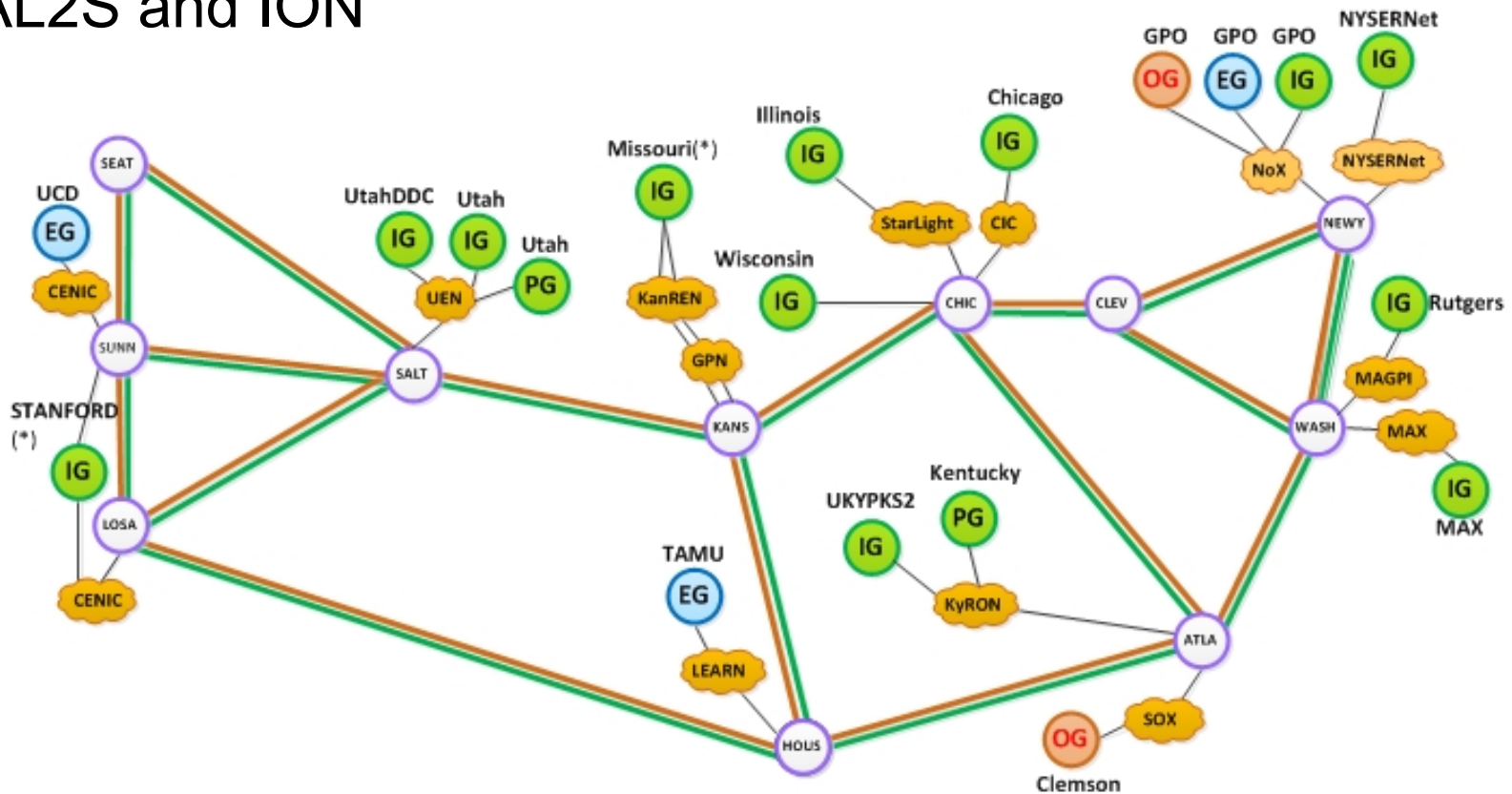


- 60 racks deployed/in progress, +1 on order
  - 13 ExoGENI, 42 InstaGENI
  - 2 OpenGENI (Dell) racks
  - [http://groups.geni.net/geni/wiki/GENIRacksHome - OpenGENIRacks](http://groups.geni.net/geni/wiki/GENIRacksHome-OpenGENIRacks)
  - 3 Cisco prototype racks (no wiki documentation yet)
- All ExoGENI racks delivered. Congratulations RENC!
- ExoGENI software rack upgrades for ORCA5, preserving state through resets
- InstaGENI hardware expansion at some sites (10G, more servers, more disk) and Gen9 HP hardware planning
- GENI monitoring deployed on all racks except Cisco

