



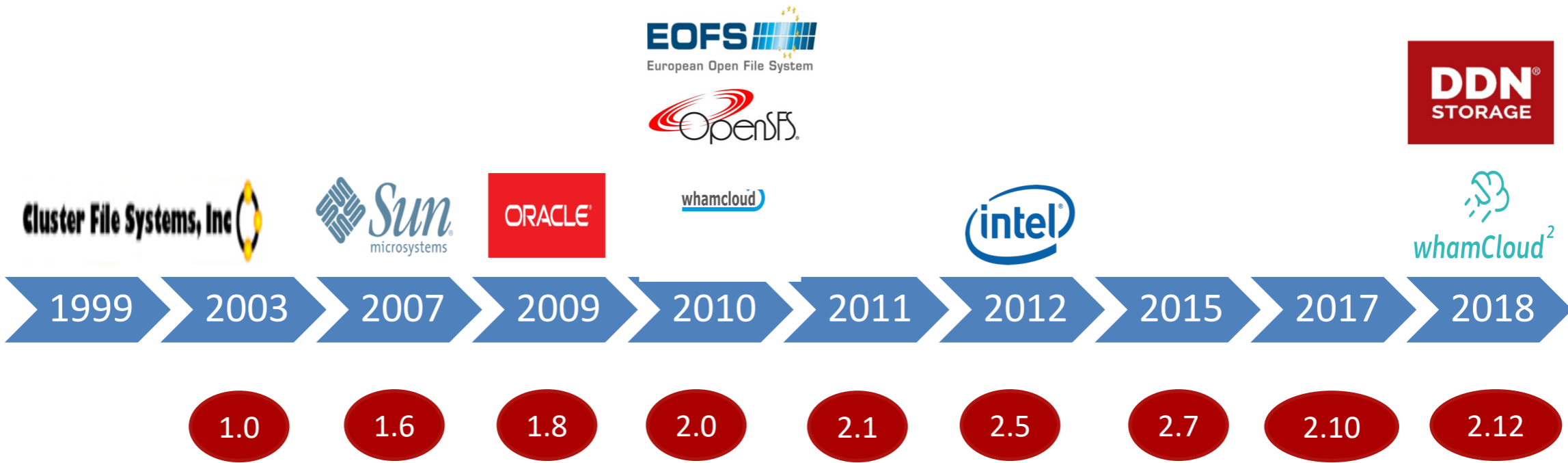
Lustre Update

EOFS General Assembly – Jan 25th 2019

Peter Jones, Whamcloud

OpenSFS Lustre Working Group

History of Lustre



Illustrates the resilience of open source technology in the face of organizational changes

