

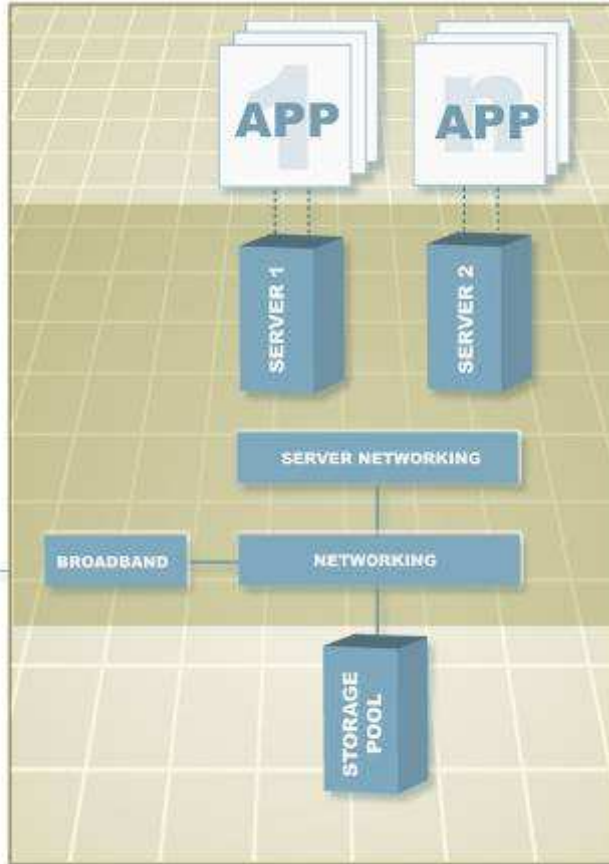
Scalable computing
without compromise.

LiquidIQ™ and Lustre:
Converged Communications,
Parallel File Systems
and Copious I/O

