



Meeting of the Technical Steering Committee (TSC) Board

Wednesday, April 7th, 2021
11:00am ET

Antitrust Policy Notice

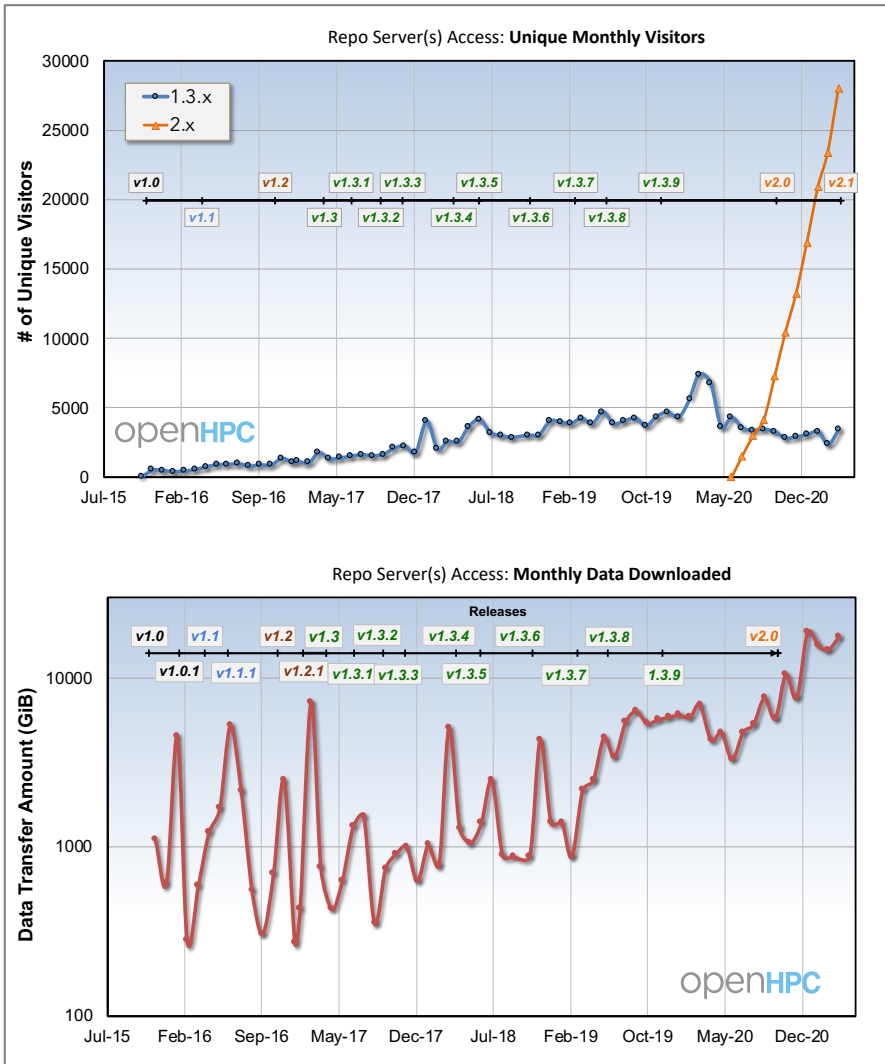
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Agenda/Updates

- Announcements, upcoming talks and deadlines
 - ISC 2021
 - ✓ submitted updated program material (Mar. 31)
 - BoF durations will only be 35 minutes
 - PEARC'21 ~~(short paper) submission due Apr 13~~
 - SC'21 Tutorials – due April 30 (David)
 - PEARC'21 BoF submission – due May 9
 - SC'21 BoF submission – due August 6
 - Infrastructure outage (postponed, has not been rescheduled yet):

-
- Quarterly access metrics
 - Cloud working group
 - Internship program experience – Derek?
 - 2.1 release
 - Arm HPC compiler

