



ALICE

# ALICE-USA T2 Computing @ LBNL

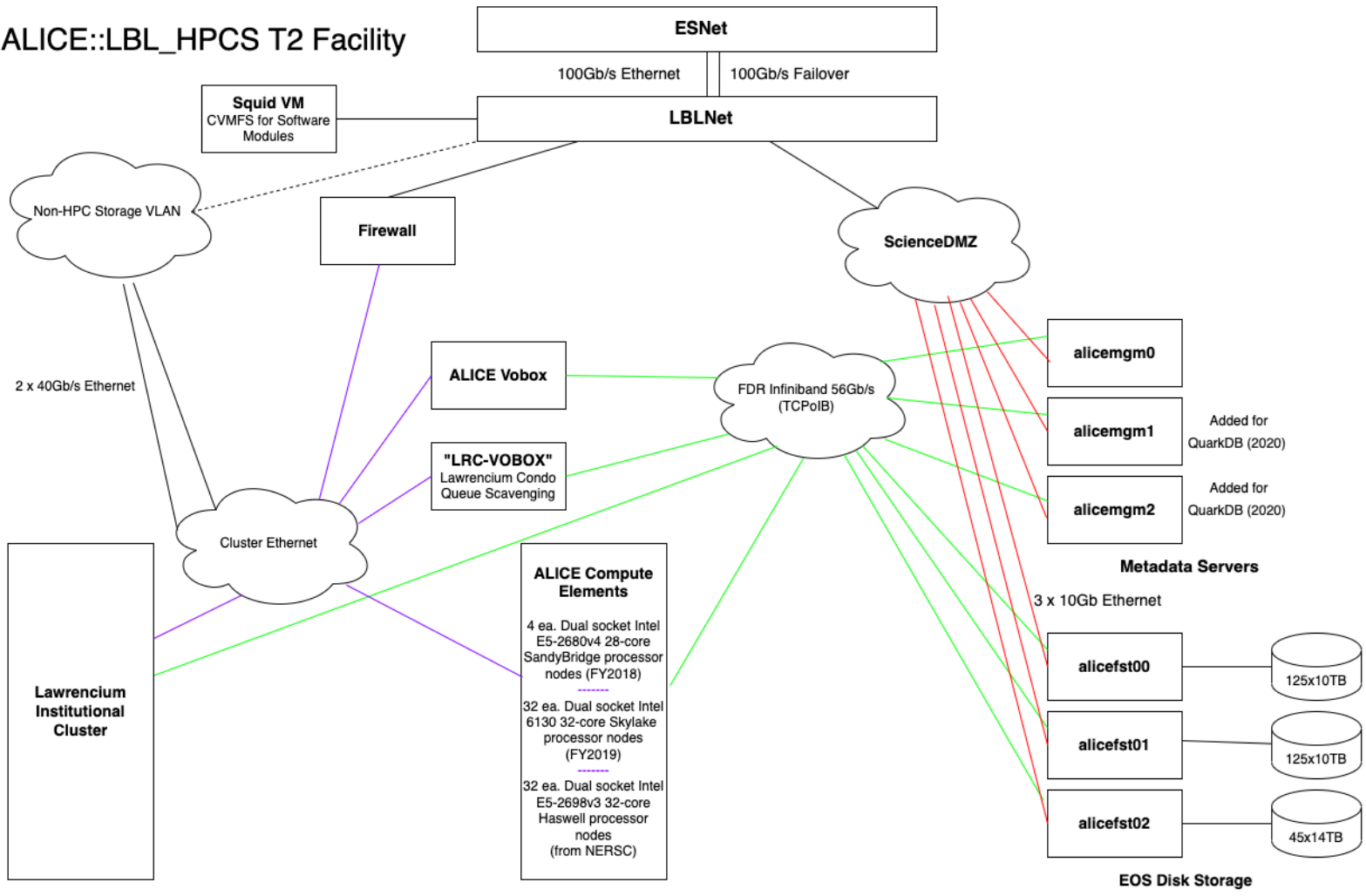
ALICE-USA Annual Meeting  
Dec 7-9, 2022

John White LBNL

# Lawrencium Overview

- **Lawrencium:** Institutionally-supported HPC Linux Cluster
  - 1,100 nodes/ 24,000+ processor cores
  - Intel processor architecture
  - 3.5PB Lustre parallel filesystem 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 4.5PB CEPH testbed
    - S3/RADOS
    - Cephfs
    - NFS
  - VAST POC
    - Think homedir++
- New Scratch File system
  - DDN SFA 18K
    - 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
  - RHEL (Almost certainly Rocky) 8 or 9
    - Selection based on maturity at time of cut-over
    - SPACK
- We need your help loading our cluster
  - We've been slow to roll it out to you but we're ready to ramp up more LRC usage
- LHCOne still a back-burner priority for LBLNet

# EOS

- 3 MGM nodes
  - HTTP interface recently re-enabled
  - Need a downtime for migration to new Datacenter
- 3 FST nodes
  - 5 JBODs split among all 3
  - Populating all remaining slots
  - Near-infinite expandability (1024 drives per server)
  - Need a downtime for migration to new Datacenter

# New Compute Buy

- 2 Chassis (8 nodes) for ALICE
  - Air Cooled
  - No installation delay
- 1 Chassis (4 nodes) for STAR
  - We have power (!) BUT
  - Water Cooled
  - May have installation Delay
    - Cooling plate supply chain issues
    - Trying out Zutacore plates on 15 new chassis