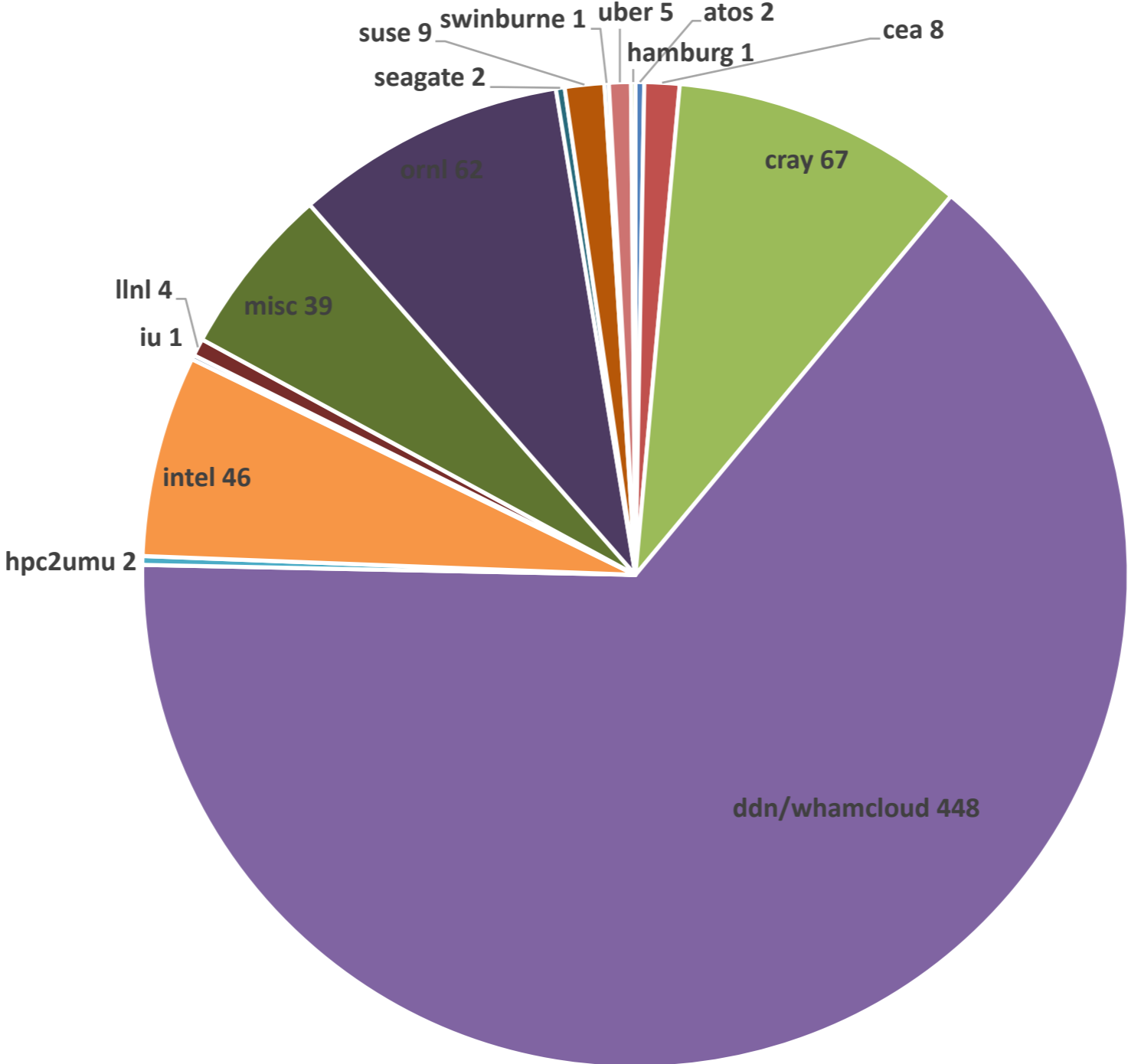
Lustre LTS Releases

- Lustre 2.10.0 went GA July 2017
 - Declared as initial LTS branch
 - Regular 2.10.x maintenance releases since
 - Strong adoption of this release
 - Lustre 2.10.6 Dec 2018 (added RHEL 7.6 support)
 - Lustre 2.10.7 targeted for Q1
- Lustre 2.12.0 went GA Dec 2018
 - Will be next LTS branch
 - Provides reliable option for newer kernels/features
 - Will provide transition period with 2.10.x LTS
 - Lustre 2.12.1 targeted for Q1

Lustre 2.12

- OS support
 - RHEL 7.6 servers/clients
 - SLES12 SP3/Ubuntu 18.04 clients
- Interop/upgrades from latest Lustre 2.10.x and 2.11
- Ships with latest ZFS 0.7.x but ZFS 0.8.x ready
- Number of useful features
 - DNE Directory Restriping (LU-4684)
 - LNet Network Health (LU-9120)
 - Lazy Size on MDT (LU-9538)
 - T10PI end to end data checksums (LU-10472)
- http://wiki.lustre.org/Release_2.12.0

