

# CC-NIE at UH

Deniz Gurkan, Charles Chambers

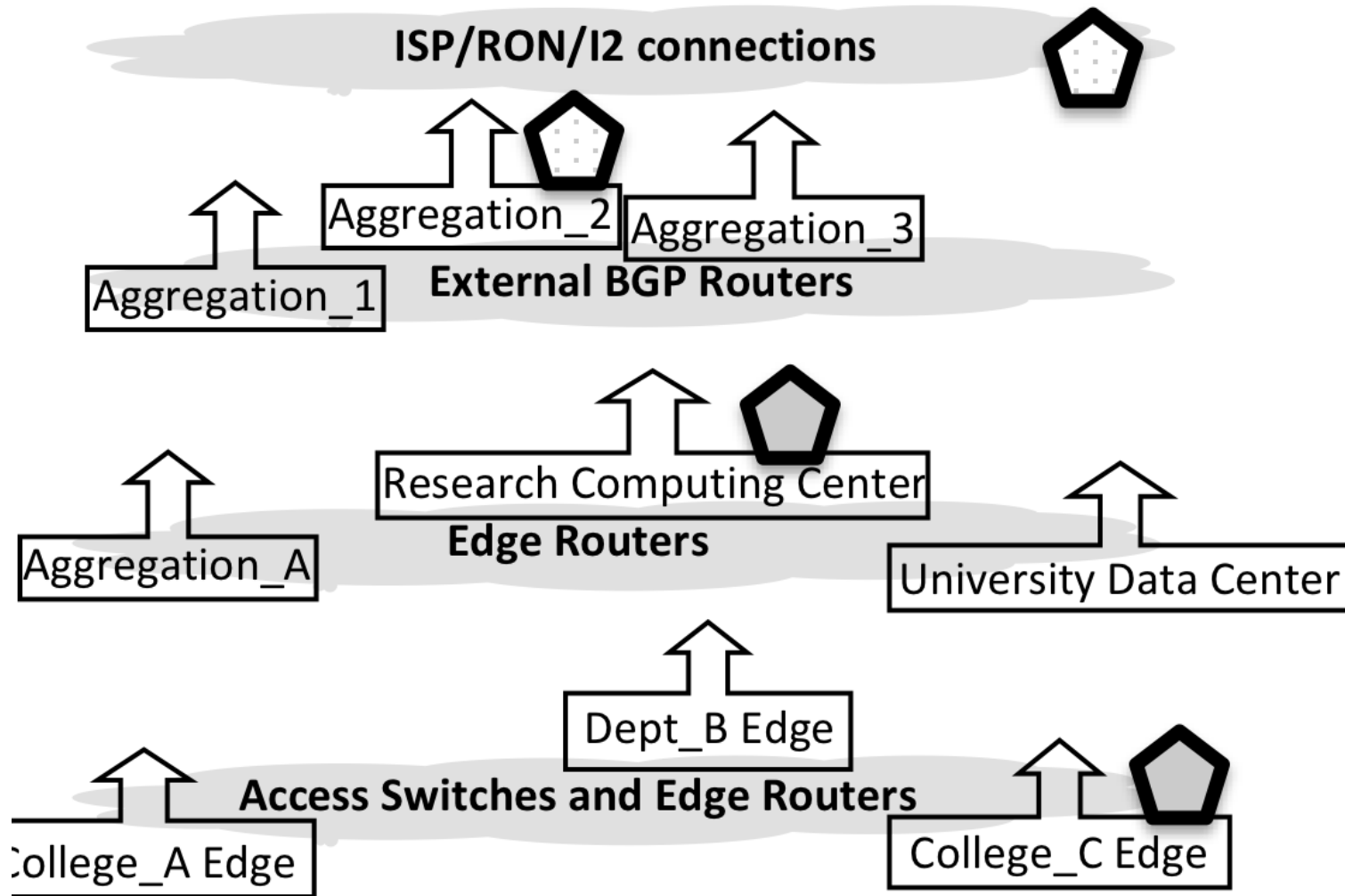
April 30, 2014

# NSF CC-NIE infrastructure

## Three Tier Layers

1. External Boundary
  - Peer with GigaPOP/RON services at very high speeds
  - Hybrid production and research set of Layer 2/3 services
  - Inter-domain controller and BGP Layer 3 peering
2. Campus Core Science DMZ
  - Provide backbone for research, separate from legacy production network
  - SDN based technology
  - Campus Layer 3 access
3. Campus Access Science DMZ
  - Needs based direct Layer 2 science network connections
  - Secondary connections into legacy Layer2 production networks to provide hybrid science DMZ network connections

