

A photograph of solar panels, showing a grid of blue cells reflecting the sky and clouds. The panels are arranged in rows and columns, creating a strong geometric pattern.

# Lustre Roadmap

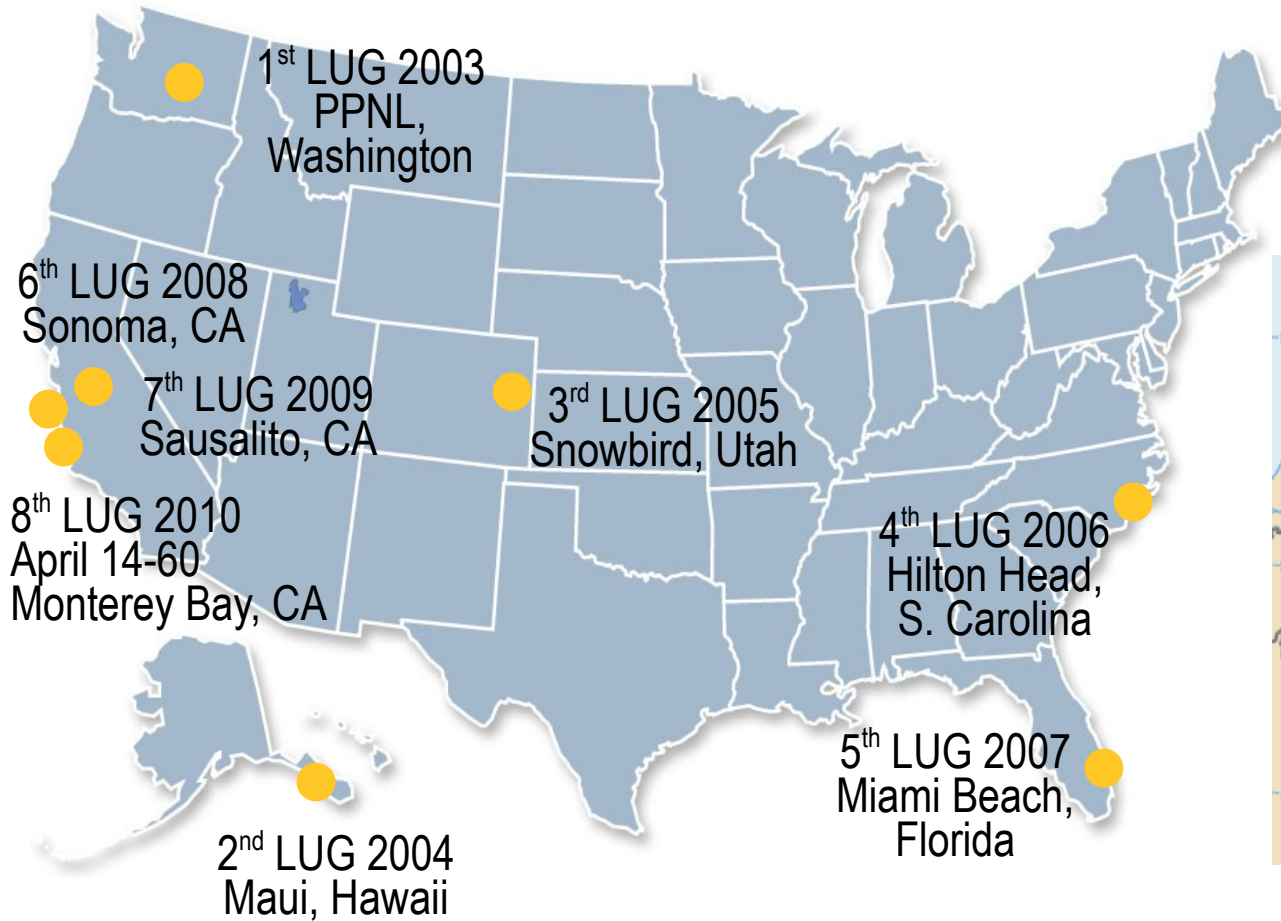
**HPC Software Workshop  
Open Storage Track, Regensburg 2009**

**Dan Ferber  
Sun Microsystems**

# Welcome to The Sun HPC Software Workshop Regensburg, Germany Open Storage Track



# LUG and Workshop Locations



HPC Software  
Workshop 2010  
Regensburg, Bavaria

# LUG and Regensburg Participation

Location	Total Registrants	Organizations
Miami Beach, FL	68	40
Sonoma, CA	122	43
Sausalito, CA	125	43
Regensburg	50	25

# Thank You



**UNIVA UD**

## Sponsors



**Customer Lustre Presenters**  
Arnie Wiebalck, Daniel Kobras,  
Otto Buechner, Rajmund Krivec,

**Sun Lustre Presenters**  
Andreas Dilger, Dan Ferber, Harriett Coverston  
Johann Lombardi, Sven Trautman, Torben Kling-Petersen

# Enhanced lustre.org Wiki

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## High Performance and Scalability

For the world's largest and most complex computing environments, the Lustre™ file system redefines high performance, scaling to tens of thousands of nodes and petabytes of storage with groundbreaking I/O and metadata throughput.

