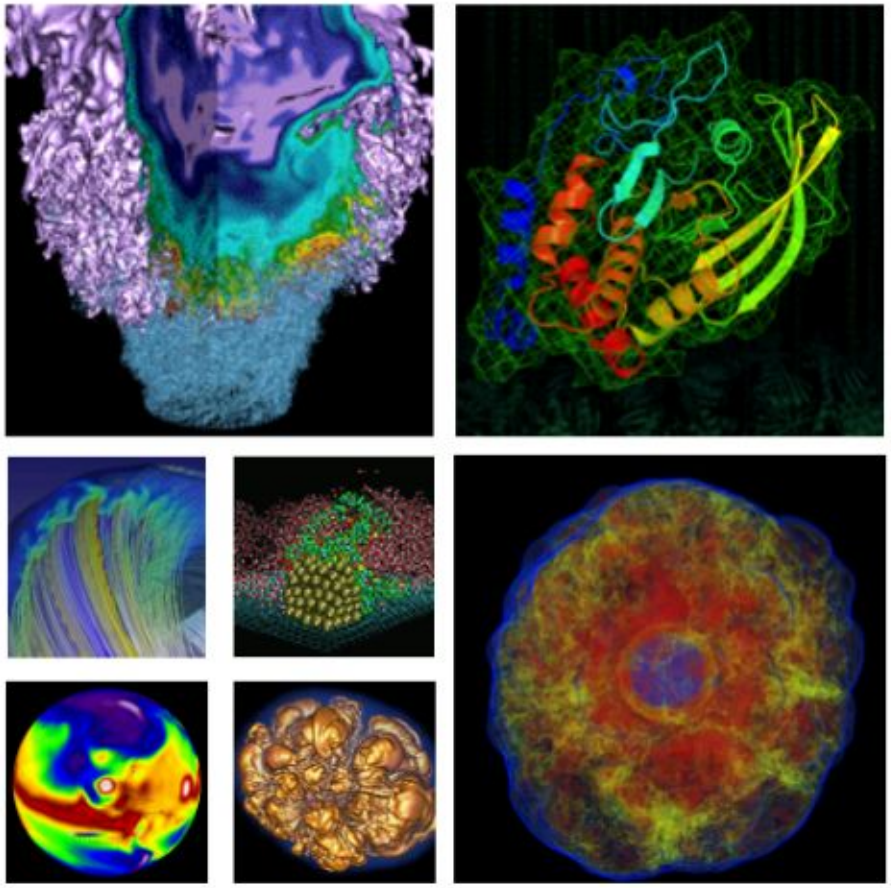
NERSC Users Group Monthly Meeting



NERSC

March 23, 2017

U.S. DEPARTMENT OF ENERGY

BERKELEY LAB
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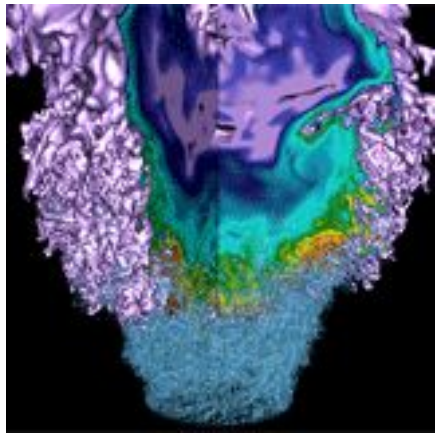
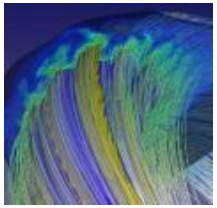
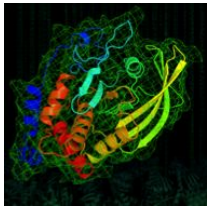
Agenda

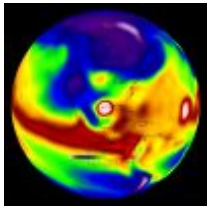
- Queue Wait Times
- Cori Update
- ERCAP Update
- Intel MPI vs. Cray MPI

