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Linux at FTBF

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Fermilab Linux Users Meeting

29 April 2015

FTBF Operations

- Users are added to the ftbf_user .k5login file when they arrive
- MTest Control room has 5 ftbflx computers (MCenter = 4)
  - Shift to a different computer if one fails overnight
  - Access facility networked cameras
  - Web access
  - Run facility based DAQ systems
- ACNET – Accelerator Control System
  - Accelerator Division provides host based key tab file for each computer
  - Monitor beam performance through ACNET
  - Motion table control through ACNET (Synoptic)
- Networking – public and private

In the beginning …

- 30 September 2011 – Tevatron ceased operations
- Test stand support discussions begin (March 2012)
  - System administration of test stand computers
  - Separate system administrator and developer tasks
  - Requires networking and nfs storage
- Minos+ DAQ refurbishment test stand (March 2012)
  - DZero - 1 workstation, 3 DAQ servers
  - NUMI underground - 2 workstations, 12 DAQ servers (production)
- Fermilab Test Beam Facility (FTBF) (June 2012)
  - 15 workstations, no DAQ servers

Additional Linux Clusters

- Silicon pixel telescope
  - MTest/FTBF – 1 workstation, no DAQ servers
  - Developing strip based
- Liquid Argon In A Test beam (LArIAT) (Late 2012)
  - MCenter/FTBF - 5 DAQ servers, FTBF workstations (4)
- MINERvA DAQ (2013)
  - DZero - 3 workstations, 2 DAQ servers
  - NUMI underground – 2 DAQ servers (production)
  - MTest/FTBF – 4 workstations, 1 DAQ server
- Muon G-2 (2014, 2015)
  - Wilson Hall – 1 workstation, no DAQ servers
  - MTest/FTBF – 2 workstations, no DAQ servers (Setting up now)

Test Stand Cluster Features

- Accounts
  - User accounts
  - Group account
  - Kerberos access to both account types
- Shared working area on all computers in a cluster
  - Network file system (NFS)
  - Working area backups
- Root access
  - Limited number of users
  - Run diagnostic applications - tcpdump, iftop
  - View log files
  - Install software – feedback to standard install configuration
  - Access device files – install udev rules
- Computers
  - No computers purchased for FTBF cluster, all reused
  - Have a surplus of computers in case one fails
    - Move to a different computer
    - Swap out the failed computer

Accounts

- Group account
  - Login using using personal kerberos account
  - Remove the need for a shared password
  - Does not require local personal account
- “three-point login”
  - Account name - user or group account
  - Users kerberos password
  - Users kerberos principal
  - Restore session locked by screen saver
- Operate from group account
- Facility development in personal accounts

Network File System (NFS)

- Space on bluearc
  - Just increased space to 600 GB, started at 200 GB
  - blue3.fnal.gov:/ppdsoft
- blue3.fnal.gov:/ppdsoft/<cluster>
  - Each cluster gets home area space
- blue3.fnal.gov:/ppdsoft/products
  - Mounted at /fnal/products in all clusters
  - Make any UPS products we install available on all test stands
  - UPS = Unix Product Support

