

BLUE WATERS

SUSTAINED PETASCALE COMPUTING

8/24/17

Blue Waters User Monthly Teleconference



GREAT LAKES CONSORTIUM
FOR PETASCALE COMPUTATION

CRAY®

Agenda

- New documentation on portal
- Next Blue Waters New User Webinar
- New email and blog channel selection on the portal
- Recent Events, Coming Changes to Blue Waters
- Usage, Utilization and other Items
- Upcoming Opportunities
- Request for publications!

Recent documentation on portal

- Using Python notebooks on Blue Waters
 - <https://bluewaters.ncsa.illinois.edu/pythonnotebooks>
 - Still draft but close to being complete.
- Coming soon
 - Shifter

New User Webinar

- Updated New User Webinar coming September 21st.
- Look for announcement soon.

Email and Blog Subscription

- In the coming weeks communications will be sent to particular channels.
- “Your Blue Waters > Manage Users > Your Profile”
- Click on “[Manage Email Subscriptions](#)”
- Only Mandatory is required.

- Mandatory
- Best Practices
- Scheduled Outages
- Unscheduled Outages
- System Notices
- Training and Opportunities
- General
- Policy Changes
- Software Updates
- New Functionality
- Public Affairs

Recent Events and Outages

- 8/16/17 12:30AM
 - Two cabinets emergency powered off (EPO) to avoid moisture condensation due to over cooling. Running jobs were terminated.

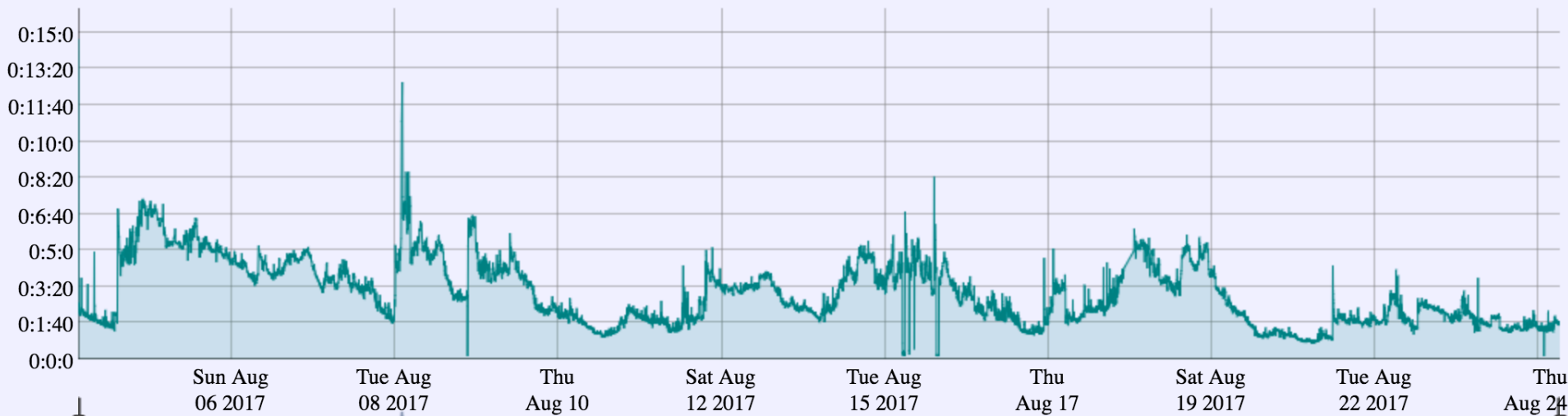
Recent Changes

- Changes to qsub filter to address issues with batch scripts
 - Directives at end of script
 - Extra spaces in directives
 - Malformed qsub options

