



An R&E Network's Perspective of a Science DMZ Model

2014 Internet2 Global Summit
Two R&E Networks' Perspective of a Science DMZ
Model; AARNet and LONI
Monday, April 7, 2014
3:00 – 4:00pm

LONI Factoids

- Three Teams – Network, HPC, and Institute
- Network
 - Internet2 Connector for Louisiana
 - 1,674 dark fiber miles
 - 17 PoP locations
 - 32-channel DWDM System
- HPC
 - 8 systems totaling over 2.5 Petaflops of computational capacity
 - 1.3 Petabytes of storage
- Institute
 - Virtual organization of faculty and computational scientist across six institutions. The institute uses LONI to drive research and education.

Science DMZ

The Science DMZ is a portion of the network, built at or near the campus or laboratory's local network perimeter that is designed such that the equipment, configuration, and security policies are optimized for high-performance scientific applications rather than for general-purpose business systems or “enterprise” computing. ^[1]

[1] <http://fasterdata.es.net/science-dmz/>

Problem

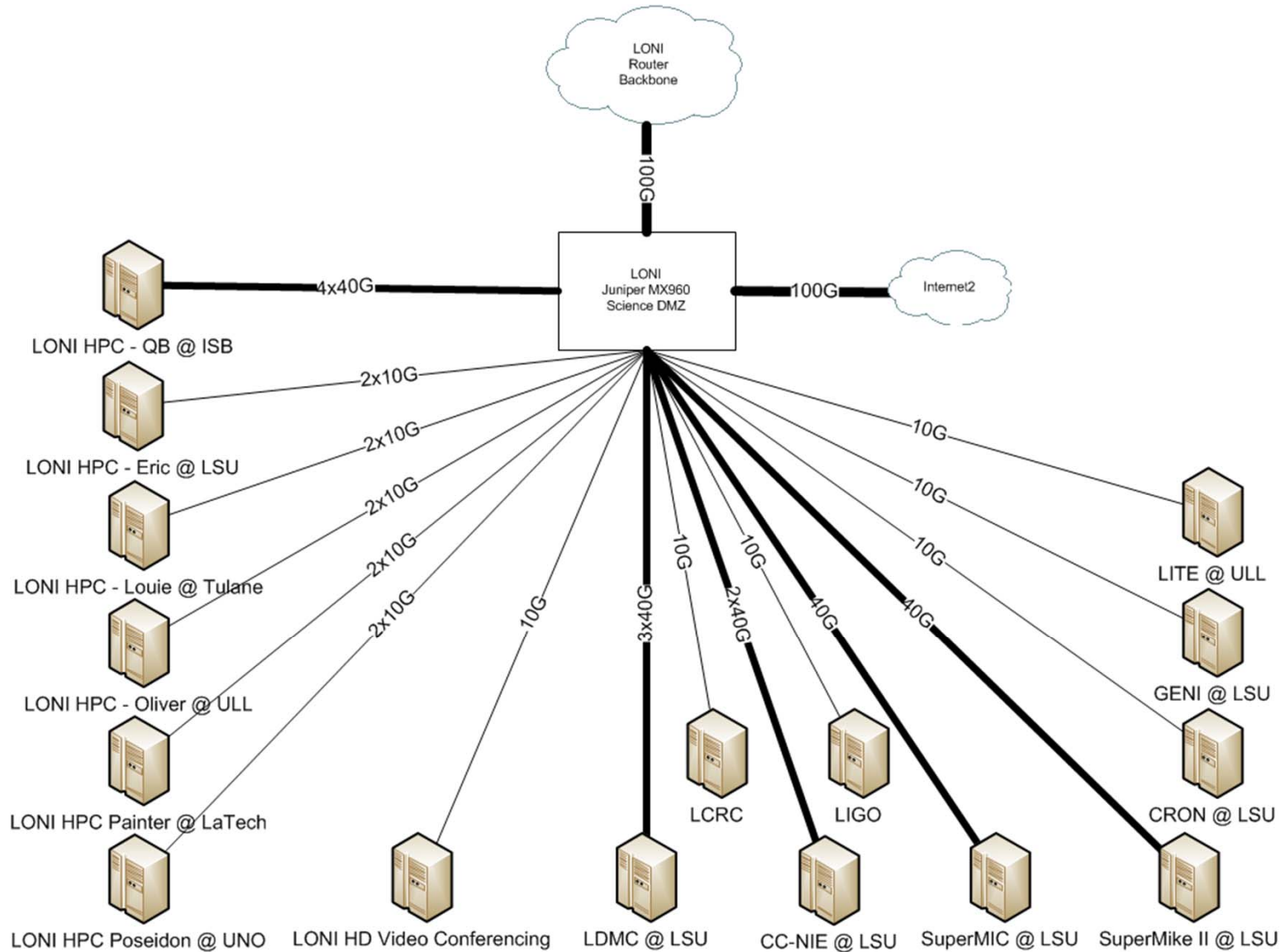
- LONI has no campus nor laboratory
- LONI serves 30,000 to 300 student campuses
- LONI has scientific instruments (HPC) as well as its participants which need high-performance throughput
- HIED has varied amounts of technical capacity
- HIED has varied amounts of funding available so
- What can LONI do on behalf of HIED?