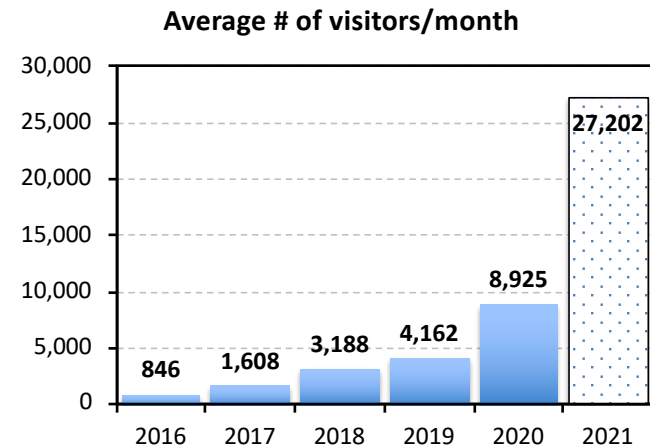
Updated Usage/Access Statistics (thru Q1 2021)



- Stats for build/repo server (tracking # of unique visitors per month and amount of data downloaded):

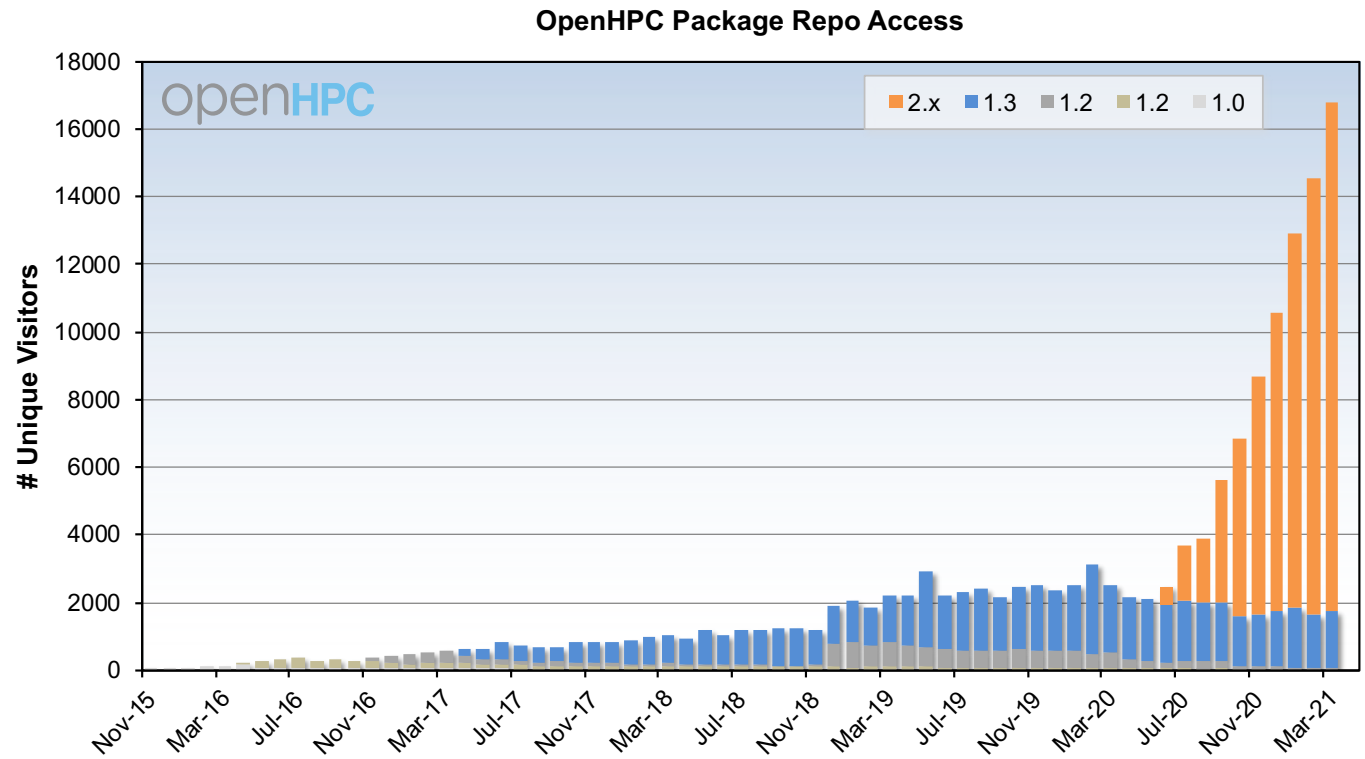
<http://build.openhpc.community>
<http://repos.openhpc.community>

