

GENI Project Progress Report

Project Title: Intelligent Data Movement Service on GENI

Principal Investigators:

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1. Major accomplishments: 4/2015–6/2015

These milestones reflect the revised Year 2 statement of work for the period between following GEC22 to GEC23 (April 2014 and June 2015). Milestones and progress on tasks has been adjusted and reflects the short interval between GEC22 and GEC23.

Milestones achieved:

- **GEC23.e.1** - Enable automatic performance monitoring to track resource availability.
 - The IDMS data manager service was extended to perform monitoring of active, registered storage depots. Notifications are sent if a node becomes unavailable (e.g, rack maintenance, service dies, etc.).
 - Allows for better admin response to failures in IDMS.
- **GEC23.e.1** – IDMS AA schemas extended and integrated into UNIS.
 - Meeting the dependency to incorporate user authentication into client tools.

Milestones remaining in-progress:

- **GEC23.e.2** - Demonstrate large-scale data upload and maximum allocation of GENI resources to accommodate demand.
- **GEC23.e.3** - Integrate web-GUI and filesystem support for IDMS (task pushed to end as stand-alone clients are recommended)

Deliverables made:

- Plenary demonstration at GEC23
- Tutorial page published and updated on project Wiki.

2. Description of work performed

Activities and findings:

We focused on the following development areas since the previous period (GEC22):

- Monitoring and external connectivity of IDMS service. The elimination of ION from the GENI data plane required a few work-arounds to support external, opt-in traffic. Currently IDMS is limited to R&E LAN access at Nysernet and RENCI and a single AL2S connection to IU, through which we can NAT external traffic. A request has been made to Internet2 to enable a subset of our previous ION gateway nodes with AL2S vlans.
- Preparation for GEC23 demonstration. Given the short timeframe between GECs, a primary focus was testing Landsat data distribution and the usability of the web-GUI and clients given the data plane reconfiguration. The download visualization in the web-GUI was also updated to provide an aggregated view of active download activity.
- Access to USGS Landsat searches. IDMS web-GUI was extended to support USGS EarthExplorer logins. This functionality allows users to match scene metadata results from an existing browser tool with scene data that is staged in EODN-IDMS for download.

Project participants:

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Publications:

N/A

Internal project documents:

- Available on request from IDMS git repository.

External publications:

- Published on project Wiki: IDMS experimenter tutorial, custom image creation/conversion HOWTO, and updated image table with example RSpec.

Outreach activities:

- Presented GENI-IDMS service to AmericaView community as an integrated, extended storage service for the prototype Earth Observation Depot Network (EODN).

Collaborations:

- As recommended by Tom Lehman, reaching out to UMD Global Land Cover Facility (GLCF) to see if IDMS may assist with Landsat acquisition.

Other Contributions:

- N/A