Solution

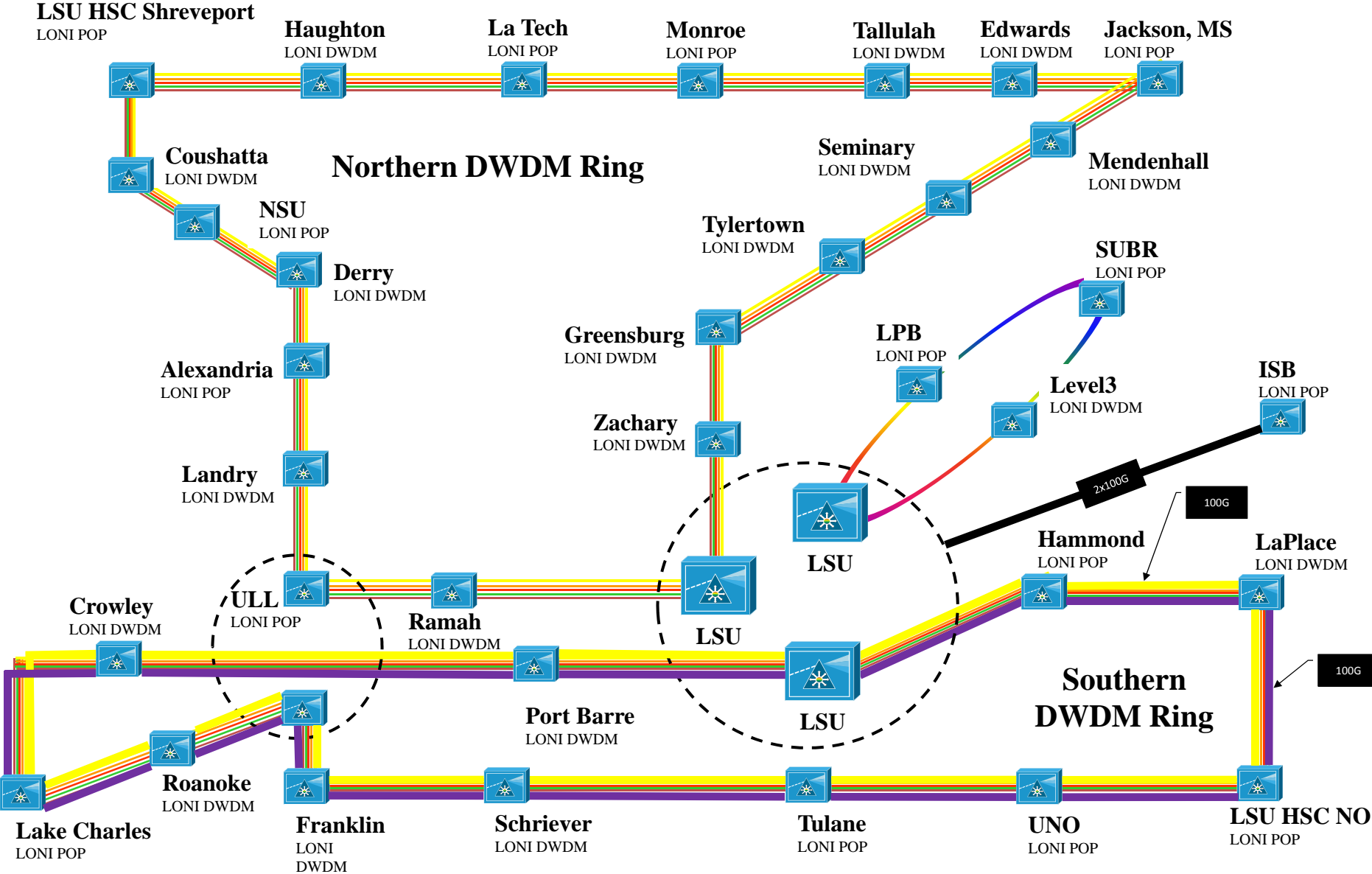
- Remember we have dark fiber and a 32-channel DWDM system
- 2012 and 2013 CC*NIE awards with LSU
- Funding from the Louisiana Board of Regents

