Community Release Update

October 13th 2020

Peter Jones, Whamcloud

OpenSFS Lustre Working Group
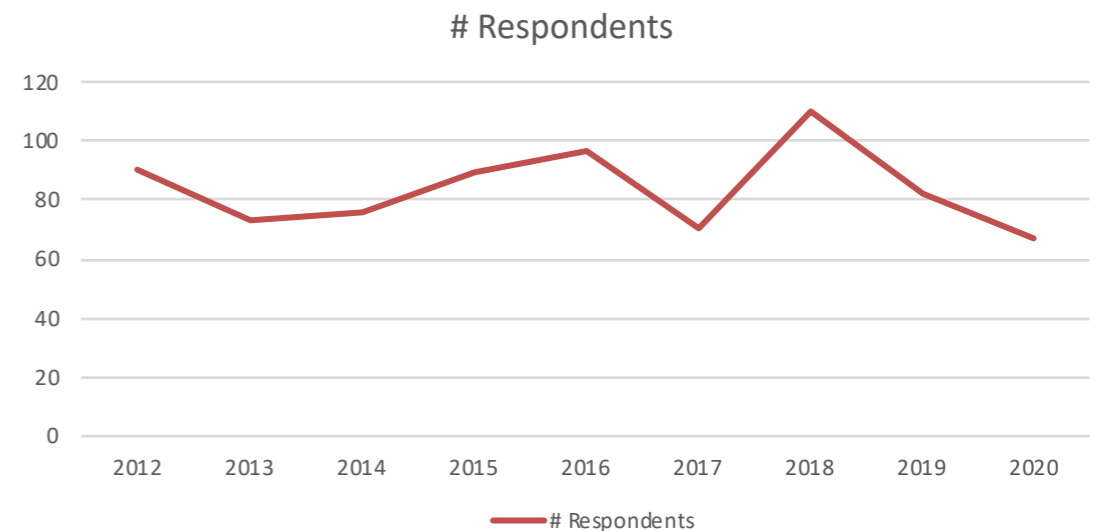
Ten Years of LAD

