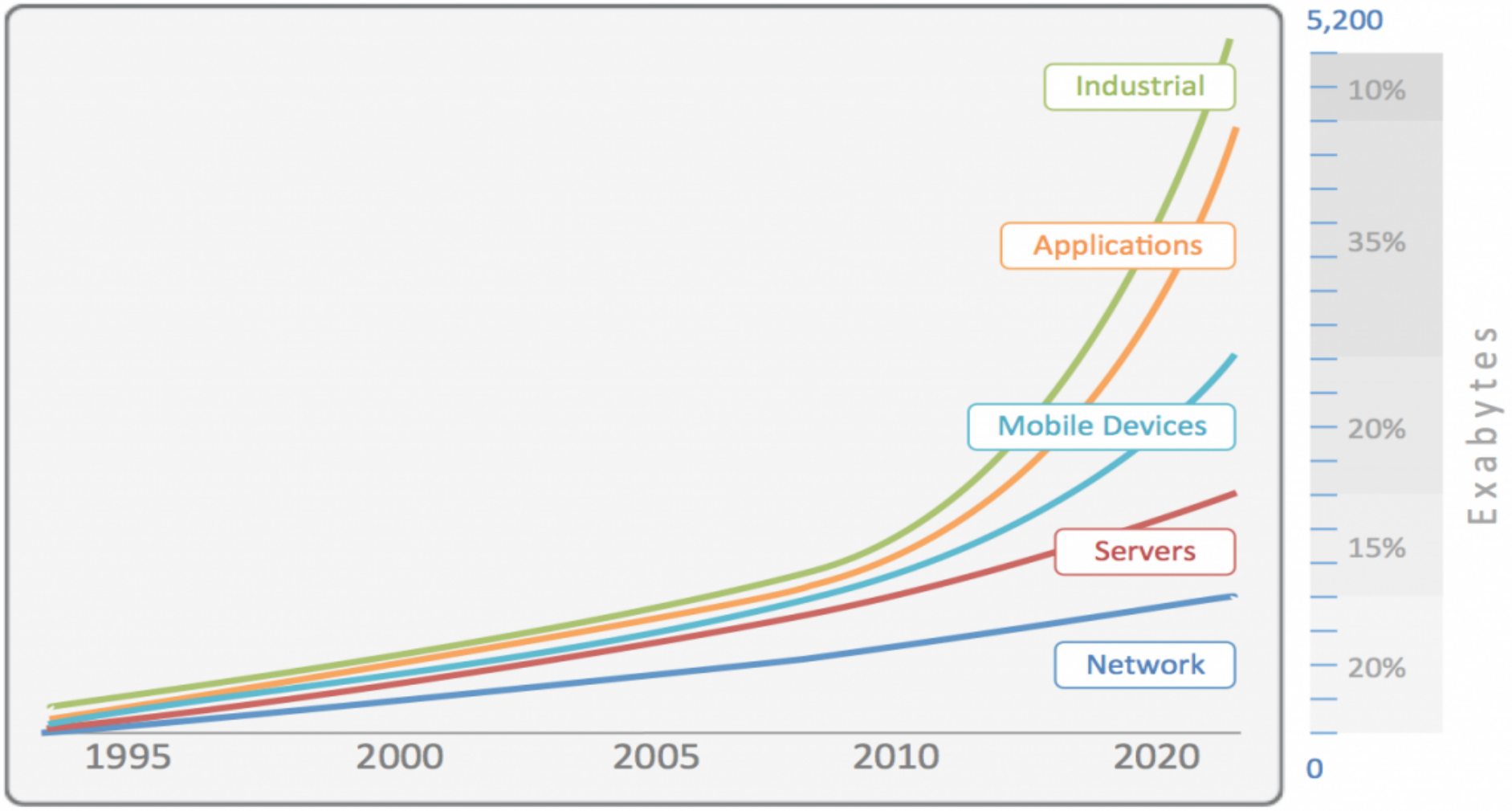
Smart-M3 and Geo2Tag Platforms Integration