Lustre 2.12 Contributions

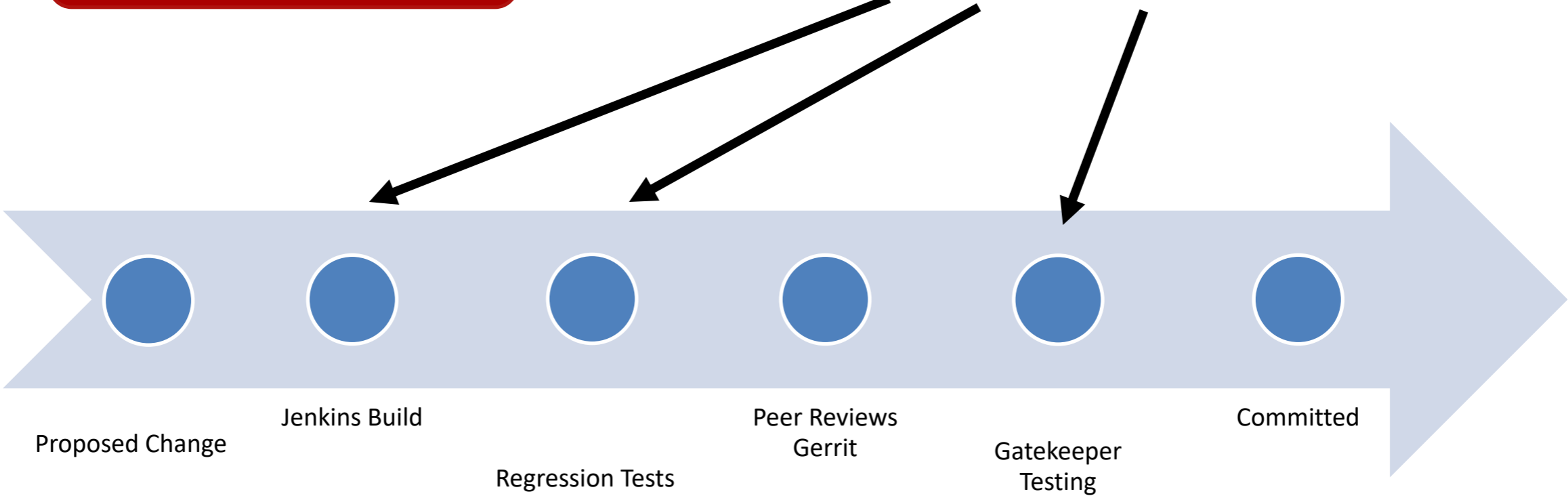


git://git.Whamcloud.com/fs/lustre-release.git 2.11.50 to 2.12.0

Lustre and Arm

New in Lustre 2.12!

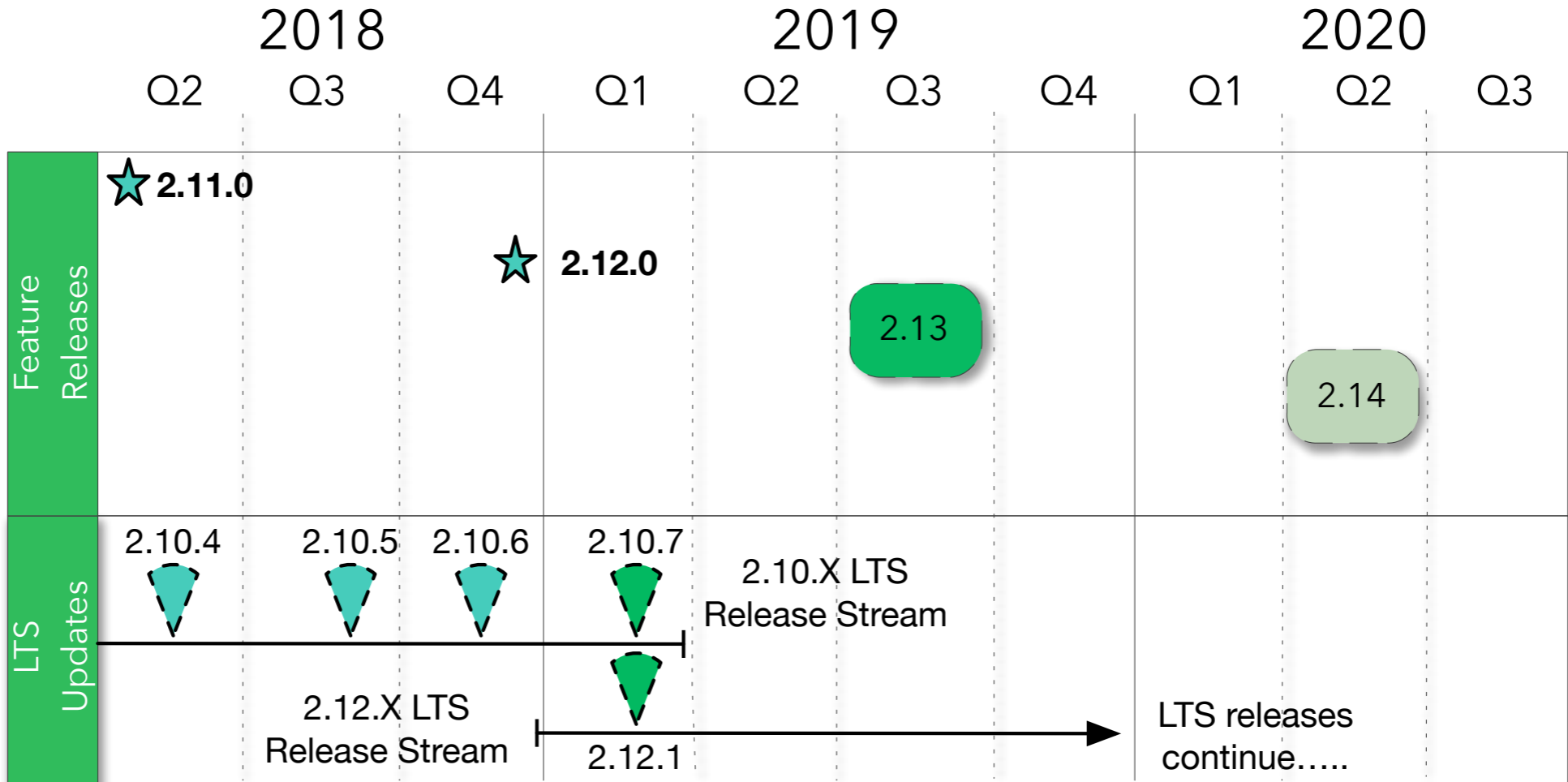
arm



<http://lustre.org/development/>

Arm® Lustre clients now included in CI development process

Lustre Community Roadmap



LEGEND: Expected Timeline Timeline TBD Completed LTS Branch

- 2.11**
- [Data on MDT](#)
 - [FLR Delayed Resync](#)
 - [Lock Ahead](#)

