Blue Waters Training – Managing HPC Centers
Communicating with Users/Partners

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Communicating with Users / Partners / Stakeholders

- Notifications
- System status page
- Use of Instant Messaging
- Annual User Symposium
Notification to Users

• Policies and metrics ensure that staff understand the notification goals and help ensure they are met providing appropriate, advance information to users.

Specific policies (goals) and metrics are defined for outage notifications
• Seven day advance notice for most outages and major updates.
• 24 hour notice for outages not involving an update
• Exception for critical security updates
Notification to Users

• Users may unsubscribe to messaging based on type of communication via the user portal. Messages can also appear as a blog post.
• System Notifications use a standard form with a text explanation, a table with the impact on operations and a pointer to managing email preferences.

Blue Waters will be unavailable during scheduled maintenance Monday (February 26th) beginning at 6 AM for a duration of 24hrs. All Blue Waters resources will be unavailable including the Globus Online endpoints and login nodes. Interim updates will be posted on the Blue Waters Message of the Day: [https://bluewaters.ncsa.illinois.edu/motd](https://bluewaters.ncsa.illinois.edu/motd)

Please plan accordingly as Blue Waters will be unavailable for up to 24hrs.

**Availability details:**

<table>
<thead>
<tr>
<th>Subsystem / Services</th>
<th>Projected Duration</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compute</td>
<td>Feb 26 6am for 24hrs</td>
<td>Unavailable</td>
</tr>
<tr>
<td>Login / Filesystem</td>
<td>Feb 26 6am for 24hrs</td>
<td>Unavailable</td>
</tr>
<tr>
<td>Scheduler</td>
<td>Feb 26 6am for 24hrs</td>
<td>Unavailable</td>
</tr>
<tr>
<td>Globus Online endpoint (ncsa#BlueWaters)</td>
<td>Feb 26 6am for 24hrs</td>
<td>Unavailable</td>
</tr>
<tr>
<td>Globus Online endpoint (ncsa#Nearline)</td>
<td>Feb 26 6am for 24hrs</td>
<td>Unavailable</td>
</tr>
</tbody>
</table>
Notification to Users

• Avoid extra emails by referring readers to check blog posts for updates before final return to service email.
• Combine notices for different upcoming events when possible.
• Custom messaging tool can target users from different project types or allocations. Can generate lists from different sources.
System Status Page

- Provide a transparent view of state of the system for all resources, with view of current utilization and backfill.
- Reduce number of tickets asking “why my job won’t run” or “why can’t I log in”.
- Provide information for advanced users who can tune job parameters to improve job throughput and system utilization.

https://bluewaters.ncsa.illinois.edu/machine-status
System Status Page

- Status lights provide a quick view of what is up (green), down (red) or in between (orange).

- Utilization table and pie charts provide clear view of level of use of the system:
  - In use (blue)
  - Idle (green)
  - Drained (orange)
  - Down/Other (gray)

- Backfill charts let users know what could run right away and for how long.
Other Portal pages

High level view of use

LARGEST JOBS CURRENTLY RUNNING

<table>
<thead>
<tr>
<th>SCIENCE GROUP</th>
<th>NODE TYPE</th>
<th>CORES</th>
<th>CORE HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petascale World Topography Production (jobs 353)</td>
<td>XE</td>
<td>195512</td>
<td>33,600,000</td>
</tr>
<tr>
<td>Response in climate and weather extremes to increasing atmospheric carbon dioxide in the High-Resolution Community Earth System Model (CEMS) (jobs 1)</td>
<td>XE</td>
<td>14284</td>
<td>313,702.28</td>
</tr>
<tr>
<td>COVID-19 main protease inhibitor design (jobs 10)</td>
<td>XE</td>
<td>16006</td>
<td>273,300.00</td>
</tr>
<tr>
<td>Antibiotic Resistance Mechanisms in Pseudomonas aeruginosa (jobs 31)</td>
<td>XE</td>
<td>7128</td>
<td>156,704.49</td>
</tr>
<tr>
<td>Pixel-level uncertainty quantification, optimized for Blue Waters (jobs 1)</td>
<td>XE</td>
<td>5240</td>
<td>79,262.20</td>
</tr>
</tbody>
</table>