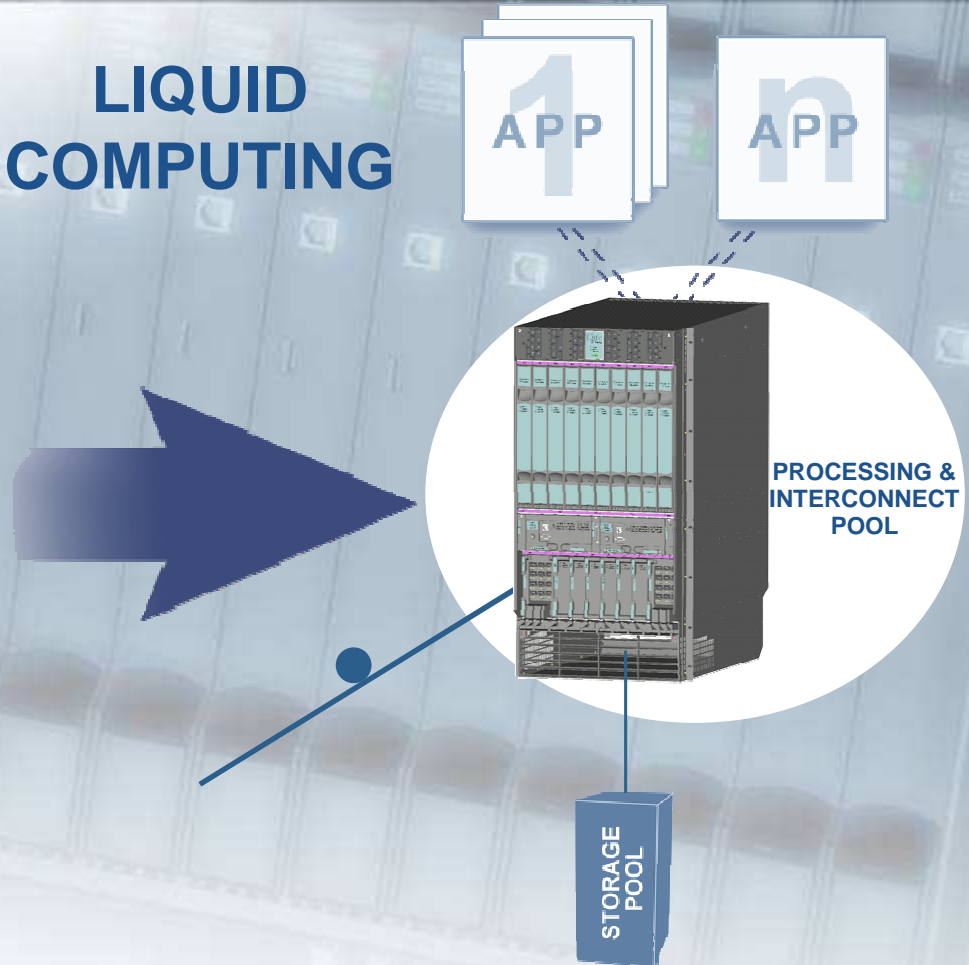
José Miguel Peleato

The Corporate Intent

TODAY

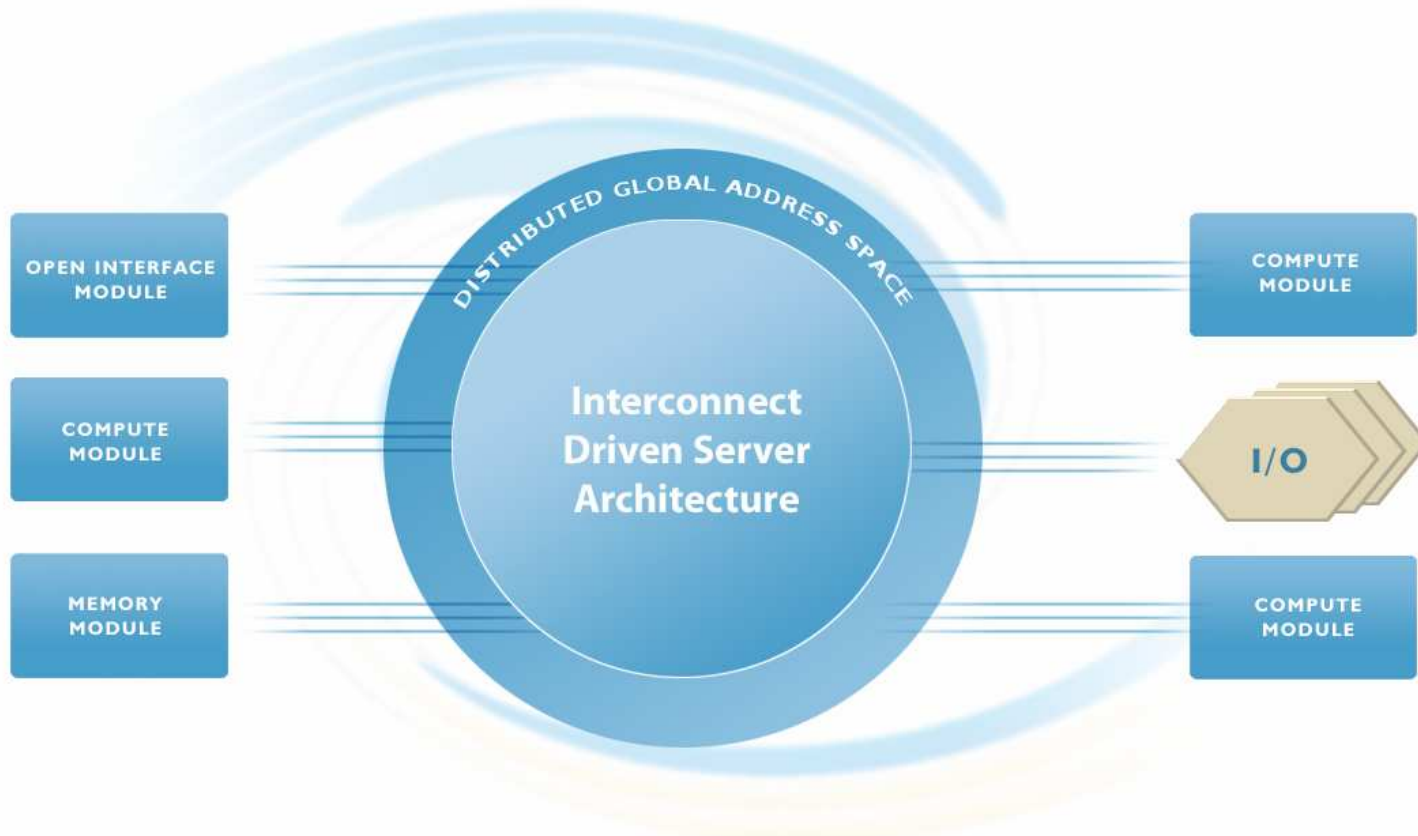


**LIQUID
COMPUTING**



The merging of computing and communications to provide a highly dynamic, scalable, and reliable processor pool.