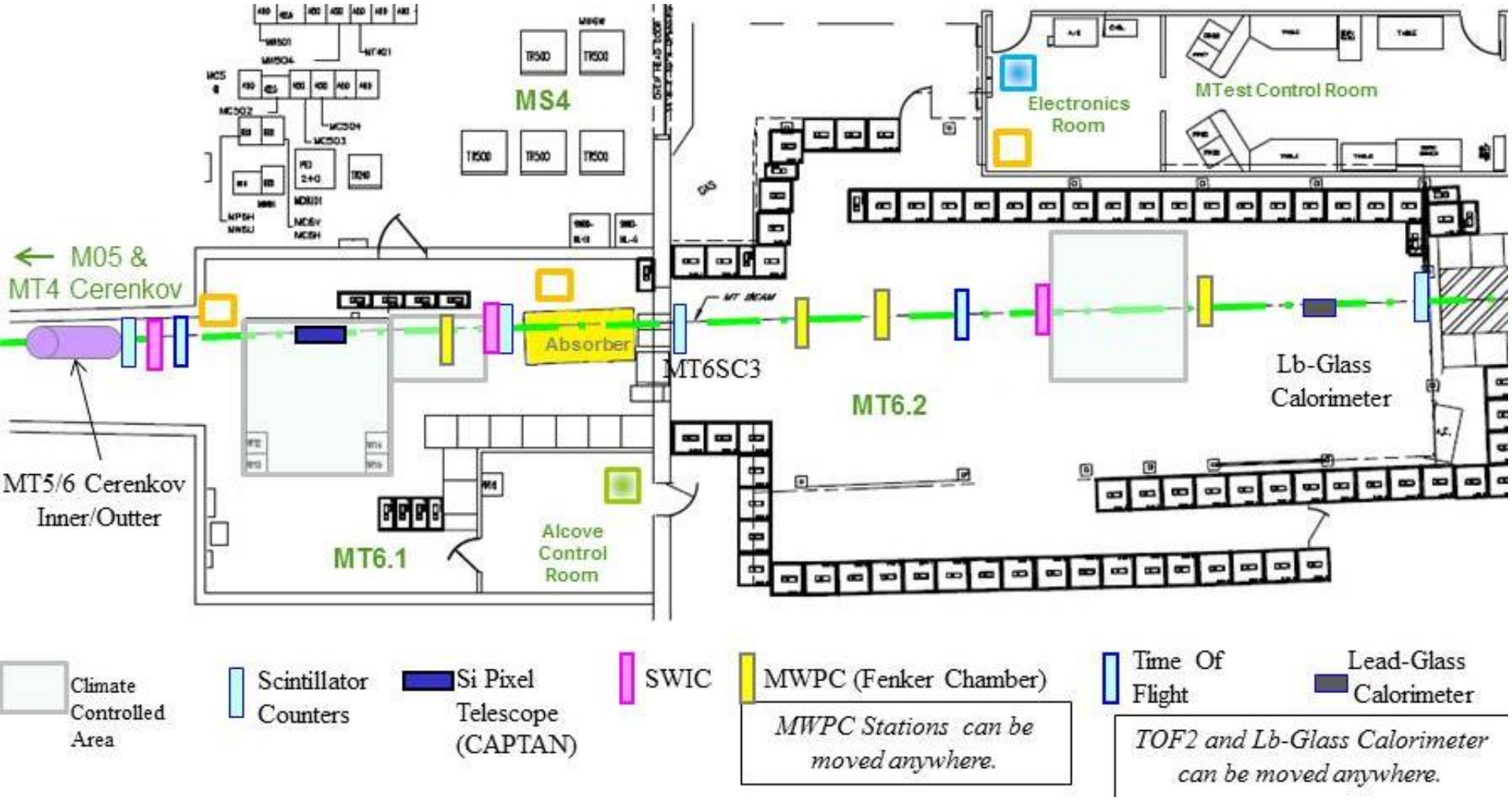
FTBF Location

Meson Detector Building – West Side

FTBF Experiments

- Test new detector technologies
  - “The goal of the Fermilab Test Beam Program is to provide flexible, equal, and open access to test beams for all detector tests, with relatively low bureaucratic overhead and a guarantee of safety, coordination, and oversight.”
- Every few weeks a new experiment arrives
  - Installation starts on a Wednesday morning
  - Operational readiness clearance (ORC) inspection performed before beam is sent (usually mid-day Wednesday)
  - Each experiment brings their own detector, read out electronics, and computers
  - Experiments have a Fermilab experiment number
    - Requires submission of a Technical Scope of Work (TSW)
- http://ppd.fnal.gov/ftbf/

MTest Beam Line Instrumentation



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Summary

- Scientific Linux Fermilab provides the software platform for FTBF operations
- FTBF computing built on
  - Software platform
  - Networking
  - Storage
- ACNET support essential for applications
- Thanks for the excellent support from all directions