Brookhaven National Laboratory

U.S. DEPARTMENT OF ENERGY

Hardware Resources and Data Preservation

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Tape System State

- Tape Systems
  - 7 legacy libraries (P/S)* in legacy data center
    - ~17 LTO-8 (P/S)
  - 4 new libraries (sP)* in new data center
    - ~100 LTO-9 (sP)
    - Expect to be mostly full at end of run 25
- Media refresh cycle, historically every 2 generations
  - Assume 50% media storage capacity increase per generation
  - Expect 3-4 years between each generation
- Other notable facts
  - Open questions on future cost and EOL of legacy libraries
  - LTO backward compatibility now limited to previous generation
  - As currently configure Bldg 725 limited to 6 libraries (4 sPhenix and 2 ATLAS)

*P - PHENIX, S - STAR, sP - sPHENIX

Disk System State

- Disk Systems
  - ~95 JBOD Lustre (sP), ~13 JBOD dCache (P), 11 JBOD Lustre (S), 20 JBOD Xrootd (S)
  - 2 HW RAID GPFS (S), 2 HW RAID GPFS (sP/P)
- All equipment in Bldg 725 MDH
- 5 year refresh cycle
- HW RAID $/TB > JBOD $/TB
- Estimate 10% cost reduction ($/TB) per year (JBOD)
  - For disk component only, does not include server cost.

P - PHENIX, S - STAR, sP - sPHENIX

CPU State

- sPHENIX (83%)
  - 60% (FY25), 5% (FY23), 27% (FY22), 8% (FY21)
- STAR (17%)
  - 35% (FY23), 45%(FY22), 7%(FY21), 7%(FY20), 6%(FY19)
- Estimate 5% increase IPC / year
- All CPU in Bldg 725 MDH
- Usable service life of CPU
  - Operational “cost” increase with age