BLUE WATERS
SUSTAINED PETASCALE COMPUTING

11/19/18

Blue Waters User Monthly Teleconference

Agenda

- Discount Period
- Recent Events and Changes to Blue Waters
- Usage, Utilization and other Items
- Upcoming Opportunities
- Request for publications!

Discount Period

- Nov 1 - Nov 15: 50% charge discount on all queues, all jobs completing during this period

- Nov 16 - Jan 2: 50% charge discount on all queues, all jobs completing during this period for projects that have consumed **at least 25%** of their current allocation.

GLCPC Allocation Proposal Call

- Due November 30th.

- Larger pool of node-hours to award.

- Begin December 2018 and expire on December 19, 2019

Use of ncsa#Nearline

- Enabled monitoring
  - Pause transfers that upload more than 100,000 files. We contact user with recommendations to "tar" files prior to uploading.
  - Pause transfers within Nearline (src=dest). We refer users to Storage team for them to handle "copy" or "move".

Recent Events and Outages

- 11/5/2018 @ 1AM to 6AM - High-speed network outage. Rebooted compute only.

- 11/14/2018 @ 10:26AM to 11:26AM – Home filesystem slow to respond. Cleared metadata server.

- 11/14/2018 @ 5:30PM to 6:30PM – Home filesystem slow to respond. Hardware failure and replacement.

- 11/11 – 11/12 Numerous Congestion Protection events. Identified application. Took preventative steps.

Recent Changes

Outstanding Issues

- CUDA 9.1 and GCC 6.3

  - broken std::tuple with GCC 6

  https://devtalk.nvidia.com/default/topic/1028112/cuda-setup-and-installation/nvcc-bug-related-to-gcc-6-lt-tuple-gt-header-/

  - UPDATE – We have a very small patch to gcc/6.3.0 as a work-around to patching CUDA 9.1.

  - Testing now.

