

Digital Object Registry

Corporation for National Research Initiatives

Project Status and Final Report – Nov 5, 2011 through Aug 31, 2012

1. Major Accomplishments

During the first three years, the scope of work on this project was to adopt the Handle System, along with components of the CNRI Digital Object Registry, to create a clearinghouse registry for principals, slices, and/or components in at least one GENI Spiral 1 control framework, capable of supporting limited operations. We have successfully adopted the Digital Object Registry and related technologies to build a GENI Federated Clearinghouse and a Distributed Hash Table for Seattle, aka Million Node GENI, led by Justin Cappos. The scope of work in Year 4 is to discuss, design, and develop a prototype of the Measurement Data Archive (MDA) service.

During this reporting period, we continued participating in various GENI activities and programs, including attending GEC 12 and GEC 13 held in Missouri and California respectively, and also continued our collaboration with GENI members and System Engineers as part of the I&M Working Group. We:

- Attended the I&M sessions held at GEC 12 and GEC 13. Discussed with I&M and BBN team members how to define the metadata schema that will be used within the MDA service.
- Continued to make available the prototype of the MDA service.
- Continued to make available the Distributed Hash Table service for the Million Node GENI project, led by Justin Cappos.
- Continued to make available the GENI Federated Clearinghouse service that federates the information from the ProtoGENI clearinghouse and makes that information available via the Digital Object Registry interfaces.

1.a. Milestones achieved: During this period we completed the remaining five milestones, S4.b through S4.f, as discussed in Section 2.

1.b. Deliverables: During this period, we made available the poster and slides we presented during the I&M sessions at the GECs. We released binary code to BBN and deployed code for the community, and produced this project status and final report.

2. Description of Work Performed

2.a. Activities and Findings During This Period

- S4.b: We discussed, documented, and released an updated version of the MDA service. In this release, the MDA prototype indexes, and allows queries on the metadata. No enforcement of metadata schema is performed due to the lack of a

community-accepted schema. In the future such enforcement may be implemented. Archived objects are made accessible to users via Handles.

- S4.c: We demonstrated the MDA service capability during the GEC 13 held at Los Angeles. We participated in the poster and demo session. We also presented the capability during an I&M session. Both the slides and the poster documents are available on the project wiki page.
- S4.d: We documented the MDA prototype and released required code, in binary form, to BBN for its use. We also created accounts for various GENI members to participate and use the MDA prototype service.
- S4.e: We demonstrated the long-term archive features by presenting the possible services one could supplement the archive with. Those services range from allowing various disseminations to the archived data, e.g., a graphical version of the archived data set, to enforcing terms and conditions and other rights prior to allowing users to access archived data. We also discussed with BBN the various user-workspace features that could be made available for experimenters to automate the data gathering and archival processes.
- S4.f: This document serves as the final report, meeting the final milestone requirement for the year. We recommended to BBN that the metadata schema needs be simplified to lower the barrier for use and that the Handle System must be integrated into the long-term archive in order to leverage the inherent benefits of having a persistent resolvable identifier system alongside a GENI archive.

2.b. Project Participants

CNRI discussed its project activities with a number of other GENI participants, but all work accomplished this quarter was performed by CNRI alone, or with the cooperation of the I&M members and Harry Mussman. Names and email addresses of CNRI participants are available on the GENI wiki page for the project.

2.c. Publications

No publications were produced this quarter. CNRI gave a presentation on the need for archiving during the I&M session and demonstrated the developed MDA Prototype. , Those slides are available on the GENI wiki page for the project.

2.d. Outreach Activities

Giridhar Manepalli attended the GENI Engineering Conferences in Missouri and California and participated in a variety of discussions with GENI members and System Engineers. He participated in the poster session, discussing the GENI services that CNRI offers. He gave a presentation highlighting the project during the I&M session.

2.e. Collaborations

CNRI continued to collaborate with the I&M working group members to prototype an MDA service and standardize the metadata schema that will be used by the MDA service.

2.f. Other Contributions

Production Services

CNRI continued to support the GENI Measurement Data Archive prototype and the GENI Federated Clearinghouse and the Distributed Hash Table services on hardware deployed in a collocation facility that features redundant power and air conditioning units, physical security, etc. A 100Mbps network pipe is dedicated to the machine.