USLHCNET STATUS UPDATE

Sandor Rozsa

Overview

- **Core network topology – current topology**

- **Past activities**

  - **Ciena CoreDirector upgrade**

  - **Secondary Tier1 connections**

  - **US Tier1 backup connections**

 - **Software upgrade – Force 10 and Ciena**

- **Summary**

USLHCNET topology

- **All the USLHCNET Connections have been completed**
    - **6 Transatlantic 10 Gbps links**
        - **2 links between Geneva and New York**
        - **2 links between Geneva and Chicago**
        - **2 links between Amsterdam and New York**
        - **All transatlantic links are part of the USLHCNET SONET core network**
    - **4 Continental 10 Gbps links (2 in US, 2 in Europe)**
        - **2 links between Geneva and Amsterdam**
        - **2 links between Chicago and New York**
        - **1 Geneva ↔ Amsterdam and 1 Chicago ↔ New York are part of the USLHCNET Core Network**
   - **1 Geneva ↔ Amsterdam and 1 Chicago ↔ New York are operating in WAN-PHY mode**
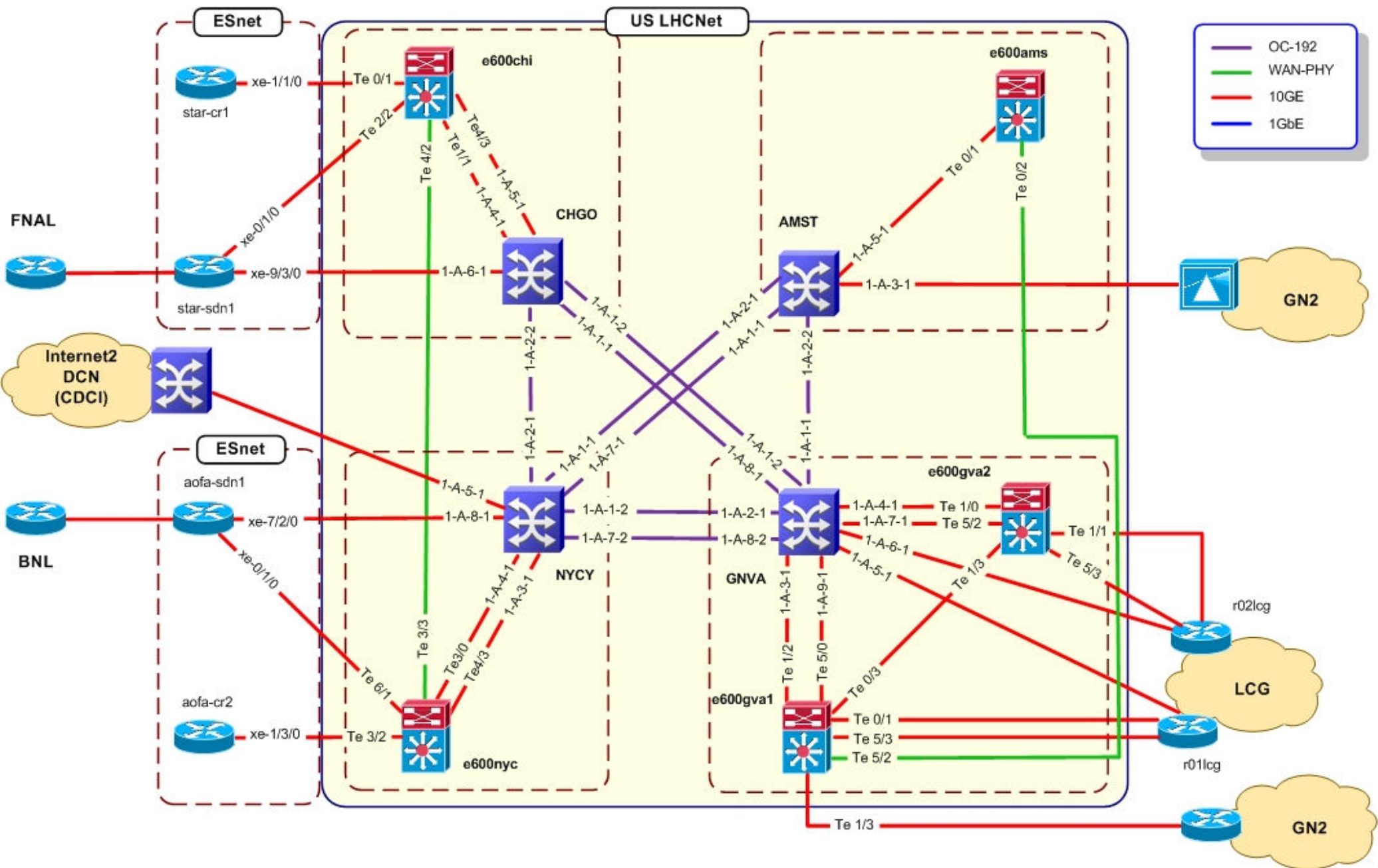
Ciena CD upgrade