Changes being considered

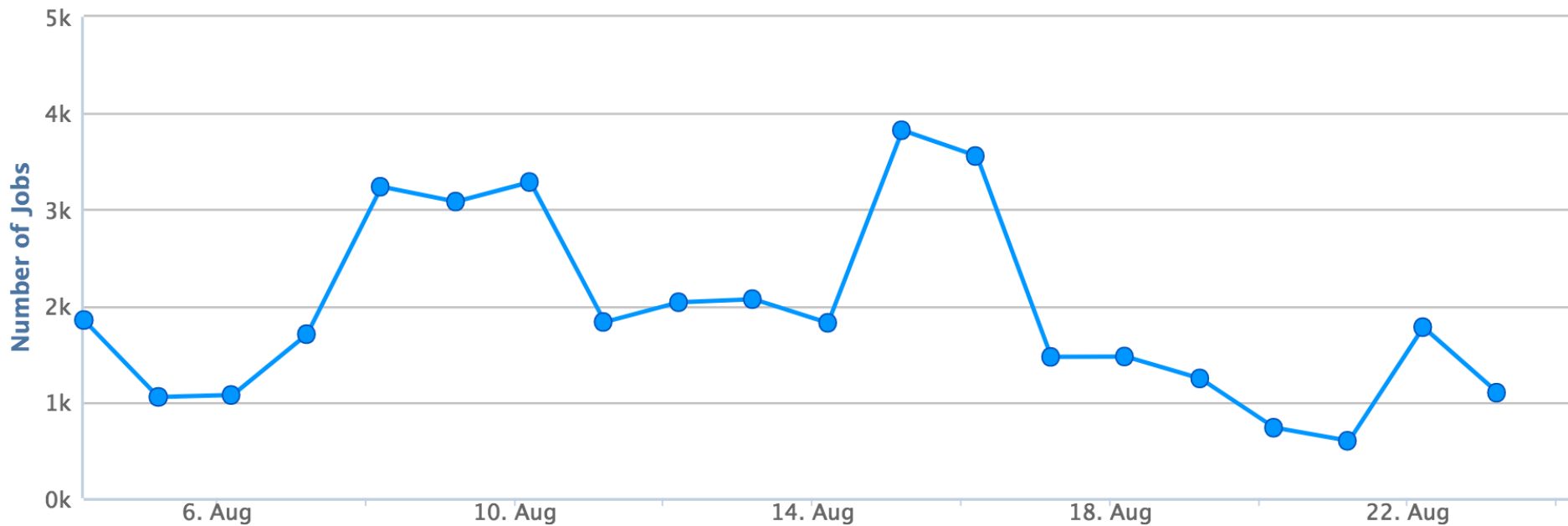
- Propose to change minimum node count to 2.
- Why the need for the change?
 - The scheduler iteration time varies with the number of running jobs. Iteration times of more than 5 minutes is frustrating.
- Impact on partners with single node workloads
 - Need to consider job [bundling](#).
 - Runtime imbalance in bundled jobs can leave reserved nodes idle.
- What have we done to date
 - Worked with vendor to tune scheduler.
 - Worked with partners submitting single node workloads.

