Next Generation Enterprise Information Management Appliances

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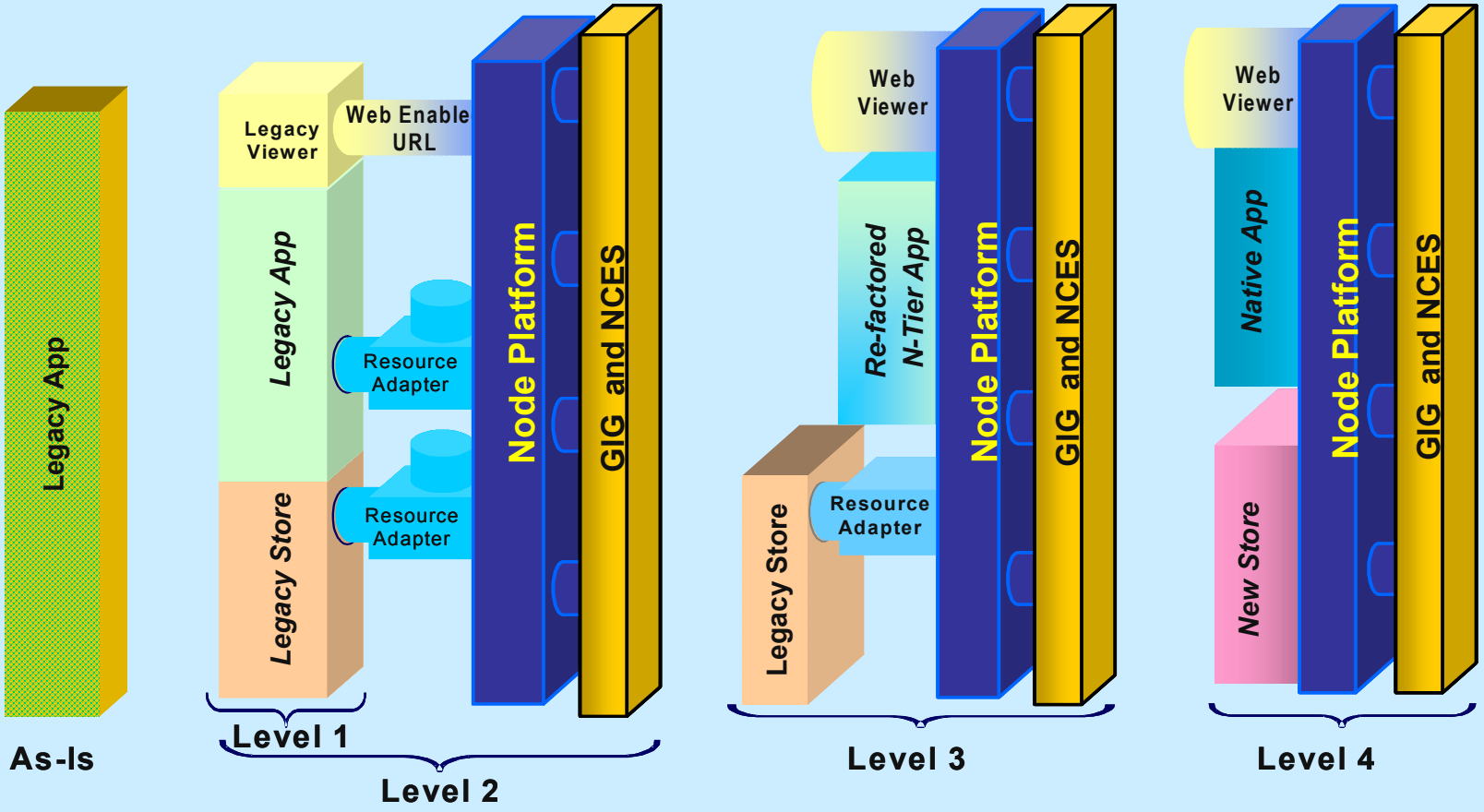
Problem