- In Phase I, we will create dedicated wave services over our dark fiber and 32-channel DWDM system from our collective scientific instruments to a Science DMZ at LSU
- In Phase II, we are planning to establish a redundant Science DMZ in the northern part of our network.

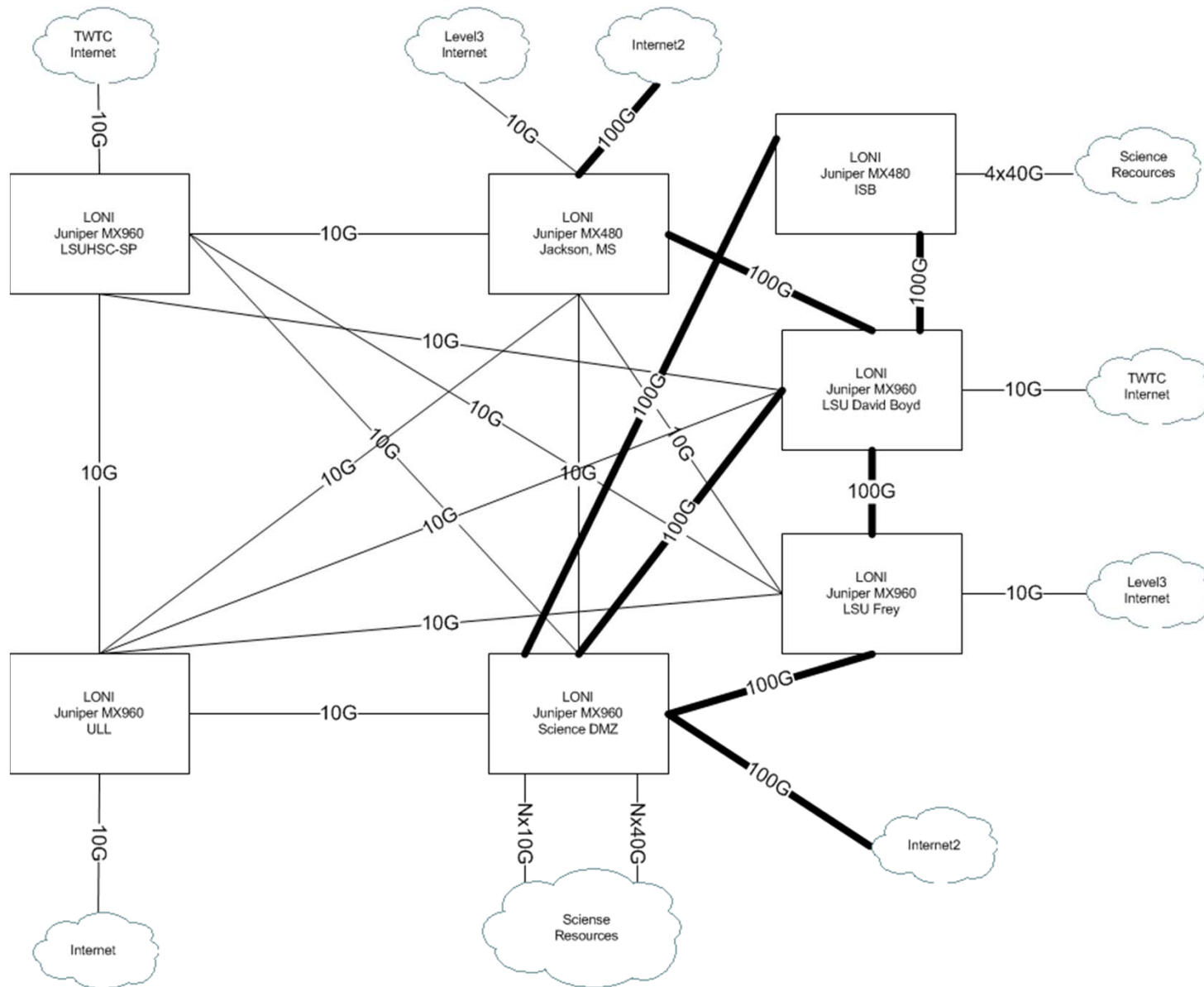
Science DMZ (Phase I)