- 5 GENI AL2S sites support GENI stitching:
  - Stanford IG (dual-homed, ION and AL2S)
  - Missouri IG (dual-homed, ION and AL2S)
  - Chicago IG (AL2S)
  - Texas A&M University EG (AL2S)
  - UC Davis EG (AL2S)
- Stitching to/from these AL2S sites to any of the 14 ION Sites that support stitching works under test  
<http://groups.geni.net/geni/wiki/GeniNetworkStitchingSites>
- AL2S stitching Aggregate Manager, GENI Stitching Computation Service and ION Aggregate Manager software all updated
- More stitching sites in progress (I2 Brocade blocking issue resolved with firmware update)
- More at Operations session

## AL2S and ION



(\*) Dual-homed AL2S & ION

ION Dynamic VLANs

AL2S Dynamic VLANs

InstaGENI IG

ExoGENI EG

ION/AL2S

Cross-Connect

OpenGENI OG

Regional

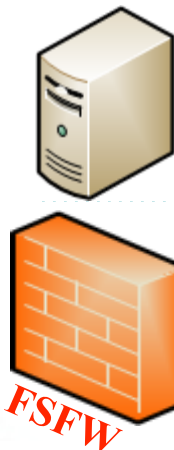


# Connecting GENI Racks with OpenFlow

OF RSPEC: Site A

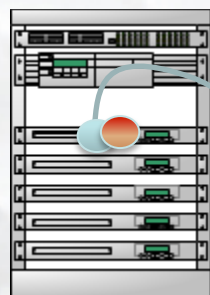
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OF Controller



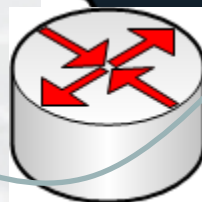
OF RSPEC: Site B

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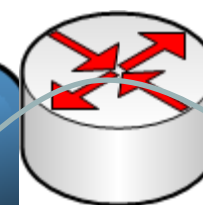
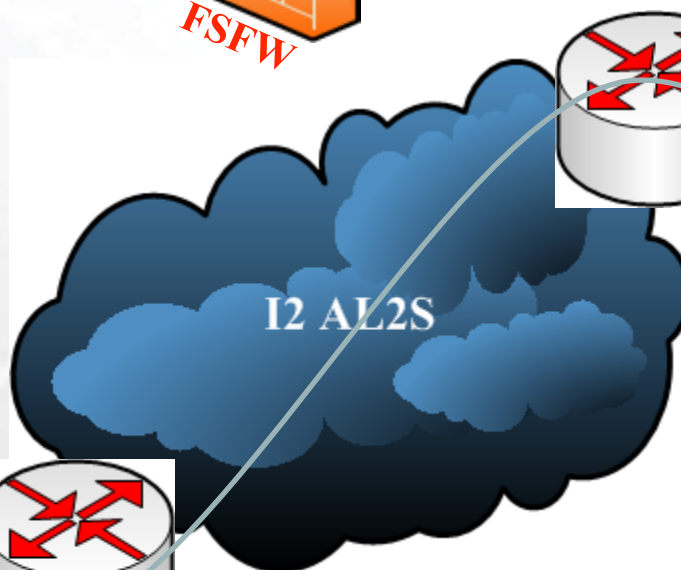