**More on Lustre performance, service, and support at [sun.com/lustre](http://sun.com/lustre)**

### September HPC Software Workshop in Germany is Full

The Lustre Advanced Seminar and Open Storage Workshop in Regensburg, Germany this September 7-10 is at capacity. Slides from presentations will be posted after the event. Please consider joining the Sun Lustre team at SC09 November 14-20 in Portland, Oregon and also at LUG 2010 April 14-16 at Monterrey Bay, California. Registration for LUG 2010 will be available in November.

### Lustre 1.8.1

Lustre 1.8.1 is now available for [download](#). Lustre 1.8.1 offers several robust, new features including [Adaptive Timeouts](#), [OSS Read Cache](#), [OST Pools](#) and [Version-based Recovery](#). [Read more](#) about 1.8 features and why you should upgrade.

**Download**

Download this open source software for free.

» [Get Lustre](#)

**Learn**

Find out about Lustre interoperability, features and publications.

» [Projects and Roadmap](#) » [Publications](#)

**Use**

User resources to make Lustre perform at its best.

» [Install and Configure](#) » [Administer](#)

**Contribute**

Developer resources and tools to contribute to Lustre.

» [Code](#) » [Test](#) » [Pre-Release Versions](#)

**Get Involved**

Find groups and community developer projects.

» [Community](#) » [Lustre Centers of Excellence](#)

# Lustre Support Matrix on lustre.org

**Lustre Releases**

This table below lists major Lustre releases, including the release date, end of life (EOL) date, and a link to the release's change log.

Lustre Version	Release Date	EOL Date	Change Log
1.8-1.8.x	May 2009	TBD	<a href="#">Change log 1.8</a>
1.6-1.6.x	2007	June 2010	<a href="#">Change log 1.6</a>
1.4-1.4.x	2006	June 2009	<a href="#">Change log 1.4</a>

**Lustre Support Matrix**

This matrix lists the kernels, e2fsprogs and network versions that are officially supported by each Lustre release, and for which we provide compiled Lustre packages (RPMs).

- A "supported" version has been tested and verified against Lustre, and we provide official support for it.
- A "not supported" version has **not** been tested against Lustre, and we do not provide official support for it. "Not supported" versions are not recommended for use with Lustre, although they may work in a given environment.

**NOTE:**

For detailed information about the Lustre 1.8 release, see [Change Log 1.8](#).

For detailed information about the Lustre 1.6.x releases, see [Change Log 1.6](#).

Supported Kernels	Lustre Version							
	1.8.1	1.8.0.1	1.8.0	1.6.7.2	1.6.7.1	1.6.6	1.6.5.1	1.6.4.3
<b>RHEL 5</b>								
2.6.18-128.1.14.el5	X							
2.6.18-128.1.6.el5		X						