- Averaging ~16 TB/month download in 2021



Updated Usage/Access Stats (thru Q1 2021)

- These stats monitor access specifically to package repository metadata (typically expected to be via yum/zypper)
- Repo access binned by minor version



Updated Usage/Access Stats (thru Q1 2021)

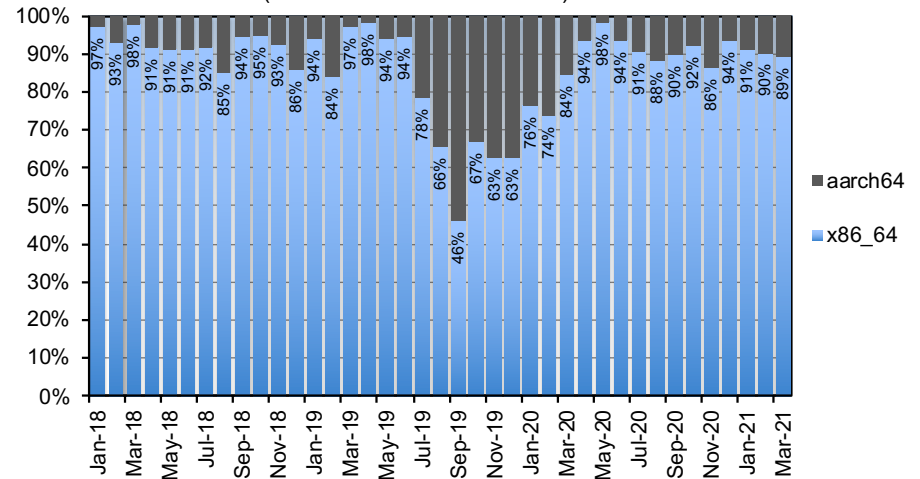
Architecture specific metrics:

- To provide some characterization, we scrape the access logs to analyze two architecture specific file types:

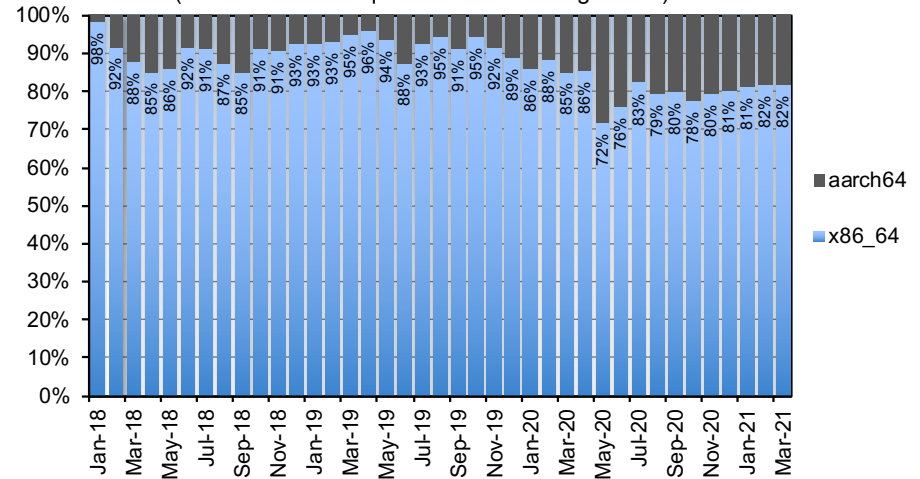
```
(aarch64 | x86_64) .rpm  
(aarch64 | x86_64) .tar
```

- Plots compare percentages for the amount of data xfer'ed and the # of unique visitors accessing the (aarch64|x86_64) files

Download Comparison by Architecture
(based on data downloaded)



Download Comparison by Architecture
(based on # of unique visitors accessing RPMs)



OHPC Cloud Updates

- Paper on Deploying OpenHPC at AWS
- Will not be submitted to PEARC 21
- Targeting a longer, more thorough paper
- Journal TBD and/or PEARC / SC 22
- Sections on:
 - Cloudformation and Packer
 - NFS vs EFS vs FSx for Lustre
 - EFA performance/scalability on up to 64 nodes
 - ARM and x86 recommended instance types