Architecture for Scalability & Control



- Performance Optimized Communications and Computing
- Entirely New Control and Configuration Capabilities
- Hot Swappable, Scalable and Self-Managing Components
- COTS computing arranged around a very fast interconnect



Liquid Computing



ATA VENTURES



VenGrowth

Founded January 2003
Offices Ottawa, Canada
Los Altos, California
Funding Seed Round (May 2004)
Series A Round (May 2005)
Status Entering beta program





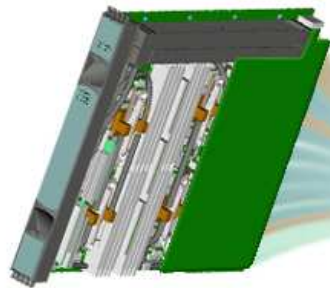
LiquidIQ™ System Components

SERVICE MODULE

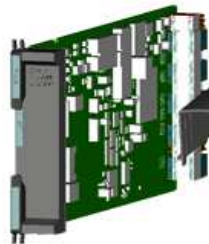
- 20 Service Modules per chassis
- Compute Module (CM)
- Memory Module
- Storage Module
- Open Interface Module

INTERCONNECT MODULE

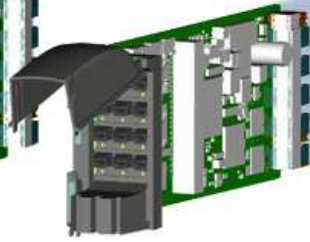
- 20 Interconnect slots
- I/O Module (IOM)
- Single Chassis Switch Module (SCSM)
- Multi Chassis Switch Module (MCSM)
- Inter Chassis Switch Module (ICSM)



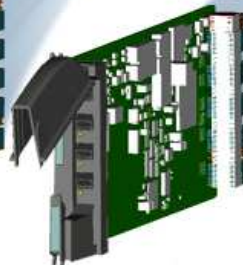
IOM



SCSM



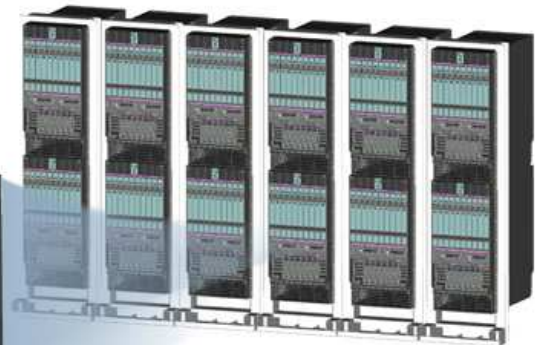
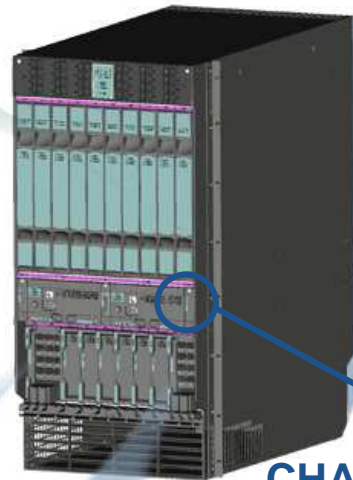
ICSM



MCSM

CHASSIS

- Power Entry Module (PEM)
- DC or AC Powered
- Mid-Plane (MP)



CHASSIS MODULE

- Alarm Interface Module (AIM)
- Alarm Module (AM)
- Network Synchronization Module (NSM)
- Synchronization Interface Module (SIM)
- Fan-Tray Module (FTM)