# Lustre's OEM Ecosystem

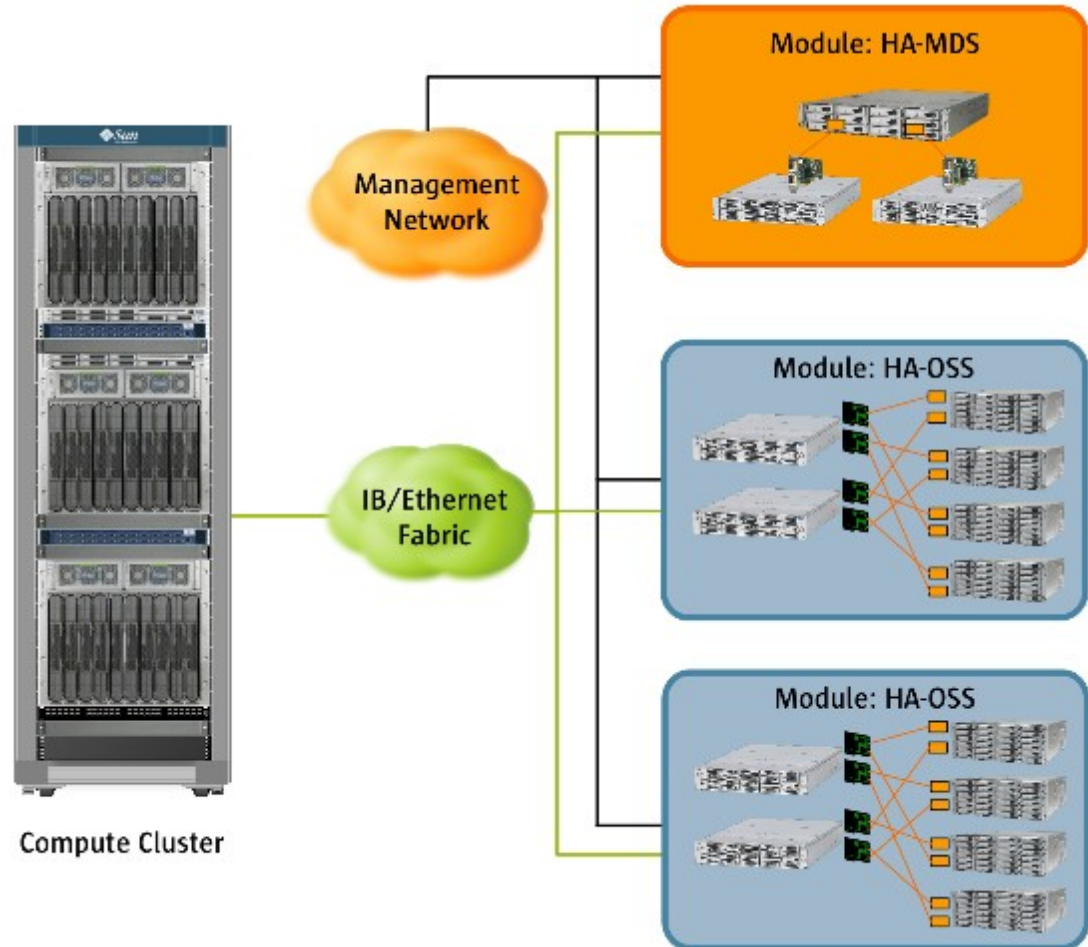




# Sun Lustre Storage System

<http://sun.com/scalablestorage>

- Fully integrated Lustre storage solution based on proven reference architecture
- Offers compelling price/performance value through Sun Open Storage products
- Optimized software stack with automated install and configuration tools
- Sun Professional Services and Support to ensure success



# Professional Services & Support

Sun  
expertise  
for your

**SUCCESS**

## Enterprise Installation Service

- HPC and storage installation services

## Lustre Implementation Services

- Highly flexible, modular design
- Design, implementation and information transfer

## Sun Spectrum Hardware Services Plans

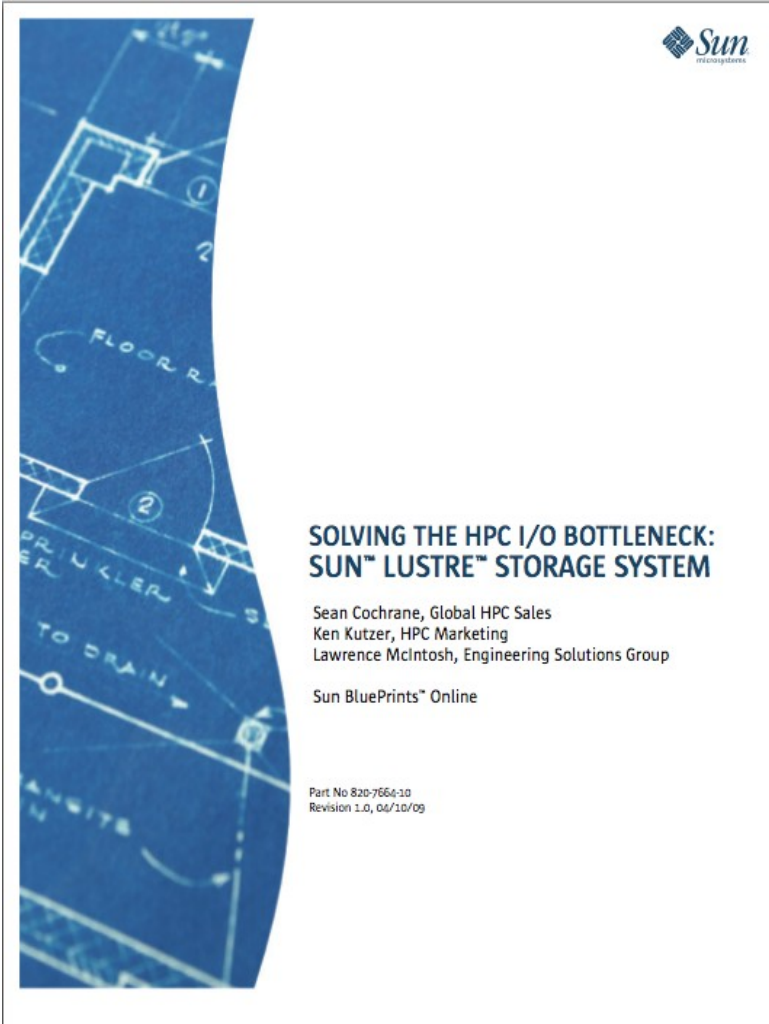
- Dependable maintenance coverage and technical assistance