CURRENT RUNNING JOBS BY SCIENCE AREA

- Earth Sciences: 84.3%
- Engineering: 15.7%
- Chemistry: 0.5%
- Biophysics: 0.5%

Usage by allocation type, by project and user

BLUE WATERS USAGE OVERVIEW

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>CHARGED USAGE</th>
<th>ALLOCATED</th>
<th>START DATE</th>
<th>END DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPC Container Technology with Shifter</td>
<td>Gregory Bauer</td>
<td>1</td>
<td>50,000</td>
<td>Nov 14, 2020</td>
</tr>
<tr>
<td>Hydrologic Conditioning of TanDEM-X SARs</td>
<td>Kimberly McCormack</td>
<td>0</td>
<td>50,000</td>
<td>Jan 14, 2021</td>
</tr>
<tr>
<td>IMRIST</td>
<td>Kevin DeSilva</td>
<td>14,786</td>
<td>60,000</td>
<td>Dec 29, 2019</td>
</tr>
<tr>
<td>Improving EGM Coefficient Estimation</td>
<td>Howard Strahl</td>
<td>0</td>
<td>173,000</td>
<td>Dec 29, 2019</td>
</tr>
<tr>
<td>Improving EGM Coefficient Estimation</td>
<td>Howard Strahl</td>
<td>0</td>
<td>173,000</td>
<td>Jan 1, 2020</td>
</tr>
<tr>
<td>Petascale World Topography Production</td>
<td>Paul Merge</td>
<td>69,919</td>
<td>300,000</td>
<td>Dec 29, 2019</td>
</tr>
<tr>
<td>Reduced-Latige-Scale Discrete Direction</td>
<td>Daniel Vo</td>
<td>0</td>
<td>50,000</td>
<td>Dec 29, 2019</td>
</tr>
<tr>
<td>Semi-Arctic Land Carbon Sink &amp; NI</td>
<td>872.85T</td>
<td>1,000,000</td>
<td>Dec 29, 2019</td>
<td>Dec 31, 2020</td>
</tr>
<tr>
<td>TanDEM-X Hydor</td>
<td>Kimberly McCormack</td>
<td>105,010</td>
<td>Jan 14, 2021</td>
<td>Jan 14, 2021</td>
</tr>
<tr>
<td>*Arctic OneData Core Processing</td>
<td>Drew Fragomen</td>
<td>3,900</td>
<td>103,000</td>
<td>Mar 27, 2020</td>
</tr>
</tbody>
</table>

*Expired Projects Overview*
Instant Messaging

• Utilization of Instant Messaging (IM) for communication between users and support staff.
• IM is a preferred means of communication by (younger) users and allows quick response.

… access to online chat software. We’ve even set up a virtual room for on-demand collaborative and data sharing sessions. - NGA

• IM is a communication method that helps reduce barriers between support staff and the user-base.
• Our preferred method for support communication is our service request system so issues reported in IM sessions get put into the issue tracking system.
Instant Messaging

• On-call support staff responds to IM requests from portal.
• Typically support staff get alerts even when not on-call.
• Chatlio integrates with Slack and allows file sharing.
• If staff are busy chatlio responds with msg to wait or to open a ticket.

Managing HPC Centers
Annual Symposium

• Blue Waters hosted an annual community-driven forum to discuss challenges and opportunities. All of the PIs (and their teams) conducting research during the year are invited to provide papers on their research.

• This provides a unique opportunity for the Blue Waters staff to meet with the majority of PIs and their research teams to identify challenges and recommend solutions. The Blue Waters team is able to gather advice and suggestions for improving services, and to gather science stories for the annual report.

• The symposium brings together PIs and their teams from different domains and fosters scientific and computing collaborations in a collegial setting where attendees are engaged and focused on the event.

• Other events are typically domain specific, so the variety of fields of science, with a common set of interests, put BW Symposium apart.
Annual Symposium

- Over 150 people attend annually, of which over 50 are PIs
- Keynote speakers address “big picture” issues and directions
- Provides a unique opportunity to identify requirements, and recommend future directions
- Identifies improvements to resources and services
- Fosters the exchange of challenges, opportunities and solutions across diverse fields of research