# NSF CC-NIE internal



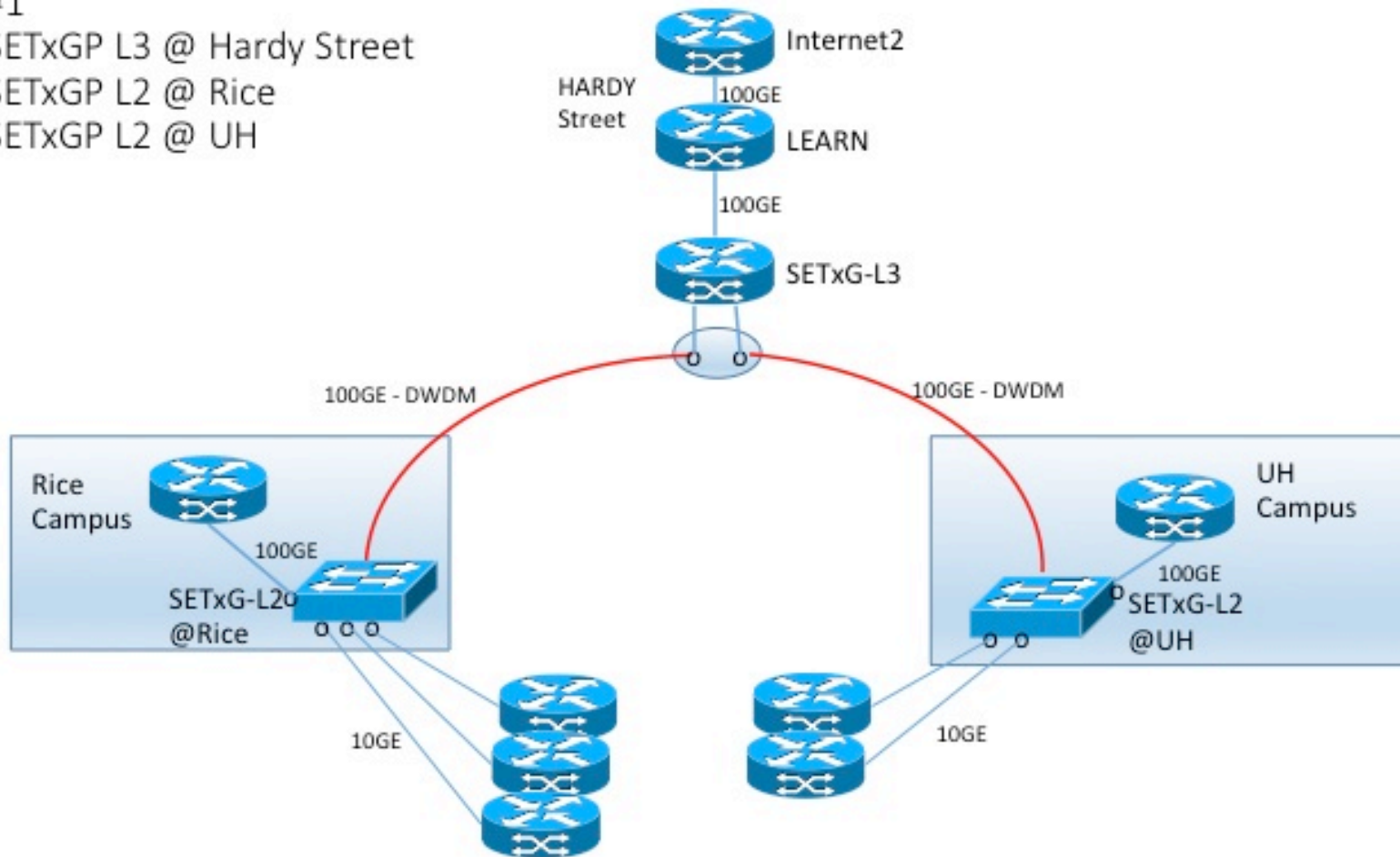
# NSF CC-NIE external: current Houston metro