## Sun Spectrum Software Services Plans

- Online technical support, updates (patches), and knowledgeable

# More About Lustre Storage System

- Lustre on Sun.com  
<http://sun.com/lustre>
- Sun Lustre Storage System on Sun.com  
<http://sun.com/scalablestorage>
- White paper – Solving the I/O Bottleneck: Sun Lustre Storage Solution
- **Presentation**  
**Tomorrow - Wednesday**  
**09:30-10:00**  
**Open Storage Track**



Sun  
microsystems

**SOLVING THE HPC I/O BOTTLENECK:  
SUN™ LUSTRE™ STORAGE SYSTEM**

Sean Cochrane, Global HPC Sales  
Ken Kutzer, HPC Marketing  
Lawrence McIntosh, Engineering Solutions Group

Sun BluePrints™ Online

Part No 820-7664-10  
Revision 1.0, 04/10/09

# Some 2009 Accomplishments

- Lustre on 7 of top 10 Supercomputers in the world
- Supercomputer JuRoPA2 Forschungszentrum Jülich
  - > Sun, Intel, Bull, ParTec partnering with Jülich
- New IO performance record
  - > 240 GB/s aggregate on ORNL Jaguar
- Advancement on development goals
  - > Hundreds of bugs fixes and enhancements to HEAD
  - > Lustre 2.0 alpha releases
  - > Lustre kDMU server partnership with Jülich
  - > 1.8.1 release of Lustre
- Lustre Internals Guide – Partnership with ORNL

# Lustre Roadmap



## Available Now

- Lustre 1.8.1
- ✕ OST pools
- ✕ OSS read cache
- ✕ Adaptive timeouts
- ✕ Version based recovery (VBR)

Lustre 2.0 alpha

Linux Distributions and end of Life Info at:  
[http://wiki.lustre.org/index.php/Lustre\\_Support\\_Matrix](http://wiki.lustre.org/index.php/Lustre_Support_Matrix)

## Q4 2009

- Lustre 2.0
- ✕ Server and client restructured for CMD and ZFS
- ✕ Server Change Logs
- ✕ Commit on Share
- ✕ SOM Preview

## 2010

- ✕ ZFS Lustre GA
- ✕ HSM for HPSS
- ✕ Improved SMP scaling
- ✕ Size on MDS
- ✕ Fast Recovery
- ✕ Clustered MetaData Preview

## 2011+

- Clustered MetaData GA
- Online Data Migration
- MD Write Back Cache
- Proxies
- Other HPCS related features

### Other Features In Progress

- Windows Native Client
- Security GA
- Network Request Scheduler
- pNFS exports
- HSM/SAM-QFS
- Scalable health monitoring

### Direction and Product Goals

- Integrate Lustre with ZFS/DMU (kernel space)
- Exabytes of storage, trillions of files, 100,000s of clients
- TBs/sec of throughput, 100K MDS operations
- Community driven tools and interfaces

## lustre.org Community Site

Kernel / Version	Lustre Version			
	1.8.0	1.8.7.1	1.8.6	1.8.5.1 1.6.4.3
<b>RHEL 5</b>				
2.6.18-02.1.17.el5		X		
2.6.18-02.1.12.el5			X	
2.6.18-03.1.14.el5				X
2.6.18-03.1.13.el5				X
<b>SLES 10</b>				
2.6.18-06-0.31		X		
2.6.18-06-0.27			X	
2.6.18-06-0.25			X	X

Use, Learn, Download, Contribute, Get Involved

A large, stylized lightning bolt graphic in shades of blue and white, positioned on the left side of the slide. It is set against a dark blue background that transitions into a lighter blue at the top. The lightning bolt is jagged and appears to be striking downwards.

# Q & A

Thank You – and say hello to:

- Andreas Dilger, Senior Staff Engineer, Lustre Group
- Harriett Coverston  
SAM/QFS Engineering
- Johann Lombardi  
Lustre Engineering
- Sven Trautman  
Lustre Engineering
- Torben Kling-Petersen  
Lustre Field Engineering