Open Information Interoperability

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MITRE Sponsored Research

MITRE Innovation Program

Problem

- MITRE's sponsors need to quickly respond to new mission requirements.
  - This requires them to compose capabilities on demand.
- A major barrier is information interoperability.
- Our sponsors need interoperability tools that are:
  - Affordable
  - Extensible
  - Vendor-neutral.

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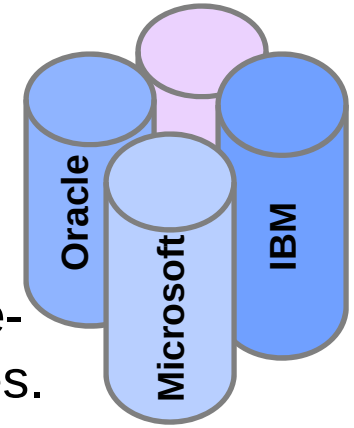
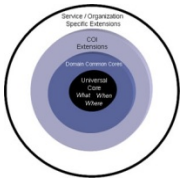
Background: State-of-Practice

1. Manual data crosswalks... …followed by… …programming

2. Commercial tools are mostly expensive, single-vendor stovepipes.



3. Few tools help exploit data standards or existing mappings.



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Objective

- **Work collaboratively with industry and academic leaders to define, design, and build the first release of an open source information interoperability toolkit.**
- **Extend and adapt MIP-developed tools to provide important components of Open II.**
- **Apply the toolkit to government pilots to prepare for wider transition.**

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Activities

- Proposed and gained acceptance for common meta-model for use by multiple vendors' tools (M3: "MITRE Meta-Model")
- Defined and published interfaces to SchemaStore repository
- Developed the *RMap* relational mapper, which produces executable mappings represented as SQL
- Guided two winning proposals (Wisconsin and UC-Irvine) for Google faculty awards
  - Will result in two new useful tools for OpenII
- Released Harmony, SchemaStore, MRALD as open source software on code.google.com and openintegration.org
- Making MIP-developed tools more industrial strength to prepare for wider distribution
- Applying toolkit components to sponsor problems

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Highlight: Collaboration

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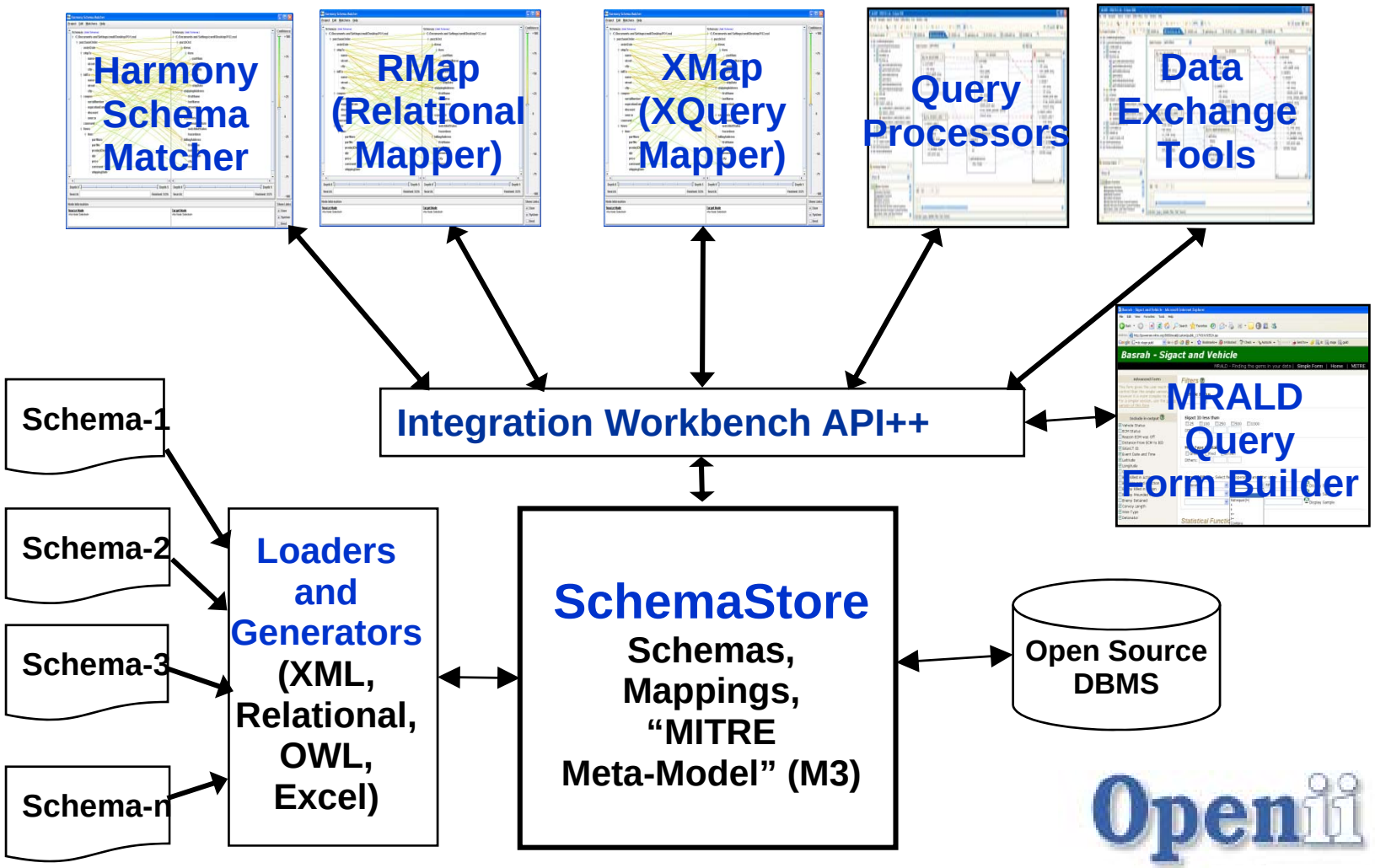
Highlight: Architecture



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Impacts

- **Result: An extensible suite of interoperability tools available for free to our sponsors**
  - **Applicable to C2, emergency preparedness, homeland security, law enforcement, and biosecurity**
- **Will speed progress for the industry**
  - **Unlike today, researchers and small vendors will be able to plug their innovations into a larger framework, easing future technology transition**
- **FY09: Have applied toolkit components to Army/G8/Force Development/Warfighter Analysis Office and (jointly with Common Ground MSR) DCGS-A**

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Future Plans

FY09

Openii → First Official Code Release (Aug. 2009)

FY10

Complete Development of "XMap" Mapper / CodeGen for XQuery (Partners: UC-Irvine/Google)

Impact: Speed creation of XQuery data exchange code; an important way of achieving loosely coupled interoperability

Wizard for Creating Composite Data Services

Impact: Reduce the skill level required to field a web-based service that serves data from multiple, heterogeneous sources

Given a Large Data Set, Create Useful , Consist-ent Subsets (Partners: Wisconsin/Google)

Impact: Good sample data will improve both matching and testing

Pursue Transition Opportunities

Impact:
1. Provide near-term value to programs
2. Improve toolkit from lessons learned

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