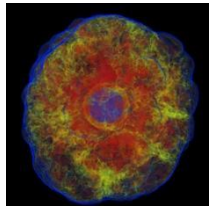
Queue Wait Times

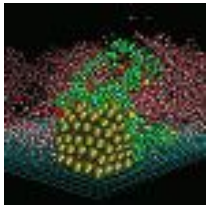










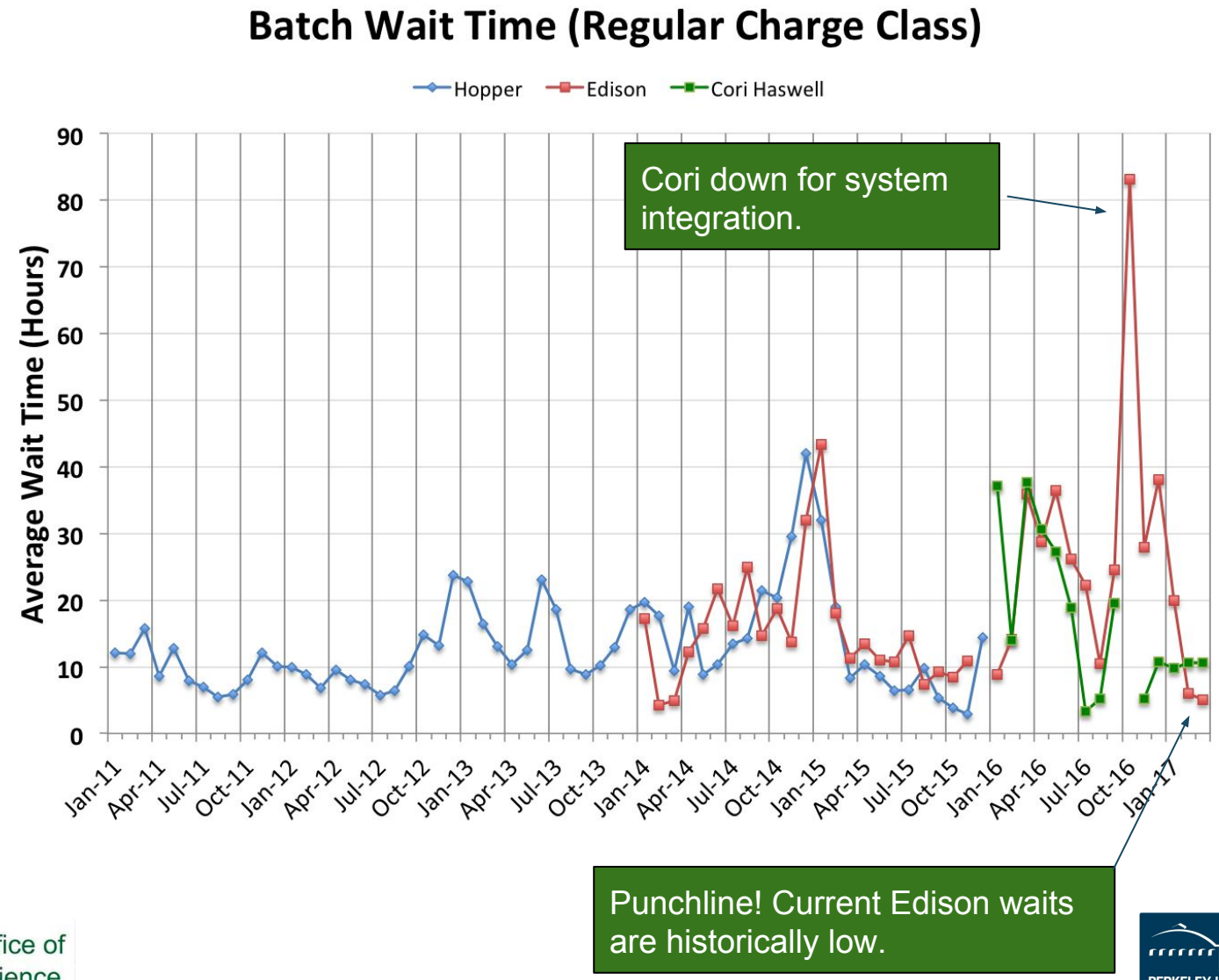


Historic Queue Waits

Queue wait times on Edison in 2016 were unusually long.

NERSC did not "overproduce" hours as usual due to OS upgrades and Cori integration.

We heard your complaints!
And we're trying to help.