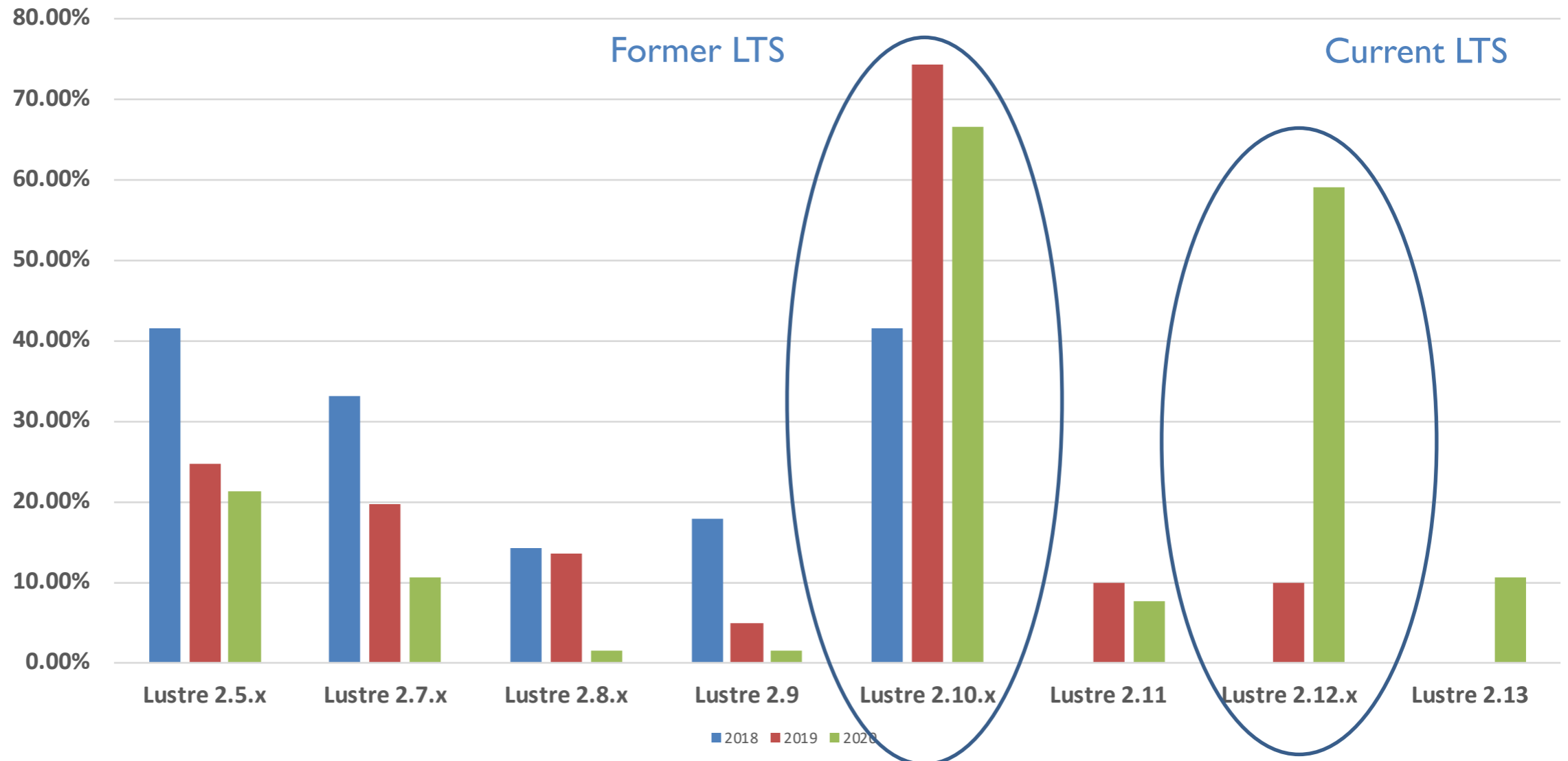

2013

2014

2016

2011

2015

2019

OpenSFS Lustre Working Group

- Has been operating as the single forum for planning activities for the community releases for a decade
- Led by Peter Jones (Whamcloud) and Dustin Leverman (ORNL)
- All welcome to attend and/or join the mailing list
- For more information visit the wiki
- http://wiki.opensfs.org/Lustre_Working_Group

- LWG issues survey annually in March to track trends in Lustre usage
- Full details available at http://wiki.opensfs.org/Lustre_Community_Survey

Respondents

Community Survey - Versions

Which Lustre versions do you use in production? (select all that apply)

- Usage coalescing around LTS releases
- Lustre 2.12.x LTS has the fastest adoption rate for production usage
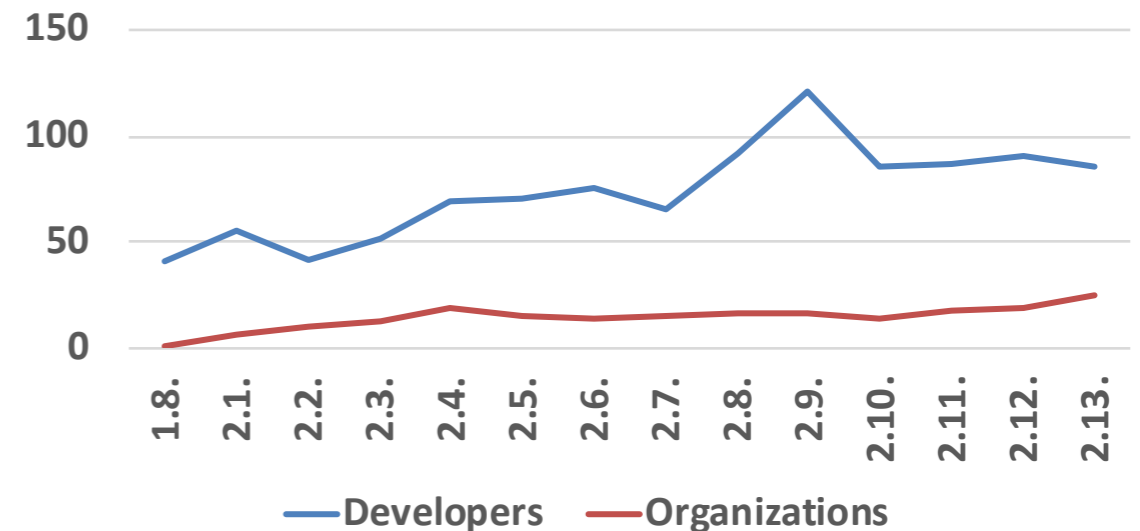
Lustre 2.12.x LTS

- Lustre 2.12.5 went GA on June 8th
  - RHEL 7.8 server and client support
  - RHEL 8.2 and SLES12 SP5 client support
  - MOFED 4.9 (though MOFED 5.x expected to work)
  - Bug fixes from production 2.12.x deployments
  - http://wiki.lustre.org/Lustre_2.12.5_Changelog
- Lustre 2.12.6 will be released in the coming weeks
  - Support for building with MOFED 5.1
    - testing still focused on MOFED 4.9.x
- No decision on the next LTS release has been made yet

