

MDODs and Archiving in the Instrumentation Tools and GENI Shadownet Projects

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Summary and Status

- Project Summary
 - Automate deployment of instrumentation and measurement infrastructure within a GENI slice
 - Provide a simple-to-use interface to measurement data.
- Status
 - Automated addition of instrumentation resources/software.
 - MC collects and hosts a Web Server to access data.
 - The GENI Monitoring Portal (GMP) provides a single point of access to all measurement data.
 - The UK Archive Service allows users to checkpoint/archive their measurement data with same look/feel as the MC interface.
 - Integrated with the FLACK client. Also supports a scripting interface. An Instrumentation Manager provides an XML/RPC interface to enable other user interfaces.
 - Support for RSPEC v1 and RSPEC v2.

Intended Uses

- Provide basic network traffic monitoring (e.g., link byte and packet counts over time)
- Provide basic configuration information (e.g., routing tables, process lists, ARP tables, etc).
- Visually see and access nodes in the topology and access their performance information.
- Record measurement information for later use (e.g., via archival services)
- Publish measurement data to public archives
- Publish measurement data to operations management (coming soon).
- Support advanced features for those who require more than basic monitoring (e.g., configure what is/is not collected/displayed, create your own look/feel, etc).

INSTOOLS and MDOD

- Current INSTOOLS meta-data
 - Currently stores a limited amount of meta-data
 - MC collects data and stores it in file directories on the MC node. (Most files are rrd files).
 - File names and directory structures are based on the RSPEC (via conventions used by the MC collection agents and the web server).
 - RSPEC (really the manifest) is parsed and used to set up the Drupal content management system used to display the data - i.e., this is where most of the meta-data lives currently.
- Mapping to MDOD
 - We expect that most of the "required" fields can be filled with meta-data from the Drupal database on the MC.
 - We plan to store the meta-data separate from the data.

Persistent Data

- Currently three options for (semi) persistent data
 1. MC Data Storage - measurement data is stored at the MC until the slice is removed (subject to rrd wrap-around). Data resides on the MC as described earlier.
 2. UK Archive Service (UK AS) - a checkpoint of the MC data can be stored on the UK AS and lives outside the slice. Data is stored as a tarball of the MC files and Drupal DB. When viewed, the tarball is untarred and loaded into a virtual machine running Drupal.
 3. CNRI Archive Service - a checkpoint of the MC data can be stored in the CNRI Workspace (via samba). A config file is then written to cause the data to be saved to the CNRI archive. Access to the data is via the CNRI archive web pages.
- Planned: Storage to the GMOC archive server. Meta-data stored at GMOC, real data stored in UK or CNRI AS.

Authentication Issues

- Too many passwords/pass phrases/keys/credentials/etc. The overall system consists of many services, each with its own authentication method(s):
 - User Interface (Flack/Scripts)
 - Component Manager
 - Node OS/MC OS
 - Instrumentation Manager
 - SNMP servers
 - Drupal MC web sites
 - GENI Monitoring Portal
 - UK Archive Service - Virtualized MC web site
 - CNRI workspace file system, CNRI web site
 - GMOC Archive Service
- Lack of ability to sub-delegate credentials
 - Many (most) of the above services are accessed by servers/agents operating on the user's behalf. Agents need partial credential (possibly limited in time) to operate on the user's behalf.

Thank You!

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