

# BLUE WATERS

SUSTAINED PETASCALE COMPUTING

3/21/16

## Blue Waters User Monthly Teleconference



GREAT LAKES CONSORTIUM  
FOR PETASCALE COMPUTATION

CRAY®

# Agenda

- File System Upgrade Status
- Utilization
- Recent Events
- Upcoming Changes
- Symposium
- Opportunities
- PUBLICATIONS!

## File System Upgrade Status

- Home & Projects are sharing hardware resource until May maintenance
- April, May, June each have a service interruption to facilitate a new phase
- 2 more service interruptions beyond June to complete scratch
- Purge and quota exemptions on scratch expire in early April
- Expect degraded service on filesystems during periods of double duty (home and projects) or reduced resource (scratch)

▶ Service interrupt required

▶ No service interrupt required

snx11001 = 2PB filesystem  
snx11002 = 2PB filesystem  
snx11003 = 20 PB filesystem

snx11003 (scratch) 50% OST deactivation  
(new creates will only occur on other 1/2)  
**Purge and quota exemptions expire.**

Apr 7

▶ snx11002 removed from service

Apr 11

▶ snx11002 returned to service (as home)

May 9

▶ snx11001 returned to service (as projects  
+home)

Apr 11

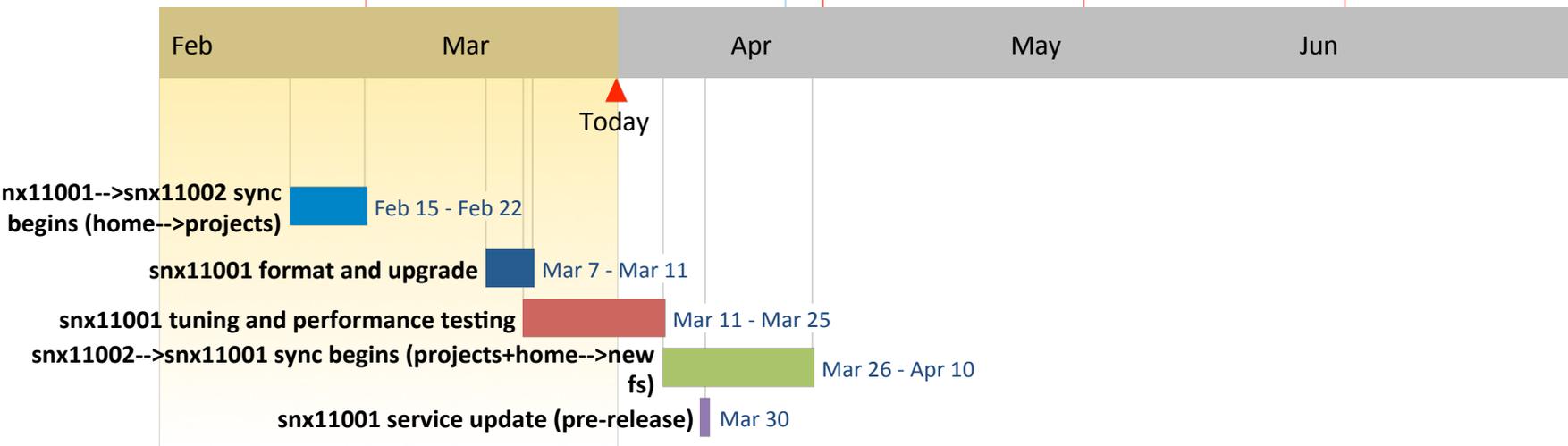
▶ snx11003 50% removed from  
service

Jun 6

▶ snx11001 removed from service

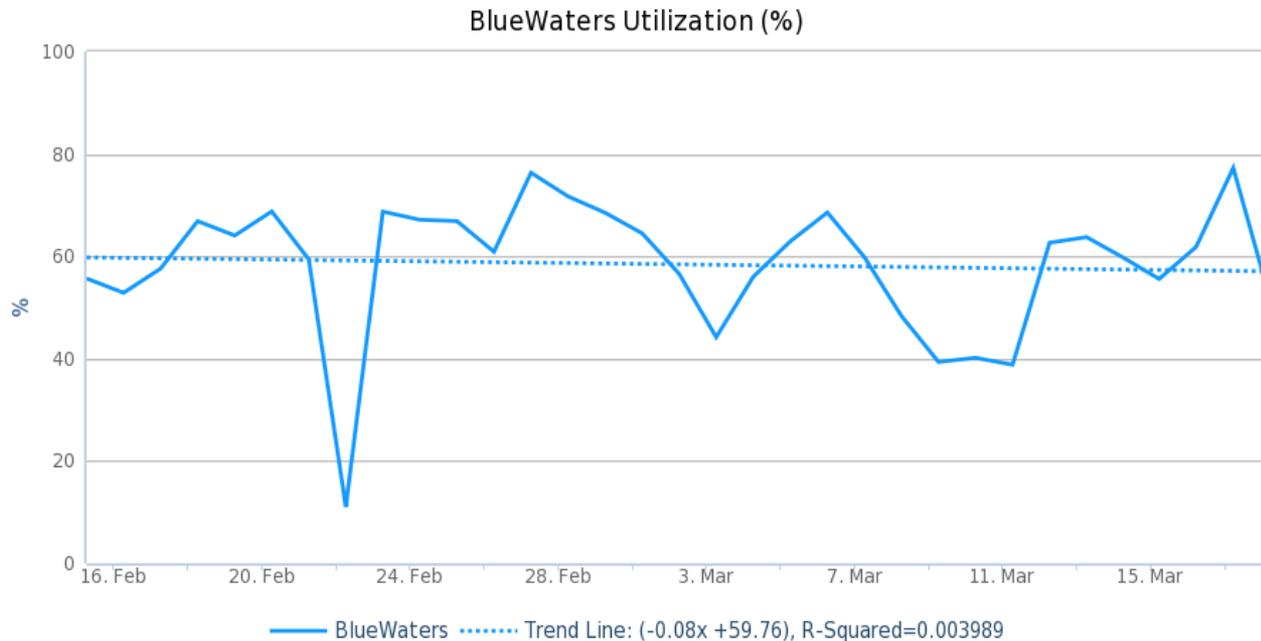
Feb 22

2016



# System Utilization

- Utilization since last BW User Call (February 16)



2016-02-15 to 2016-03-18 Src: HPCDB. Powered by XDMoD/Highcharts

- Maintenance on 2/22.
- Extended drain 3/9-3/11 due to scheduler issue.

## Recent Events and Changes

- 2/18 – Extended scheduler outage. Worked with vendor to resolve issue.
- Last week – Lowered the cap on the number of running single node jobs to address, short-term, scheduler load.