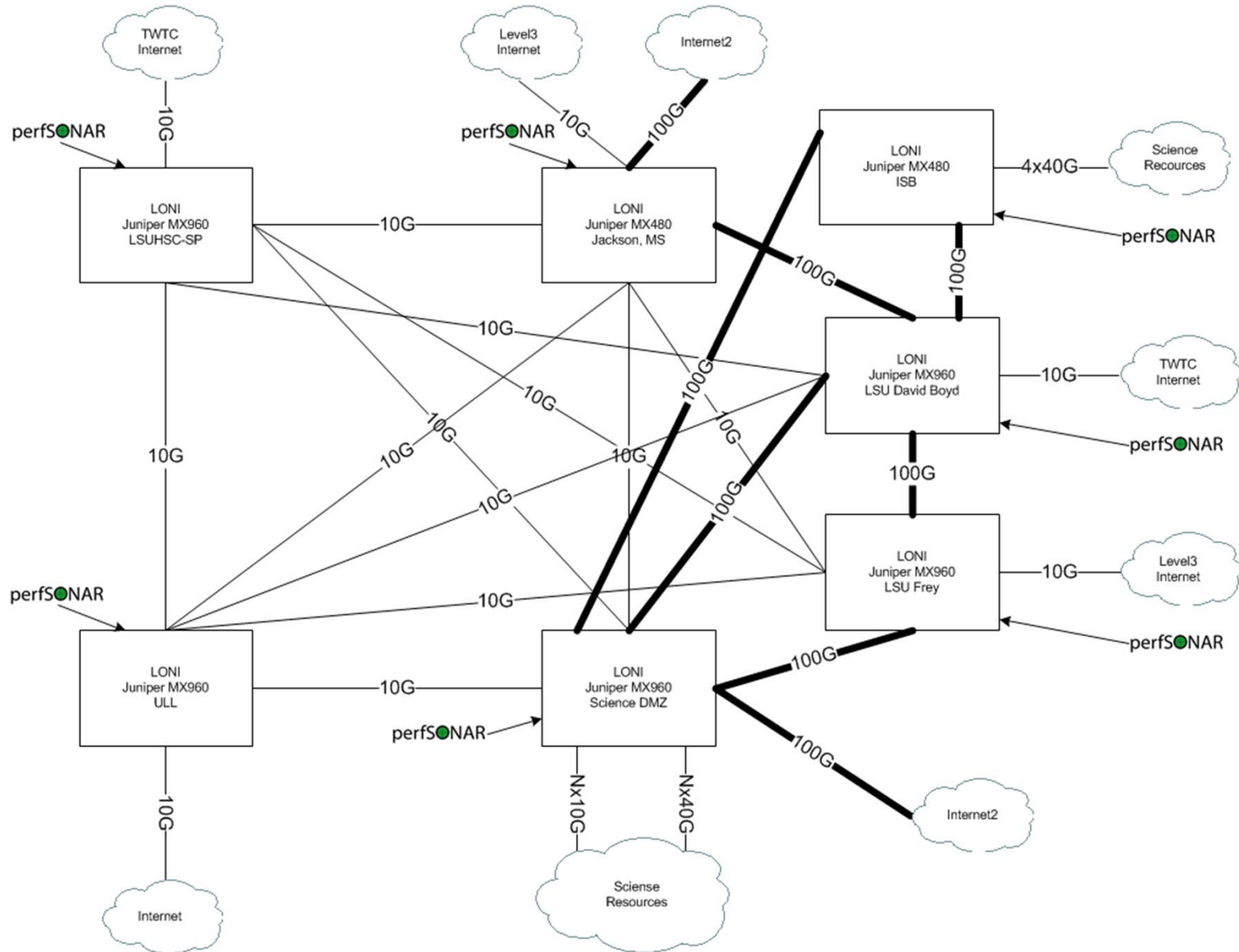
100G DWDM Upgrade



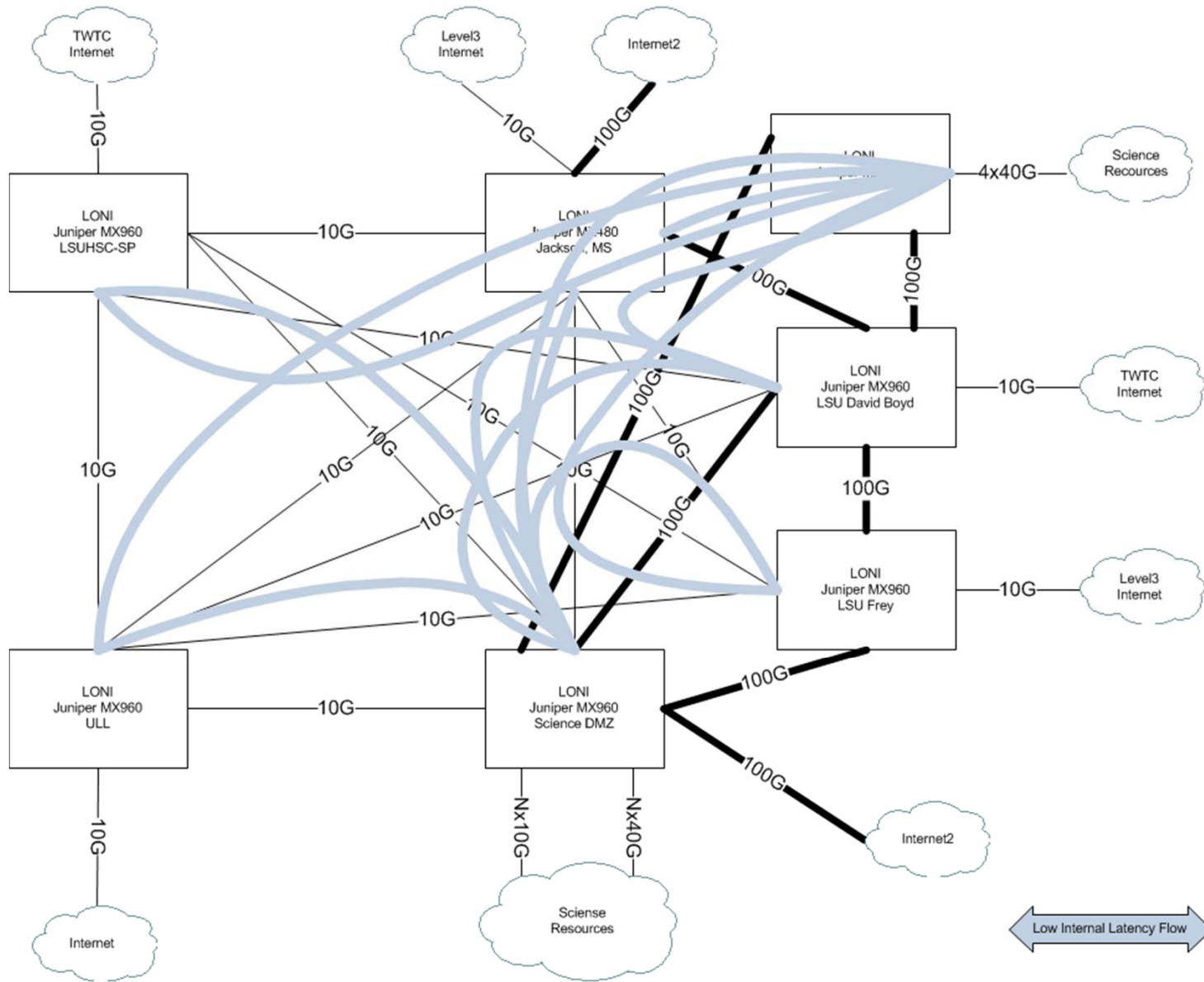