M3 Semantic Interoperability Workshop

Kirill Krinkin
Kirill Yudenok

FRUCT 14,
Helsinki, 12 November 2013

Data growth

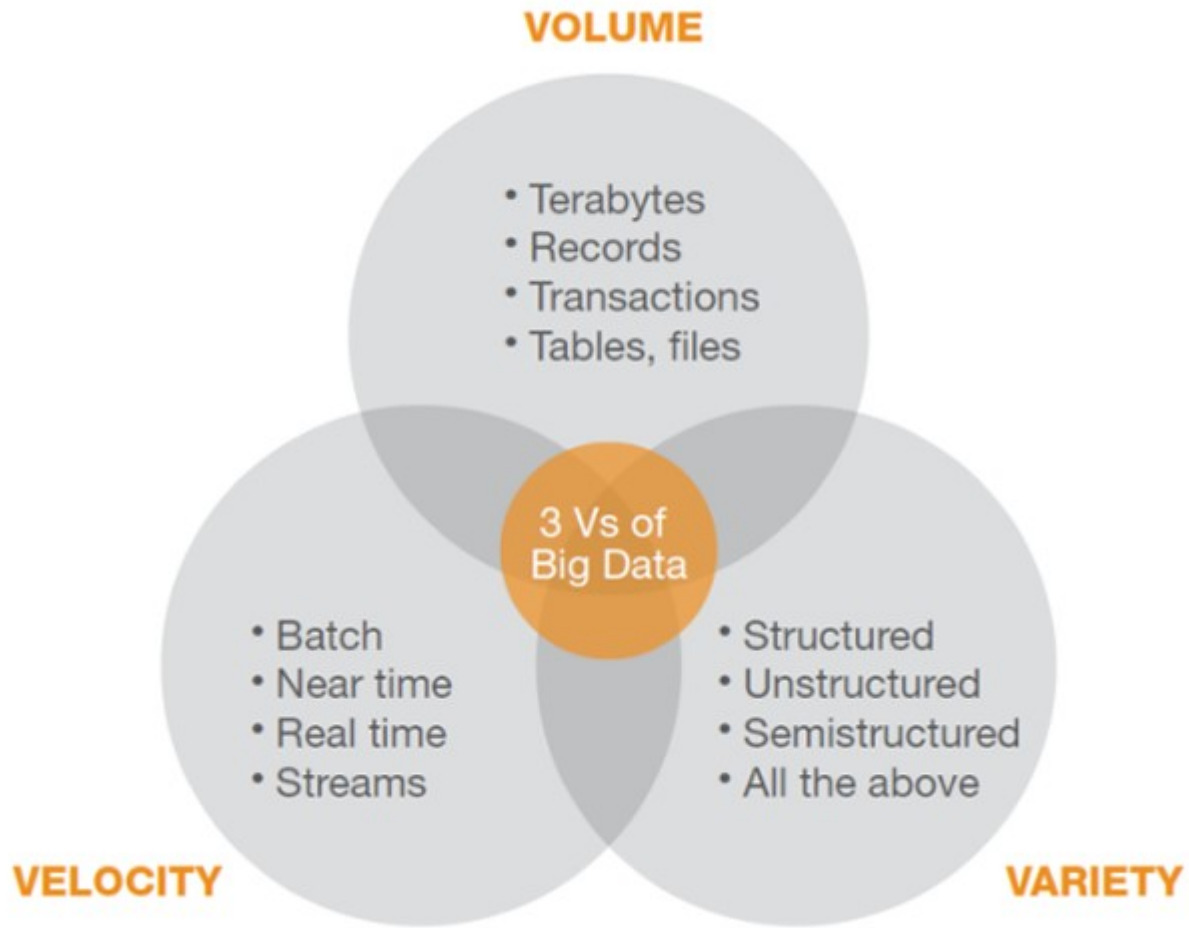


Source (data in 2020 only): EMC/IDC report 2012

M3 vs V3

- M3
  - multi-vendor
  - multi-device
  - multi-par

- Big data = V3