Site A

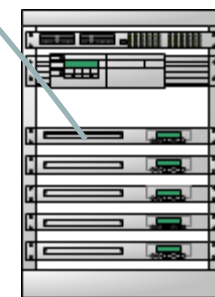
vlan x



vlan y



vlan z



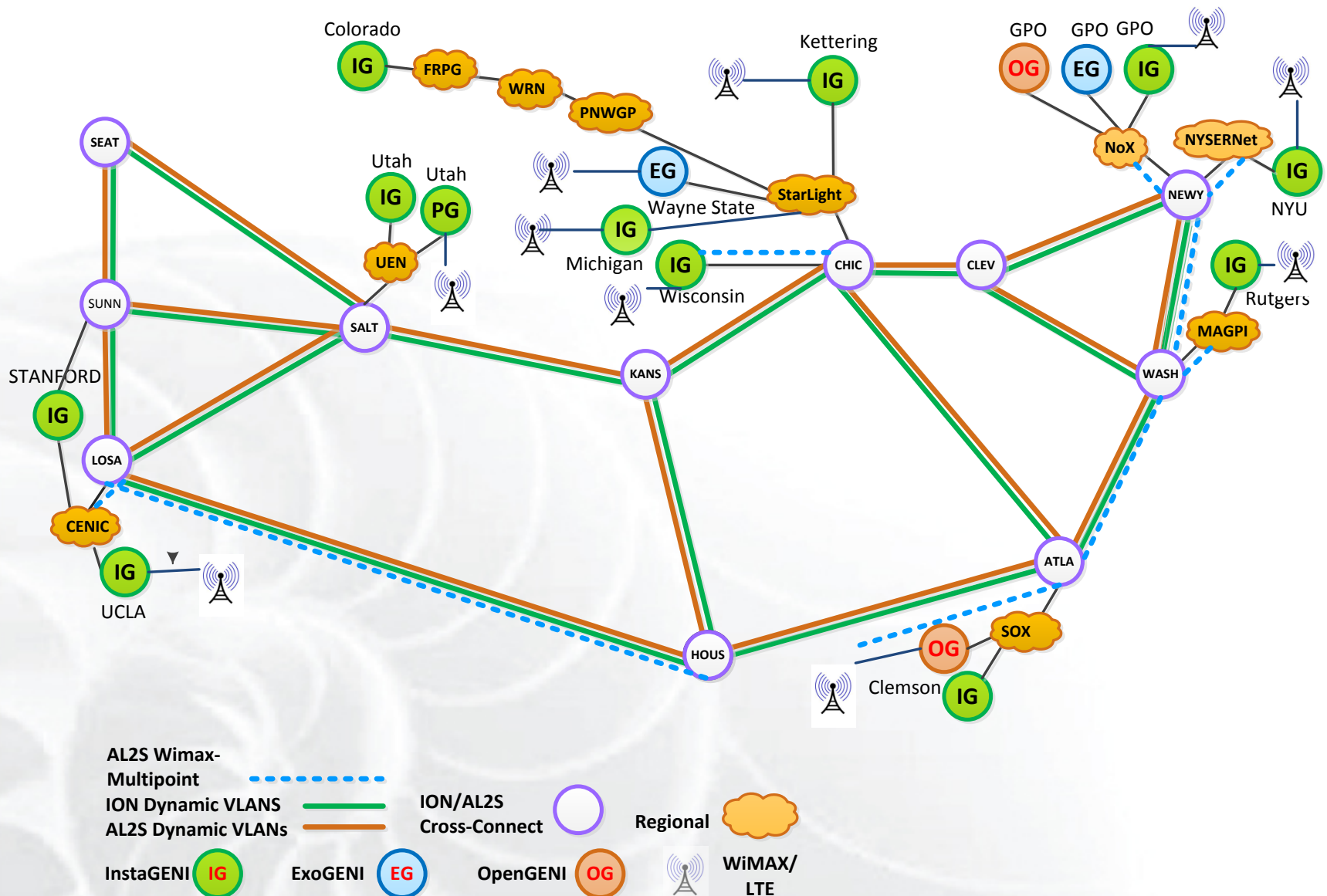
Site B

- GENI migrating from prototype GENI meso-scale with ION to Internet2 Advanced Layer2 Service (AL2S) infrastructure
- AL2S upgraded FlowSpace Firewall (FSFW) and Brocade switch firmware
- Internet2 deployed GPO reference learning switch controller, and revised review and approvals processes: first OpenFlow controller not from I2 operating on AL2S
- Plan to replace FlowVisor in GENI with a simpler slicer supporting OpenFlow service abstraction

