CISL Operations and Yellowstone Update

CISL HPC Advisory Panel Meeting
3 May 2013

Anke Kamrath
anke@ucar.edu
Operations and Services Division
Computational and Information Systems Laboratory
Much happening since we last met...

- Staffing Updates
- Yellowstone Hardening
- CISL Strategic Planning
- Reviewing HPC Procurement Process
- Google Apps for Government
- Other Updates
OSD Staff Comings and Goings...

- **New Staff at ML**
  - Dan Rosen started as student assistant for WSST on 10/22/12.
  - Alex Sartan started with WEG on 2/25/13.
  - Miles Rafat-Latre (Vapor – CU Student) started 3/18/13.
  - Bruce Sun returns 50%-time in WEG

- **New Staff at NWSC**
  - Kenny Raff (Mechanic/Electrician – proposed start 7/1/13)

- **Departures**
  - David Flaherty and Roland Reed (Computer Operators) on 10/19/12.
  - Yannick Polius left DASG on 1/18/13

- **Open Positions**
  - SSG – 2 Student Positions open
  - VAPOR SEII term position open
  - WEG SE II Java position open
  - HSS Section Head (Gene Harano going into phased retirement)
Yellowstone Hardening

- Yellowstone and GLADE Accepted on 9/30
- Yellowstone “Production Ready” 12/21
- IBM/CISL Executive Board oversight (Oct 12–present)
- **Software/Firmware Upgrades**
  - Jan 22-23: numerous updates, configuration fixes, etc.
  - Mar 18-21: 233 IB cables replaced, cable shelves, software/firmware updates, etc.
  - Another in the planning stages
- **Power Outages**
  - Jan 19-20: raccoon in substation
  - Apr 18: utility power unstable due to high winds, blowing snow
- **HSS/CASG are continuously evolving and refining node failure triage and administrative processes**
Yellowstone Availability & Utilization

<table>
<thead>
<tr>
<th>Resource</th>
<th>Availability (%)</th>
<th>MTBSF (days)</th>
<th>Maintenance mode</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Last Day</td>
<td>Last Week</td>
<td>Average</td>
</tr>
<tr>
<td>HPC (Yellowstone)</td>
<td>98.4%</td>
<td>98.6%</td>
<td>97.5%</td>
</tr>
<tr>
<td>CFDS (GLADE)</td>
<td>100.0%</td>
<td>100.0%</td>
<td>99.4%</td>
</tr>
<tr>
<td>DAV (Geyser, Caldera)</td>
<td>92.0%</td>
<td>92.0%</td>
<td>88.0%</td>
</tr>
</tbody>
</table>

The above figures are adjusted to compensate for non-operational use time.

Total Operational Use Time to date: 125.81 days
Total Non-Operational Use Time to date: 4.56 days

Availability / Utilization

- YS Availability
- YS Avail less AdvRes
- YS Utilization
- DAV Availability
- DAV Avail less AdvRes
- DAV Utilization

SM: 233 cables + UFM, FCA, HCA

Disk drawer failure: 12/12/20
AdvRes tracking began 01/12
Power outage/instability: wind & blowing snow

Since 20 Dec 2012 Production Ready Date
96.5% 3.5%
Working Yellowstone Issues

- **Bluefire decommissioned Feb 1; Yellowstone in full production**
  - ASD period ended ~April 1

- **Big Items**
  - InfiniBand Routing (Bisection Bandwidth) suboptimal, but being worked with IBM & Mellanox
  - Continued InfiniBand cable fallout (original fiber cable set were part of bad manufacturing lot)
  - Weekly IBM/CISL telecon working outstanding and operational issues
  - Subcontract Mod M08 in the works to clarify CRU maintenance
CISL Strategic Planning

• Kick-off Meeting November 28-29, 2012
• Six Core Areas being worked
  – Big Data
  – EOT
  – Research
  – Software Applications and Tools
  – Infrastructure and Services
  – HPC Strategy
Reviewing HPC Procurement Processes

• More frequent procurements
  – Every 3 years (rather than 4)
    • Next system delivery in Late 2015-Early 2016?
  – 1-2 year overlap with existing system

• How do procurements need to change?
  – Streamline process (lighter weight)
  – More heterogeneous systems expected (co-processors, memory)
  – Disk procurements separate and/or consolidated?

• Getting input from others
  – Hosting HPC Procurement Workshop May 24, 2013
    • Participants from NCAR with NASA, SDSC, UIUC, LLNL, ANL
Infrastructure and Services

• Enterprise Architecture
  – briefed last time

• UCAR-wide IT Strategic Planning Underway

• Google Apps for Government
  – Integrator Procurement Underway
UCAR-wide IT Strategic Planning

- Anke co-chair with Shawn Winkelman (UCAR F&A)
- Kick-off Meeting Held February 21st
- Nine Subgroups Formed (active CISL participation)
  - Identity Management/Security
  - Central Services/Virtualization/Cloud Computing
  - Collaboration Technologies
  - End User Computing (Desktop/Mobile Devices)
  - Data Services
  - Support Services
  - Software Development
  - Facilities and Co-location
  - Networking/Telecommunications
- Goal to have draft Strategic Plan by Fall
Google Apps for Government
UCAR-Wide Deployment During 2013

- Suite of applications, services, and application programming interfaces based on the Google cloud infrastructure
- Physically segregated and hardened environment for government and federally-funded institutions
- Federal Information Security Management Act (FISMA) certified
- 99.9% Availability
- Google Apps engine allows for rapid application development
- Google Apps Marketplace provides rich offering of third-party add-ons

- Google Calendar
- Gmail (25GB per user)
- Integrated contacts/directory
- Google Docs (unlimited authoring, sharing, versioning)
- Drive (Cloud storage, 5GB per user)
- Task lists
- Text, Voice, Video Chat
- Sites (Web/Wikis)
- Vault (Archiving and eDiscovery)
- Google+ (Social networking)
- Integrated forums, blogs, video repository, image repository
Google Apps: Integrated Collaboration Environment

- **Calendaring** (Meeting Maker, NotifyLink, other)
- **Mail** (spam/phishing mgmt, zimbra, communigate, 12+ mail stores across UCAR, mail backups)
- **Cloud Storage and Filesharing** (e.g., DropBox, U Drive)
- **Video/Teleconferencing** (ReadyTalk, GoToMeeting)
- **Wikis/Forums/Blogs**
- **Digital Asset Management** (outstanding need)
Other Updates

• **RDA**
  – User data access was transitioned to the NWSC without interruption
    • Disaster recovery is now geographically separated at NWSC and ML

• **ML29 future as general colo**
  – Bluefire decommissioned Jan 31\textsuperscript{st}
  – Work and progress to date by NETS, Colocation Group, DSG, etc.

• **Colorado School of Mines to locate computer at ML**
  – ML 29 work/support; BiSON expansion
  – Offers 7% access for mixed BGQ/idataplex system to NCAR
Questions??