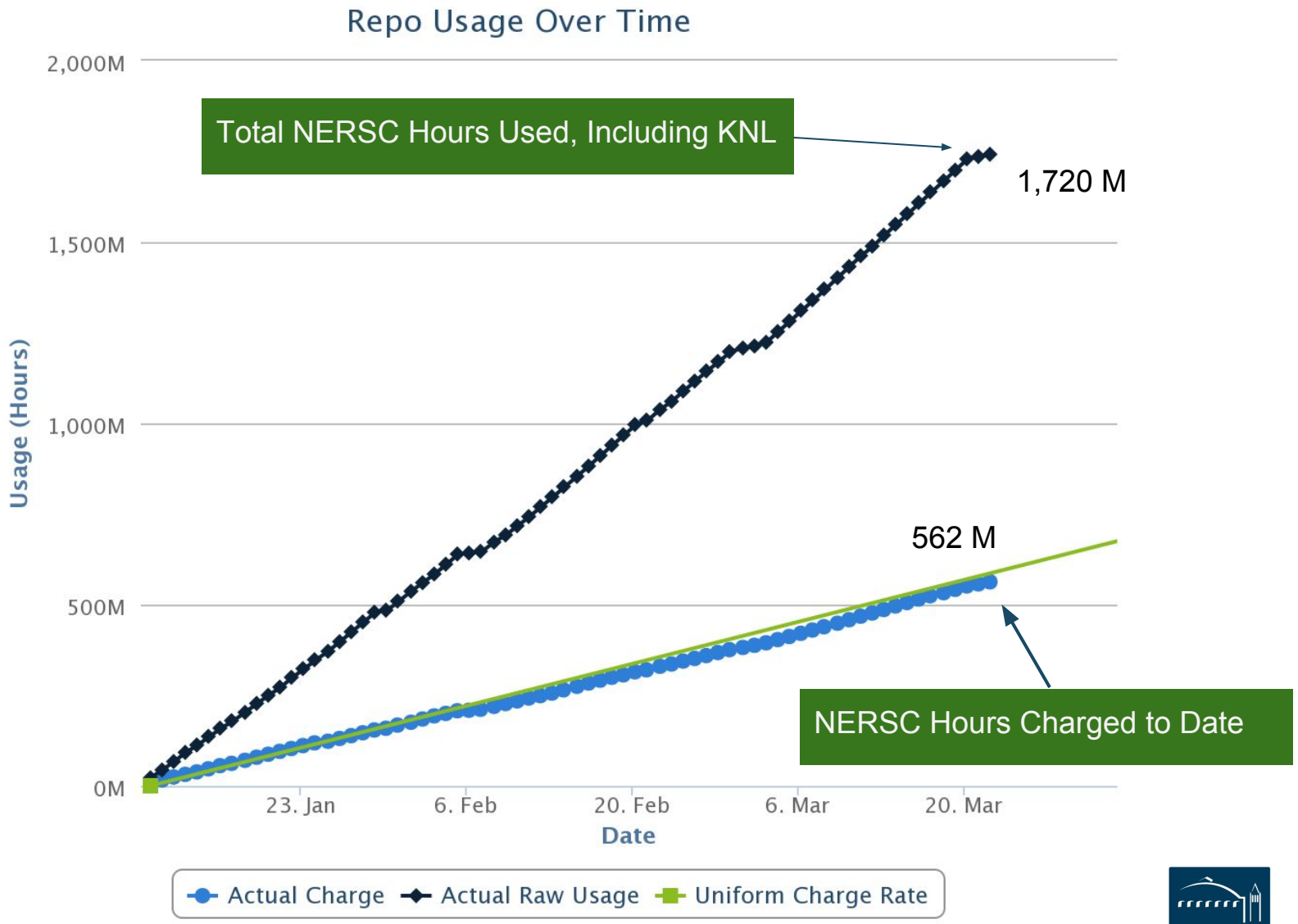


Changes in 2017

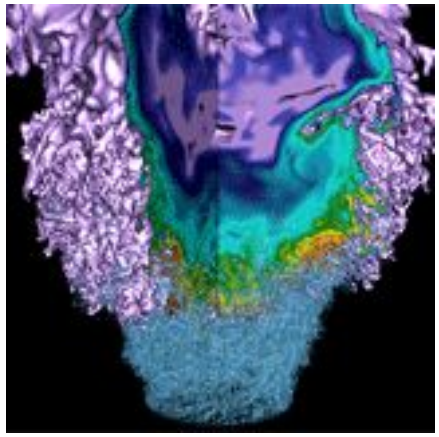
- **Cori KNL nodes opened to first NESAP teams and then all users**
  - Large jobs begin migrating to Cori KNL
- **Changes on March 1, 2017**
  - Edison Big Job discount reduced from 40% to 20%, prompting more big jobs to move to Cori KNL.
  - Edison Low charge class removed. Exhausted repos will run in scavenger.
  - Cori KNL full system made available to any NERSC user.
- **This has greatly reduced queue wait times on Edison**

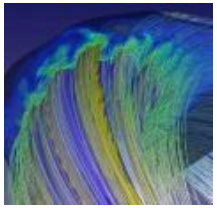
Edison Backlog

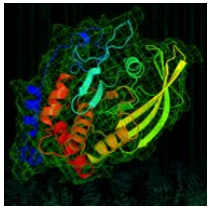
Impact of Cori KNL

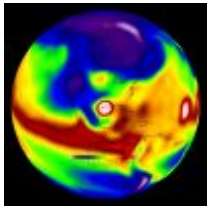


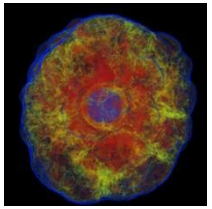
Cori Update

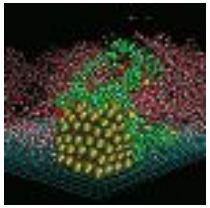












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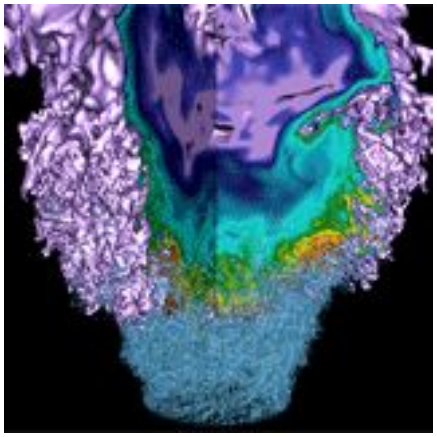
Cori Update

