

Presented by Galen Shipman

**Presented to LUG 2011
Orlando FL, April 12, 2011**

OpenSFS Participants

CRAY®

 Lawrence Livermore
National Laboratory

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NETWORKS

 **OAK
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National Laboratory



INDIANA UNIVERSITY

 **RAID**
INCORPORATED

whamcloud

Topics

- OpenSFS – the organization
- Working Group Overviews
 - Release/Support Working Group
 - Technical Working Group
 - Lustre WAN Working Group
- Community Challenge: Canonical Lustre Repository
- FAQ

OpenSFS – Purpose

- To provide a mechanism to further enrich and support communities of software developers of interoperable scalable High Performance Computer (HPC) open source file systems to be run on the Linux operating system.
- To incentivize the development, testing, and productization of an improvement to the state of the art and technology base of HPC Linux based scalable file systems and promote the adoption of these technologies by a broader set of international HPC users and institutions.

OpenSFS Organization



Open SFS Release Planning and Support Working Group

Ryan Weiss – RPWG
Pam Hamilton – SWG

Lustre 2.1 Testing/Release

- The OpenSFS RPWG and SWG have combined efforts to support the Lustre 2.1 release
- Goals of this effort include:
 - Collaborate with the entire Lustre community on version 2.1 of the Lustre file system
 - Provide manpower from the Support and Release Planning Working Groups to facilitate the testing and bug-fix process
 - Provide hardware resources from member organizations to facilitate the testing process
 - Contribute code which fixes bugs found during testing

Lustre 2.1 Testing/Release

- Release Manager, Peter Jones
- Gatekeeper, Oleg Drokin
- Weekly conference calls
 - Tuesdays at 9:30am Pacific
 - Dial-in 866-914-3976 (925-424-8105) x534986#
 - Discussions include testing and blocker updates
- A Lustre 2.1 Google group has been setup as a forum to discuss this release
 - <http://groups.google.com/group/lustre-21>
 - Please feel free to signup for this mailing list whether you are interested in collaborating in this release or just observing

Beyond the 2.1 Release

- We have a process adopted for Lustre 2.1
 - This is a very good sign
 - ..but it is unclear what the proper model is for future work
- The Lustre community is still in a state of flux
 - There is not consensus among all the “Communities” as to what model should be adopted for the future
 - *Consensus is often the absence of leadership*
- Regardless, a process must be adopted, accepted by the community, and implemented
 - Future Lustre development in the context of a single tree requires this

Open SFS Technical Working Group

Dave Dillow
John Carrier
Working Group Co-Leads

Mission Statement

- Work with the Lustre community to ensure that Lustre continues to support the stability, performance, and management requirements of the OpenSFS members as HPC compute platforms continue to scale.
- Responsible for creating and managing the roadmap for the OpenSFS community
 - Gather requirements from the Lustre HPC community
 - Prioritize and recommend development projects to the Board
 - Initiate RFPs for important features
 - Work with contractors to meet these requirements.

Why is this important?

- The needs of the HPC community are focused on file system scalability and stability
- HPC requires Lustre to run on Linux server platforms and to include features critical to its continued growth in scale
- OpenSFS requires technical leadership to guide the funding of a Lustre roadmap that meets those requirements

Who is the TWG?

- The following have participated in the TWG Requirements gathering process

Bull	LLNL
Cray	NRL
DDN	ORNL
Fujitsu	RAID, Inc.
Indiana University	Whamcloud
LBL	Xyratex

- TWG email archives available at
<http://lists.opensfs.org/pipermail/twg-opensfs.org/>

RFP Released

- OpenSFS Phase 1 Lustre development RFP issued
- Intended to address the two highest priority requirement categories as presented by the TWG
 - OpenSFS members and non-members alike
- Proposals are due April 22nd, 2011
- Intent to propose statements requested by April 15th, 2011
- RFP available at:
http://www.opensfs.org/?page_id=149

Open SFS Wide Area Filesystem Working Group

Stephen Simms
Working Group Lead

Presented to LUG 2011
Orlando FL, April 14, 2011

Mission Statement

- There are currently gaps in Lustre's functionality that makes its use as a site-wide and wide area filesystem difficult.
- The purpose of this group is to gather requirements from others who would like to improve Lustre's performance and security when used across the wide area.
- As a secondary mission, for the benefit of a larger community, this group will gather, disseminate, and promote best practices for wide area use of the Lustre filesystem.

