Meeting of the Technical Steering Committee (TSC) Board

Wednesday, March 25th, 2020
11:00am ET

Meeting Logistics

- https://zoom.us/j/556149142

- United States : +1 (646) 558-8656
  - Meeting ID: 556 149 142

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Agenda/Updates

- *Wishing everyone good health during this crazy time…*

- Announcements:
  - ISC Tutorial submission was not accepted
  - ISC BoF submission was accepted

- Upcoming deadlines:
  - SC'20
    - <u>Tutorials?</u>: Due ~~April 16, 2020~~, Extended to April 30- *Q: do we want to consider this?*
    - <u>BoFs</u>: Due **July 31, 2020**

- ARM compiler build setback…

- PEARC'20 tutorial/cloud working group updates (csim)

- Ganglia/Nagios discussion

- 2.0 build status

- intel compiler –qnextgen option

OHPC Cloud Working Group Updates

- Meet ever other Tuesday at 1 PM CDT using OHPC's Zoom

- Started to meet objectives of PEARC 20 tutorial submission

- Expanded into a longer-term project (still hashing out details)

- Starting with implementation from Chris Downing

- First order of business is to version control, modularize and document

- Aiming to start with CentOS 8 / OHPC 2.0 (Factory)

- Currently on our radar:
  - openSUSE Leap 15.1 support
  - multi-arch support
  - Python implementation (possible summer of code)
  - PBS support
  - Other cloud providers including OpenStack

Ganglia discussion

- A GitHub user has pointed out a lack of continued maintenance for Ganglia
  - https://github.com/openhpc/ohpc/issues/1159
  - last release was v3.7.2 (June 2016)
  - packages from this version are available in Leap 15, but not CentOS8

- This is pretty dated – thoughts on deprecating Ganglia in 2.0?
  - could optionally consider replacing with something newer
  - GitHub user points out netdata which is actively doing releases:
    - https://github.com/netdata/netdata
    - latest github release is v1.20.0
      - version in EPEL8: v1.18.1
      - version in Leap 15.1: v1.10.0
      - (not sure how useable these are)
  - folks have experience with netdata?

Nagios discussion

- In contrast, Nagios seems to continue to see usage and more recent releases
  - last nagios-core release: v4.4.5 (Aug 2019)
- OS available versions:
  - Leap 15.1: 4.3.4
    - does not seem to have the normal **nagios-plugins** available
    - believe this is how we arrived where we are to rebuild all of nagios….
  - CentOS 8.1: 4.4.5
    - includes lots of nagios-plugins
- Thoughts on nagios going forward?
  - we have nagios-core (ohpc) built for leap15 /centos8 in our obs
  - plugins not successfully built yet

💻 **Architecture: x86_64**

- nagios-plugins-all-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-apt-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-breeze-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-by_ssh-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-cluster-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-dbi-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-dhcp-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-dig-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-disk-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-disk_smb-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-dns-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-dummy-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-file_age-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-flexlm-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-fping-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-game-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-hpjd-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-http-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-icmp-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-ide_smart-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-ifoperstatus-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-ifstatus-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-ircd-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-ldap-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-load-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-log-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-mailq-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-mrtg-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-mrtgtraf-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-mysql-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-nagios-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-nt-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-ntp-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-nwstat-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-ohpc-2.2.1-24.2.src.rpm
- nagios-plugins-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-oracle-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-overcr-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-perl-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-pgsql-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-ping-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-procs-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-radius-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-real-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-rpc-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-sensors-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-smtp-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-snmp-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-ssh-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-swap-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-tcp-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-time-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-ups-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-uptime-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-users-ohpc-2.2.1-24.2.x86_64.rpm
- nagios-plugins-wave-ohpc-2.2.1-24.2.x86_64.rpm

openHPC

2.0 Build Status

- Have enabled a good number of packages in 2.0 Factory
  - introduction of arm1 compiler variant means 10 compiler/MPI permutations for MPI-based builds

