USLHCNet update

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LHCONE meeting

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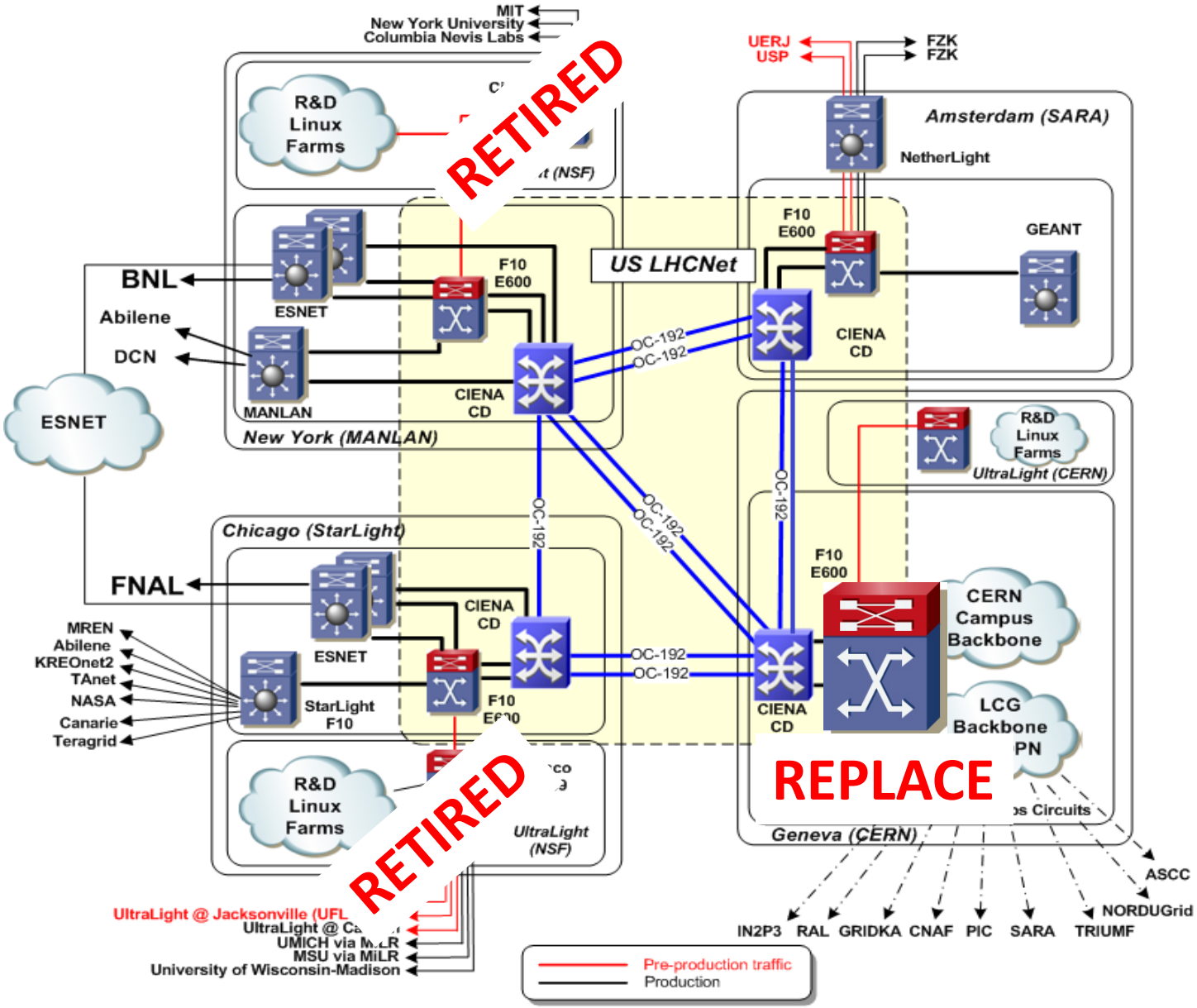
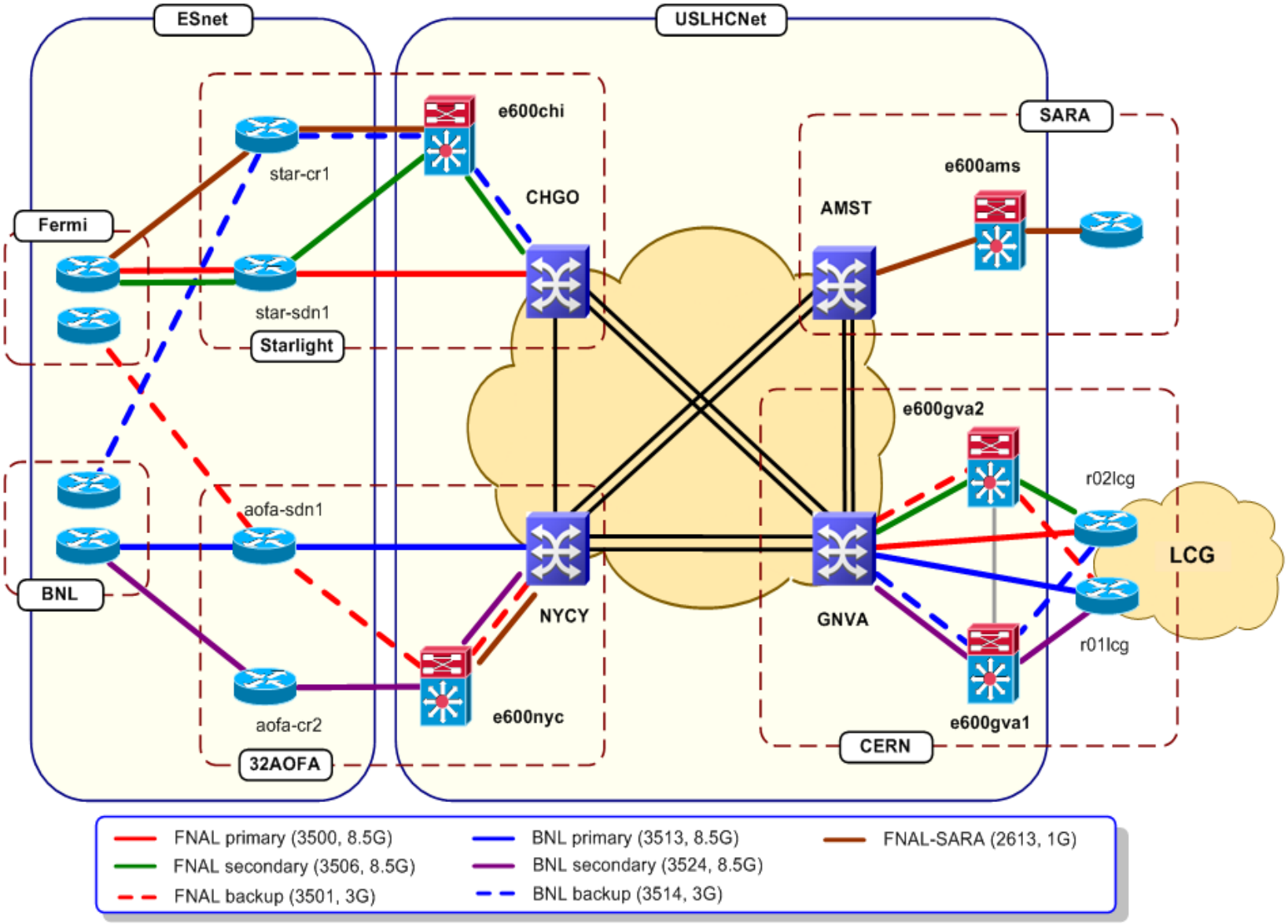
US LHCNet Recent Changes