Upcoming Changes

- Preparing to make PE 18-06 default. See [PE Changes page](#) on the portal.
- For testing ...
  - module unload PrgEnv-cray; module load PrgEnv/cray-18_06-cuda-9.1
  - module unload PrgEnv-gnu; module load PrgEnv/gnu-6.3.0-cuda-9.1
  - module unload PrgEnv-intel; module load PrgEnv/intel-18.0.3.222-cuda-9.1
  - module unload PrgEnv-pgi; module load PrgEnv/pgi-18.3.0-cuda-9.1
- Add as needed
  - OpenACC
    - module add craype-accel-nvidia35
  - CUDA
    - module add cudatoolkit/9.1.85_3.10-1.0502.df1cc54.3.1
  - HDF5
    - module add cray-hdf5/1.10.2.0
    - module add cray-hdf5-parallel/1.10.2.0
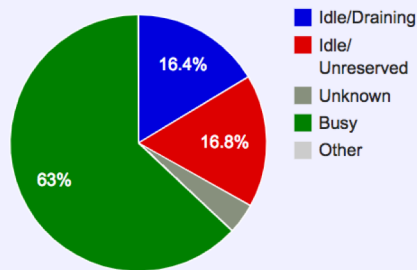
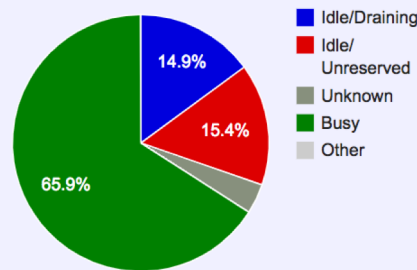# Usage, Utilization and other Items
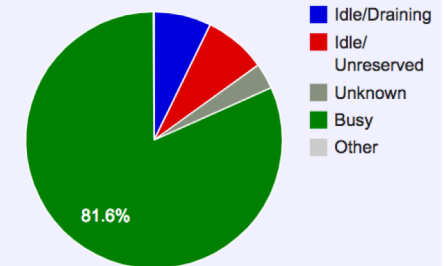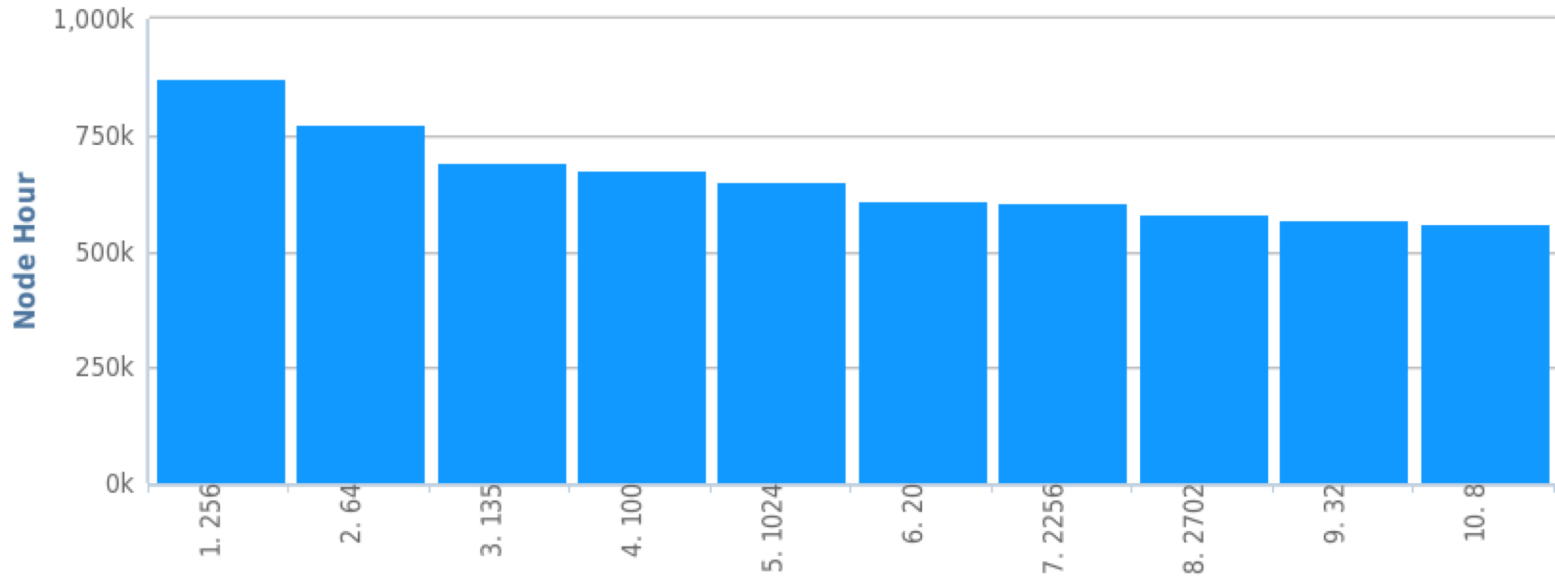
- Overall Utilization last 30 days

Backlog

- Last 30 days.
- Vertical axis in units of **nodes**. Colors are different users.
- Red **below** the x-axis indicates unreserved nodes. Blue **below** the x-axis indicates draining.

