Reviewer's report

Title: The caCORE Software Development Kit: Streamlining construction of interoperable biomedical information services

Version: 3 Date: 23 September 2005

Reviewer: Aziz Boxwala

Reviewer's report:

General

The caCORE SDK appears to be a very powerful and useful system. It would be very helpful to the readers to understand the capabilities of the system if more concrete applications were described. As pointed out below, what is especially needed is more detailed introduction to the potential applications that can be constructed with caCORE SDK.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

This paper does not provide any significant description of the types of information systems or applications (e.g., cancer registries, genomic research databases, case report forms systems) that can be or have been constructed using caCORE SDK. Hence it is difficult to evaluate the usefulness and value of caCORE SDK to the community. It is important to add a description of the potential applications in the early sections of the paper.

A brief introduction to the applications of the caCORE system also is needed. caCORE is describe as a framework for creating interoperable services? With which kinds of services will it interoperate? More details on the applications that are being built with caCORE is important. Are these applications already in use at NCI?

In addition, please provide more details on caBIG. What applications are envisioned for the grid? Who are the members of this group?

The section titled Results does not in fact describe the results of a study. This section needs a different title. For results, the authors should describe actual applications that have been constructed using the SDK. Please provide also actual or estimated number of current users if any. As a denominator, it might be useful to consider the membership of caBIG.

A brief discussion of the value of description logics in this system is needed.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Several of the references for standards only provide the name of the standard and the URL. Please include the name of the standards publishers/authors, the title of the standards reference document, and the year of publication. For software references, please include the name of the software development organization and software version number.
In the section on Information Modeling and Semantic Annotation, please clarify which components/diagrams from the UML model are used? I assume that only the class diagram is used.

Please provide expansion for ORM when it is used first.

In section Discussion, para 3, line 3: unneeded "an" before open-source alternatives.

Discretionary Revisions (which the author can choose to ignore)

In the section on UML Loader, the process of harmonization is described. Harmonization occurs by matching concept codes. How does this impact concepts that are in a hierarchy? Can the model end up with inconsistencies because concepts or model elements in a hierarchy have different properties?

In the section on Database Creation, what is the use of the alternate names?

What is the author’s impression of the complexity of the SDK in terms of installation and use? There are many different "third-party" components being used within the SDK. It appears to be a daunting task to install and maintain all of these pieces.

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No

**Declaration of competing interests:**

I declare that I have no competing interests