A Decade of Community Development
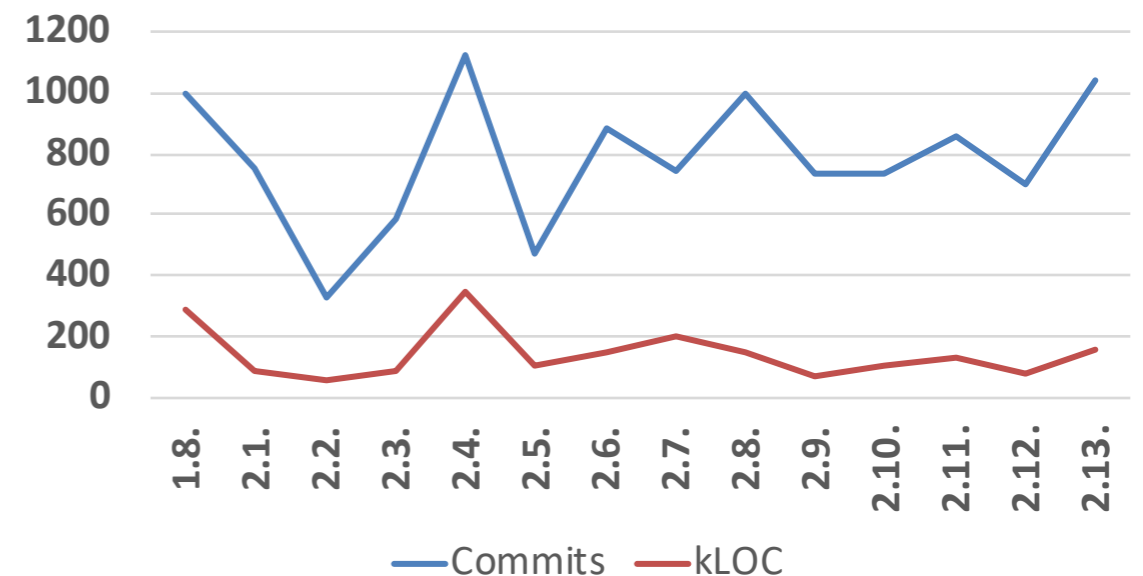
- Prior to OpenSFS designating the canonical release and the kernel-style contribution model, external contributions were rare
  - Lustre 1.8 (2009) had no external contributions
  - Lustre 2.13 (2019) had contributions from 85 developers from 25 organizations

Lustre Contributions by Release

Legend: Developers, Organizations

Lustre Code Change by Release

Legend: Commits, kLOC

A Decade of Community Development

- Over the last ten years we have had Lustre code contributions from
  - 45 distinct organizations
  - 217 individual developers

- Many of the developers have worked for multiple organizations over that period

- The contribution model means Lustre continues to thrive even as participating organizations change stratagies

Contributions over ten years by Active Developers

Developer	kLOC
James Simmons	251
John Hammond	133
Andreas Dilger	101
Mike Pershin	72
Patrick Farrell	70
Alex Zhuravlev	65
Yu Jian	60
Amir Shehata	47
Yang Sheng	46
Lai Siyao	29

Developer	NOC
Andreas Dilger	652
James Simmons	639
John Hammond	475
Alex Zhuravlev	389
Oleg Drokin	375
Neil Brown	317
Mike Pershin	263
Zhenyu Xu	241
Amir Shehata	237
Yang Sheng	217

James Simmons (ORNL)
Top contributor of the decade in terms of Lines of Code

Data courtesy of Dustin Leverman (ORNL)

Lustre 2.14

- In final release testing; should be out late Q4
- OS support
  - RHEL 8.2 servers/clients
  - RHEL 8.2/SLES15 SP1/Ubuntu 20.04 clients
- Interop/upgrades from 2.13 and latest Lustre 2.12.x
- Will ship with ZFS 0.8.4 by default
- MOFED 5.1
- Number of useful features
  - Client-side Data Encryption (LU-12275)
  - OST Pool Quotas (11023)
  - DNE Auto Restriping (LU-11025)
- http://wiki.lustre.org/Release_2.14.0