100G Router Upgrade



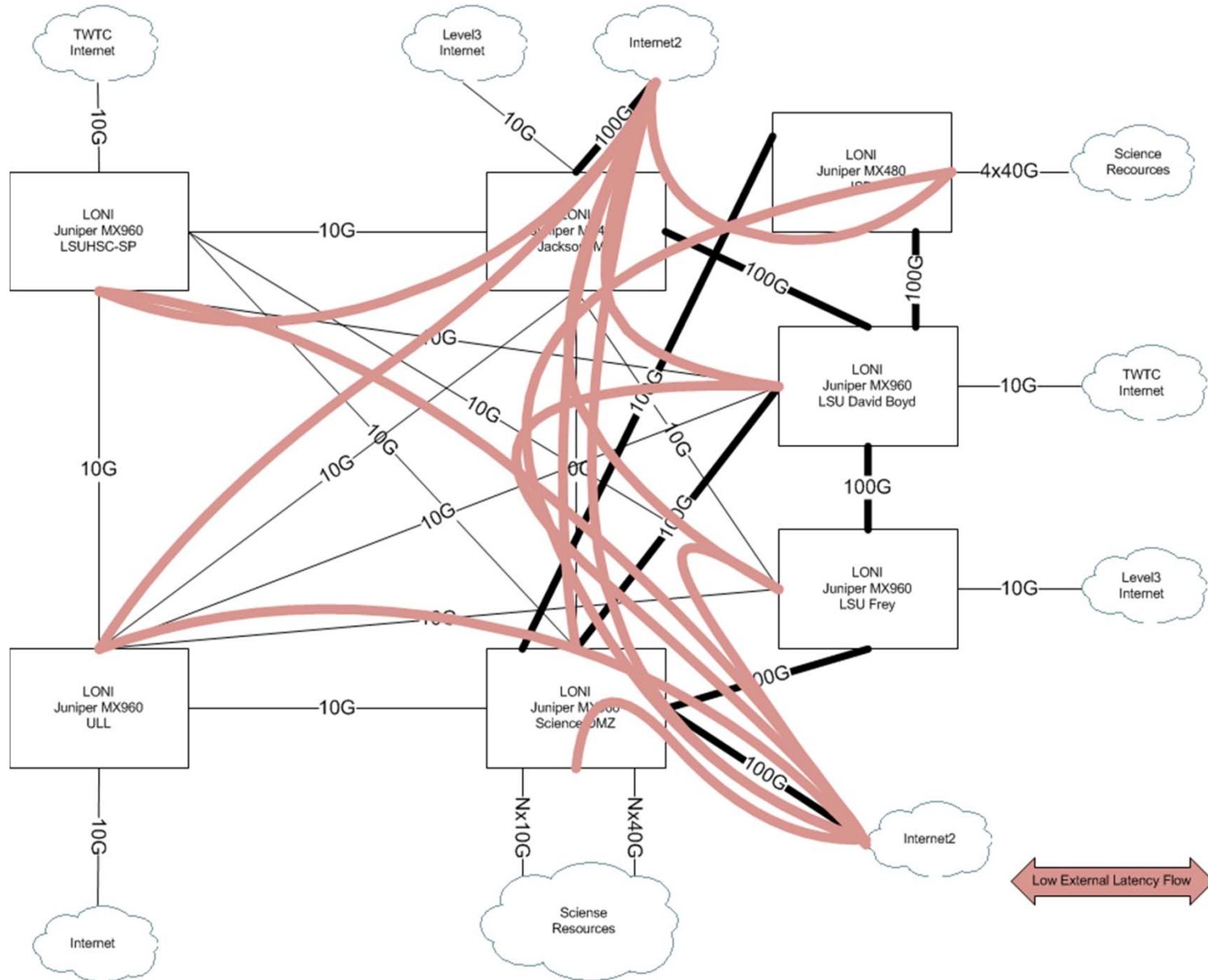
perfSONAR Layer



Traffic Flow Layer



Traffic Flow Layer



Traffic Flow Layer

