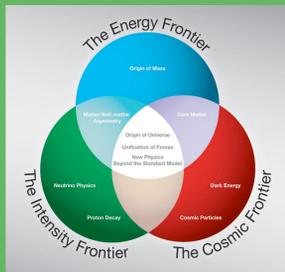


# Fermilab's Enterprise Quality Grid Computing Center



## Mission

Provide researchers with the facilities to conduct research into the high energy physics, intensity and cosmic frontiers. Maximize assets including networking, data storage robotics, grid and cloud computing to optimally arrange large clusters of computers and storage solutions to support the production of scientific results.

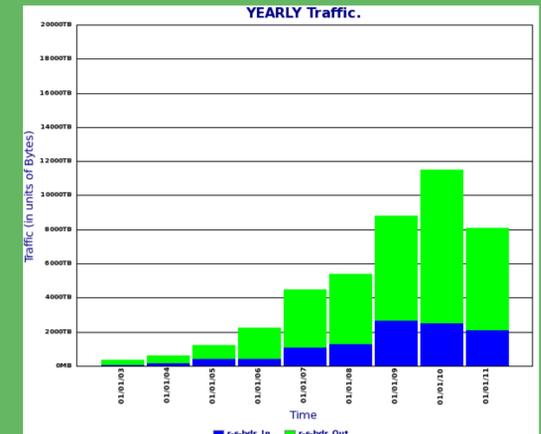
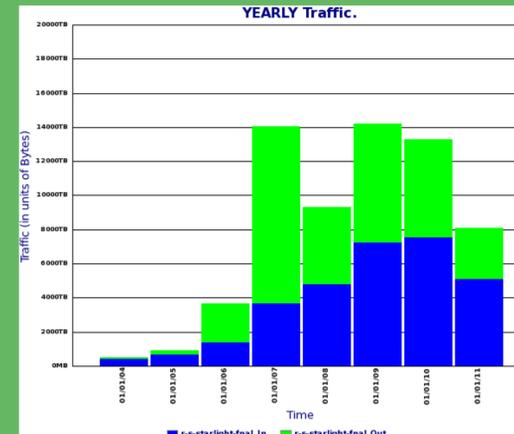
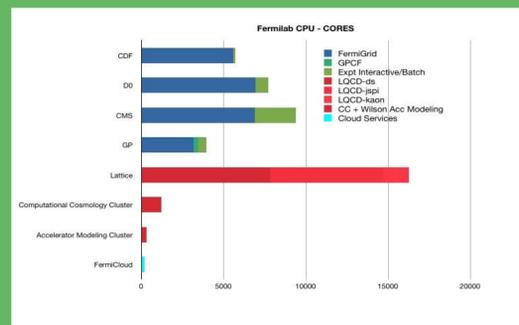
## High Speed Networking

High-speed networking to and from facilities at Fermilab and on to facilities across the world enables the collection, archiving, processing, simulation and analysis of data from global scientific programs.

## 2011 Facility Statistics

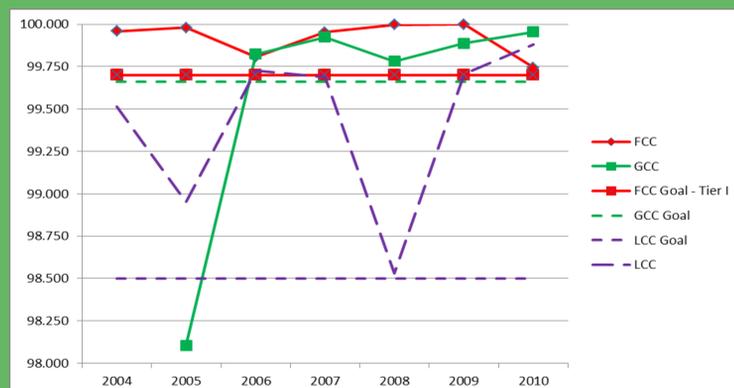
- ✓ 10,384 sq. ft. of raised floor data center
- ✓ 255 rack spaces for high-density computers
- ✓ 6,000 computers (multi-CPU, multi-core)
- ✓ 4 tape robots
- ✓ Building consumes 2.5 megawatts of power
- ✓ Computers consume 10 kilowatts per rack
- ✓ More than 6,000 computers using 1.5 megawatts of power
- ✓ 1,000 tons of air conditioning removing heat generated by computers

## CPU Core Count for Science



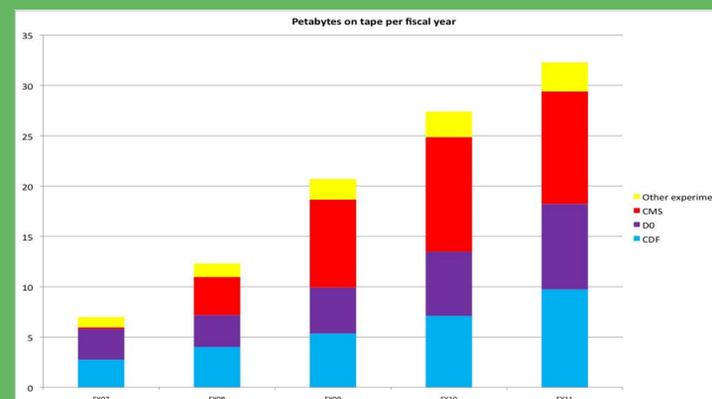
## Computer Room Availability

- ✓ 99.75% average up time (Since 2006)



## Experiment Data Storage

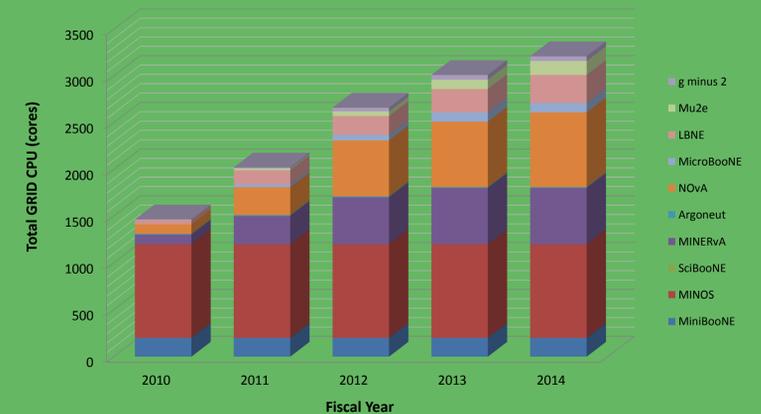
Energy and Intensity experiments' Tape storage demand has tripled since 2007.



## Intensity Frontier Demand

By 2014:

- ✓ Total Grid CPU cores for each experiment projected to increase by 1100.
- ✓ Total disk space expected to double.



## GCC Capacity & Usage

- ✓ Capacity / demand is steadily increasing
- ✓ Highly available for computer power usage