OHPC Cloud Updates

- David B. submitting an SC21 Tutorial
- Part 1: 90 minutes
 - Advanced introduction to OpenHPC with recent updates, developments and OS news (30 min)
 - Exercise 1: Provisioning an OpenHPC system on Arm hardware using Leap15 in Amazon Elastic Compute Cloud (Amazon EC2) using cloud-formation templates (25 minutes)
 - Exercise 2: Integrating an optimized version of software, compiled with the Arm compilers and Arm Performance Libraries into the Imod-based software management system (25 minutes)
 - Questions and other exercises as time permits (10 minutes)
- [Break]

OHPC Cloud Updates

- Part 2: 90 minutes
 - HPC containers and multi-node MPI "Here be Dragons" (35 min)
 - Potential issues & fixes including:
 - Running MPI jobs
 - Job scheduler (Slurm) integration
 - Combining host and container software and environments
 - Using high performance inter-connects (InfiniBand and Onmi-Path)
 - Case studies from LRZ, PSC, TACC, UT-Dallas as time permits
 - Exercise 3: Modular Finite Element Methods (MFEM) (15 minutes)
 - Exercise 4: Distributed Machine Learning across multiple nodes on Arm (15 minutes)
 - Exercise 5: Distribute Quantum Circuit Simulation on Arm (15 minutes)
- Wrap up and Q&A (10 minutes)

2.1 TODOs from last time

- Remaining steps for release:
 - ✓ generate and test 2.1 release repository
 - push to repos.openhpc.community
 - slight bit of additional infrastructure work required here
 - ✓ verify xCAT variant
 - ✓ verify 2.0 -> 2.1 upgrade
 - ✓ generate and test install from tarballs...

| # | Hits ↕ | Visitors ↕ | Tx. Amount ▼ | Method ↕ | Protocol ↕ | Data ↕ |
|---|--|---|--|----------|------------|--|
| | 6,253,516 Max: 2,570,690 Min: 1 | 408,770 Max: 14,567 Min: 1 | 13.42 TiB Max: 6.47 TiB Min: 0 Byte | | | 92,590 Total |
| 1 | 35,847 (0.56%) | 317 (1.16%) | 6.47 TiB (48.24%) | GET | HTTP/1.1 | /dist/2.0/OpenHPC-2.0.CentOS_8.x86_64.tar |
| 2 | 63,474 (0.99%) | 156 (0.57%) | 456.09 GiB (3.32%) | GET | HTTP/1.1 | /dist/2.0/OpenHPC-2.0.Leap_15.x86_64.tar |
| 3 | 12,821 (0.20%) | 122 (0.44%) | 417.05 GiB (3.03%) | GET | HTTP/1.1 | /dist/2.0/OpenHPC-2.0.CentOS_8.aarch64.tar |
| 4 | 5,322 (0.08%) | 35 (0.13%) | 250.91 GiB (1.83%) | GET | HTTP/1.1 | /dist/2.0/OpenHPC-2.0.CentOS_8.src.tar |

Mar. 2021 Stats































2.1 – Release posted yesterday, April 06

2.x

OpenHPC CI Infrastructure

Thanks to the Texas Advanced Computing Center (TACC) and Linaro for hosting support. Thanks also to Intel, Marvell, Cavium, and Dell for hardware donations.

 [add description](#)