- **XK backlog higher since start of discount period. XE backlog low.**
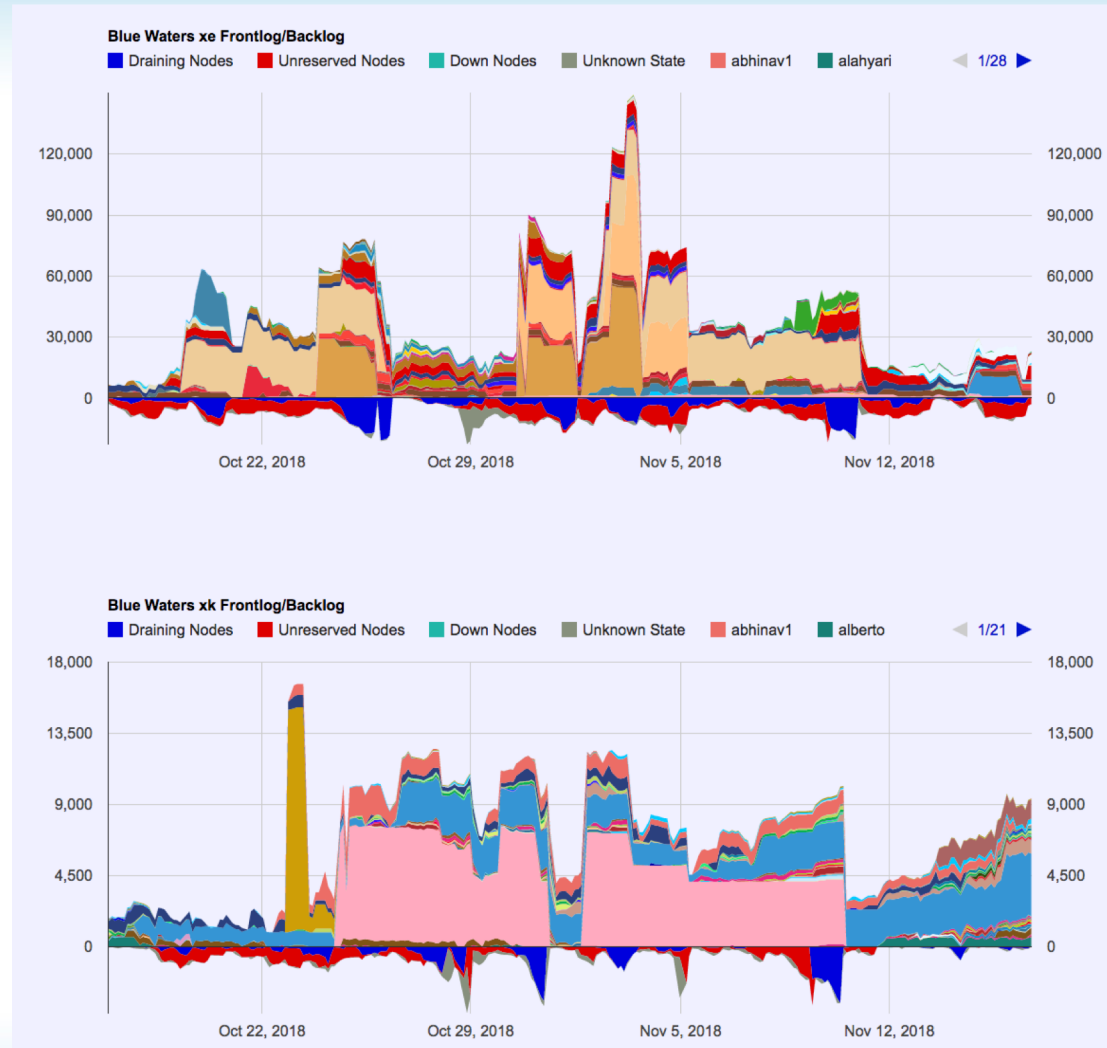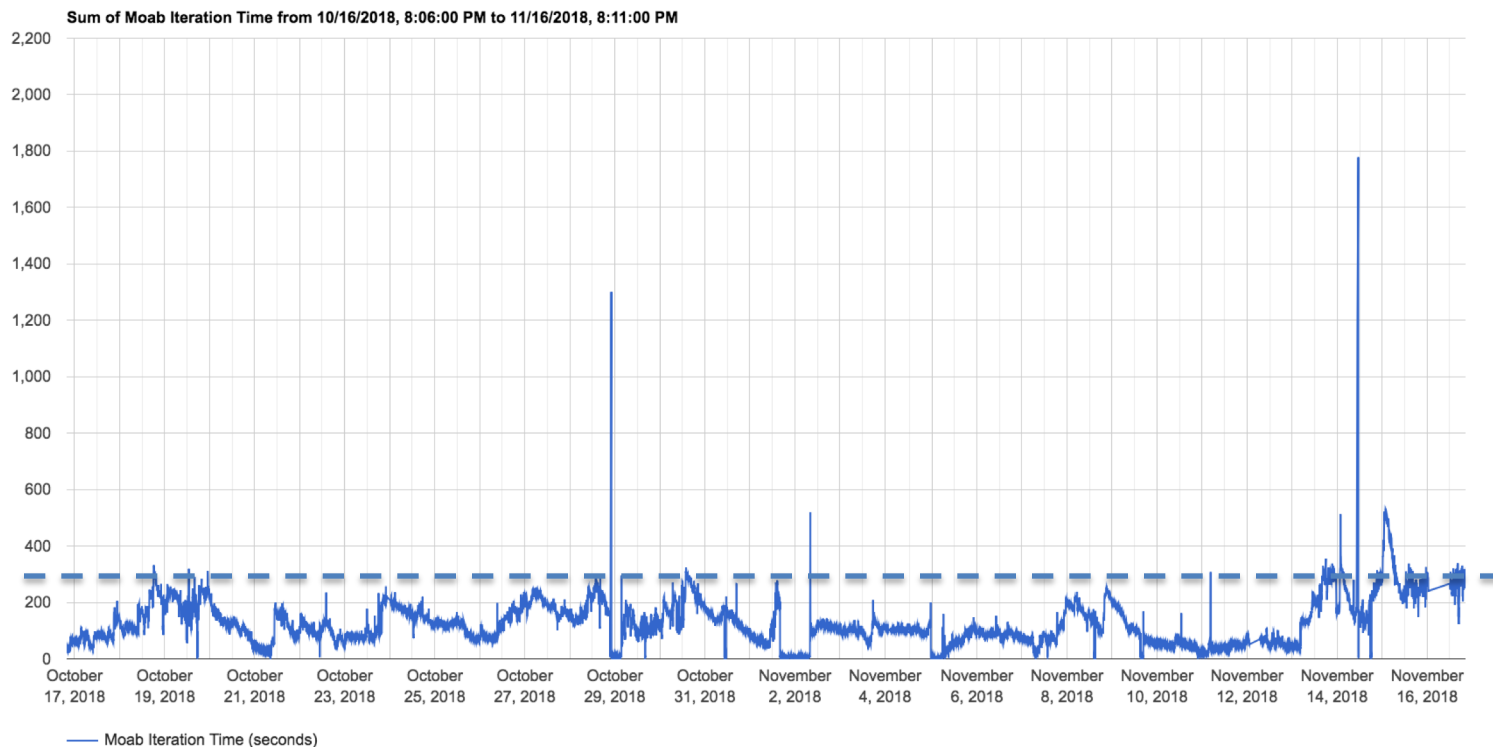
Workload Details