Administrative Tools

Package	Built?	Notes
conman	✓	
docs	✓	
examples	✓	
ganglia		
genders	✓	
lmod-defaults	✓	added (3/10/20)
losf	✓	
mrsh	✓	fixed (3/8/20)
nagios	✓	3/25/20
nagios-plugins	X	3/25/20
ndoutils		
nhc	✓	added (3/10/20)
nrpe		
pdsh	✓	
prun	✓	
test-suite	✓	

Compiler Families

Package	Built?	Notes
gcc9	✓	
intel-compatibility	✓	
arm-compatibility	✓	
llvm		

※ = partial builds success
✓ = all builds complete
X = all builds fail

Development Tools

Package	Built?	Notes
easybuild	✓	
autoconf	✓	
automake	✓	
cmake	✓	
hwloc	✓	
libtool	✓	
python-mpi4py	※	3/24/20 – arm1 failures
python-numpy	※	3/24/20 – arm1 failures
python-scipy	※	3/19/20 – arm1 failures
spack	✓	[still targets root usage though]
valgrind	✓	

MPI Families

Package	Built?	Notes
impi-compatibility	✓	no longer requires install of intel compat. package
mpich	✓	
mvapich2	✓	
openmpi4	✓	

Serial Libs

Package	Built?	Notes
R	✓	
GSL	✓	
metis	✓	
openblas	✓	
plasma	※	need tweaks for arm1/intel blas
superlu	✓	arm1 fixed (3/9/20)

openHPC

2.0 Build Status (cont.)

Parallel Libraries

Package	Built?	Notes
boost	※	intel error
fftw	✓	build fixed
hypre	※	intel/arm1 blas issue
mfem	※	needs deps
mumps	※	arm1/impi issue
opencoarrays	※	leap/openmpi4 failures
petsc	※	intel/arm1 issue
scotch	✓	arm1 fixed (3/9/20)
scalapack	✓	arm1 fixed (3/9/20)
slepc	※	waiting on petsc deps
superlu_dist	※	2 Leap 15.1 failures
trilinos		Adrian built subset ok

Performance Tools

Package	Built?	Notes
dimemas	X	need some boost builds, suse failures
extrae	※	arm1 failures
geopm		Adrian built subset ok
imb		
likwid		
msr-safe		
omb	✓	3/4/20
papi	✓	
paraver	✓	added 3/5/20
pdtoolkit	※	intel/leap failure (3/5/20)
scalasca	※	need scorep deps (3/5/20)
scorep	※	variety of issues (3/5/20)
tau	※	need pdtoolkit on intel/leap and arm1 (3/24/20)

Resource Management

Package	Built?	Notes
PBS Pro	X	need libical-devel on aarch/centos
pmix	✓	
slurm	✓	

Runtimes

Package	Built?	Notes
charliecloud	✓	3/23/20
ocr		
singularity	X	go problems (3/9/20) need newer version

Provisioning

Package	Built?	Notes
warewulf	✓	starting to run in CI (3/10/20)

※ = partial builds success
✓ = all builds complete
X = all builds fail

2.0 Build Status (cont.)

I/O Libraries

Package	Built?	Notes
adios	※	intel failures (and deps)
hdf5	※	Leap/arm1 failures
netcdf-cxx	※	Leap/arm1 failures
netcdf-fortran	※	Leap/arm1 failures
phdf5	※	arm1 failures
pnetcdf	✓	
sionlib	※	arm1 failures

Provisioning

Package	Built?	Notes
warewulf	✓	starting to run in CI (3/10/20)

※ = partial builds success
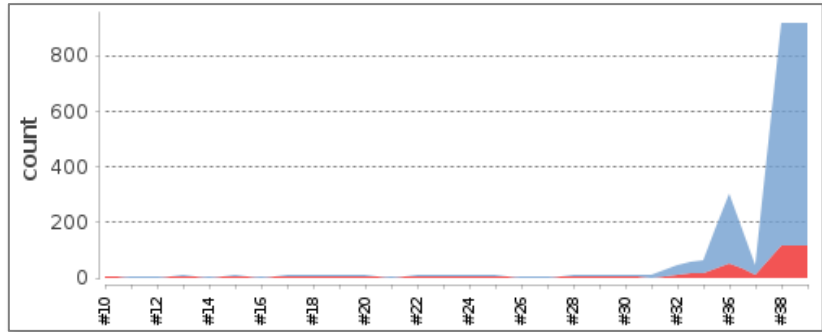✓ = all builds complete
X = all builds fail

