Semantic Infrastructure Concept of Operations Initiatives

The initiatives proposed below are intended to support production operation of caBIG® semantics while evolution toward a national-scale capability begins.

In addition to legacy obligations, caBIG® and caGRID are expected to inform the design and initial implementations supporting personalized medicine (BIGHealth), improving health care quality, value and affordability (the National Health Informatics Network (NHIN)), and more immediately, cancer-oriented initiatives such as the cancer-aware extension to the national standard electronic medical record (caEMR), and a number of other rapidly emerging initiatives that will require capabilities well beyond our traditional focus on cancer and on static data semantics.

The need for all semantic metadata to be formally recorded in a single central repository would limit or preclude application of the semantic infrastructure to very large, diverse communities such national health care. Distributed, federated metadata resources will clearly be required. Also, support for behavioral semantics describing the business context of messages and services contracts, metadata creation via processing of line of business artifacts, support for ontology-based semantics and support for semantically aware service oriented architecture capabilities and some form of Grid-to-Grid semantic interoperability appear to all be capabilities that the emerging semantics infrastructure will have to provide in order to scale to national levels.

The caBIG® Semantic Infrastructure and its operational model will be extended to provide integrated support for:

Initiative 1. Distributed, federated metadata repositories and model repositories and operations
Initiative 2. Automated generation of metadata from line-of-business artifacts
Initiative 3. Rules management and contracts support (behavioral semantics)
Initiative 4. Semantics support for W3C service oriented architecture resources
Initiative 5. HL7 CTS II/ OMG MIF compliant federated terminology services
Initiative 6. Controlled biomedical terminology, ontology and metadata content
Initiative 7. Assessment of semantic unification of compositional and derivational models

Each Initiative will include evaluation of existing tooling and will leverage existing tooling to the greatest extent consistent with cost effectiveness and engineering considerations. Requirements collected via the recent call for semantics requirements will be reflected in the Project Initiation Proposals and subsequent project artifacts stemming from this Concept of Operations. Also review and comment will be sought from the domain workspaces as well as the caBIG® cross-cutting workspaces, and participation in implementation activities will be encouraged.

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