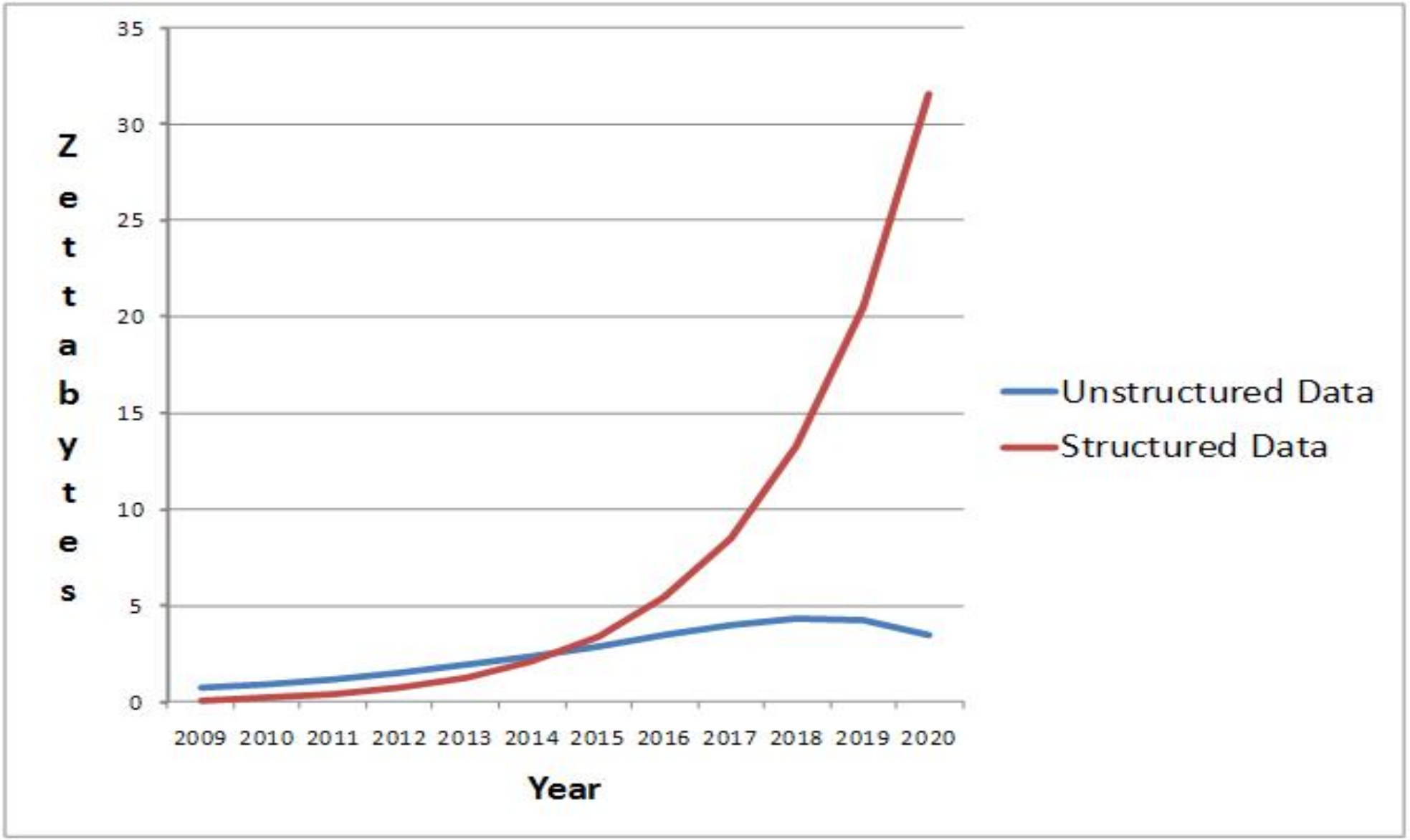


What is the Data?

Structured

Unstructured

No so bad


Zettabytes
35
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Year
Unstructured Data
Structured Data

Project goal and tasks

- Goal

  develop technology for performance efficient geo-coded smart spaces.