#1

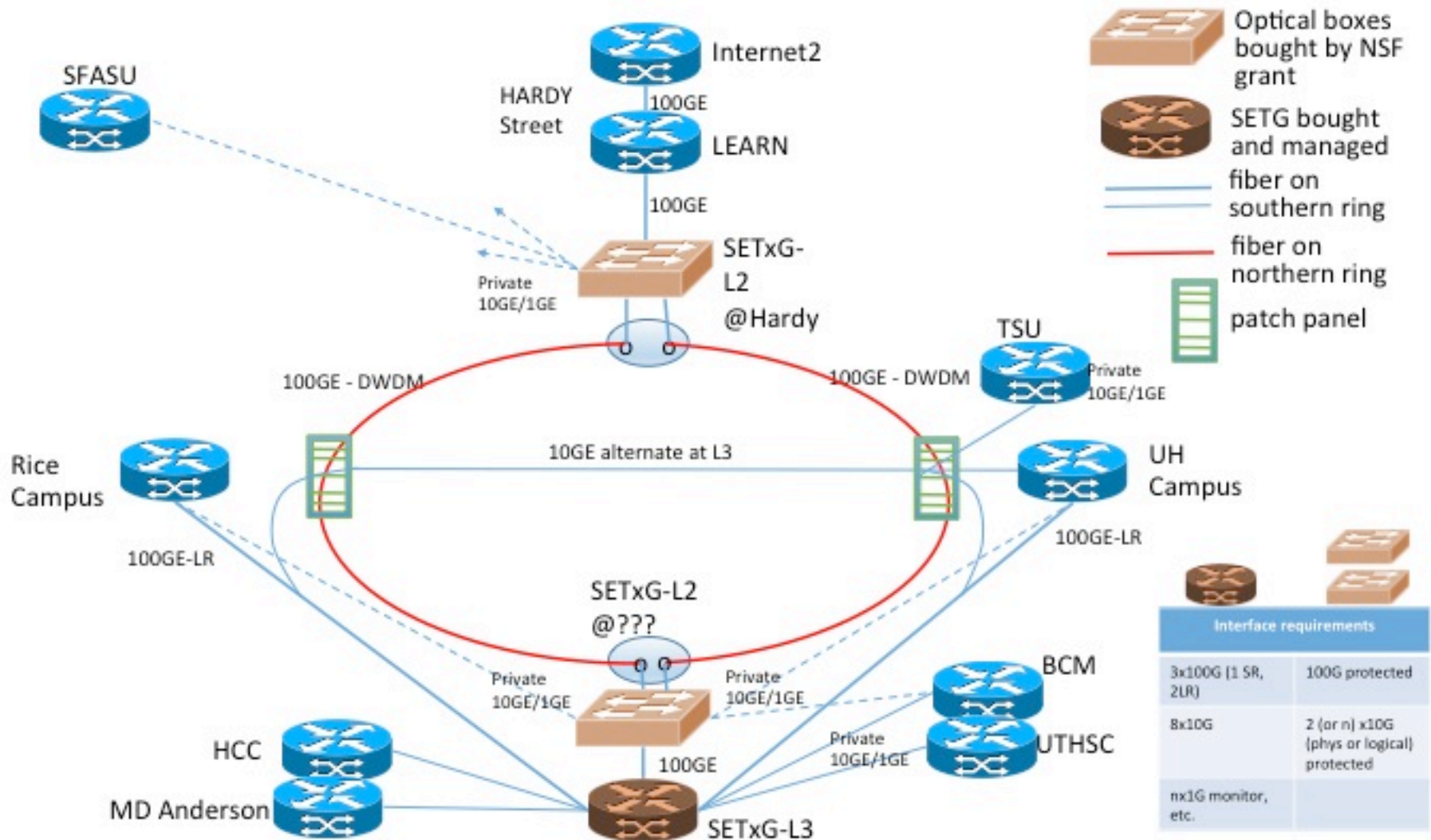
SETxGP L3 @ Hardy Street

SETxGP L2 @ Rice

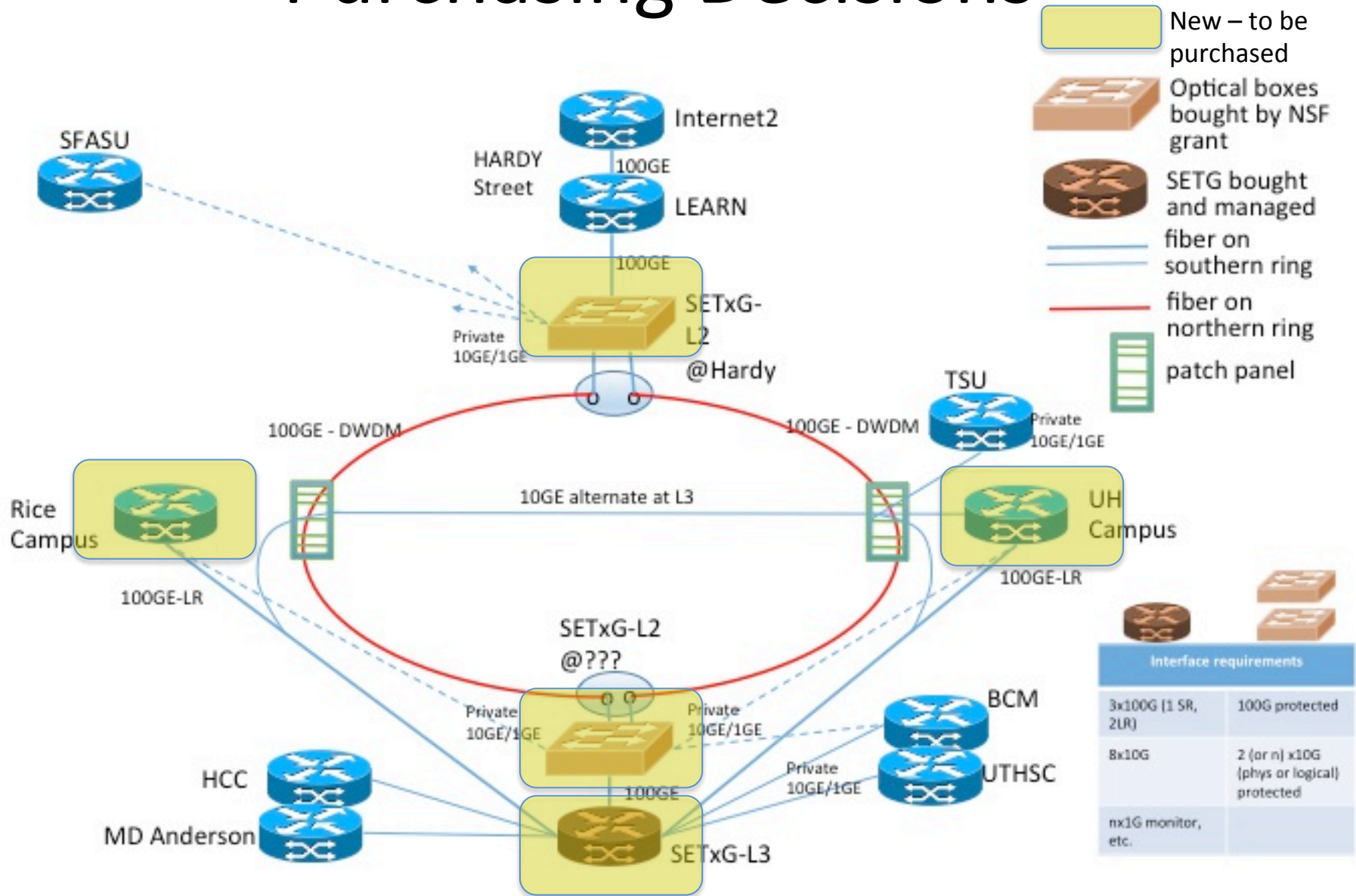
SETxGP L2 @ UH



# NSF CC-NIE external: planned Houston metro for 100 Gbps AL2S connections



# Purchasing Decisions



# Campus Science Data Transfer Needs

- Dr. Roysam: Brain tissue mapping image transfers, multi-TB
- Dr. Balakotaiah: Reactive dissolution of carbonate rocks with 3D numerical simulations, multi-TB
- Dr. Briggs: Molecular dynamics simulations, multi-TB
- Dr. Navin: image transfers, multi-TB
- Dr. Willson: metagenomic DNA sequencing with 10 TB data transfers between Texas Medical Center and UH
- Dr. Grabow: heterogeneous catalysts for energy and environmental applications with 50-250 simulations per day with 1-5 GB per simulation (max ~ 1.25 TB transfers) between external HPC and UH
- Dr. Cheung: TB data transfers on discovery of macromolecular dynamics under cell-like conditions by applying molecular simulation methods
- \*\* 2016: New HPC center to be formed with 100 Gbps campus backbone and external connectivity options for XSEDE and other HPC accessibility

# Discussion

- Next steps