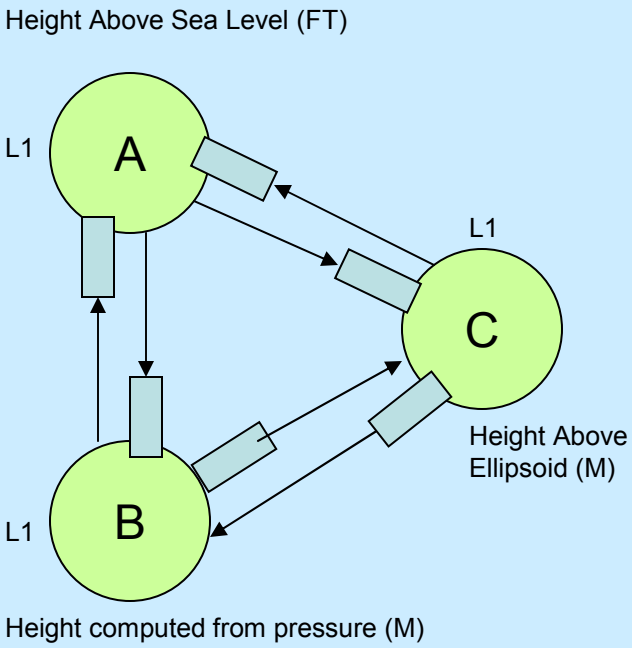
- A roadblock to integration is disparate data types across the same community of interest.
- Net-Centric technologies promise to deliver a deluge of information to consumers. (Which one's right?)
  - We need to avoid providing decision makers conflicting information
  - Information sources could be in the tens or hundreds on any discrete data point.
- Net-Centric technologies will place an increased load on information producers with time sensitive information.
  - If an information producer is the only data source then everyone will come to it for the information.
  - Current brokering approaches do not take into account best source of information and could provide consumers conflicting information.
  - UDDI is not dynamic and does not address the problem of service names and schemas being the same but the data content being different (Service Discovery)

NESI Architecture Diagram

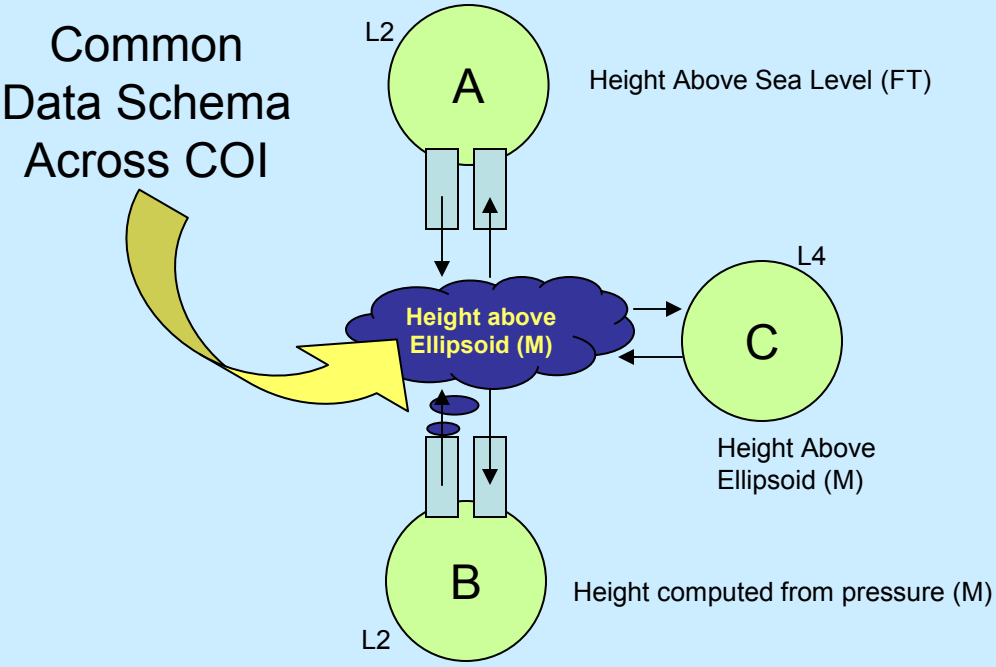
Provide Flexibility through Multiple Levels of Migration



Disparate data types across the same community of interest.



