

# GENI Network Stitching Test Findings

GEC 20 GENI Operations  
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- Testing has validated stitching topologies as development has taken place. From April 2013 to now....
- Here is how stitching support has advanced:
  1. ION only stitched topologies between GENI sites.
  2. ION GENI Sites stitched to fixed endpoint cross-connects connecting to AL2S test-endpoints.
  3. AL2S stitched topologies between GENI sites.
  4. AL2S GENI sites to ION GENI sites stitched topologies

## 1. GENI Sites Stitching via Internet2 ION:

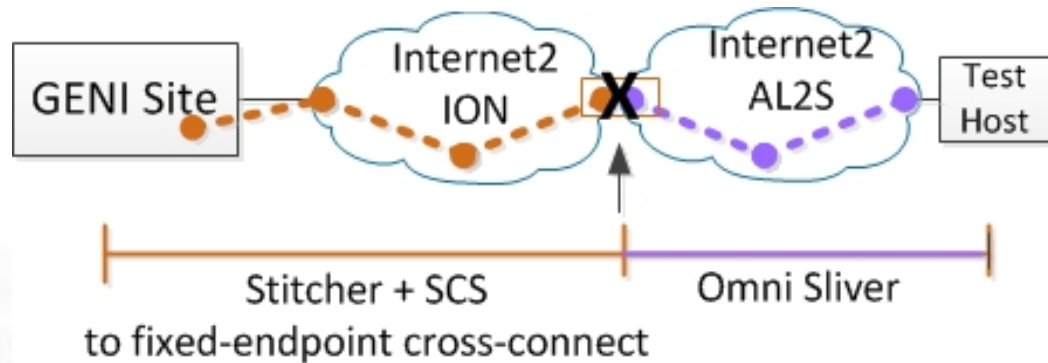


- There are 12 GENI sites have been validated to support stitching via the ION Aggregate. Site are:

<http://groups.geni.net/geni/wiki/GeniNetworkStitchingSites>

- Initially, ran into many circuit issues and VLAN allocation problems, this is no longer the case.
- Environment has become stable, most current issues are now about resource shortage (site VLANs, site bandwidth, Site VMs).

## 2. GENI Site Stitching via I2 ION to cross-connect fixed-endpoint to AL2S:



### AL2S to ION Cross-connects

sdn-sw.losa e1/1	rtr.losa:port=et-10/0/0
sdn-sw.atla e15/1	rtr.atla:port=x-e-0/3/0
sdn-sw.chic e3/1	rtr.chic:port=et-10/0/0
sdn-sw.clev e5/1	rtr.clev:port=et-5/0/0
sdn-sw.hous e15/3	rtr.hous:port=x-e-0/1/3
sdn-sw.kans e15/1	rtr.kans:port=x-e-0/0/3
sdn-sw.newy32aoa e3/2	rtr.newy:port=et-5/0/0
sdn-sw.salt e15/1	rtr.salt:port=x-e-0/1/1
sdn-sw.seat e-2/0/0.0	rtr.seat:port=et-5/0/0
sdn-sw.wash e5/2	rtr.wash:port=et-9/0/0

- All 10 cross-connects have been verified, and performance was captured for 3 cross-connects (LOSA, ATLA, KANS) results at:

<http://groups.geni.net/geni/wiki/GENIRacksHome/Performance>

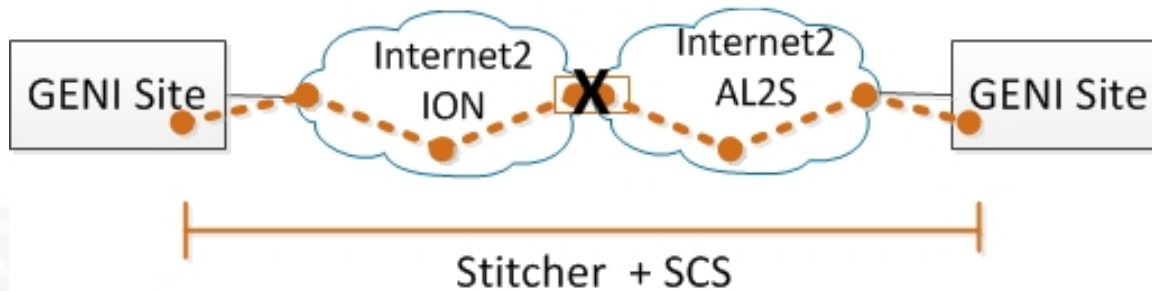
- The cross-connects are now automatically used by stitching.

## 3. GENI Sites Stitching via AL2S:



- OESS Aggregate now supports stitching and SCS is aware of AL2S paths from the OESS Advertisement.
- Under development not yet available to experimenters
- Two site currently support AL2S stitching: Stanford and Missouri InstaGENI racks. Both sites also still available via ION connections.
- Testing has focused on number of slices, multiple links and linear topologies with the 2 available sites. Some performance testing.

## 4. GENI ION Sites Stitching to GENI AL2S sites:



- Stitching now support paths that can cross between the ION and AL2S networks.
- Under development not yet available to experimenters
- Testing is focusing on the 2 AL2S stitching (Stanford and Missouri) and the existing ION Stitching sites.
- Ran in to path computation issues that have been addressed. Much more testing to come.