- **Today is 3rd day of Cori OS upgrade**
- **On schedule to return to service**
- **Expect significant reduction in available KNL nodes leading up to SC paper deadline (Apr 3) and Gordon Bell paper deadline (Apr 15)**
  - Half machine and full machine reservations planned
- **New Haswell cabinets arriving 2nd half of April**
  - Multi-day outage to integrate new cabinets

ERCAP Update



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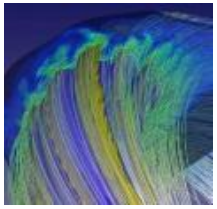
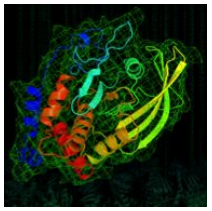
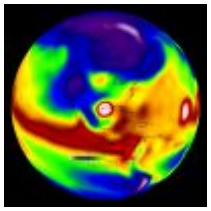
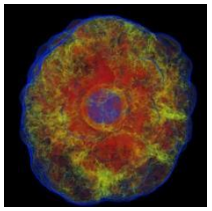
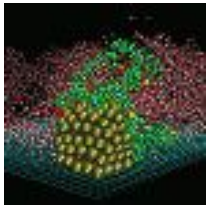
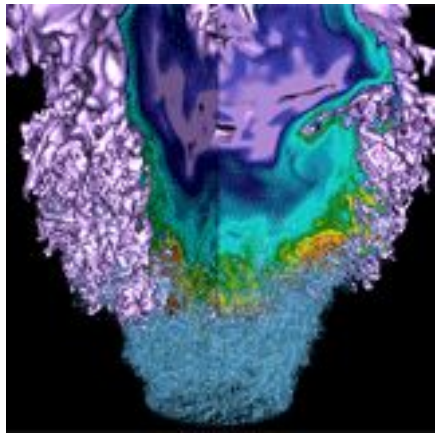
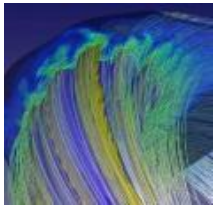






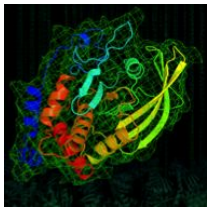
ERCAP Update

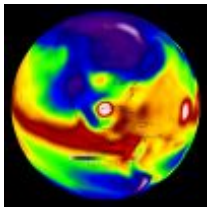
- **NERSC is modernizing NIM**
- **Three phases:**
  - ERCAP
  - Allocation Banking
  - Identity & Access Management
- **Work has begun on ERCAP modernization**
  - Working with contractor to implement in Service Now
  - Expect new ERCAP system in time for 2018 allocations
- **We welcome your feedback on all phases**

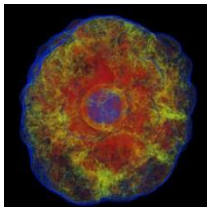
Intel vs. Cray MPI

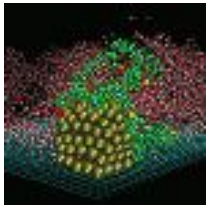












Intel vs. Cray MPI

- **We were asked: When should I use Intel MPI? When should I use Cray MPI? Is there a performance difference between the two on KNL?**
- **NERSC recommendation: use Cray MPI, developed by Cray & optimized for Aries**
- **Exception: when using (some) Intel tools**
  - In particular, Trace Analyzer & Collector seems to work best with Intel MPI
- **Performance: unfortunately, question came in just before Cori maintenance, so stay tuned for performance info...**

NUG 2017

- **Annual NUG meeting delayed due to Cori KNL deployment and other activities.**
- **Looking for dates in late summer through October.**
- **Expecting to have a more forward-looking HPC focus. Possibilities include**
  - Exascale systems previews
  - Storage in the 2020s
  - Future programming models, paradigms and portability
  - Beyond Moore's Law
  - First science results from KNL
  - Topical working group sessions (e.g. KNL performance, DFT, FFTs, workflows, particle methods, MPI optimizations, …)
- **Send us your ideas for topics and dates (consult@nersc.gov)**

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