



# Advanced Network Status and Plans

Petravick/Demar

# Status

- Status
  - Construction and operation of FermiLight
  - ESNET
  - Fallon
  - WAWG
  - Lambda Station Proposal
- Plans
  - FY05 WBS

# Fermilight

- Starlight
  - Installation of 33 channel DWDM framework
  - Will instantiate 2x1 Gb, 1x10Gb channels
  - Notes:
    - schedulable.
    - One is very likely for overflow/redundancy
- Others
  - Work with ESnet strategy
  - Regional R&E partnerships

# ESNet

- ESNet has proposed that the DOE fund a metro area network in Chicago
  - 5 Major DOE network entities
  - FNAL provides substantial input to the proposal.
- Default ESNet strategy is to encourage collaboration with regional R&E partners
  - A number of paths would provide reliability.
  - Regional R&E in Illinois has no umbrella entity
  - The link to starlight is FNAL's ante.

# Fallon

- Collaborative project w/ US CMS
  - Ernst, Demar, Rechenmacher, Bobyshev, Grigoriev
  - In the context of DC04.
  - CCF goals – practical wide area knowledge
- Technical results:
  - WAN Emulator
  - IPMBW Monitoring deployment and modifications.
    - GridFTP test. bi-directional, traceroute history, path characterization
  - Issues with CISCO dropped packet counters
  - FNAL modified-TCP stack **used for DC04 transfers.**

# WAWG

- Wide area systems working group.
  - Meets Most Fridays, 9:00 a.m. FCC1
  - [wawg@fnal.gov](mailto:wawg@fnal.gov)
- Supporting:
  - CERN(CMS) UCL/UKLight(CDF) Data Transfers.
- At the door
  - Toronto (CDF) Berkeley (aggregation), BNL(MPLS), Volker(ANL)
- Designated interface people
  - Mandrichenko, Grigalunas, Crawford

# Lambda Station Proposal

- TCP has problems at large bandwidth\*delay
- Study the problem of aggregating flows on to possibly dynamic “pipes” between facilities.
  - Not how to provide the pipe itself.
    - At production levels
    - Caltech has been funded as well.
  - How to detect pipe and adjust load
    - For example have SRM activate more transfers
- Learned today funding for FNAL was supposed to be announced in May DOE financial plan

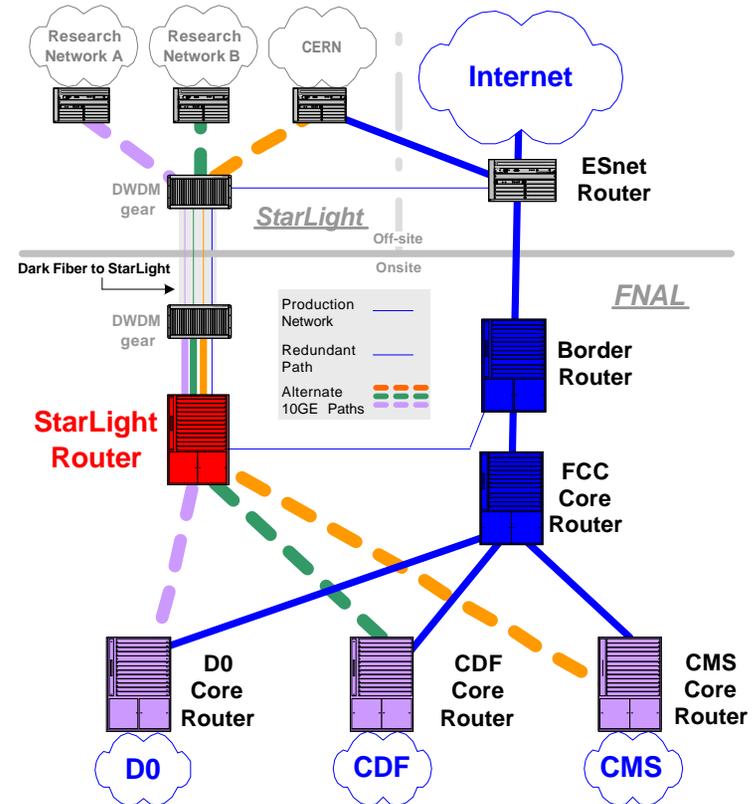
# Model for 2005

Alternate network path  
to Starlight and  
beyond.

Work continues

On layer 4 and 5 and  
above.

Aggregation onto  
pipes.



# FY2005 Draft WBS

- 50.02.10.05 NTWK-ADV-WAN
  - NTWK-ADV-WAN-INFRA
    - ESnet upgrade (production, “many nines”)
    - ES NET MAN (or subset ) (:”fewer nines”)
    - 2<sup>nd</sup> path via Regional R&E relationships. (Fewer nines)
    - Other things at Starlight (few and no-nines).
  - NTWK-ADV-WAN-PROJ
    - UK Light
    - CMS Transfer project
    - DOE UltraScience Net
    - Others TDB
- 50.02.10.09 NTWRK-INV
  - NTWK-INV-WAN
    - Lambda station work (dynamic pipes)

# Other Planning ..

- To exploit advanced networks, local infrastructure has to keep up
  - Research community finds less than 10 Gb uninteresting.
    - Highest performance switch fabric
      - Will bring along network features which might be of use.
    - 10 Gb pipes out of workgroups, an internal as apropos.
- CCF intends to keep in touch w/ DOE Network Research Program on behalf of the laboratory.
  - This implies and induces working with others.