Efforts

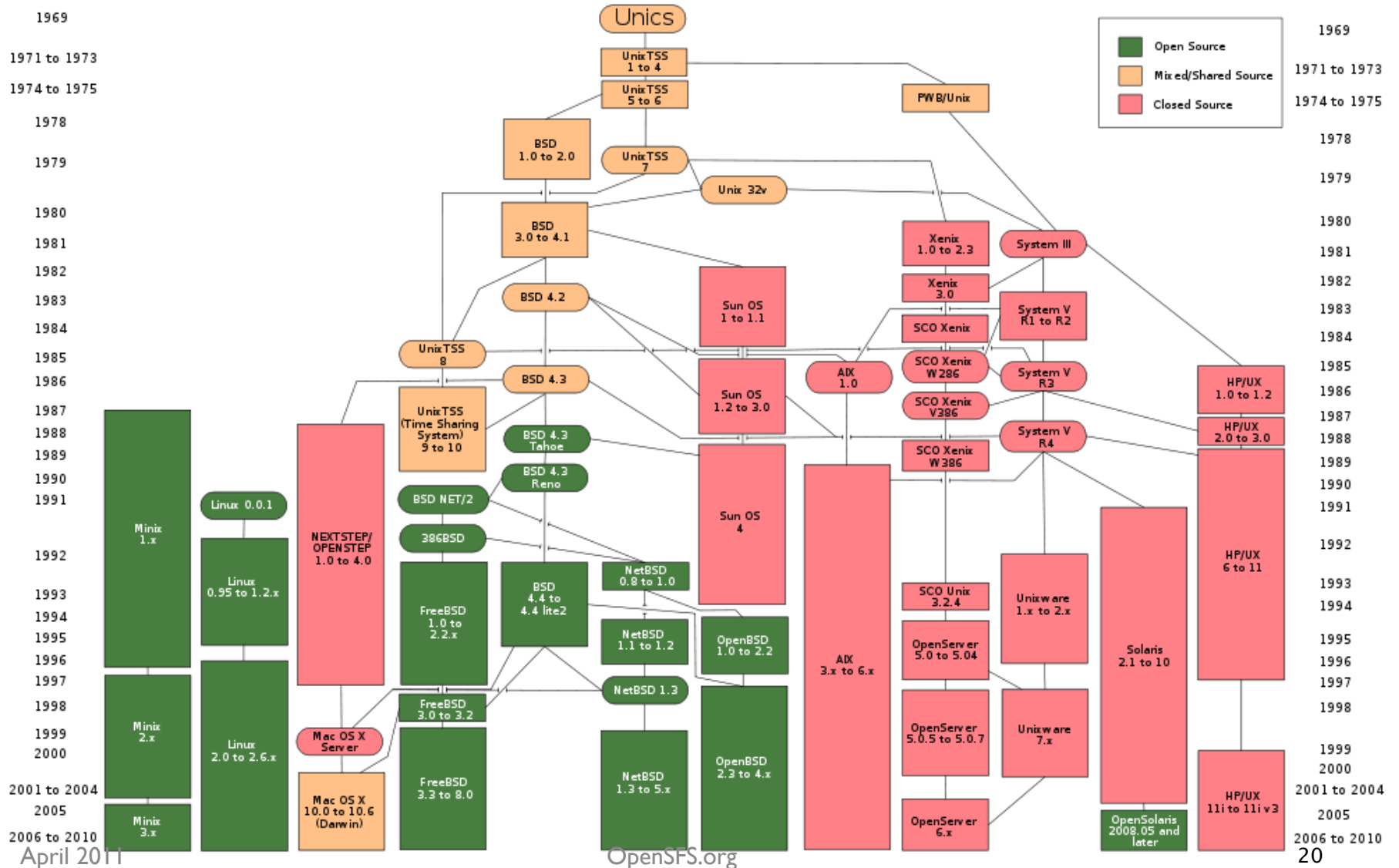
- WAN Workgroup members Indiana University and Whamcloud have collaborated with ZIH in Dresden to measure Lustre WAN performance across the 100Gb link that currently spans Dresden and Freiberg.
- A first cut at requirements were presented to the TWG for consideration in the RFP
- Join our mailing list:
 - <http://lists.opensfs.org/listinfo.cgi/wan-opensfs.org>

