Perlmutter Phased Timeline

- **Perlmutter Phase 1 Delivery Complete**
- **Perlmutter Phase 2 Delivery Begins**
- **Perlmutter Phase 1 delivery**
- **Staff access & Integration activities**
- **Broader Access to Perlmutter**
- **NESAP & Early User Access**
- **Perlmutter Phase 2 delivery**

Timeline:

- Oct’20
- Nov
- Dec
- Jan’21
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
Perlmutter Architecture: Conceptual Overview

Non-Compute Nodes

Manager Nodes

Worker Nodes (Provisioned via Kubernetes)

Storage Nodes

Utility Nodes (e.g., DTN, workflow)

High-Speed Network

Compute Nodes

All-Flash Scratch File System

NERSC Network
After moving cabinets into place, first step is physically connecting cabinets to power and water.

Then connections to the many networks that the system and NERSC need!
Perlmutter Integration: Conceptual Overview

Manager Nodes
Worker Nodes (provisioned by Kubernetes)
Utility Nodes (e.g., DTN, cmvfs/gpfs gateway, workflow)
System Storage Nodes

Site Access Network
NERSC Network
Internet
CFS
Home Directories

Compute Nodes
All-flash Scratch Filesystem
High Speed Network
Work is starting now on our development system!

- Failure alerting
- LDMS metrics (e.g., job / usage statistics)
- Environmental Integration

This is a critical requirement for bringing perlmutter as a production-ready resource.

Excellent monitoring needed for system acceptance and on-call support.
Filesystem Integration

- Lustre scratch is directly attached to the system via HSN
- GPFS (CFS/Homedirs) have multiple possibilities for integration
- Will be able to test and integrate the different options, even change over time!
Slurm Integration

Slurm controller needs access to:
- user login information
- your project limits
- account information
- node status

Slurm controller runs in Kubernetes
Slurm node management daemons and job daemons run as usual.
Conclusions

The perlmutter system integration involves bringing all aspects of NERSC onto the machine.

- The updated network and system software introduce new challenges and new opportunities
  - Expect more options to deliver integration solutions optimized for both performance and reliability
  - Integrating features will be a phased approach, in some ways similar to the physical system integration
Questions?