- 3 Ciena small chassis CoreDirectors (CDCI) were changed to the full size Core Directors (CD)
    - **NYC – installation took 2 days**
    - **CHI – installation took 2 days, however the electrical installation was completed following week**
    - **GVA – 1 week, chassis and electrical installation tricky**

- **During the CD installation USLHCNET could provide Tier0 – US Tier 1 connection. In some cases with reduced bandwidth.**

- **There were only short outages, while the fibers were moved to other equipments or equipments reconfigured.**

- **None of the US Tier1s were isolated**

- **Primary and backup were available**

- **USLHCNET's contingency plan guided the necessary changes.**

October 2009
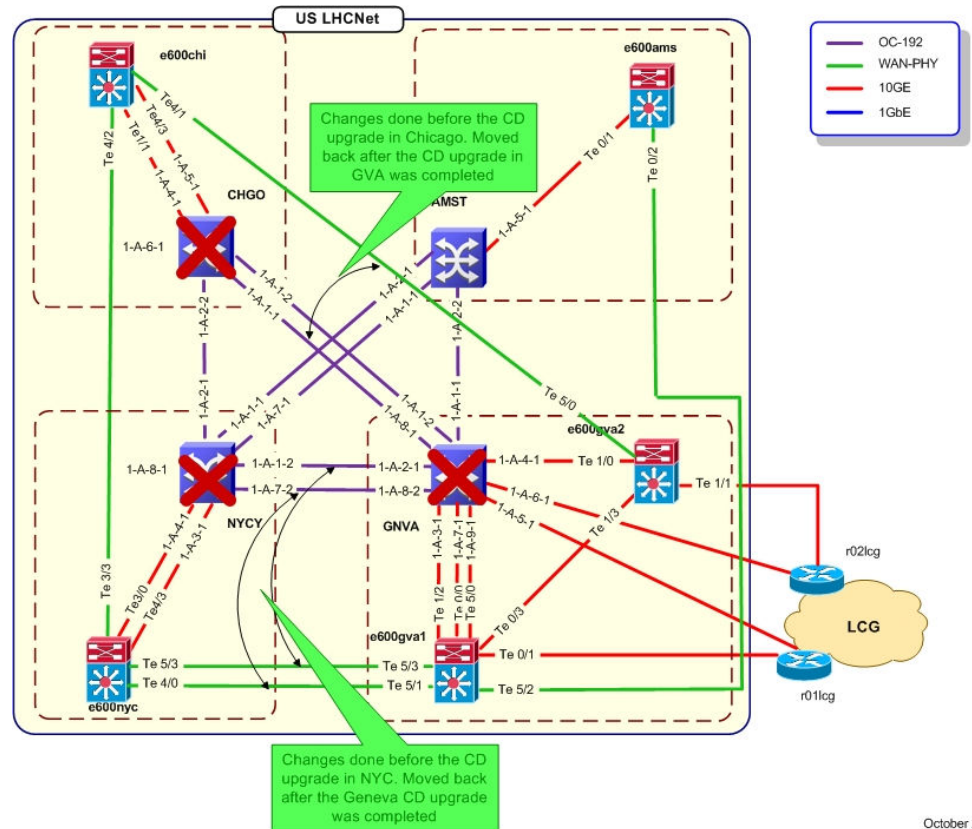
Secondary Tier 1 connections