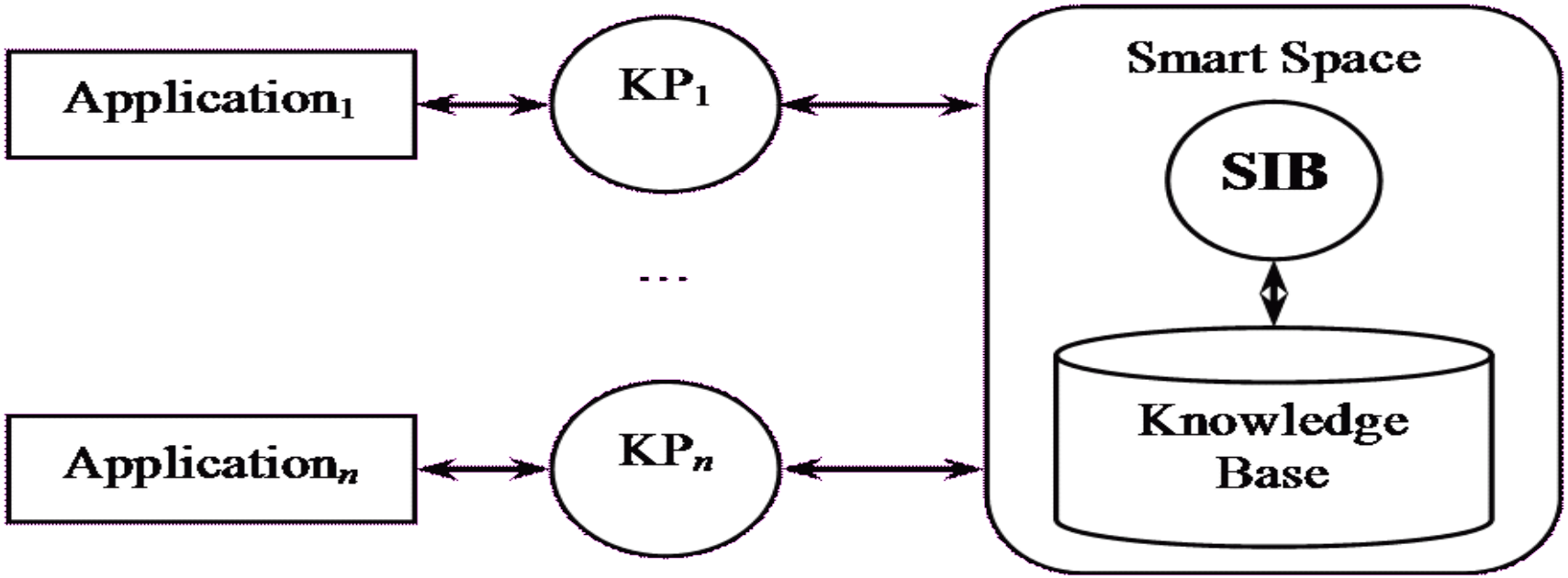
- Curent tasks
  - Develop Smart-M3 and Geo2Tag integration architecture
  - Implement integration agent (PoC)
  - Test and improve performance

Geo-Coded Smart Space (GCSS)

Smart-Space where each ***subject*** could have geographical context (coordinates)

Smart-M3 platform

Smart-M3 is an open source software platform that aims to provide Semantic Web information sharing infrastructure between software entities and various types of devices.



Geo2Tag LBS platform

Geo2Tag platform is the centralized high performance geo-tagging (geo-coding) database.

Features:

- geographical tags management;
- tag classification/filtering/...
- user/session management;
- cloud back-end for geo- tagged BLOBs (Riak DB)

