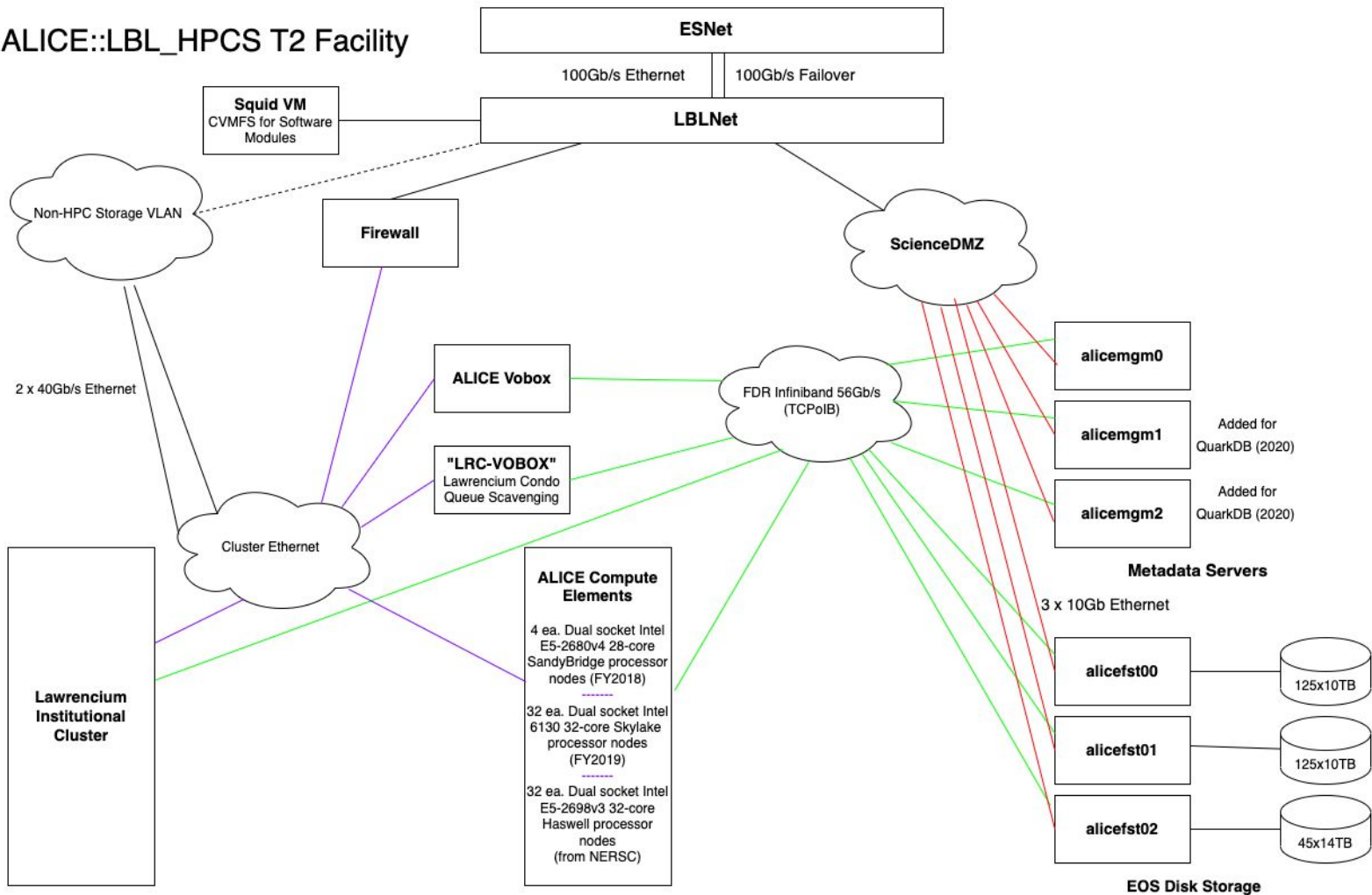# ALICE-USA
T2 and AF Computing @ LBNL

ALICE-USA Annual Meeting
May 15-17, 2023

John White LBNL

Lawrencium Overview

- **Lawrencium**: Institutionally-supported HPC Linux Cluster
  - ~1,300 nodes/ ~25,000 processor cores
  - Intel processor architecture
  - 4.3PB Lustre parallel file system for Scratch supporting condo-style buy-in
  - Scientific Linux 7 OS, SLURM job scheduler, Singularity containers, Open OnDemand
  - Nvidia GPUs for machine learning
- Three models of access
  - PAYG $0.01/core-hr
  - Condo Cluster
  - Dedicated cluster support
- PCA - PI Computing Allowance
  - Free - 300K SUs per year
  - Can be shared with your staff or pooled together with other PIs

ALICE::LBL_HPCS T2 Facility

Storage Futures

- New 2x40Gb routed link from LBLNet to HPC network
  - Currently providing a 6PB CEPH platform
    - S3/RADOS
    - Cephfs
    - NFS
  - New VAST offering
    - Home, group, software
    - Formulating condo pricing
- Scratch File system
  - DDN SFA 18K
    - 4 controllers, Virtualized servers
    - First 64MB of every file on NVME Flash (Progressive File Layout)
    - Rest on Spindle
    - 440TB Buy-in available (non-purged space)

Cluster Futures

- Upgrades in the (not near) future
  - Warewulf 4
    - Not terribly important to this audience BUT
    - There will be a few fits and starts
  - Rocky 8
    - Mellanox OFED LTS 4.9 requirement to support old hardware
    - SPACK
    - Bare-bones images already running on ~110 nodes
    - Just let us know when for alice0
- LHCOne done
  - Migrating to new flexible routing layout on Saturday
- Migrating from flat files to LDAP

EOS (ALICE and former STAR)

- 4 MGM nodes
  - HTTP interface recently re-enabled
  - Need a downtime for migration to new Datacenter
- 4 FST nodes
  - 6 JBODs split among all 4
  - Populating all remaining slots, Splitting for AF usage (order showing up on Friday)
  - Near-infinite expandability (1024 drives per server)
  - Need a downtime for migration to new Datacenter (maybe)

Purchases

- 2 Chassis (8 nodes) for ALICE
  - Air Cooled
  - Installed recently, being configured.
- 92 Drives (16TB) purchased for Analysis Facility Shuffle