- **CERN-BNL-LHCOPN-003 – secondary CERN-BNL connection**
  - **VLAN ID: 3524**
  - **VCG name in USLHCNET: gva-nyc-3524**
  - **Capacity: 7 Gbps, 138 timeslots (1 timeslot ~ 50Mbps)**
- **CERN-FERMI-LHCOPN-003 – secondary CERN-FERMI connection**
  - **VLAN ID: 3506**
  - **VCG name in USLHCNET: gva-chi-3506**
  - **Capacity: 7 Gbps, 138 timeslots**
- **USLHCNET PerfSONAR reports the status for both new OPN links**
  - **Local names:**
    - **CERN-BNL-LHCOPN-003-NYC-GVA**
    - **CERN-FERMI-LHCOPN-003-GVA-CHI**

US Tier1 backup connections

- **BNL backup**
  - **Included in a shared VCG – gva-chi-S-1**
    - **Total bandwidth: 4.2 Gbps**
  - **3 Gbps assured bandwidth**
  - **The flow has absolute priority**
  - **Picture: BNL backup test, blue line is the backup traffic in the shared VCG**
- **FERMI backup**
  - **Currently separate VC, will be**
  - **Included in the shared VCG – gva-nyc-S-1**
    - **Total bandwidth: 4.2 Gbps**
  - **3Gbps assured bandwidth**
  - **Absolute priority**
- **CoS based on the tools available on the Ciena CD software**
  - **WFQ – Weighted Fair Queuing**