Geo2Tag data model

geotag

Geo2tag core

channel

channel

channel

channel

geotag

geotag

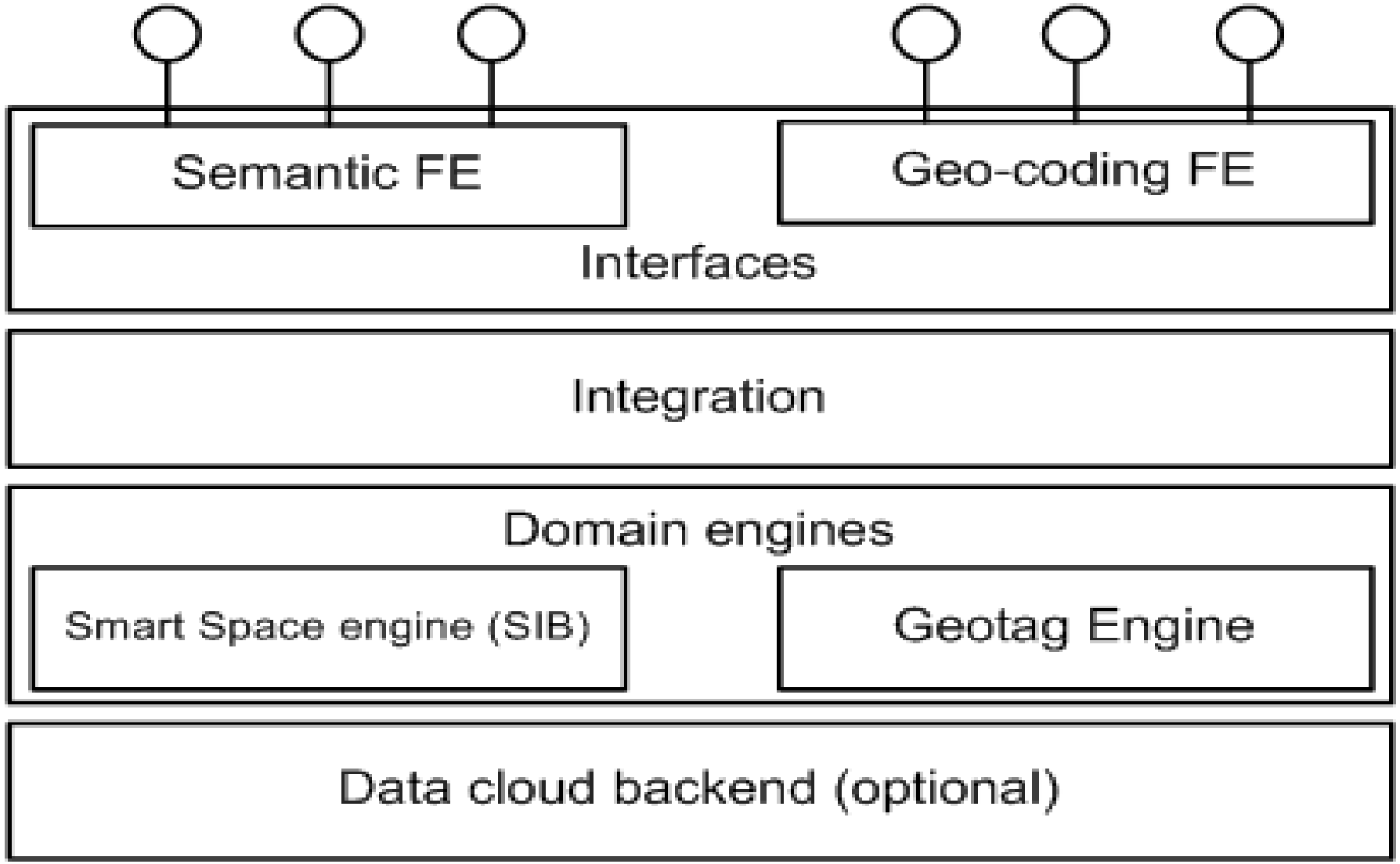
geotag

geotag

GeoTag
- Coordinates
- Link to content
- channel
- coordinates
- time

GeoFilter
- time
- 2D/3D figure

GCSS layered architecture



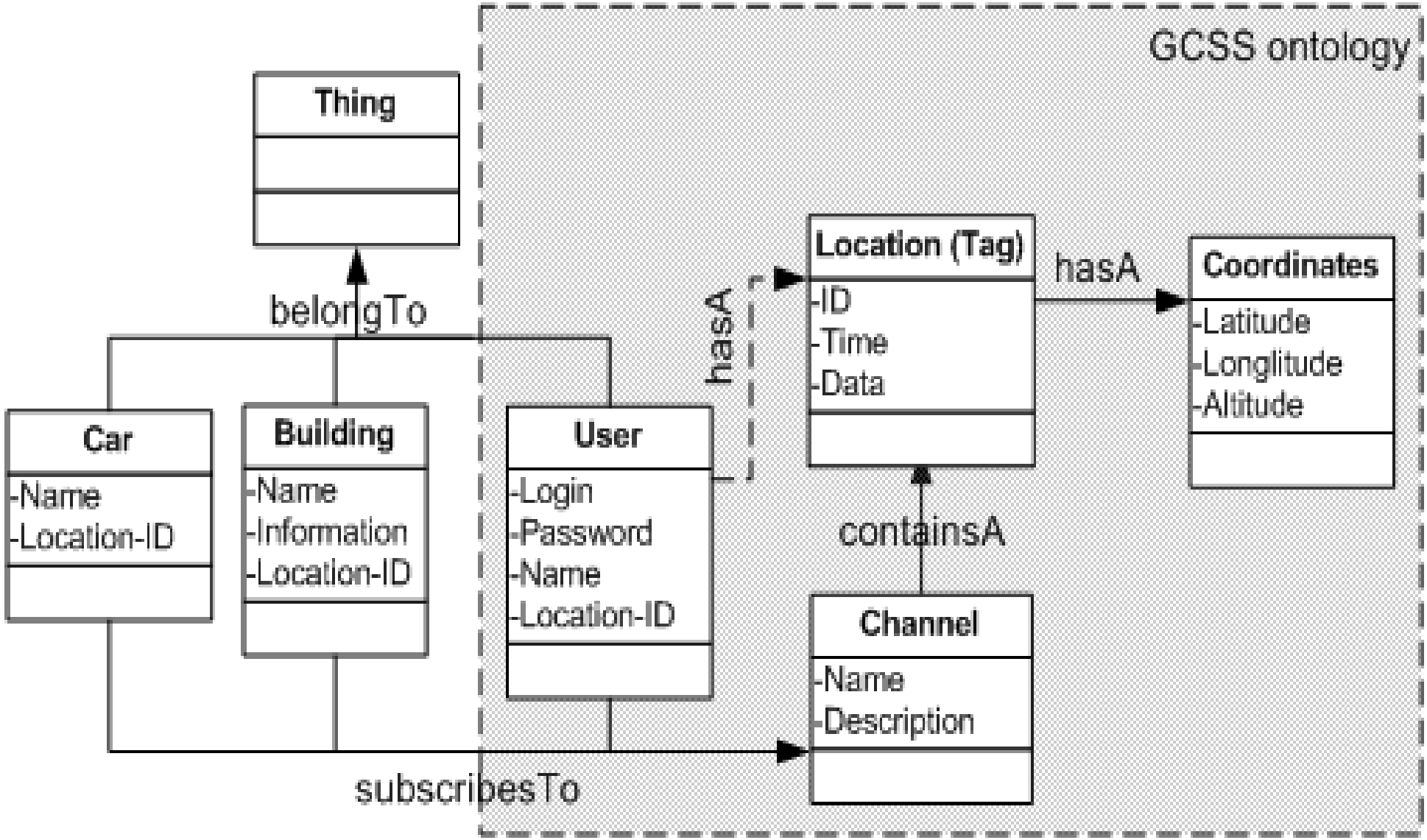
GCSS layers responsibility

- ***Interfaces*** – smart-spaces and geo-coding front-ends (FE) responsible for communication with external data consumers (clients);
- ***Integration*** – responsible for transparency between Smart-m3 and Geo2Tag data representation;
- ***Domain engines*** – particular implementations of smart-space geo-coding middleware (Smart-M3 and Geo2tag);
- ***Data cloud backend*** – optional component, responsible for providing efficient massive data processing back-end (e.g. storage system);