Community Challenge: Canonical Lustre Repository

Open Issues for the Community

- Who holds the canonical Lustre repository?
 - The community? A single vendor?
 - Do vendor's business models support a single canonical Lustre?
 - Requires transparency of development roadmap, architecture, and an open source development model
 - How do we pay for this?
- Lustre is not free
- How do we want to pay for Lustre?
 - Support contracts with a vendor?
 - Overhead cost on integrated appliances?
 - Volunteer resources?
 - Community organization dues?

Why a Single Canonical Lustre is Important - The lesson of Unix



The cost of community

- Anyone can setup a source repository and a bug-tracker.
- How do we cover the costs of managing a repository and preparing canonical Lustre releases?

Bug Fix Releases	Feature Releases	Test Infrastructure
Release Manager 0.5 FTE	Architect 0.25 FTE	Hardware Maint. 0.5 FTE
Gatekeeper 1 FTE	Release Manager 1 FTE	System Admin 0.5 FTE
Test Lead 1 FTE	Gatekeeper 1 FTE	150K/year hardware refresh, power, space, cooling
QE Engineer 1 FTE	Test Lead 1 FTE	
Documentation 0.25 FTE	Lustre Engineers 6 – 8 FTEs	
	QE Engineers 2 – 4 FTEs	
	Documentation 1 FTE	

– Over 11 FTEs/year excluding feature development

What model works?

- The Linux foundation
 - Promotes Linux – serves as a neutral spokesperson
 - Protects Linux – funds independent developers
 - Improves Linux – empowers developers worldwide
 - Substantial resources are required to enable this
- In this model the foundation is akin to kernel.org
 - Independent developers beholden only to the community
 - Requires broader support, companies that rely upon Lustre need to participate and cover substantial costs
 - Requires identifying and funding independent respected Lustre engineers
- Requires a governance model to handle potential disputes between organizations

OpenSFS FAQs

FAQ: What are the benefits of joining OpenSFS?

- A. Participants in OpenSFS have the exciting opportunity to be directly and meaningfully involved in the cutting-edge development of open scalable file systems by participating in working groups, voting on OpenSFS Alliance Releases, and working collaboratively with other members of the community.

FAQ: Why is there more than one level of participation, rather than a single level of membership?

- A. There are three primary levels of participation in OpenSFS: Promoters, Adopters and Supporters.
- This structure is similar to many other technical community organizations and permits members of the community to participate at whatever level is most appropriate for their circumstances.
- All Participants have the opportunity to contribute to and participate in Working Groups, vote on Alliance Releases, and receive information about community activities.
- As an open organization, OpenSFS does not dictate what level of participation an individual or organization may join at. Rather, members of the community are free to join at whatever participation level is most appropriate, based on their own technical, financial, and time commitments.

FAQ: Q. Will OpenSFS releases be open source?

- A. Yes. All releases by OpenSFS will be made available as open source.
- OpenSFS was specifically formed to support scalable open source file systems, such as Lustre, and is committed to maintaining the open source nature of such file systems.
- In addition, OpenSFS' Bylaws and Contributor Agreement require OpenSFS to make all releases available under an open source license.

FAQ: What's up with the OpenSFS By-Laws?

- A. OpenSFS is specifically structured to establish a vendor-neutral playing field and to help protect the user community.
- By-laws are in place to protect users from potentially being exposed to a patent holder later attempting to prevent the community from using the software or imposing patent licensing fees.
- The intellectual property provisions in the Bylaws are intended to help protect end users in the community from litigation arising from claims regarding ownership. We do not have a level of participation that supports non-open-source contributions.

For more information:

➤ Visit <http://www.opensfs.org/>