Moab iteration times



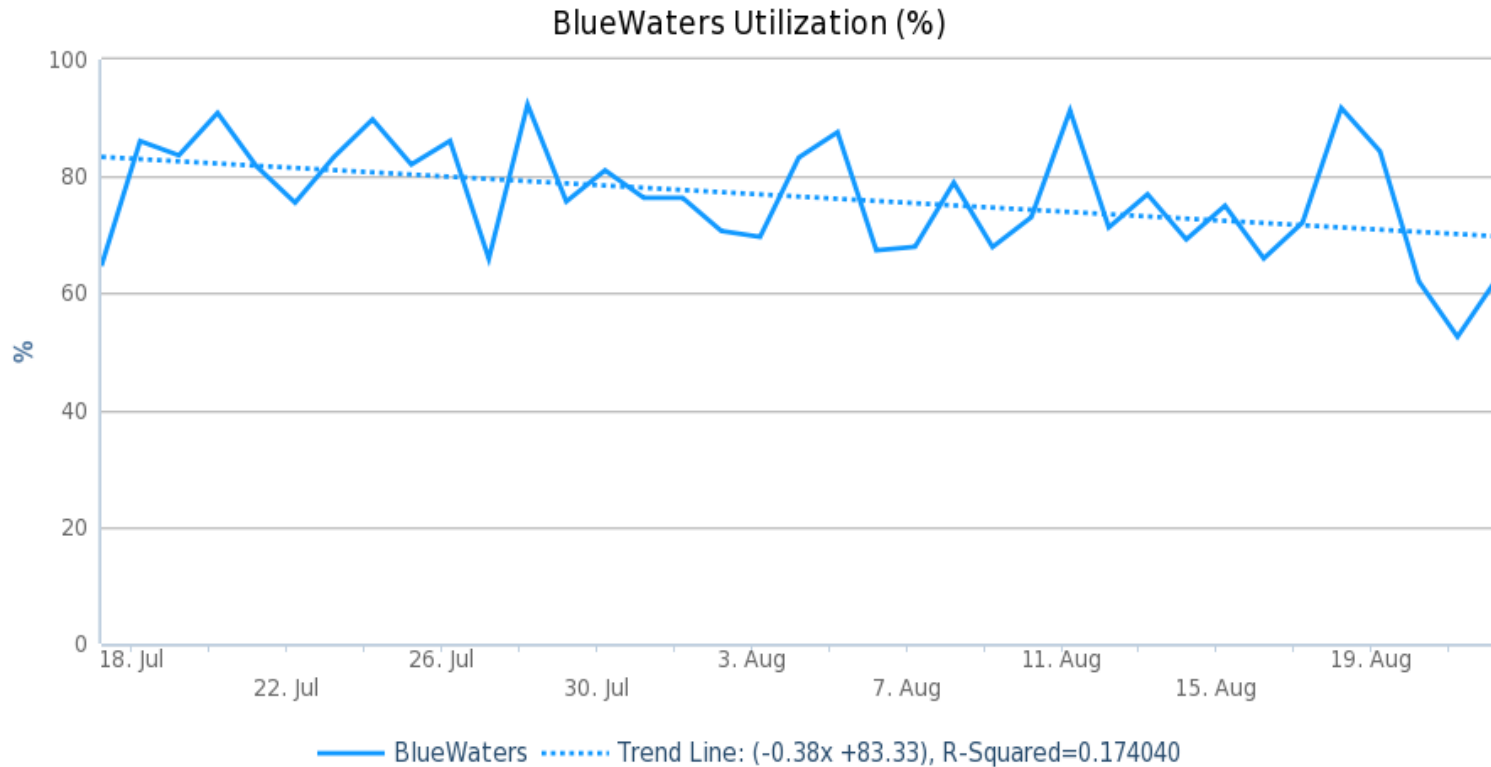
Number of Jobs Running: by Node Count

Node Count = 1



Usage, Utilization and other Items

- Utilization since last BW User Call (July 17)