<http://groups.geni.net/geni/wiki/OpenFlow/Slicer/Requirements>

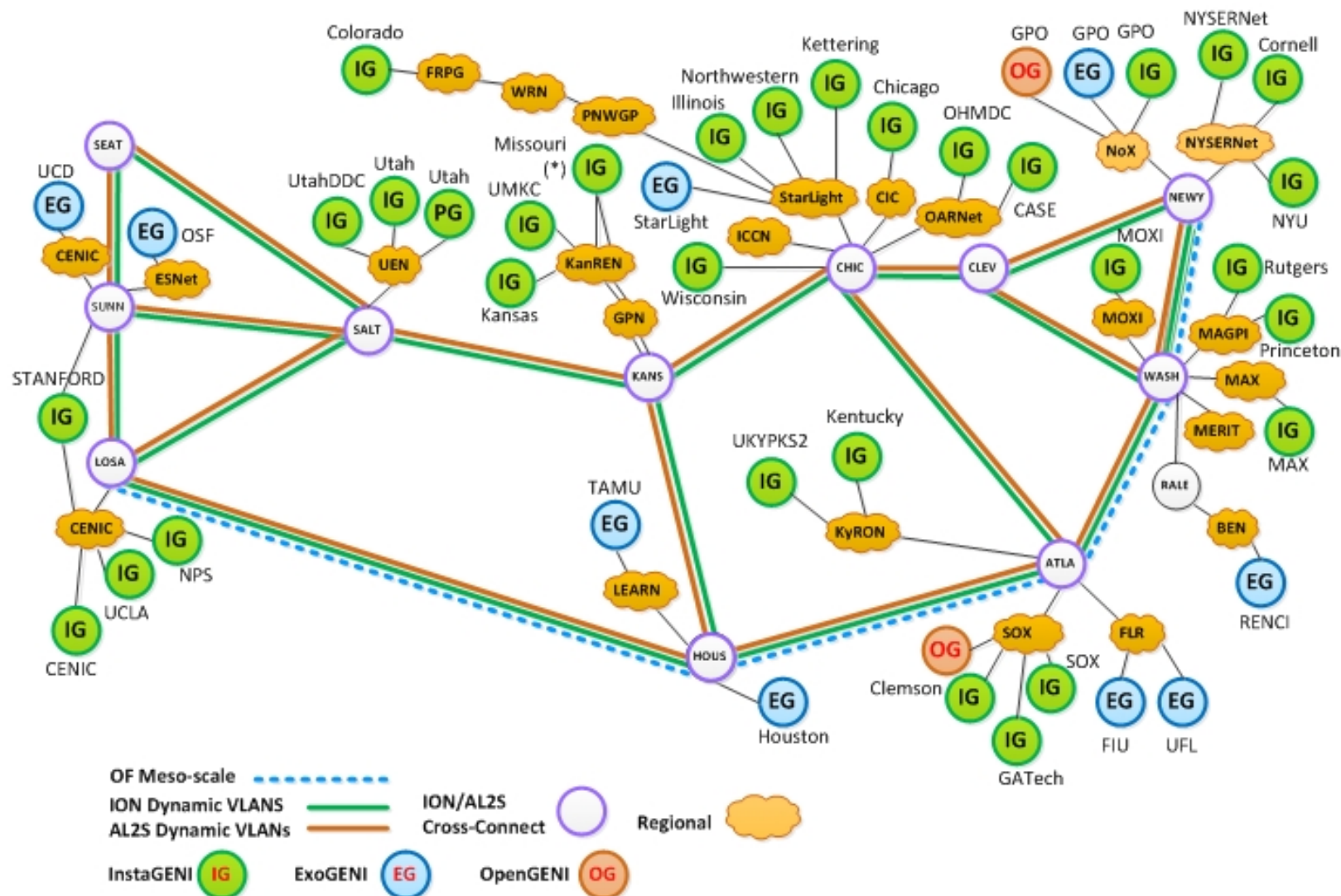
- OpenFlow 1.3 planning
- More at Operations session

