ISMB 2008 Tutorial Proposal (max. 4 pages)

Title: Introduce: Rapid Development and Deployment of caBIG Compatible Services

Topic Area: Select one from the following and delete the rest:

- Medical Bioinformatics
- Other: NIH/NCI caBIG program

Main Presenter: (the professional and teaching experience of this person will be critical in the selection process)

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- Teaching experience
- Earlier tutorial presentations – NCI Bootcamps (2 in 07), caBIG AHM 2006

Second presenter: (optional)

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Other contributors to the tutorial presentation (optional; max. 3 names):
Stephen Langella, David Ervin, Joshua Phillips

50-word abstract: This tutorial will introduce the audience to the NIH caBIG project and specifically address how to create services which can interoperate in the grid environment. caGrid is the core toolkit and middleware of the NIH/NCI caBIG project. As part of the middleware and tools of this software system is the Introduce Toolkit. Introduce enables users to graphically design analytical and data services which can be used in the caGrid environment. caBIG revolves strongly around shared data models and semantic interoperability through its use of the caDSR and EVS. Introduce will enable the user to utilize data types from the caDSR which have been semantically annotated with concepts from the EVS. This tutorial will walk the user through creating a semantically interoperable service which is caBIG compliant and easy to use. The tutorial will also touch on topics of security. With the skills learned in this tutorial,

attendees will be able to utilize caGrid and create complex and secure caBIG compatible grid services of their own without having to become grid service architects or be concerned with all the code and files that have to be managed in order to create and maintain a grid service.

Examples of tutorial for other communities:
http://www.cagrid.org/mwiki/index.php?title=CaGrid:Tutorials
http://www.cagrid.org/mwiki/index.php?title=Introduce:1.1:Tutorial

Tutorial level:
Beginner 40%
Intermediate 40%
Advanced 20%

Prior knowledge required: please state clearly what knowledge you expect your participants to have, such as "an introductory knowledge of statistics" or "suitable for those already working with expression data"

Suitability of this tutorial for ISMB:
caGrid service developers and aspiring caGrid service developers will both gain useful knowledge from this tutorial. The tutorial will enable current grid service developers to find faster and more reliable ways to build the grid services with which they already have experience. Newcomers to grid service development will find a toolset which enables them to create grid services without having to master the complexities behind building, deploying, invoking and maintaining a grid service.

Profile of Presenter 1 & 2

- We have taught this tutorial several times for the caBIG community. We are also the lead developers and architects of caGrid software system so we are technically qualified to disseminate and teach this information

Tutorial Outline:

- Pre-requisites
    - Attendees of the tutorial whom wish to participate in the tutorial exercises are required to have a laptop with the following software downloaded:
        - JDK 1.5 or greater
        - Apache Ant 1.6.5
        - Globus 4.0.3
        - Latest caGrid training distribution.
- Pre-Tutorial Setup
    - This session will walk attendees through installation and configuration of the software required by the tutorial.
    - Example Materials
        - http://www.cagrid.org/mwiki/index.php?title=CaGrid:Tutorials:Services:CDInstall
- Creating a Simple Grid Service

    - Attendees will create, deploy, and invoke a simple grid service using the Introduce Graphical Development environment.
    - Example Materials
        - http://www.cagrid.org/mwiki/index.php?title=CaGrid:Tutorials:Services:Beginner
- Service Advertisement and Discovery
    - Attendees will use the Introduce to add service metadata to their grid service and configure to their grid service to advertise their metadata to an index service. Attendees will then use the Discovery APIs to build a client to discover services (including their own) registered in the Index Service.
    - Example Materials
        - http://www.cagrid.org/mwiki/index.php?title=CaGrid:Tutorials:Services:Beginner:EditMetadata
- Grid Service Resources
    - Attendees will use the Introduce toolkit to add a resource to their grid service.
- Securing Grid Services
    - Attendees will use the Introduce toolkit to secure their services. Securing their services includes configuring authentication, securing the communication channel, and configuring access control on grid services.
    - Example Materials
        - http://www.cagrid.org/mwiki/index.php?title=CaGrid:Tutorials:Services:Advanced

Tutorial Outline

- Introduction (15 minutes)
- Pre-Tutorial Setup (30 minutes)
    - Software Installation and Environment Setup
    - Test Installation
    - Example Materials
      http://www.cagrid.org/mwiki/index.php?title=CaGrid:Tutorials:Services:CDInstall
- Creating a Simple Grid Service (60 minutes)
    - Overview
    - Adding an Operation
    - Adding Faults
    - Implementing the Operation
    - Deploying a Grid Service
    - Invoking a Grid Service
    - Example Materials
      http://www.cagrid.org/mwiki/index.php?title=CaGrid:Tutorials:Services:Beginner
- Service Advertisement and Discovery (60 minutes)
    - Overview
    - Adding Service Metadata

    - Configuring Service Advertisement and Registration
    - Service Deployment
    - Service Discovery
    - Retrieving Service Metadata
    - Example Materials
      http://www.cagrid.org/mwiki/index.php?title=CaGrid:Tutorials:Services:Beginner:EditMetadata
- Grid Service Resources (60 minutes)
    - Overview
    - Adding a Resource
    - Implementing a Resource
    - Service Deployment
    - Invoking Service Resources
- Securing Grid Services (90 minutes)
    - Grid Security Overview
    - Syncing with the Grid Trust Fabric
    - Configuring a Secure Container
    - Registering for a Grid Account
    - Logging onto the Grid
    - Access Control on Grid Services
    - Deploying a Secure Grid Service
    - Invoking a Secure Grid Service
    - Example Materials
      http://www.cagrid.org/mwiki/index.php?title=CaGrid:Tutorials:Services:Advanced
- Wrap Up (30 minutes)

Submitting your tutorial proposal:
Please save the template file using the last name of the first presenter. Eg: if the first presenter is John Doe, then save to "**doe.pdf**" and submit the file via the submissions website at: https://www.iscb.org/submissions/index.php?id=22