Overview of Computing at Fermilab

D. Petravick

Fermilab

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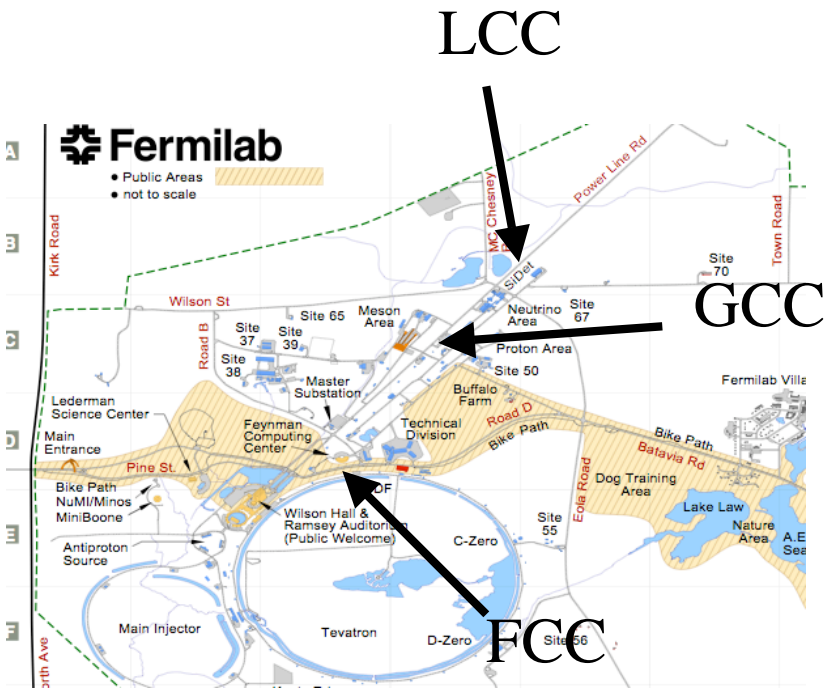
FNAL Scientific Computing

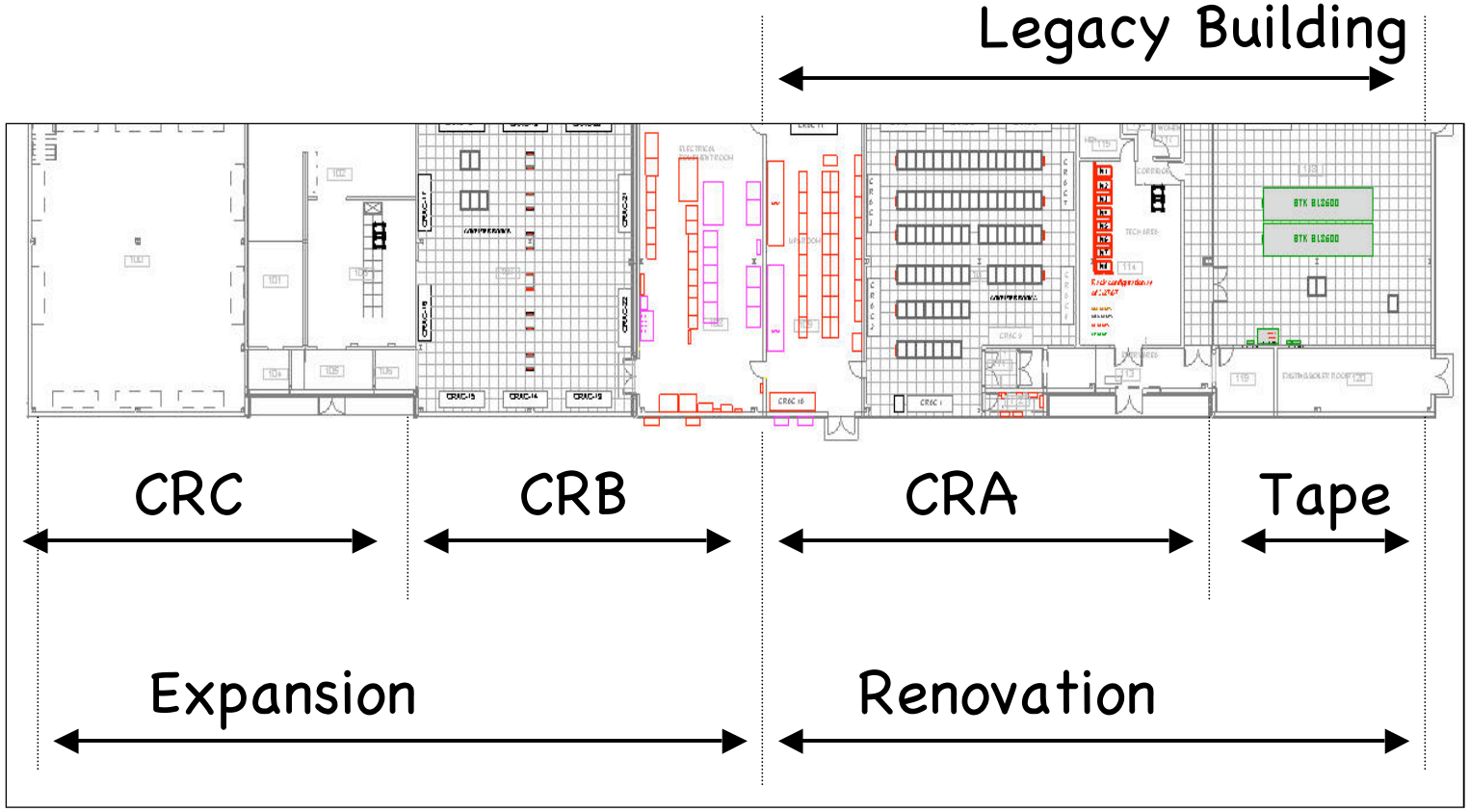
- CDF
- D0
- Lattice QCD
- CMS Tier 1 center
- Experimental Astrophysics
- Theoretical Astrophysics
  - partner w/Kavli Inst. U Chicago
- Accelerator Simulations
- Neutrino Program