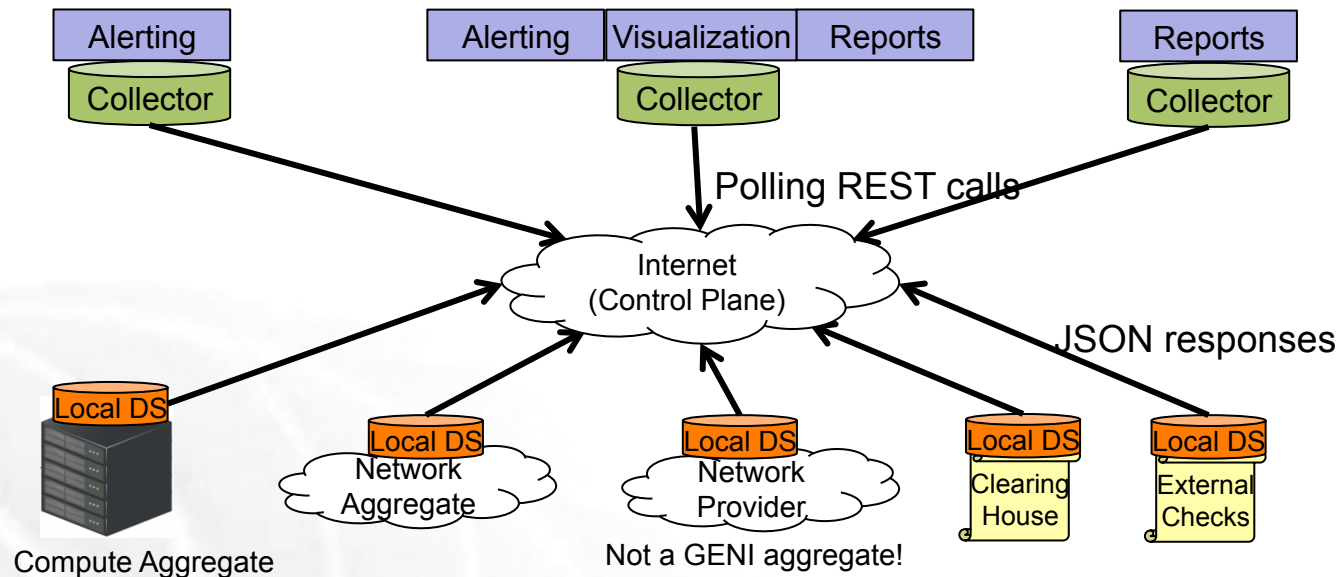
# WiMAX Network Integration





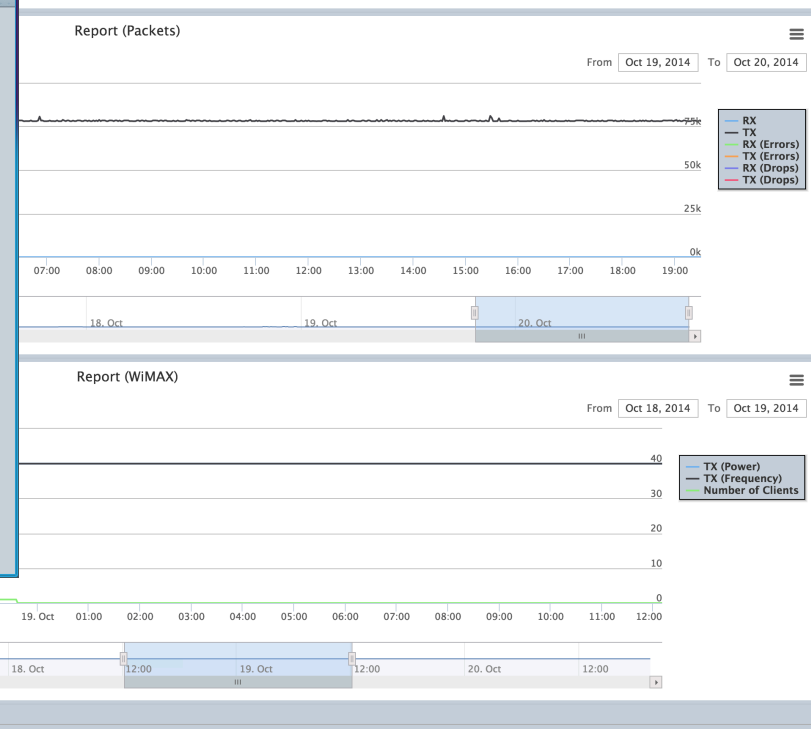
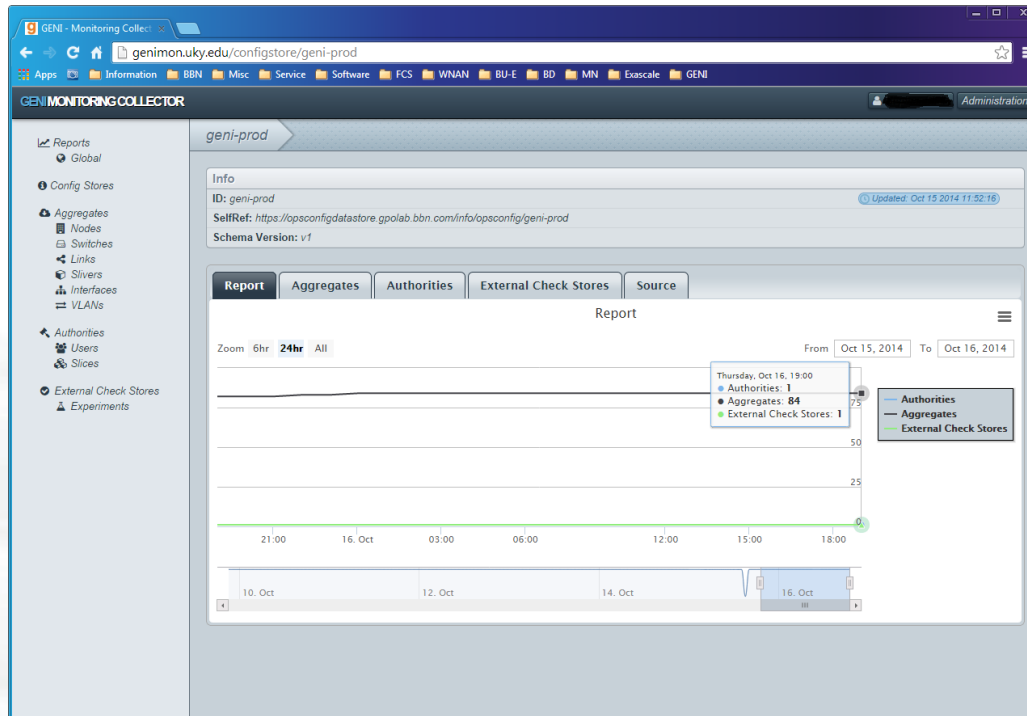
# GENI Network Integration





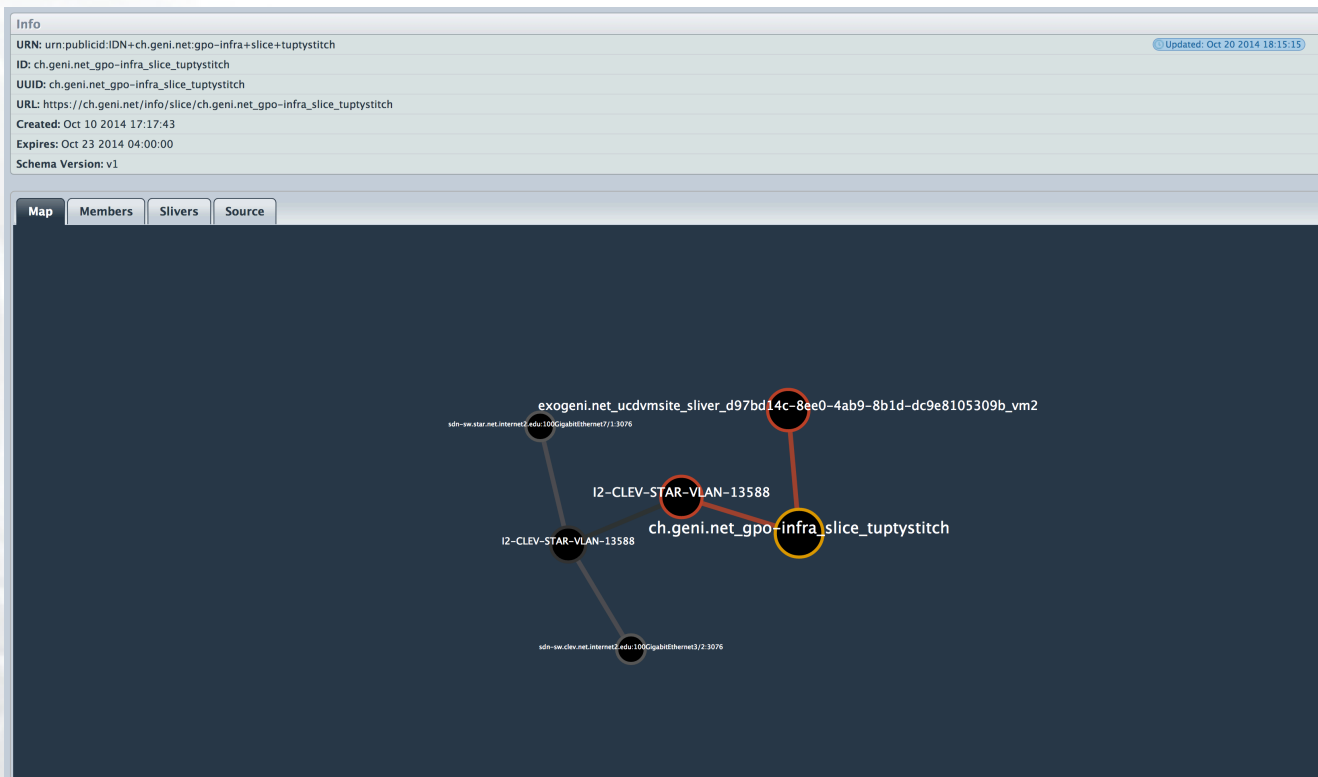
- Version 2.0 released on 08/28/14
  - JSON schema update for clarification and more detail, WiMAX stats support
  - Reference implementation update for new schema and added robustness.
- Internet2, ION, MAX, InstaGENI, ExoGENI data stores updated
- GPO external check store reporting on additional aggregate availability (FOAM aggregates)
- First WIMAX data store at Rutgers reporting with v2.0 schema.





