

Job performance monitoring

from a user support perspective

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VSC all hands meeting 21-2-2017

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Introduction

Manual inspection

Reading material

Introduction

Why monitor job performance?

- Detect inefficient jobs asap.
 - jobs with unused cores and memory (simultaneously)
 - jobs with low core loads
 - ...
- Optimize throughput on our clusters (it's HPC, not LPC).
- Take opportunity to educate users.
- Take opportunity to learn something.
- There is profit for everyone.

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- Which parameters indicate pathological cases?
- Tools?
- Manual inspection?
 - Which jobs need inspection?
 - Large jobs
 - Large amount of jobs submitted by same user
- Automated inspection?
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2. Memory
 - Swapping?
3. IO
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Manual inspection

Manual inspection

- inspect `showq` output
- inspect scheduler
- ssh to compute node and
- run `(h)top`
 - cpu usage and memory usage per core and per node
 - running processes
- run `sar`

<code>sar -u [s] [n]</code>	cpu usage	(per node)
<code>sar -P ALL [s] [n]</code>	cpu usage	(per core, all cores)
<code>sar -r [s] [n]</code>	memory usage	(per node)
<code>sar -S [s] [n]</code>	swap space used	(per node)
<code>sar -b [s] [n]</code>	I/O activity	(per node)
- Many other tools available <http://www.thegeekstuff.com/2011/12/linux-performance-monitoring-tools/>

- Identify pathological cases at a glance ...
- used cores/total cores
-

Reading material

- <http://www.deonsworld.co.za/2012/12/20/understanding-and-using-htop-monitor-system-resources/>
- <http://www.thegeekstuff.com/2011/03/sar-examples>
- <http://www.thegeekstuff.com/2011/12/linux-performance-monitoring-tools/>
- <http://www.admin-magazine.com/HPC/Articles/HPC-Monitoring-What-Should-You-Monitor>
- <http://www.admin-magazine.com/HPC/Articles/Processor-and-Memory-Metrics>
- <http://www.admin-magazine.com/HPC/Articles/Process-Network-and-Disk-Metrics>
- <http://www.admin-magazine.com/HPC/Articles/Determining-CPU-Utilization>
- <http://www.admin-magazine.com/HPC/Articles/Gathering-Data-on-Environment-Modules>

Summary

- The first main message of your talk in one or two lines.
- Outlook
 - Something you haven't solved.
 - Something else you haven't solved.