| S | Categorized - Job | Last Success | Last Failure | Last Duration | Test Result | |
|---|--|--------------------|---------------------|---------------|------------------------|---|
|  | (2.1) - (centos8.3,aarch64) (warewulf+openpbs) (fabric=eth) | 1 day 12 hr - #3 | 1 day 14 hr - #2 | 1 hr 14 min | 0 of 1,087 failed (-8) |  |
|  | (2.1) - (centos8.3,aarch64) (warewulf+slurm) (fabric=eth) | 3 days 13 hr - #27 | 4 days 13 hr - #26 | 1 hr 23 min | 0 of 1,114 failed (-3) |  |
|  | (2.1) - (leap15.2,aarch64) (warewulf+slurm) (fabric=eth) | 5 days 9 hr - #39 | 5 days 15 hr - #38 | 1 hr 37 min | 0 of 1,110 failed (-4) |  |
|  | .. » [x86_64] - CentOS 8 | 20 hr - #5 | 1 day 12 hr - #151 | 1 hr 13 min | N/A | |
|  | (2.1) - (centos8.3,x86_64) (warewulf+openpbs) (fabric=ib) - UEFI | 1 day 13 hr - #171 | 1 day 16 hr - #170 | 59 min | 0 of 1,476 failed (-4) |  |
|  | (2.1) - (centos8.3,x86_64) (warewulf+slurm) (fabric=eth) - UEFI | 1 day 0 hr - #154 | 1 day 12 hr - #151 | 1 hr 33 min | 0 of 1,151 failed (±0) |  |
|  | (2.1) - (centos8.3,x86_64) (warewulf+slurm) (fabric=ib) + psxe | 1 day 0 hr - #122 | 1 day 16 hr - #118 | 3 hr 21 min | 0 of 3,112 failed (±0) |  |
|  | (2.1) - (centos8.3,x86_64) (warewulf+slurm) (fabric=ib) - upgrade | 5 days 9 hr - #30 | 5 days 13 hr - #27 | 1 hr 15 min | 0 of 1,471 failed (-6) |  |
|  | (2.1) - (centos8.3,x86_64) (warewulf+slurm) (fabric=opa) + psxe | 1 day 0 hr - #340 | 4 days 0 hr - #322 | 47 min | 0 of 351 failed (±0) |  |
|  | (2.1) - (centos8.3,x86_64) (xCAT+slurm) (fabric=ib) | 1 day 0 hr - #61 | 11 days - #21 | 1 hr 41 min | 0 of 1,475 failed (±0) |  |
|  | (2.1) - (centos8.8,x86_64) (warewulf+slurm) (fabric=ib) - tarball REPO | 20 hr - #5 | 8 days 17 hr - #2 | 1 hr 13 min | 0 of 1,475 failed (±0) |  |
|  | .. » [x86_64] - Leap15 | 20 hr - #4 | 1 day 22 hr - #443 | 1 hr 18 min | N/A | |
|  | (2.1) - (leap15.2,x86_64) (warewulf+openpbs) (fabric=eth) | 22 hr - #452 | 1 day 22 hr - #443 | 53 min | 0 of 1,142 failed (±0) |  |
|  | (2.1) - (leap15.2,x86_64) (warewulf+slurm) (fabric=eth) | 22 hr - #125 | 2 days 14 hr - #115 | 1 hr 1 min | 0 of 1,137 failed (±0) |  |
|  | (2.1) - (leap15.2,x86_64) (warewulf+slurm) (fabric=ib) + psxe | 1 day 18 hr - #1 | N/A | 2 hr 57 min | 0 of 2,981 failed (±0) |  |
|  | (2.1) - (leap15.2,x86_64) (warewulf+slurm) (fabric=ib) - tarball REPO | 20 hr - #4 | N/A | 1 hr 18 min | 0 of 1,415 failed (±0) |  |

2.1 Release

- Reminder on upgrades regarding SLURM:

Important Highlights/Notices for v2.1

- the newer version of SLURM included in this release deprecates the `accounting_storage/filetxt` option. If you were using this configuration locally, you will need to comment out this plugin in `slurm.conf` or will encounter an error on startup. Sites previously dependent on this functionality for simple accounting mechanisms may want to consider replacing with the ascii job completion file option: `JobCompType=jobcomp/filetxt`.
- the Arm Compiler for Linux v21.0 is incompatible with the OpenHPC 2.x series

2.1 Release – other gotcha

- Issue with latest ARM HPC compiler release for OHPC:
 - a new arm compiler for ohpc packaging was posted publicly late last month
 - <https://developer.arm.com/tools-and-software/server-and-hpc/downloads/arm-allinea-studio/openhpc>
 - Arm Compiler for Linux v21.0
 - significantly different than v20.x series we used in initial launch of arm compiler package builds in ohpc v2.0
 - change of .so library names
 - breaks embedded RPM dependencies for ohpc package builds since we cannot resolve the previous .so names
 - change in modulefile layout, package ownership, affects our compiler compatibility package
 - consequently, this latest posted version is incompatible with ohpc 2.x
 - would have to consider introducing later as a new arm compiler variant
 - rebuild everything with new variant
 - hope for some much needed consistency and stability going forward