- DOE OHEP has decided to integrate US LHCNet into the US CMS and US Atlas Operations Program
  - Reporting to US CMS/US Atlas Operations Management
  - This change brought about
    - "-": some uncertainty and delays
    - "+": window of opportunity: (even) closer to the US LHC computing community
- Pragmatically: US LHCNet has just signed a two-year contract for 60 Gbps transatlantic capacity
  - remain at same capacity levels, use different cable systems
- With the LS1 in mind, evaluating candidates for next generation US LHCNet architecture

US LHCNet overview recent changes (optimizations)



US LHCNet – LHCOPN Service Topology (reminder)



Towards a new scheme

- Next two years (LS1) will give us the opportunity to upgrade the infrastructure
  - consider upgrade of optical equipment
  - consider upgrade of switch/router equipment
- More importantly
  - a flexible scheme of capacity allocation between LHCOPN and LHCONE
- Evaluating next generation hardware and services solutions
  - 40G, 100G, CE, openflow, multipath fabrics, …

Flexible Capacity Allocation

- Basic idea:

1. Assign MINIMUM fixed capacity per Tier1 (for LHCOPN)
2. Assign MINIMUMfixed capacity for LHCONE
3. Add capacity based on needs (interface to experiments)

- Given our current HW base, we are technically able to implement it, as long as we remain at 10G ports
  - Main work item is probably the user interface…
  - And the interface to peer networks (point-to-point pilot?)

- We'd like to implement a basic scheme still this year
- Use LS1 for improvements and refinements
  - Will also provide input for the design of next generation US LHCNet

‘other than USLHCNet’: D&R

- New R&D activities within our team (Caltech)
- OLiMPS:
  - DOE OASCR 2 year, 1 FTE funding for development of Openflow-based multipath fabric
- ANSE:
  - Caltech + UMICH + UTA + Vanderbilt
  - NSF CC-NIE 2 year funding, starts Jan. 1, 2013, ~3 FTEs
  - development of middleware linking LHC experiments’ data management SW with dynamic circuit services (hint: DYNES, NSI, …)
- Both intended to have impact in in the ‘non-VRF’ activities in LHCONE

THANK YOU!

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