Release Testing

- Release testing practices continue to evolve
- Functional testing
  - Switched to new POSIX validation test from https://github.com/pjd/pjdfstest
  - Added new test groups focused on security
    - review-dne-ssk, review-dne-selinux, review-dne-selinux-ssk
  - Introduced sanity-lnet test group
  - New distros (Ubuntu 20.04 and SLES15 SPx)
- Performance testing
  - IO-500 used for performance comparison between releases
- LUTF
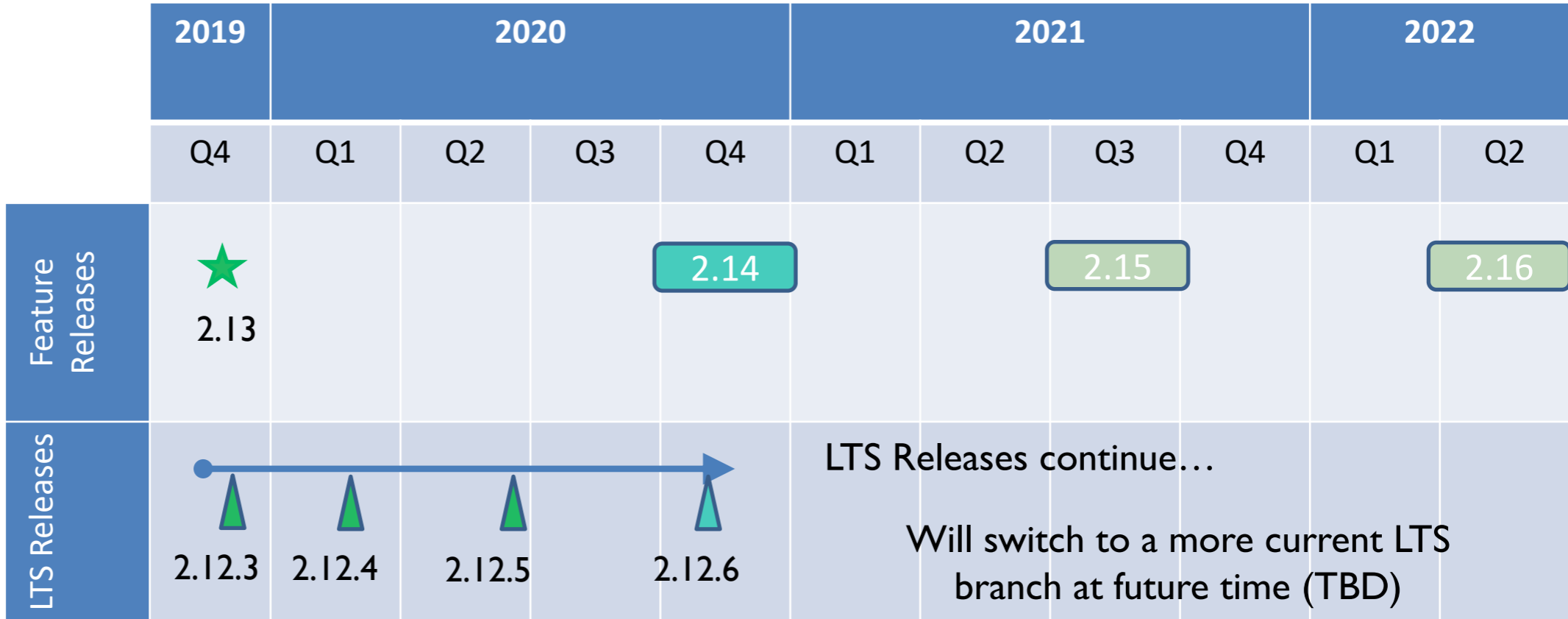 - Test framework for LNet
  - https://wiki.whamcloud.com/pages/viewpage.action?pageId=125999964

Release Testing (cont)

- Gatekeeper pre-landing tests
  - *-next "boiling pot" using debug kernels with pathological usage patterns
    - Spotlights new crashes
  - "Gatekeeper helper"
    - Smatch static code analysis on every patch submission
    - Spotlights new test failures
  - https://www.eofs.eu/_media/events/lad19/oleg_lad2019.pdf

Lustre Community Roadmap

	2019	2020				2021				2022	
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Feature Releases	★ 2.13				2.14			2.15			2.16
LTS Releases	●————————————————————————➤ 2.12.3 2.12.4 2.12.5 2.12.6					LTS Releases continue… Will switch to a more current LTS branch at future time (TBD)					

LEGEND: 🟩 Completed   🟦 Expected Timeline   🟩 Timeline TBD   ●➤ LTS Branch

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2.13
- **Persistent Client Cache**
- **Multi-Rail Routing**
- **Overstriping**

2.14
- **Client Data Encryption**
- **OST Pool Quotas**
- **DNE Auto Restriping**

2.15
- **FLR Erasure Coding**
- **Client Directory Encryption**
- **LNet IPv6 Addressing**

2.16
- **FLR Immediate Mirror**
- **Metadata Writeback Cache**

* 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

OpenSFS.

Summary

- LTS model has been well adopted; focus switched to 2.12.x LTS

- Lustre 2.12.6 coming soon

- Lustre 2.14 in final release testing

- Plenty of options for those interested in contributing to Lustre

- LWG http://wiki.opensfs.org/Lustre_Working_Group

Thank you

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