Computing Centers

- Three computing buildings.
- FCC, -- > 20 year old purpose built
- LCC, GCC: built on former experimental halls w/ substantial power infrastructure.



GCC Grid Computing Center



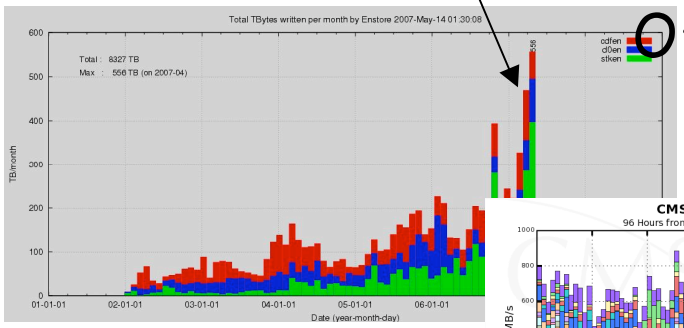
Networking and Data Movement

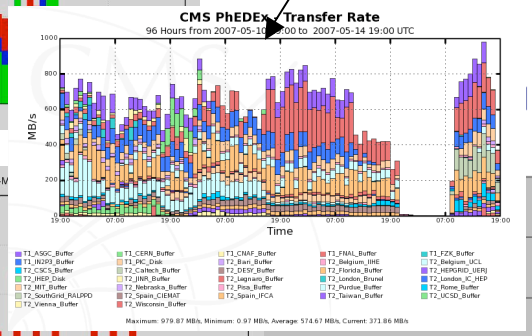
550 TB/mo ingest

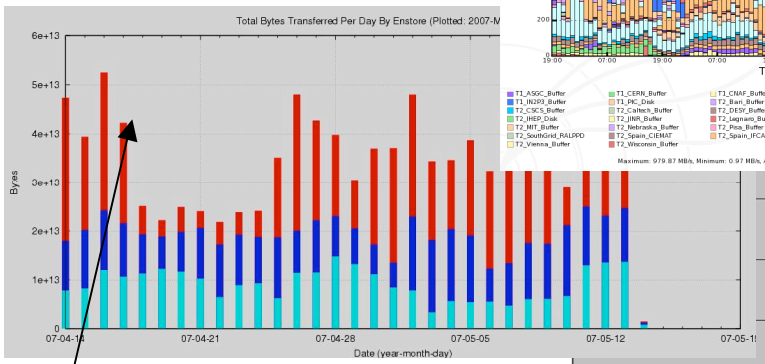
CMS: 800 MB/sec

Offsite (hourly bins)

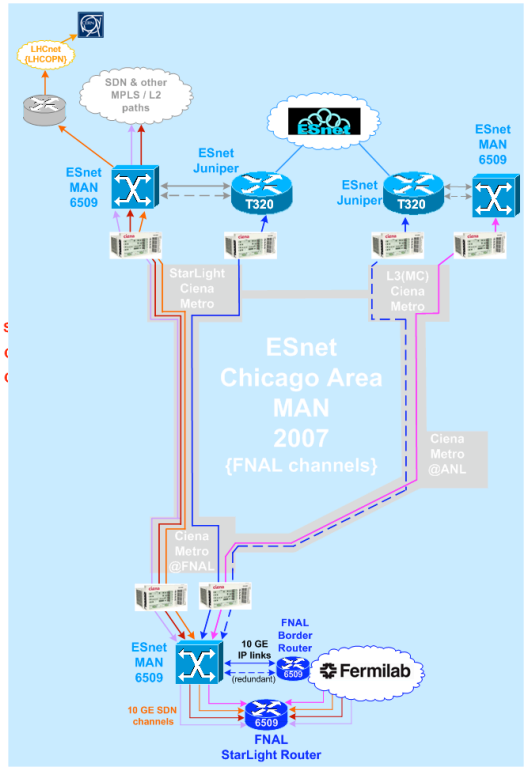
> 1 PB/mo







54 TB/day moved



Working Style

- Rooted in Robert Wilson's philosophy
  - "everyone is working on physics"
  - Facility provisioning is aware of the science.
- Skilled at **leading** integrations that
  - Interoperate
    - Grids: e.g. OSG, ILDG, WLCG, DES (Teragrid)
    - Networks: I2, GLIF, LHC, OPN,
  - Re-use services (e.g. storage, networking)
  - Lower equipment costs, accommodate incremental investments

Summary

- Fermilab has a diverse scientific computing program.
- Fermilab has a substantial leadership role and experience interoperating with the Global and US computing infrastructures.
- Fermilab provisions facilities in a science-aware fashion.
- Facilities at Fermilab are substantial, and multi-faceted.