



Lustre Users Group Miami, April 2007

**Peter J. Braam, PhD
Founder, CEO & President
Cluster File Systems, Inc.**

Welcome



- To our LUG sponsor DDN



- Our customers

- Our partners – many are here!

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5 LUGs so far!

- **This is our 5th LUG**
 - 2003 PNNL
 - 2004 Maui
 - 2005 Snowbird, Utah
 - 2006 Hilton Head, SC
 - 2007 Miami
- **Choice of LUG locations is hard**
 - So hard that it delays Lustre development

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Agenda for this LUG - Today

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9:00- 9:30	Welcome & Introduction Dr. Peter Braam – CFS Founder, President & CEO
9:30-10:00	CFS Corporate Update Kevin Canady – CFS VP of Business Development
10:00-10:30	Lustre Engineering & QA Update Peter Bojanic – CFS VP of Engineering
10:30-11:00	Break
11:00-12:00	Lustre: Architecture & Roadmap Dr. Peter Braam – CFS Founder, President & CEO
12:00-13:00	Lunch
13:00-14:00	Lustre 1.6 Features & Benefits Nathan Rutman – CFS Principal Engineer
14:00-14:30	Lustre Center of Excellence Reports TBD – Oak Ridge National Lab
15:00-15:30	Break
15:30-16:00	Large HPC Installations Larry McIntosh – SUN
16:00-16:30	Texas Advanced Computing Center (TACC) Karl Schulz - TACC
18:00-19:30	Evening Reception-Sponsored by DDN

Agenda- Day 2



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9:00- 9:30	Lustre Center of Excellence Reports Stephane Thiell - CEA
9:30-10:00	Lustre Deployments Lessons Learned: Steve Simms – Indiana University
10:00-10:30	Lustre Deployments Lessons Learned: Oil & Gas Industry Keith Gray - BP
10:30-11:00	Break
11:00-12:00	Lustre Tuning Tutorial Nathan Rutman – CFS Principal Engineer
12:00-13:00	Lunch
13:00-14:00	Lustre Troubleshooting Tutorial Nathan Rutman – CFS Principal Engineer
14:00-14:30	TBD Guido Juckeland – Dresden Technical University
15:00-15:30	Break
15:30-16:00	TBD Dave Fellingner – DDN
16:00-16:30	Lustre Networking: Features & Benefits Dr. Peter Braam – CFS Founder, President & CEO
16:30-17:00	Lustre Center of Excellence Reports Mark Gary – Lawrence Livermore National Lab

Agenda – Day 3



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9:00-10:30

Lustre Requirements Session

Dr. Peter Braam – CFS Founder, President & CEO

10:30-11:00

Break

11:00-11:30

Lustre Requirements Session Part II (Voting)

11:30-12:00

CFS Wrap-Up & Thanks



CFS presence

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- **CFS LUG presence**
 - Kevin Canady, VP of Business Development
 - Peter Bojanic , VP of Engineering
 - Mike McClain, Director of Business Development
 - Don Schulte, Director of Sales
 - Bryon Neitzel, Project Manager
 - Nathan Rutman, Principal Developer

- **CFS executive team**
 - Braam, Canady, Bojanic and
 - Cindy Price, VP of Finance
 - Nicole Brown, Senior Director of Operations

- **CFS Board of Directors**
 - Peter Braam
 - Bill Blake
 - Michael Levine



Flashback



1999	Accidental initial talk about Lustre Seagate funds Lustre research
2001	<i>CFS is founded</i>
2003	Lustre in producton on the LLNL MCR Cluster 12GB/sec on Tungsten Cluster at NCSA Lustre 1.0 released
2004	2.5GB sec throughput on Bull servers
2005	15,000 MD ops/sec (Bull), 40,000 MDS/sec with clustered MD code CFS patners: Cray, Dell, DDN, Hitachi, HP, LNXI, LSI, SUN LLNL Bluegene, week 1: 175TB written in 75M files
2006	biggest computer on each continent runs Lustre 6 of world's top 10 computers run Lustre 15% of top500.org computers run Lustre 130GB/sec IO record
2007	CFS has 95 staff, growing faster than ever A challenge to our users – 1M metadata operations /sec!!
*	>40% year on year growth 6 years of consistent profitability well over 200 supported clusters 10,000's of software downloads monthly (>1TB) many open source users, companies supporting Lustre



CFS' markets

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- **Extremely high end**
 - We have leadership here
 - Complex relationships
 - Direct relationships
 - Lustre adapts to new environments every year
- **Large and very large clusters**
 - Rapidly growing business segment for CFS
 - Partner driven
 - Stability under heavy load, excellent performance
- **Emerging opportunities**
 - Lustre will spread over the WAN
 - Our past accomplishments instil faith

The product roadmap



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- **Today we are releasing Lustre 1.6.0**
 - Much more stable
 - Infinitely easier to use
 - Significantly faster
- **Highlights of recent additions**
 - Backup tools
 - Scalability improvements for comfort on 25,000 clients
 - Extensive statistics for profiling applications
- **Soon to come**
 - LNET diagnostic self test
 - Server side cache
 - A new block allocator with amazing small file performance
- **More in our Architecture & Lustre 1.6 presentations**

Theme of our user group



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- **The LUG is a forum for discussion**

- **Topics can cover**
 - Operational issues
 - Strategic issues
 - Lustre Community

- **Theme for this year:**

- **Lustre beyond traditional Clusters**
 - Multi cluster & site wide file systems
 - Workgroup and enterprise scale Lustre
 - Lustre as a global file system

 - What qualities and capabilities are required?
 - What applications will lead to optimal utilization?

Thank you!



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