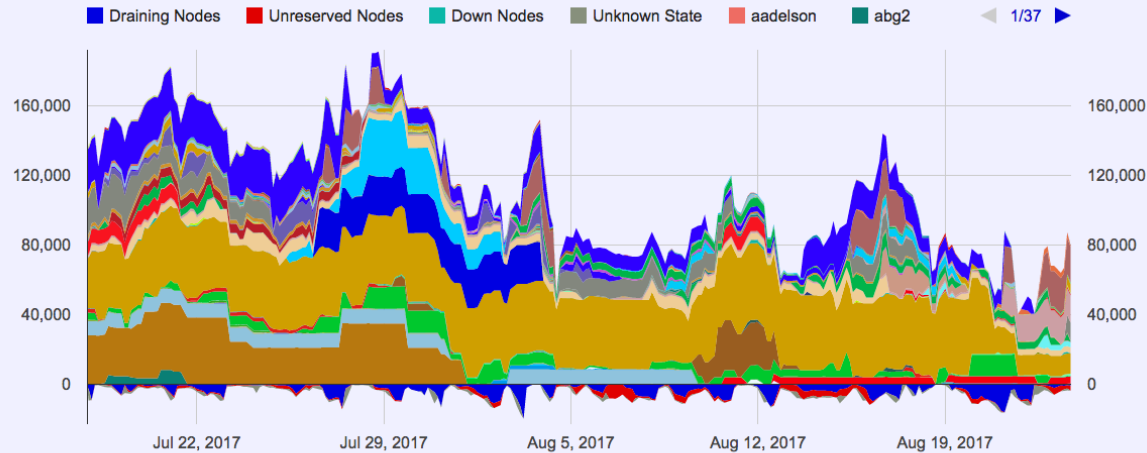


2017-07-17 to 2017-08-22 Src: HPCDB. Powered by XDMoD/Highcharts

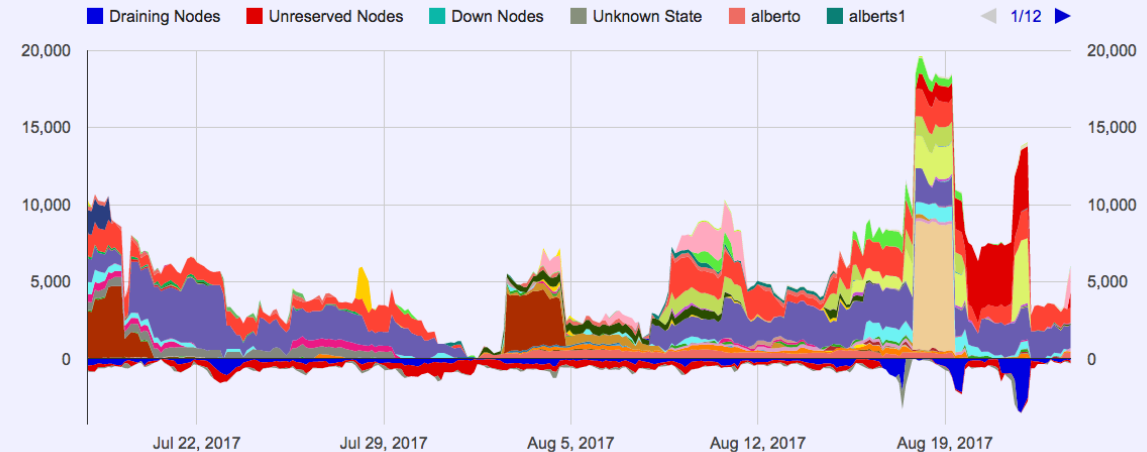
Backlog

- Since BW User Call 07/17
- 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.
- Data feed dropped after emergency maintenance.
- XE region shows dropping backlog but several large allocations expire end of the month.
- XK region has seen increase in backfill.

