
FNAL Site Report

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Working to Improve our Network Process

- Management requests a 5 yr network infrastructure plan
 - Driven by 5 yr IT budget planning process
 - Primarily looking for perturbations in annual network budget
- First step: projecting what our network looks like in 5 yrs
 - Generated a “Vision” report with 5 year outlook
 - Major components: data center, wireless, end user, WAN
- Second step: a quantified yr-by-yr plan to align with “vision”
 - Same major components, plus cabling & maintenance/EOL
 - Projected budget outlay for each component
- Current step: drafting architecture document to reflect where we’re going
 - Modularity, not hierarchy, is the driving attribute



General Infrastructure Stuff

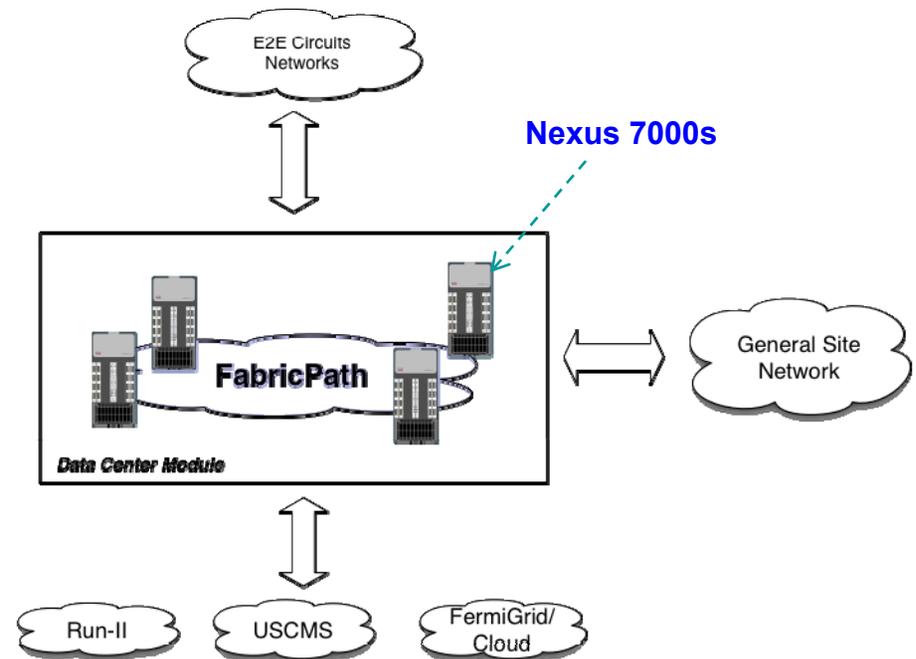
- Moving forward with 100GE MAN channel from ESnet
 - Primary use – LHC/CMS data
 - Secondary use – network / middleware R&D
 - New “circuit” router deployed to support 100GE channel
 - Platform is Cisco Nexus 7000
- Pilot high quality wireless service project under way:
 - Short term goal is office quality network service
 - Longer term vision is eliminating copper in offices
 - High density 802.11n-based deployment
 - 802.11ac products aren't there yet
 - Scale of deployment is main (Feynman) computer center
 - ~140 users spread out over three floors



Data Center Upgrades

Fermilab Data Center:

- A separate module in the Fermilab Network Architecture
- Support High Performance/Data Intensive computing
- Support critical services (E-Mail, Web-, Database servers)
- Interconnect experiments with IO intensive data movement



Design Highlights:

- Virtual Data Center distributed across four computing rooms in different bldgs.
- FabricPath (Cisco) as layer 2 technology allows flexible b/w provisioning
 - Also provides vLAN agility among computer rooms
- Current common data plane is 4x10G with several dedicated paths at 8x10GE
- Dedicated connections to the General Site network and WAN infrastructure.



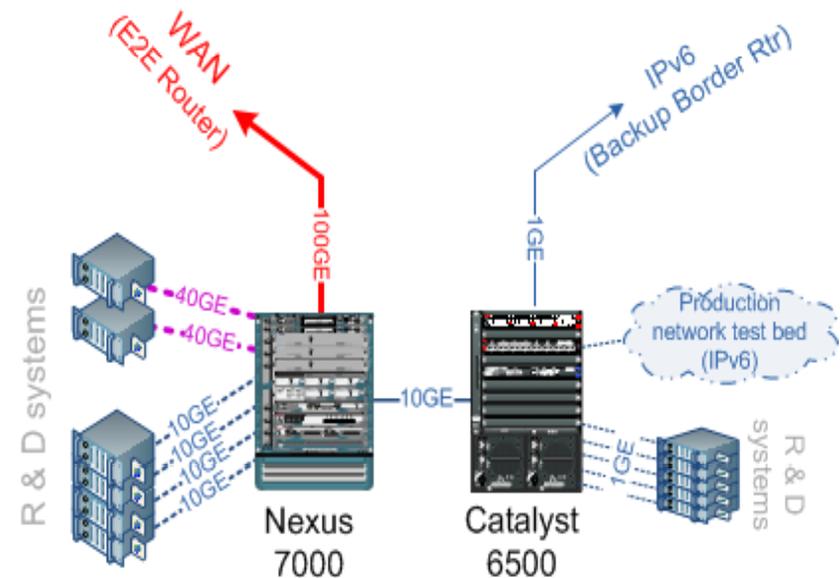
Network R&D Test Environment

- Establishing 100GE test environment:

- Based on Nexus 7000
- Two 40GE-connected hosts
- ~6 10GE-connected hosts
- 6500-based IPv6 test bed will also be rolled into it

- Multipurpose facility:

- Used for nexus software & module testing as well



Campus Fiber Backbone Upgrade

- High capacity fiber ring:
 - Inter-connecting data centers & main user bldg
 - 144 pr single mode fiber cable
 - Corning ribbon cable
 - 2 x 144pr between two main data centers
 - Costs are modest
 - \$2.10/ft for 288 fiber cable
 - Connectorized as needed