2.0 Build Status (cont)

- Current package counts:
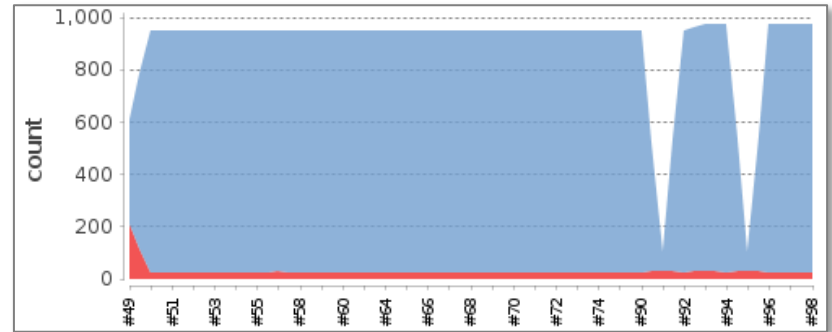 - ~~800 RPMs as of 3/11/2020~~
  - 905 RPMs as of 3/25/2020

Base OS	aarch64	x86_64	noarch
CentOS 8	155	273	29
Leap 15	152	257	29

2.0 (cont.) – CI updates

centos8.1/x86/WW/slurm (3/10/2020)

centos8.1/x86/WW/slurm (3/24/2020)

- From last time (3/10):

    – 610 user-level tests passing

- As of this morning (3/25):

    – 910 user-level tests passing

2.0 (cont.) – CI updates

S	Categorized - Job	Last Success	Last Failure	Last Duration	Test Result			v1.3.9 totals
⊖ ❗	.. » [aarch64]	23 hr - #28	11 hr - #33	7 min 56 sec	N/A			
	❗ (2.0) - (centos8.1,aarch64) (warewulf+slurm) (fabric=eth)		23 hr - #28	11 hr - #33	7 min 56 sec	N/A		
⊖ ❗	.. » [x86_64] - CentOS 8	14 hr - #3	1 hr 41 min - #9	3 min 14 sec	N/A			1,237 tests
	❗ (2.0) - (centos8.1,x86_64) (warewulf+slurm) (fabric=eth)		15 days - #27	3 hr 22 min - #98	3 min 17 sec	24 of 971 failed (±0)		
	❗ (2.0) - (centos8.1,x86_64) (warewulf+slurm) (fabric=ib)		14 hr - #3	1 hr 41 min - #9	3 min 14 sec	30 of 956 failed (±0)		
⊖ ❗	.. » [x86_64] - Leap15	11 hr - #9	47 min - #14	3 min 37 sec	N/A			
	❗ (2.0) - (leap15.1,x86_64) (warewulf+slurm) (fabric=eth)		8 days 20 hr - #6	1 hr 33 min - #68	3 min 48 sec	30 of 744 failed (-5)		1,203 tests
	↻ (2.0) - (leap15.1,x86_64) (warewulf+slurm) (fabric=ib)		11 hr - #9	47 min - #14	3 min 37 sec	35 of 823 failed (-7)		1,549 tests

- Now also have additional CI jobs running:
  - Leap 15.1/x86/slurm configurations
- Unfortunately, aarch64 is problematic
  - basic CI Workflow working with CentOS8.1, but with CentOS 7.7 kernel
  - seem to be having issues with getting network interfaces cooperating with 8.1 bootstrap kernel (note: the hosts at Linaro are using Qlogic adapters)

intel/boost -qnextgen questions

- intel –qnextgen option proposed as way to get around build failure with Boost

- this switches intel compiler to use a clang-based backend
  - will this be problematic when users then compiler their app using boost with non-clang based intel compiler variant?