Blue Waters xe Frontlog/Backlog

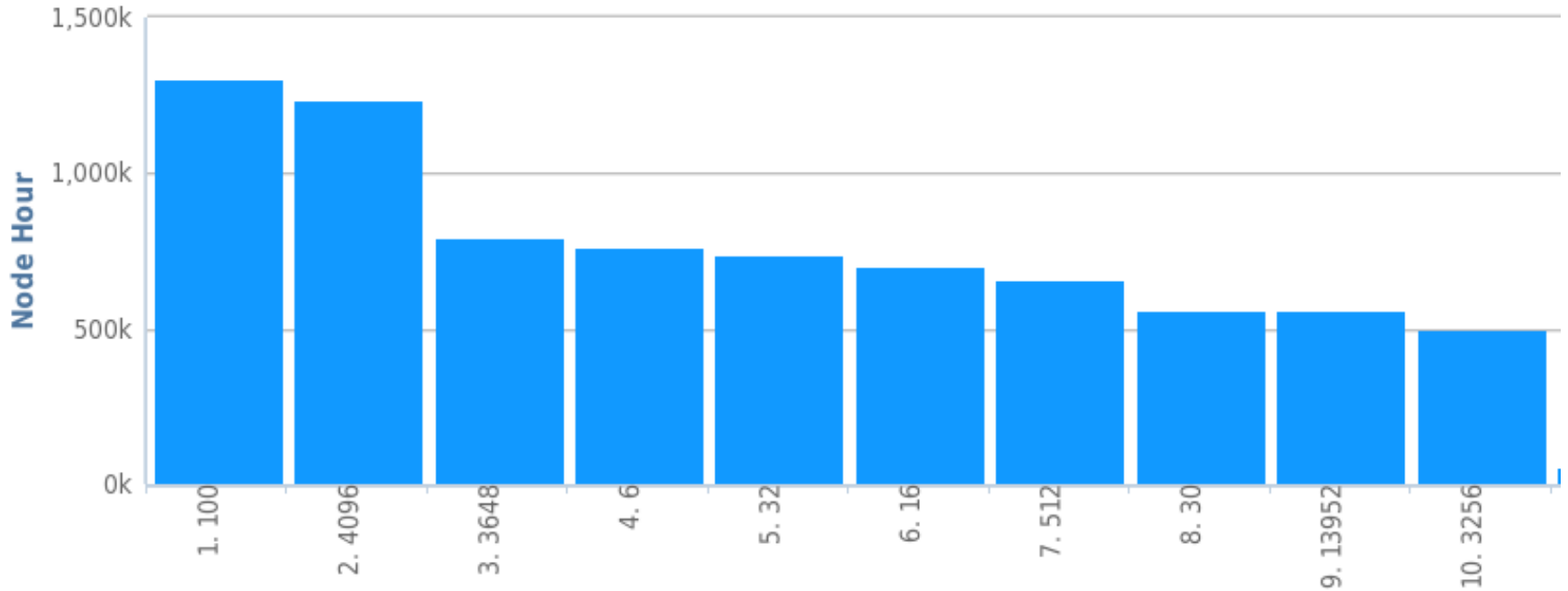


Blue Waters xk Frontlog/Backlog



Workload Details

Node Hours: Total: by Node Count

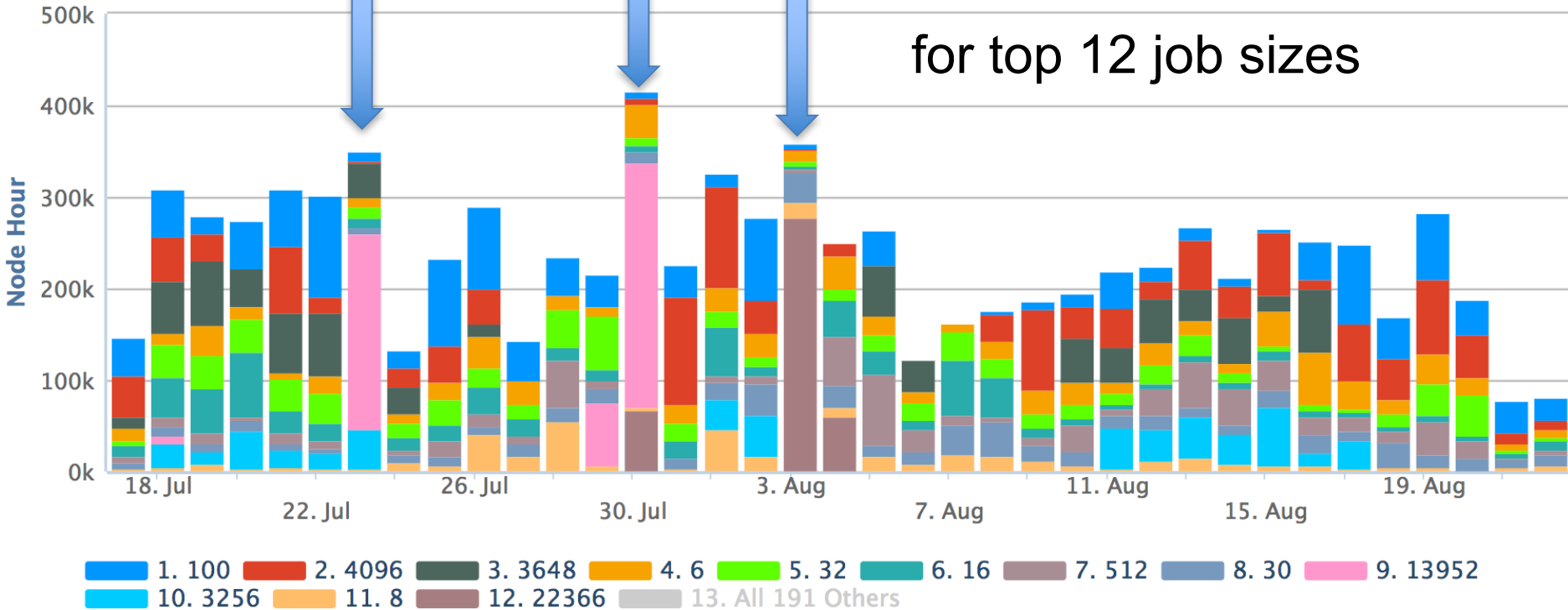


- Data combines XE and XK jobs.
- Since last BW User Call (7/17).

Workload Details of since 7/17

Node Hours: Total: by Node Count

for top 12 job sizes




- Data combines XE and XK jobs.
- Several days with 1/2 and full system jobs.

Blue Waters Weekly Webinar Series

- 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](#).

No webinars August 23 — August 30, 2017					
September, 2017					
No webinars on September 6 and 13, 2017					
September 20, 2017	High-performance workflows with Swift/T	Justin Wozniak	--	Live	Survey
September 27, 2017	Software Engineering Practices	Jeff Carver	--	--	Survey

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
- 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