

IEEE Big Data Governance and Metadata Management (BDGMM)

WO CHANG, CHAIR, NIST

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BDGMM Background



Motivation behind BDGMM was developed under the IEEE Big Data Initiative (BDI), an IEEE New Initiative Committee (NIC) funded effort, with leading efforts for big data standardization.

- Couple major activities that led to the creation of the BDGMM:
- Combined meeting with IEEE Big Data Initiative Standards Workshop and IEEE Reliability Society's ISSRE 2015 conference at NIST in November 2015. Results: IEEE BDI identified areas of need and opportunity for standardization of data-related technologies.
 - 1st IEEE Workshop on Big Data Metadata and Management (BDMM '2016), was held in Washington, D.C. also confirmed the same results.

Potential Market Impact



BDGMM has potential society, economic, and scientific impact in numerous vertical industries, e.g. financial engineering, biomedical, transportation, education, and power utilities. Specifically, this work will guide how big data and big data exchange is governed. It will enable consumers of big data to better understand what is available and how to access it. It will help producers of big data properly set expectations and take steps to ensure that their datasets can be maintained and shared in accordance with their wishes. It will help organizations that store big data make decisions concerning how the big data is stored, curated, exposed, and otherwise governed so as to best serve consumers and producers.

Big Data Governance Management

Provides authority, control and shared decision making over the management of data assets.



Data

Reference

Resource

Research

Software

Production

Tools

Test, Development, ...

Publications

Peer
Reviewed

Gray Literature

White Papers, Talk Slides, ...

Public
Servers

Internal
Servers

Other
Storage

Publications

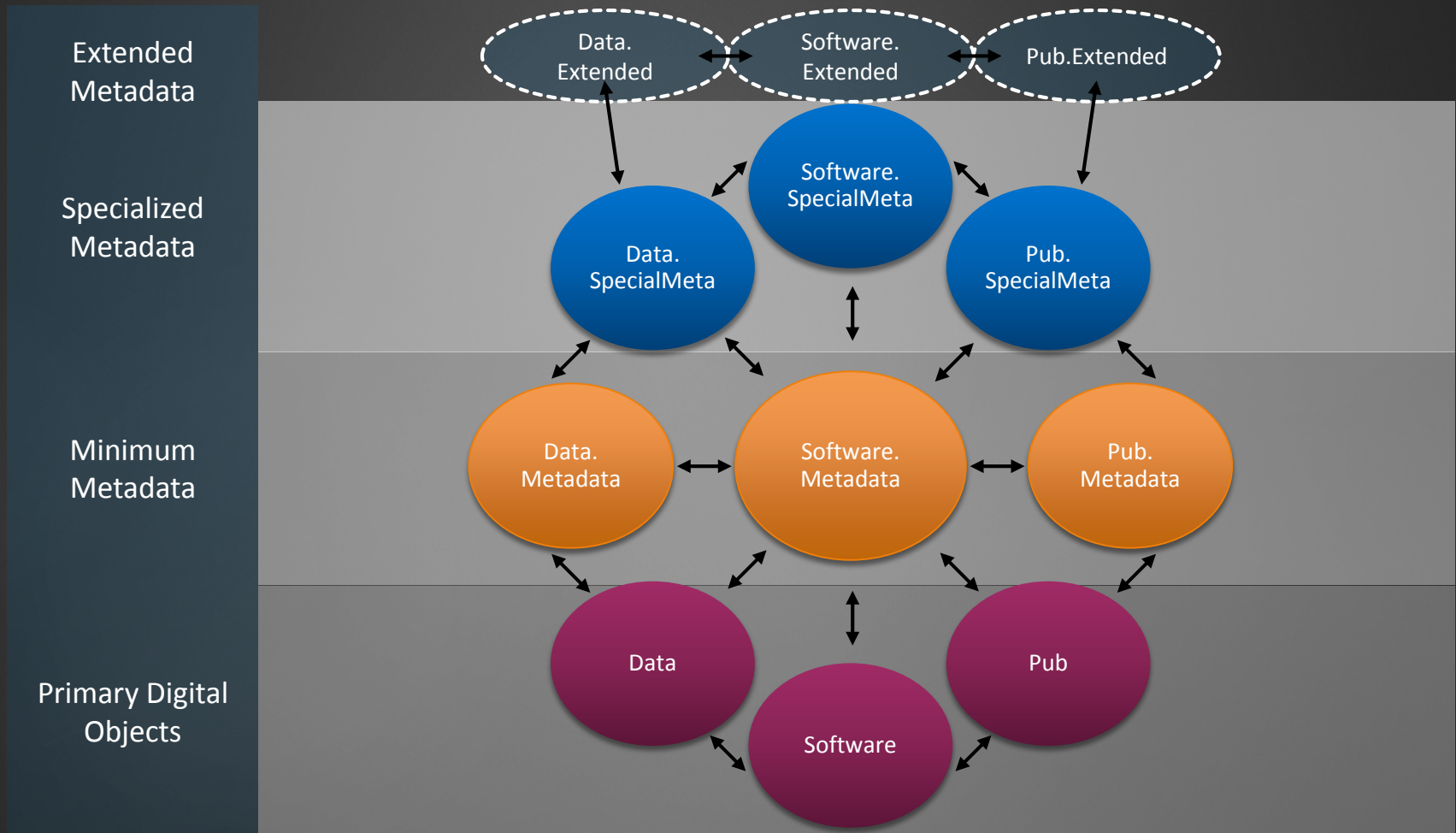
Other
Repositories

Community
Repositories

Cloud

Big Data Metadata Management

Provides mechanisms for how to manage data about content data



BDGMM Goal



Goal

To enable data integration/mashup among heterogeneous datasets from diversified domain repositories to make data discoverable, accessible, and usable through a machine readable and actionable standard data infrastructure.

From the new global Internet Big Data economy opportunity in Internet of Things, Smart Cities, and other emerging technical and market trends, it is critical to have a standard reference architecture for Big Data Governance and Metadata Management to support the FAIR (Findability, Accessibility, Interoperability, Reusability) foundation principles.

BDGMM Deliverables



The deliverables are expected to include:

- Workshops and possible hackathons co-located at IEEE sponsored or other conferences to collect, analyze, implement, and identify relevant use cases, requirements, and potential solutions. Document the findings.
- White paper(s) framing the problems, identifying the issues in more detail based from the workshops and possible hackathons outlined above.
- Reference architecture(s) concepts and solutions from relevant best practices in big data metadata management to formulate data interoperable infrastructure to enable data integration/mashup between diversified domain repositories, including those maintained by participating entities and IEEE Dataport. A proof-of-concept reference implementation would be welcome.
- Identification and initiation of IEEE standards activities (including recommended practices, guides) related to big data metadata management, including the development of PARs and recruitment of Working Groups within an appropriate IEEE Standards Committee.



Very strong interest on both parties.
MOU is under development ...

BDGMM Kicks-off Meeting



BDGMM Website:

[http://standards.ieee.org/develop/indconn/
BDGMM_index.html](http://standards.ieee.org/develop/indconn/BDGMM_index.html)