Lustre 1.8 Update

Peter Jones
LUG 2010 - News and Plans for the 1.8.x codeline
Lustre 1.8 Update Agenda

• Mission
• History
• Quality
• Futures
• Production Releases
• Sev1 Post-mortem
• Upgraders
• Summary
Mission

- 1.8.x release intended to further extend the scale possible but with an emphasis on production stability
- Limited new features introduced at GA
  - Adaptive Timeouts
  - Version Based Recovery
  - OSS Read Cache
  - OST Pools
- Some other performance enhancements and minor features from LLNL\ORNL LCE introduced in 1.8.2 (e.g. 16TB LUN)
  - These are off by default to remove impact from general users
## History

<table>
<thead>
<tr>
<th>Lustre Release</th>
<th>Planned Date</th>
<th>Actual Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8.0</td>
<td>December 31&lt;sup&gt;st&lt;/sup&gt; 2008</td>
<td>May 2&lt;sup&gt;nd&lt;/sup&gt; 2009</td>
</tr>
<tr>
<td>1.8.0.1</td>
<td>N\A</td>
<td>June 19&lt;sup&gt;th&lt;/sup&gt; 2009</td>
</tr>
<tr>
<td>1.8.1</td>
<td>July 31&lt;sup&gt;st&lt;/sup&gt; 2009</td>
<td>July 31&lt;sup&gt;st&lt;/sup&gt; 2009</td>
</tr>
<tr>
<td>1.8.1.1</td>
<td>October 31&lt;sup&gt;st&lt;/sup&gt; 2009</td>
<td>October 12&lt;sup&gt;th&lt;/sup&gt; 2009</td>
</tr>
<tr>
<td>1.8.2</td>
<td>January 31&lt;sup&gt;st&lt;/sup&gt; 2010</td>
<td>February 2&lt;sup&gt;nd&lt;/sup&gt; 2010</td>
</tr>
<tr>
<td>1.8.3</td>
<td>April 30&lt;sup&gt;th&lt;/sup&gt; 2010</td>
<td>TBD</td>
</tr>
</tbody>
</table>
Quality

• Continue to refine processes
  • Landings now controlled by tech lead for each codeline
  • Interim testing throughout build cycle

• Testing resources extended
  • Hyperion testing regularly scheduled
  • Additional Oracle test clusters now available

• Collaborations
  • LLNL\Cray feature test plans

• Automated test coverage continues to increase
  • 10% increase in number of tests
  • Recovery, failover, interoperability, quotas and MMP
Futures

• Lustre 1.8.x support will continue until June 30th 2012
  • Quarterly maintenance releases will continue
  • Like 1.6.x, once stability threshold reached will drop to releases on an ad-hoc basis
  • Release announcement email will share plans for next release
• 1.6.x goes EOL June 30th so we encourage customers to plan their upgrades
Production Releases

Total = 100%

1.6.x
69%

1.8.x
31%
Production Releases
1.6.x Patched vs Vanilla

- Patched: 70%
- Vanilla: 30%

Total = 100%
Production Releases

1.8.x Patched vs Vanilla

Total = 100%

Patched 26%

Vanilla 74%
Production Releases

1.8.x Support Tickets

Total = 100%

Patched: 82%

Vanilla: 18%
Sev1 Post-mortem

- Production Impacting issues (data corruption\crashes)
- Many S1 reports are not Lustre issues (31% last year)
- Scrutinize root cause of 1.8.x S1s
  - 22476 (1.6.2) Servers become non-responsive due to lock build-up
  - 20560 (1.8.0) Race at scale in OSS Read Cache; more likely with network instability
  - 21506 (1.8.0.1) Short-reads on 32 bit clients
  - 22177 (1.8.2) No regression test for open unlinked directory
Upgraders

- Most 1.8.x users are new installs rather than upgrades, but some sites have upgraded
  - Oil\Gas Company: no issues during upgrade or in production so far
  - LLNL: Production rollout March 30th
  - CINES: large European HPC site that runs multi user\code environment
    - upgrade “seamless process”
    - Regression fears proved unfounded
Summary

• Lustre quality has continued to increase with 1.8.x
• Maintenance releases reliably occurring quarterly
• Preferable to run vanilla Lustre releases where possible
• Sites still running 1.6.x should plan upgrades soon
The preceding is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle’s products remains at the sole discretion of Oracle.
ORACLE IS THE INFORMATION COMPANY