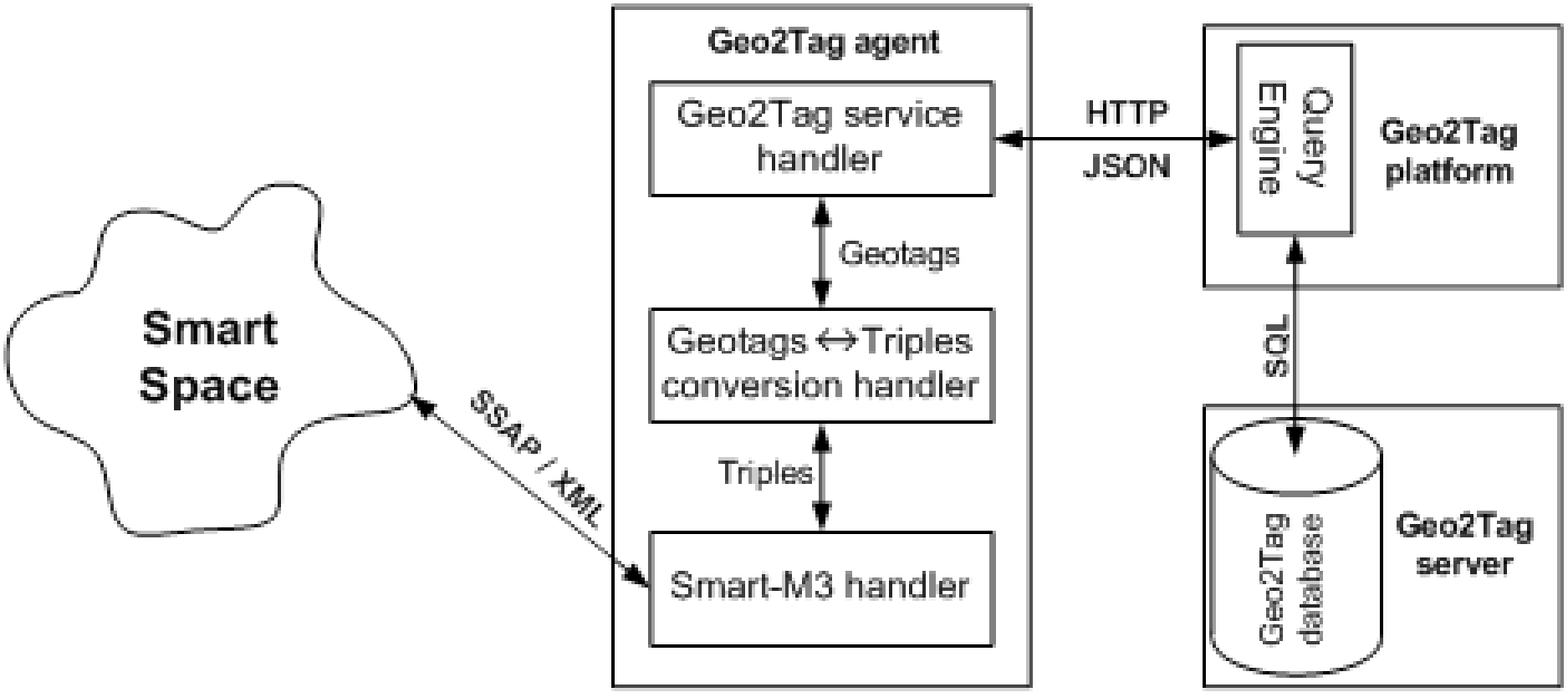
GCSS use-cases

- Set/Get geographical coordinates for Smart-Space objects;
- Spacial and temporal object filtering;
- Providing extra information about objects:
  - trajectories;
  - co-location;
- Providing semantic data through Geo2Tag interface

GCSS agent ontology example



GCSS example agent architecture

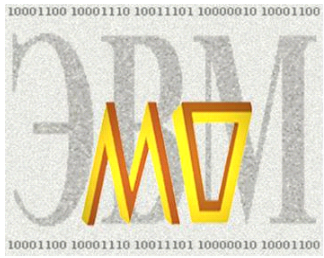


State of work

- **Done**
  - Architecture
  - Working prototype without cloud back-end
- **In progress**
  - Test development & performance testing
  - Cloud back-end
- **Future**
  - Optimizations
  - Miniaturization

Resources

- Geo2tag LBS Platform: http://geo2tag.org
- Smart-M3 https://sf.net/projects/smart-m3/



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