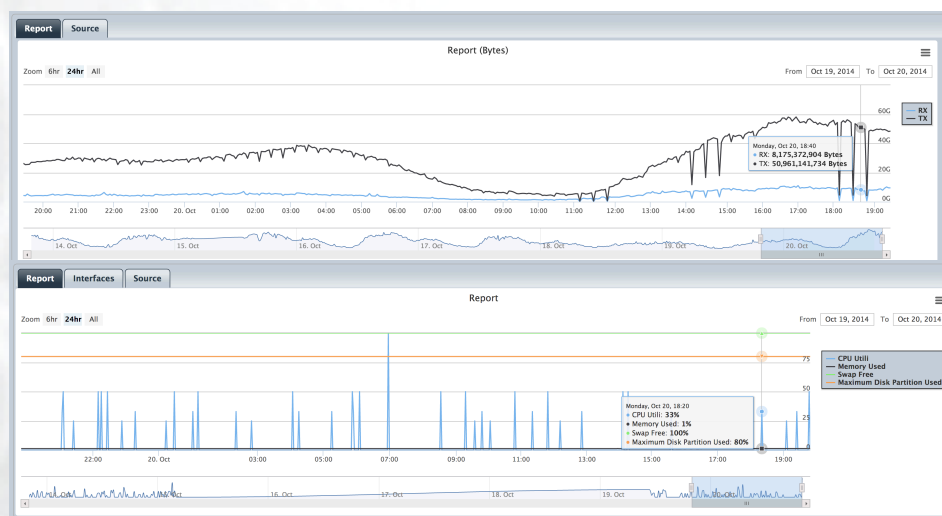
- Rack teams deployed monitoring v2.0 at all sites, including WiMAX
- UKY collector and web tool supports v2.0 and v1.0 data stores.
- Early operations use in GPO e.g. detecting traffic loops
- Alerts, reports in progress

- Improved overview of slice topology
- Expanding to include usage history as schema changes and more metrics are available



# Monitoring Collection and Analysis

- Historical data from aggregates available through UK web tool, programmed ops interfaces coming
- Working through enhancements for operations use cases
- More at Ops session



- Deployed and tested WiMAX AM and WiMAX monitoring.
- Added more types of data to GENI rack and network monitoring in v2.0 of monitoring collector and web analysis tool. Preparing to open to all operators.
- Prepare to bring up production Stitching Computation Service at GMOC. (MAX dev SCS continues).
- Built and ran (offline) GENI clearinghouse/portal at RENCi