LiquidIQ™ : A Superior Platform for Lustre - I

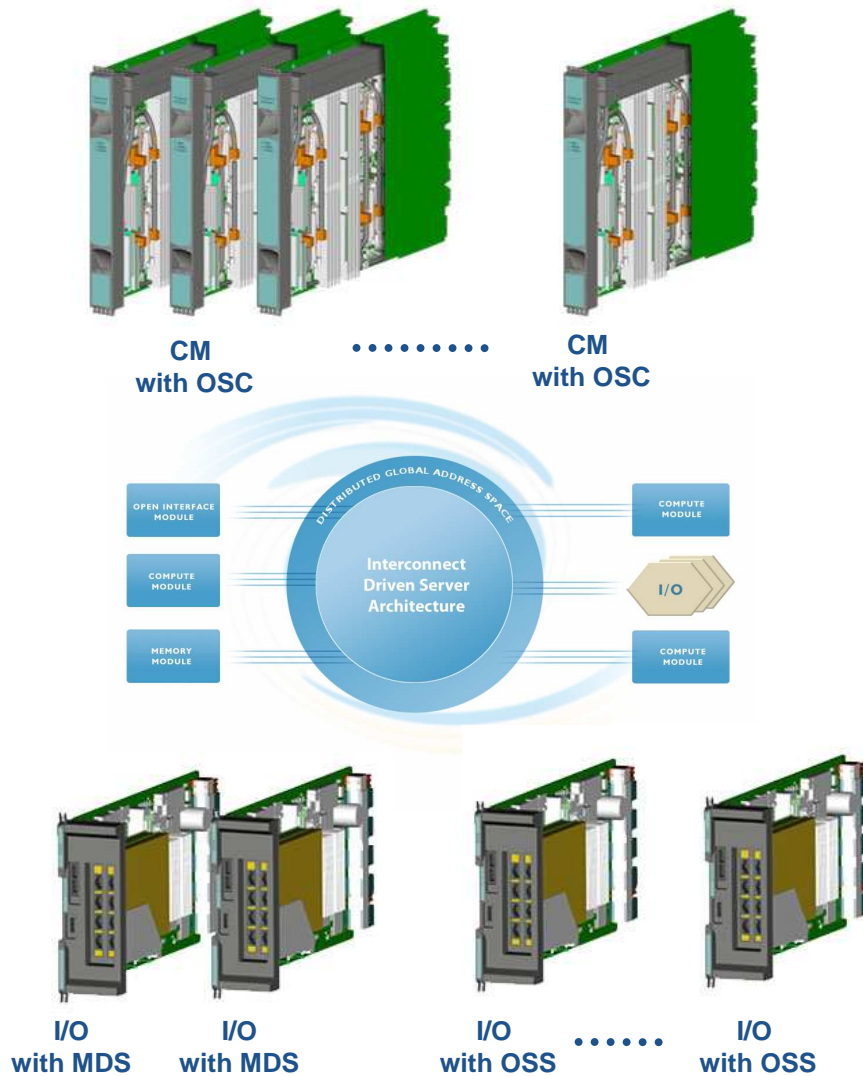
- Communications driven architecture
 - Direct Hypertransport connection from each processor to I/O. No PCI bus funnel
 - Modular multi-plane communications
 - Cross Bisectonal Bandwidth = 1
 - Point to point links
 - Computing and I/O node location independence
- Copious I/O
 - 2.4 Tb/s I/O per system (12 chassis)
 - PCI Express 1 GE, 10 GE, 2 and 4 Gb/s Fiber Channel interfaces



LiquidIQ™ : A Superior Platform for Lustre - II

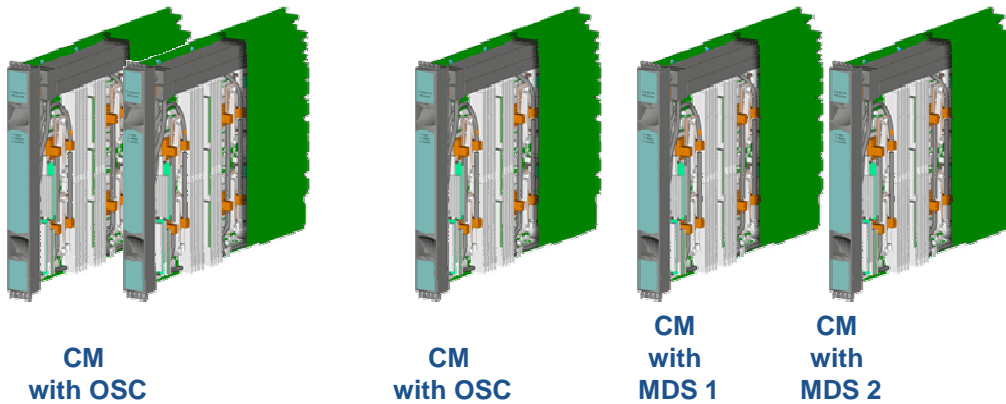
- Copious Interconnect
 - Low latency and high bandwidth (16 GB/s)
- Multi-plane Inter-processor Communications (IPC)
 - Traffic bursts are spread over communications planes
 - Load balancing
- Reliability
 - Multi-plane communications provides IPC redundancy
 - IO port back-up
- Future proof
- Lustre configuration flexibility