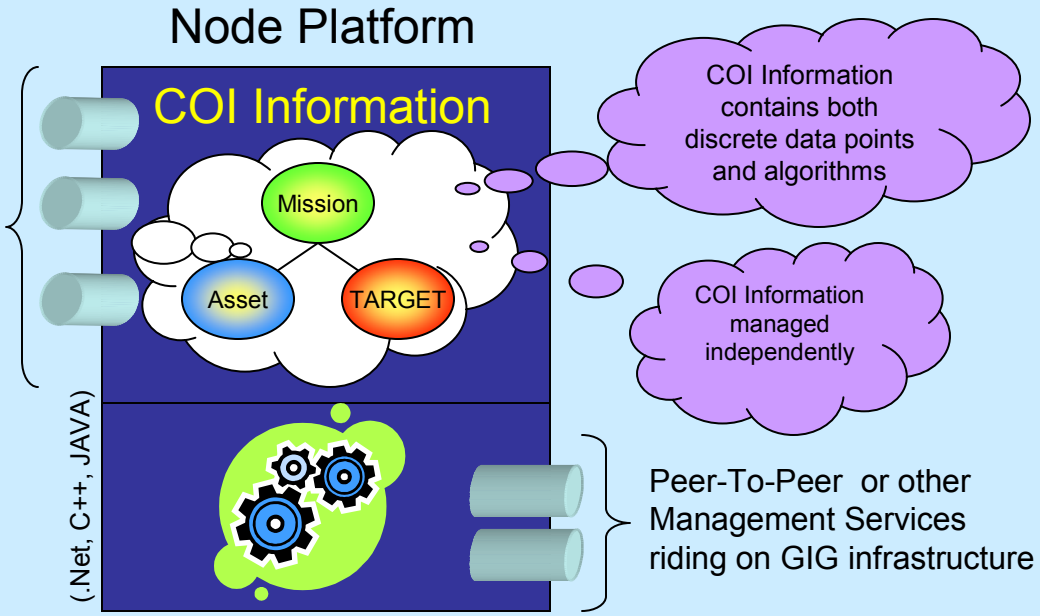
Present Approach



Information Management
Appliance Approach

Information Object Management Specification (IOMS) Fundamentals

- Information Adaptors provide interfaces to host system applications and data stores.
- Information Adaptors translate information from native system form to the common schema.

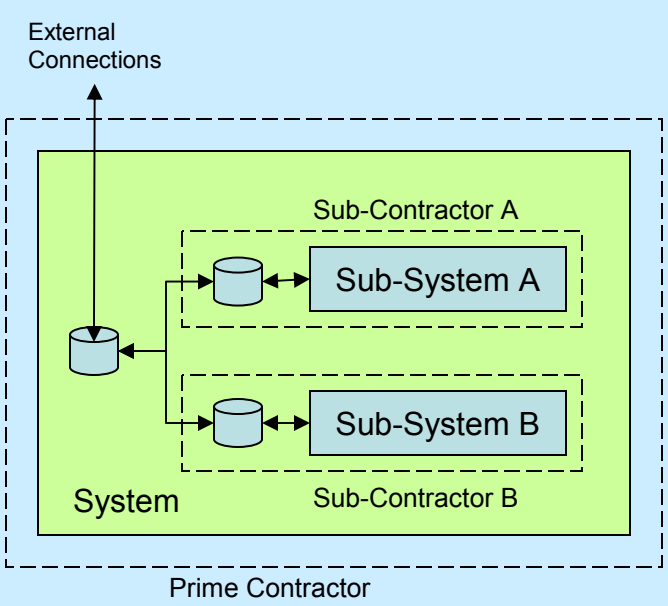


Provide a specification containing a collection of standards that are implementable across multiple *software platforms* (C++, JAVA, .Net) by multiple contractors independently.

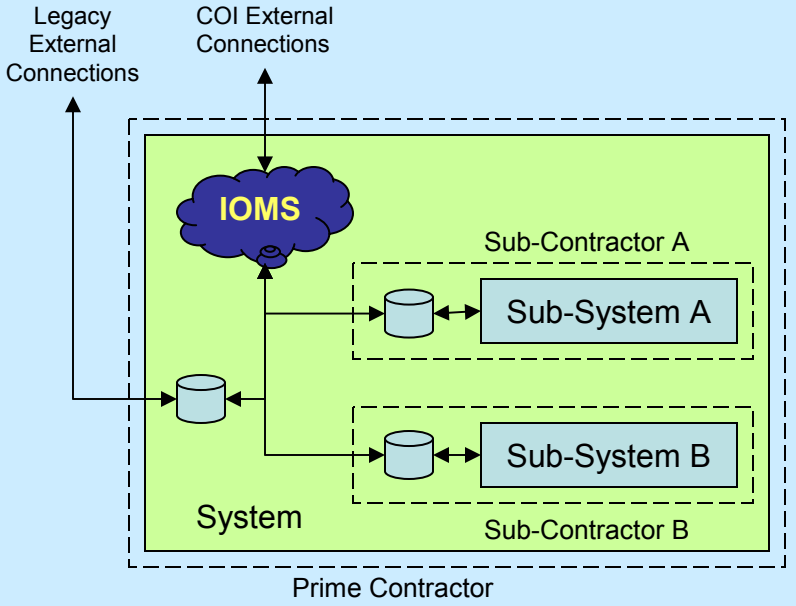
*COI = Community Of Interest

Specification Goals

- A specification for the description of **independently managed COI data**
- A **specification for the interfaces** that would operate on the COI data and provide interfaces to and from the COI data that is implementable across multiple software platforms by multiple contractors independently
- A specification to **non-deterministically form networks** and share information across COI