Node Hours: Total: by Node Count

- Lower contribution from 1K to 3K XE jobs, 1200 XK jobs.
- Data combines XE and XK jobs.
- Last 30 days.

Job scheduler iteration time

Sum of Moab Iteration Time from 10/16/2018, 8:06:00 PM to 11/16/2018, 8:11:00 PM

XSEDE Training Events

- https://portal.xsede.org/course-calendar
  - December 4-5, Big Data.

NVIDIA Online Training On Demand

- ## [OpenACC Online Course Will Help You Quickly Accelerate Your Code on GPUs](#)

  - Analyzing and Parallelizing with OpenACC

  - GPU Programming with OpenACC

  - Optimizing and Best Practices with OpenACC

  - See link above and "register".

Blue Waters Weekly Webinar Series

THE NEXT SCHEDULED WEBINARS

- October 10, 2018: Developing Interactive Parallel Workflows in Python using Parsl
- October 24, 2018: Introduction to Performance Tuning with Cray Perftools
- November 7, 2018: Introduction to NVIDIA Nsight Systems - A Performance Analysis Tool
- November 21, 2018: Getting started with WDL and Cromwell for workflow management on multiple platforms

- For more information about the webinar series, including registration, abstracts, speakers, as well as links to Youtube recordings, please visit the Blue Waters webinar series webpage.

- Make sure to RSVP on Facebook and on the Blue Waters Portal

- We welcome suggestions for topics that will benefit the petascale community. Send your suggestions to bw-eot@ncsa.illinois.edu.

Request for Science Successes

- We need to be current on products that result from time on Blue Waters such as:
  - Publications, Preprints (e.g. arXiv.org 😀), Presentations.
  - Very interested in data product sharing.
- Appreciate updates sooner than annual reports.
  - Send to gbauer@illinois.edu
- NSF PRAC teams send information to PoCs.
- See the Share Results section of the portal as well.
- **Be sure to include proper acknowledgment**
  - Blue Waters - National Science Foundation (ACI 1238993)
  - NSF PRAC – OCI award number