

Introduction to the GENI Desktop

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Historical Perspective

- **EduLab MC Web Server:** Web page available on the Measurement Controller node. Designed to make it easy for users to see what is going on in their experiment.
 - Sub-Goals:
 - ◆ Automate the task of dynamically deploying an instrumentation and measurement infrastructure within a GENI slice.
 - ◆ Provide users with a convenient and simple-to-use interface to the measurement infrastructure.
 - ◆ Allow users to customize the interface.
 - ◆ Provide a way to save/archive measurements
- **INSTOOLS Portal:** Web-based GUI providing access to all MC's in a slice.
- **GEMINI Portal:** Web-based GUI providing access to INSTOOLS and LAMP measurement data across all Global Nodes (GNs)
- **(*New*) GENI Desktop:** Extensible web-based GUI providing a windowing system for interacting with GENI tools. Supports single sign-on to all GENI tools.

GENI Desktop



The GENI Desktop

Unifying Abstraction

- **Goal:**
 - Support multiple ways to “visualize” a slice, and
 - Make it easy to apply an operation to a subset of resources within a slice.
- **Common Requirement:**
 - **Select Resources:** Provide a unified well-known way to select resources, regardless of the “view” of the slice.
 - **Apply Operations:** Provide a unified well-known way to apply an operation to a set of resources.
- **Idea:** Use an abstraction familiar to users
- **Solution:** Model the interface after the well-known file browser interface. The analogy is selecting files in a file browser and applying an operation (regardless of the “view” - e.g., list view, icon view, detailed view, etc.)

GENI Desktop Features

- Single sign-on to various GENI tools
- Access to all slices owned by user
- Slice creation/modification via Flack
- A windowing system interface
- Logical, Geographic, and List view of slice
- Single abstraction for interacting with a slice.
- Can be used with/without instrumentation.
- Quick access to (instantiated) resource details.
- Ssh access to a set of nodes.
- Ability to run commands across sets of nodes.
- Ability to upload files to sets of nodes.
- Optional instrumentation of a slice
- Quick access to, and visualization of, commonly used measurement data.
- Ability to drill down to additional measurement information
- Ability to control active and passive measurements
- Ability to record notes about an experiment via a CMS
- and several other features.

Two Phase Initialization

- Phase I: Initialize access to MP nodes
 - Load software onto GN to allow it to act as a proxy for reaching MP nodes
 - Available services include:
 - ◆ Slice visualization
 - ◆ MP information visualization
 - ◆ Ssh access
 - ◆ File upload
 - ◆ Run commands
- Phase II (Optional) : Initialize Instrumentation and Measurement Services
 - Load software on GN and MPs needed to instrumentize and view measurement data
 - Available services include:
 - ◆ View commonly used active and passive traffic graphs
 - ◆ View detailed node information and less frequently used graphs
 - ◆ Configure instrumentation and measurement system
 - ◆ Archive measurement data

Slice/Topology "Views"

○ Three types of Views

□ Logical View

- ◆ Provides a logical view of the topology and links between nodes. Nodes and links can be selected to identify a set of nodes/links.

□ Geographic/Map View

- ◆ Provides a map view of the topology showing the geographic location where nodes are located and the links connecting them. Nodes and links can be selected to identify a set of nodes/links.

□ List View

- ◆ A textual list of the nodes and links in a slice. Nodes and links can be selected to identify a set of nodes/links. The list can be filtered (searched) to reduce the number of nodes/links displayed.

○ Observations

- There is a single unified interaction model
- Selecting nodes/links in one view selects the same nodes/links in another view.
- Logical and Geographic views make it easy to visualize the topology and interconnections between nodes.
- The List view is useful for large topologies because the topology can be quickly filtered to nodes/links of interest.

Demonstration

Thank You!

Questions?

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