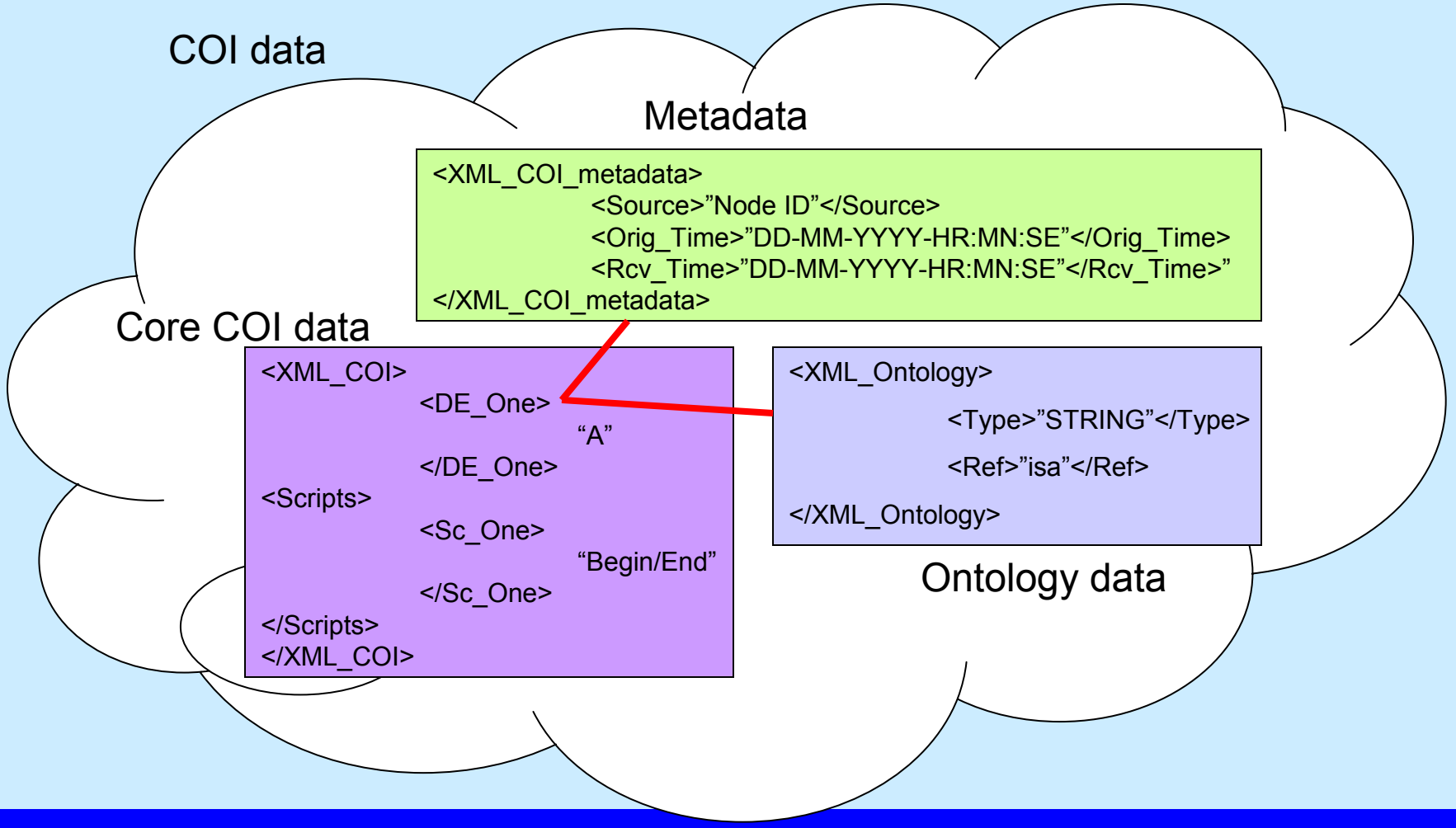


Present Approach



Information Management Appliance Approach

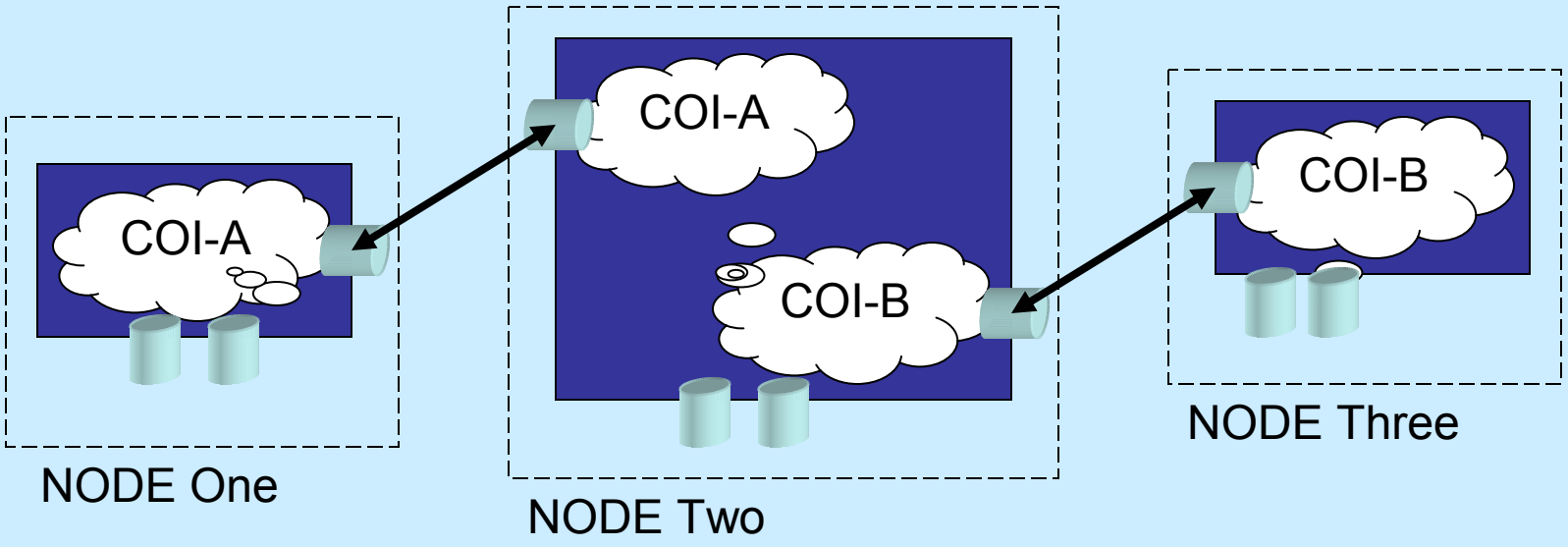
COI Data Representation



Bridging COI's Using Ontologies

Information is produced by Node One and published to COI-A

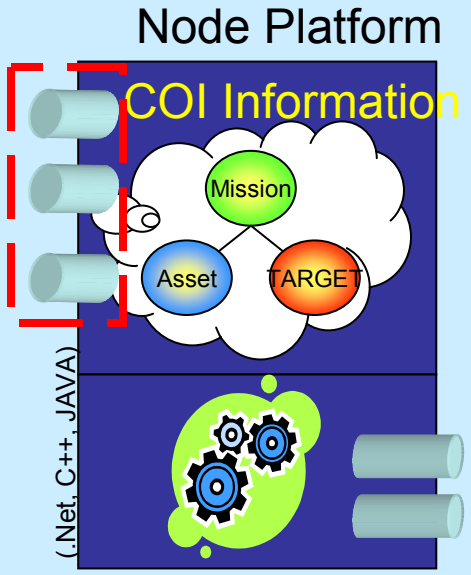
Node Three being a subscriber to the Node Two COI-B information that originated in Node One



Node Two being a subscriber to the Node One COI-A information receives the information. Because Node Two also has interest in COI-B it is aware of the relationship between COI-A & COI-B because of the Ontology data provided as part of the COI. Node Two updates COI-B with the COI-A information and metadata.

Cost of Independently Managed COI Data

- Must centrally track adapters
  - Track COI data utilization across the COI enterprise
  - Adaptor changes may be required if COI data changes impact node adaptors. Adaptors often touch numerous discrete data points
  - Easier for the enterprise to gauge impacts and know who has to be put on contract
- Because appliances are specification and interface based, they may be placed on contract independent of the COI information.
  - COI changes will only increase cost when the COI data impacts an adaptor
  - Because appliances are specification and interface based across a COI, it is more cost effective than iterations of point to point solutions
- Must maintain strong configuration control



Where we see this Heading

• Cursor On Target (COT) – Proves that providing a common schema speeds integration.

• First Prototype IOM System demonstrated – Mission Object Manager demonstrates the integration of ATO, CRD, and Link16 information.

• Trades studies to find the most appropriate standard for use in the three specifications underway.

• We should build 2 more COI schemas with meta-data and ontology's.

• We should build 3 more prototype systems to iron out shortfalls in the specification.

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