Sierra System Status

LC User Meeting
2019-03-28

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We want you on SIERRA ASAP! (With some caveats)

- Preparing to support the ATCC-7 campaign on SIERRA
  - Campaign started this week for other AT systems (Sequoia, Trinity)
- Focus on code developers and ATCC-7 participants
  - Please request accounts and start building/testing if haven’t already
    - LLNL users can use the llnlexec bank to prepare
  - Help us find problems early, especially blockers for your team
- ATCC-7 scheduled to start when SIERRA goes GA
  - We are driving towards ~April 17th however 2 week delay possible
    - Potential roadblock discovered yesterday testing latest software
    - If need new software drop to fix, may push GA back to May 1st
  - Sierra will not be perfect when it goes GA
SIERRA awesome but not perfect!
Known issues as of 3/28/19

• Draining nodes can cause next job launches to fail
  — “Fixed” version delivered yesterday, unexpected 50 second delay
  — So might be May before we can get usable fix installed (GA blocker)

• Regression tests, 100s of bsub, can cause nodes to drain
  — Several WCI codes cause scheduler daemon to wedge in kernel
  — Epilogue drains node, triggers issue above, killing unrelated jobs
  — Still trying to generate non-export controlled reproducer for IBM
  — Running multiple jsruns in one bsub minimizes impact but not perfect

• Ssh keys with passphrases not supported (long term)
  — If have ssh keys with passphrases, recommend moving aside
  — bsub and lalloc now automatically create ssh keys for you if needed
    - If use to access git, will need to submit new public key to git
SIERRA awesome but not perfect!
Known issues as of 3/28/19 continued

• We cannot yet detect bad GPUs as well as your codes can!
  — We continue adding checks as we find quick tests/diagnostics
  — The same GPU failing in different runs makes good suspects
  — Please tell us the node name, GPU id, and times/dates of failures
    ‒ Allows us to get more details out of node logs around timestamp
  — We are happy to drain small numbers of suspect nodes

• SIERRA does not deal well with bad nodes and error states
  — Hard! Slow improvement in tolerance over the lifetime of SIERRA
  — We continue to improve our scanning for detecting bad nodes

• Mixing XL and CLANG OpenMP GPU code link issues
  — Working with IBM to get superset runtime to enable mixed linking
    ‒ No one is known to be currently blocked on this, caused by new features

• XL partial C++14 support disabled by default
  — Have debug flag workaround but working on general solution
SIERRA awesome but not perfect!
Known issues as of 3/28/19 cont 3

- MPI executables with read-bit disabled breaks MPI
  - Several teams mark their public apps as execute only
  - Linux then disables key functionality MPI uses extensively (CMA)
    - To prevent loophole for reading executable anyway
  - We have asked IBM for option to avoid CMA in MPI
    - May lower MPI performance (but running is infinite improvement)
    - Don’t have timeline yet (but IBM just agreed to do it 3/28)
New features coming soon to SIERRA

- CUDA 10.1 support expected around May 1st
  - Testing on test system butte started yesterday, 3/27
  - Huge IBM software drop due ~April 19th, includes CUDA 10.1 support
  - Cannot roll out new XL fixes until CUDA 10.1 supported in kernel
- Beta gcc 8.2 support expected mid-May on CORAL systems
  - Once we have it working, we will ask codes to test it out
  - Targeting default switchover in mid Summer if things go well
- mpibind/lrun support for SMT 2, 3, and 4 expected in April
  - Edgar Leon has implementation that we are starting to test
  - Automatically scales up to 2, 3, or 4 threads per task based on OMP_NUM_THREADS setting (i.e., 10, 20, 30 or 40 for 10 cores)
- SPINDLE support for not hammering NFS during big runs (soon)
  - We have hand-crafted workarounds if doing full system runs now
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