  - **Default WRED profile**
  - **Bandwidth profiles**
    - **CIR: 3Gbps**
    - **CBS: 3.5 MBps**
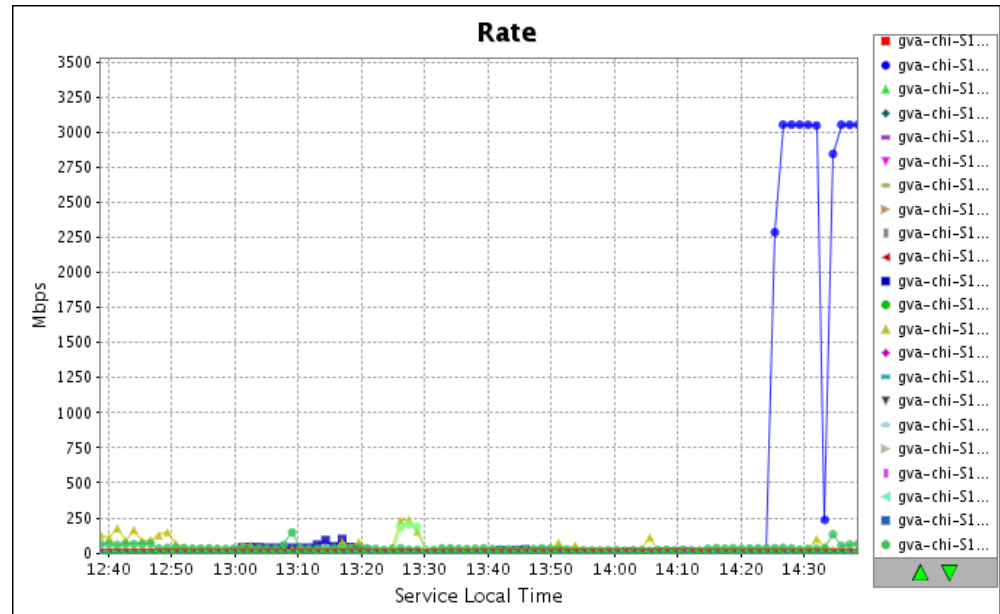
CERN - US Tier1 paths
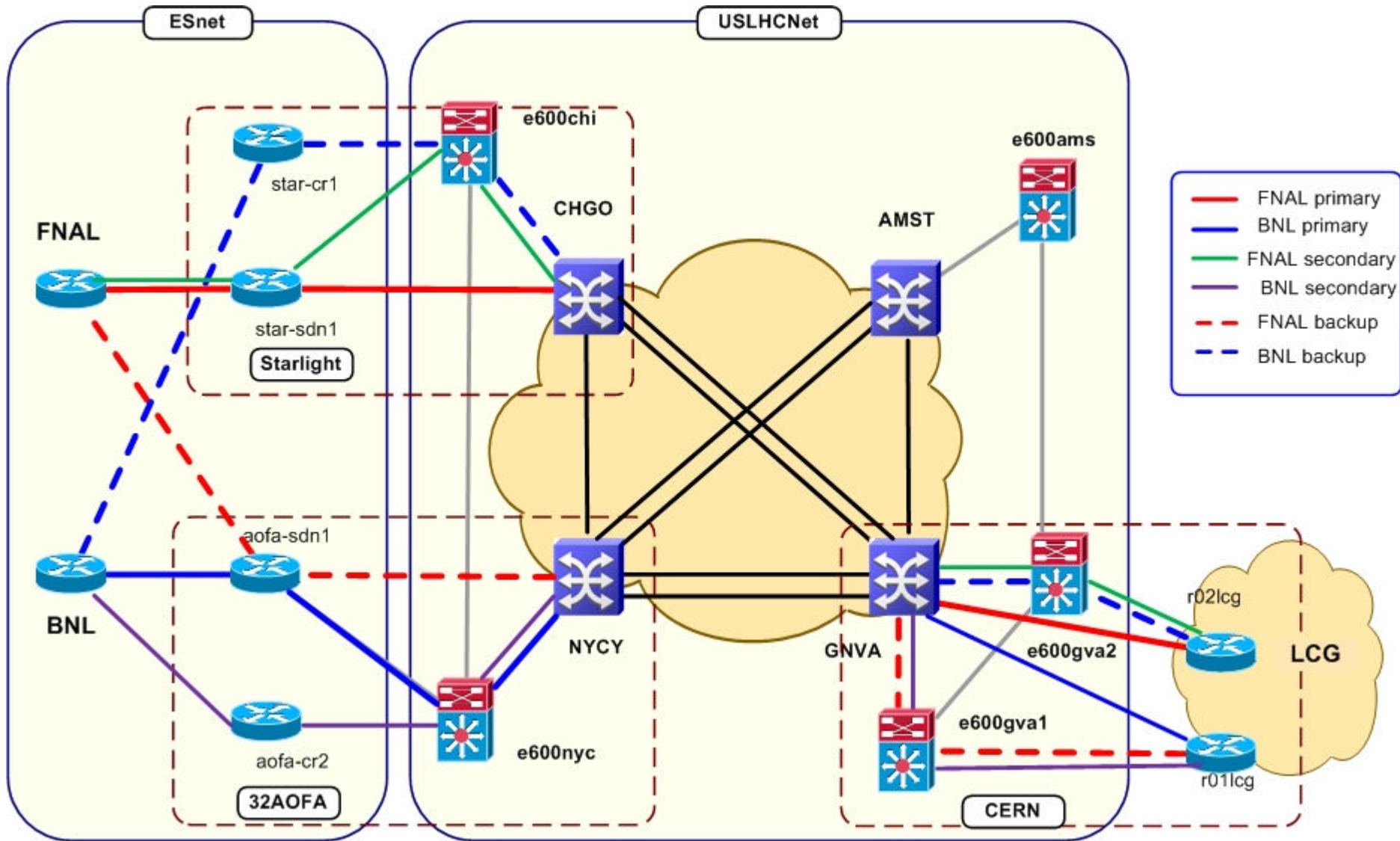
Software upgrade – Force10, Ciena

- **Force10 routers**
  - **Bugs**
    - **High CPU load on the control modules**
    - **In order to apply an access list the linecard had to be restarted**
    - **Both issues occurred on the E600ams router**
  - **Force10 core routers were upgraded to FTOS 7.8.1.3**
  - **Contains bugfixes for the high CPU load, and ACL issues**

- **Ciena CoreDirector upgrade**
  - **Bugs**
    - **Traffic was forwarded even if the VCG threshold was reached – caused false alarms for the PerfSONAR**
    - **Traffic was dropped in a VCG, for recovery VCG and/or SNCs needed to be bounced**
  - **Cienas were upgraded to version 5.2.9.3**
  - **Bugfixes for VCG threshold, and the VCG blocking issues**

Summary

- **All major changes and upgrades performed before LHC start-up**

- **USLHCNet network is highly resilient and very stable, we'll keep it that way!**

Questions