protoDUNE using Fermilab's LHCOPN connectivity

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CERN

protoDUNE and LHCOPN

At the last LHCOPN/ONE meeting, Fermilab asked permission to use LHCOPN or LHCONE to transfer protoDUNE data from CERN to Fermilba. Expected (O)10Gbps from CERN at peak intervals, which is not a concern for existing CERN-Fermilab connectivity (40Gbps guranteed over 100Gbps links)

It was agreed to allow protoDUNE traffic on the Fermilab's LHCOPN links between CERN and Fermilab, as long as it doesn't impair LHC CMS traffic to Fermilab

Today, the protoDUNE experiment is using the CERN-Fermilab LHCOPN links to exchange data. So far there has been no contention with LHC CMS traffic.

Fermilab and CERN are monitoring the traffic and will implement technical measures (QoS, rate limiting) to avoid that the protoDUNE traffic can impair the LHC CMS traffic between CERN and Fermilab

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Long version

The DUNE collaboration
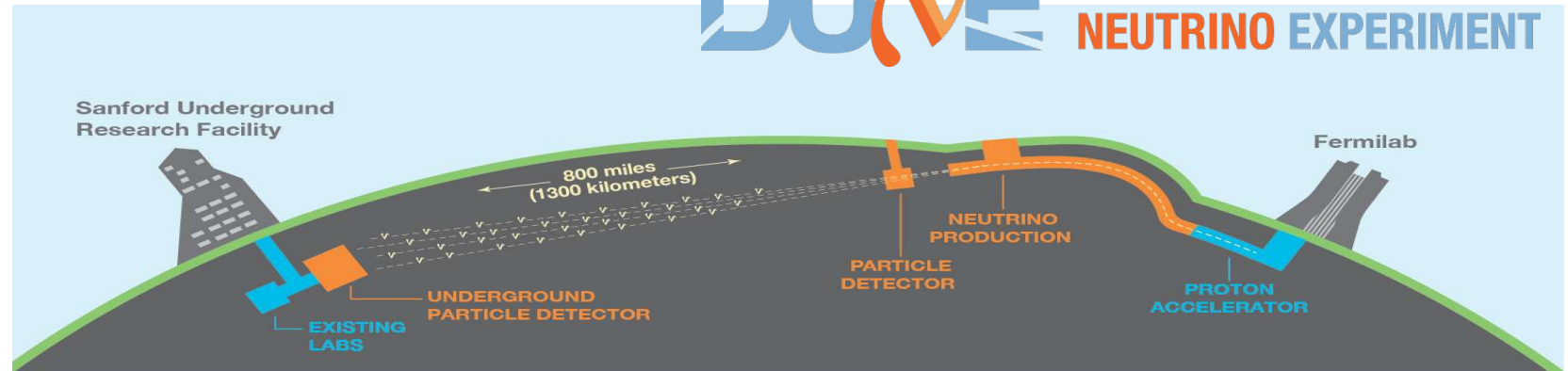
At the last LHCOPN/ONE meeting, Fermilab presented the DUNE experiment:
- 2018: prototyping with protoDUNE at CERN
- 2019-2025 construction
- 2026 First neutrino beams from Fermilab to Sanford

Expected 30PB/yr of raw data (similar to LHC Run2).
Primary storage at Fermilab, data replication at CERN

Full presentation: https://indico.cern.ch/event/681168/contributions/2867987/attachments/1611851/2559796/DUNE_Intro_and_NOvA_Update.pdf

protoDUNE and LHCOPN

At the LHCONE meeting, Fermilab asked permission to use LHCOPN or LHCONE to transfer protoDUNE data from CERN. Expected (O)10Gbps from CERN at peak intervals. Not a concern for existing CERN-Fermilab connectivity (100Gbps)

Discussed possibility to re-implement QoS to prioritize WLCG Tier0-Tier1 traffic over any other traffic on LHCOPN links

It was agreed to allow protoDUNE traffic on the Fermilab's LHCOPN link between CERN and Fermilab, as long as it doesn't impair LHC CMS traffic to Fermilab
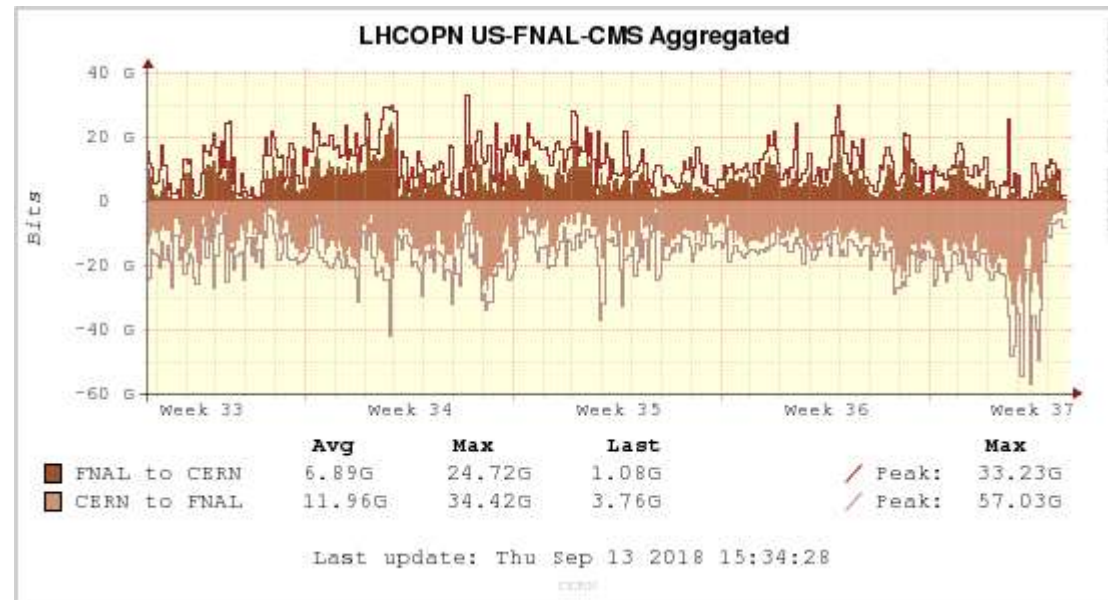

protoDUNE outer vessel

Current status

The protoDUNE experiment is using the CERN-Fermilab LHCOPN links to exchange data. So far there has been no contention with LHC CMS traffic.

Fermilab and CERN are monitoring the traffic and will implement technical measures to avoid that the protoDUNE traffic can impair the LHC CMS traffic between CERN and Fermilab

Use of LHCOPN/ONE by other collaborations

At the LHCOPN/ONE meeting, a discussion followed whether allowing any collaboration to use LHCOPN and LHCONE.

No consensus was reached, but these points were noted:

- Different private networks for different collaborations would be easy to create in backbone networks. They would allow a clearer separation of traffic for better statistics, security, billing

- however, end-sites serving multiple collaborations may have difficulties in separating the traffic to use different private networks. If funding agencies agree, sharing the same infrastructure would be preferable

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Questions?

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