- 2.12**
- [Lazy Size on MDT](#)
 - [LNet Health](#)
 - [DNE Dir Restriping](#)

- 2.13**
- [Persistent Client Cache](#)
 - [LNet Selection Policy](#)
 - [Self Extending Layouts](#)

- 2.14**
- [FLR Erasure Coding](#)
 - [Health Monitoring](#)
 - [DNE Auto Restriping](#)

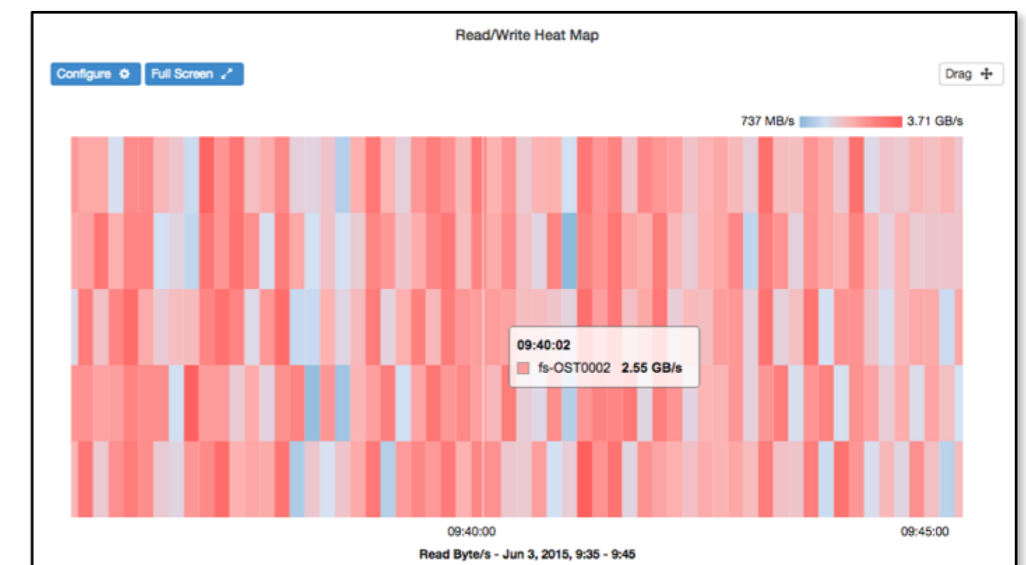
* Estimates are not commitments and are provided for informational purposes only
 * Fuller details of features in development are available at <http://wiki.lustre.org/Projects>



Integrated Manager for Lustre

<https://github.com/whamcloud/integrated-manager-for-lustre/releases>

- IML 4.0 GA Oct 2017
 - Compatible with Lustre 2.10.x
 - latest maintenance release 4.0.8
 - 4.0.9 in final testing
 - Distributed under an MIT license
 - Possible to upgrade from Intel EE 2.x/3.x
- IML 5.0 targeted for mid-2019
 - Compatible with Lustre 2.12.x
 - Extending scale of clusters it can manage
 - More flexibility around HA schemes
 - Reduced resource utilization
 - Will require downtime to upgrade



Lustre in Linux Kernel

- Added to kernel staging area in 3.11
 - Basic code reformatting had not been done beforehand
 - Kernel staging rules made subsequent updates challenging
- Removed from staging area in 4.17
- Work is continuing at <https://github.com/neilbrown/lustre>
 - Suse and ORNL driving this initiative
 - Now functionally equivalent to 2.10.x client
- Plan to resubmit when code is ready for acceptance
- Major ldiskfs patch merged into upstream ext4/e2fsprogs
 - Now much easier to keep Lustre e2fsprogs current

Lustre in the Cloud

- Intel AWS offering transferred to DDN-Whamcloud
 - <https://aws.amazon.com/marketplace/pp/B07FTX9GBV>
 - Used in production environments since 2015
- Amazon announced FSX for Lustre Software in Nov 2018
 - <https://aws.amazon.com/fsx/lustre/>
 - Intending to be active community participants
- Google also interested in Lustre
 - Gave several talks about Lustre at SC18 and entered IO-500
 - Submissions ranked 12th in main list and 6th in 10 node challenge
 - <https://www.vi4io.org>

Lustre Users Group

SAVE THE DATES



UNIVERSITY of **HOUSTON**

CENTER FOR ADVANCED COMPUTING & DATA SYSTEMS

May 14--Developers Day

May 15-17 Lustre Users Group (LUG) Conference

Student Center--University of Houston Main Campus
Houston, TX 77204

www.opensfs.org/events/lug-2019/



Thank you

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