## Upcoming Changes

- 4/4 - Replacing `altd` with `xalt`. Will deprecate `altd` module. Improved executable tracking. Improved link and runtime library tracking. Used on most XSEDE sites.

# Review of Best Practices

- Improper use of login nodes
  - Use compute nodes for all production workloads.
- Avoid excessive calling of job scheduling commands
  - Unintentional denial of service may result otherwise.
- Bundling of Jobs
  - Independent jobs bundled from 2 node to 32 nodes.
  - Avoid excessive, single nodes jobs.
- Small files usage
  - Use directory hierarchies, less than 10,000 files per directory.
  - Avoid many writers to same directory.
  - Tar up files before transferring to Nearline.

## Reminder of discounted job charging

Charge factors for completed jobs that meet one or more of the following criteria below are discounted by 25% for each of the following opportunities with a resulting maximum discount of 69% when compounded.

1. job backfills available nodes
  2. submit pre-emptible job
  3. use flexible wall clock time
  4. job wall clock accuracy of 75% or better
- For more information see the [July 9th blog entry Charge Factor Discounts for jobs on Blue Waters.](#)

## Virtual School events

- Blue Waters Virtual Course Announcement
  - Introduction to High Performance Computing
  - Autumn 2016
  - Contact: Steve Gordon ([sgordon@osc.edu](mailto:sgordon@osc.edu))
  - <https://www.osc.edu/~sgordon/IntroHPC>
  - Instructor Dr. David E. Keyes

# Annual Blue Waters Symposium

- June 13-15, 2016
- [Sunriver Resort](#) near Bend, Oregon
- Information about past events
  - [2015](#)
  - [2014](#)
- Serves as PRAC PI meeting.



## 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](https://arxiv.org) ), Presentations.
  - Very interested in data product sharing.
- Appreciate updates sooner than annual reports.
  - Send to [gbauer@illinois.edu](mailto: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