

Core GENI Workshop Report Outlines

March 10, 2006

Optics

- Depth and granularity of control
 - Dynamic circuit setups
 - Cross-layer, synchronization
 - How to integrate a slice that has multiple resources at different layers
 - Right level of isolation
 - To explore relationships between a router and optical layer, for example
- Packaging lambdas
 - Traffic grooming

Real Time

- Common notion of time and place
- Ability to carry out hard and soft real-time experiments, together
- Cost of isolation versus the control level
 - Ability to isolate a portion of GENI
 - Isolation can be with or without sharing
 - Different levels of isolation
 - Fiber, lambda or slice thereof
 - Cross-talk compromising the isolation
 - Ability to verify and monitor guarantees
- Being able to have modularity at the switching fabric and at the MUX/DEMUX capability

Geni Attributes

- Organic, as opposed to monolithic
- Different APIs, depending on different abstractions
- Ability to inject different failures, in a reproducible manner
- Ability to measure
 - Control loop stability depends on accurately measuring physical time
 - Detect cases where isolation is not working
- Ability to experiment with new control planes and have the necessary isolation in the CPU
- Level and granularity of resource sharing:
 - sizing issue – number of potential users which can be supported
 - What if we are not right?

Geni Attributes

- Mechanisms to enable community interactions, both collaboratively and independently
 - Ability to debug cases where isolation has failed
 - Understand why? What happened?
 - Logging
- Ability to incorporate/integrate better solutions to the problems Geni is trying to solve
 - New utility services, RT schedulers