High Performance LiquidIQ™ Lustre Integration

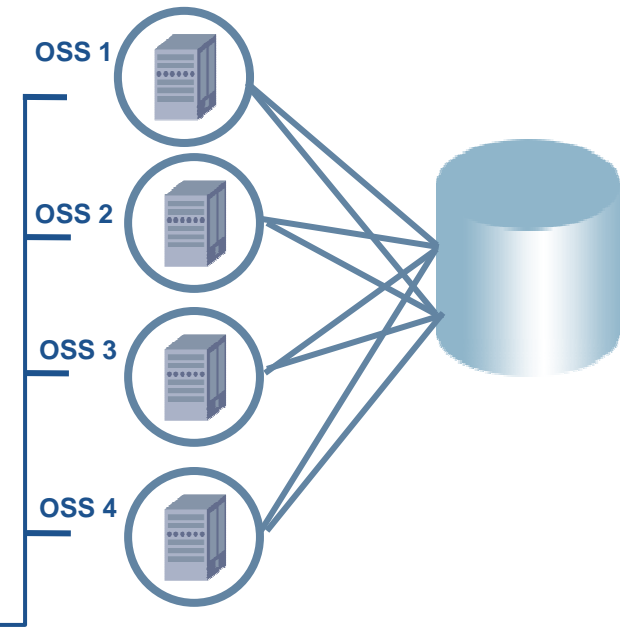
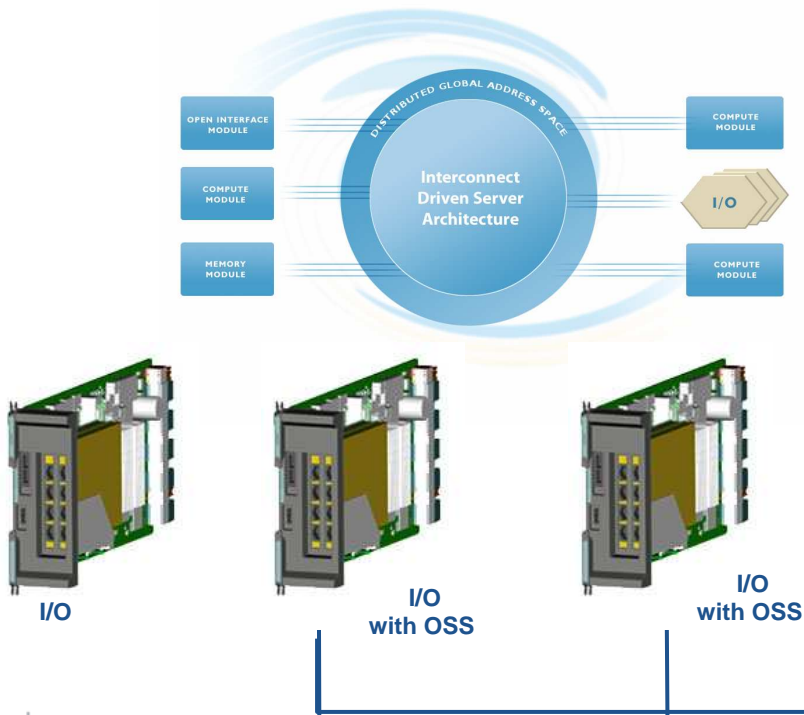


- OSC in Compute Nodes
- OST and MDS in I/O Modules
- Self-contained
- Fast internal communications > High performance

LiquidIQ™ Lustre High Performance MDS



- MDSs can be installed in CMs (8 way Opteron).
 - High performance
- OST can be external or in I/O Modules

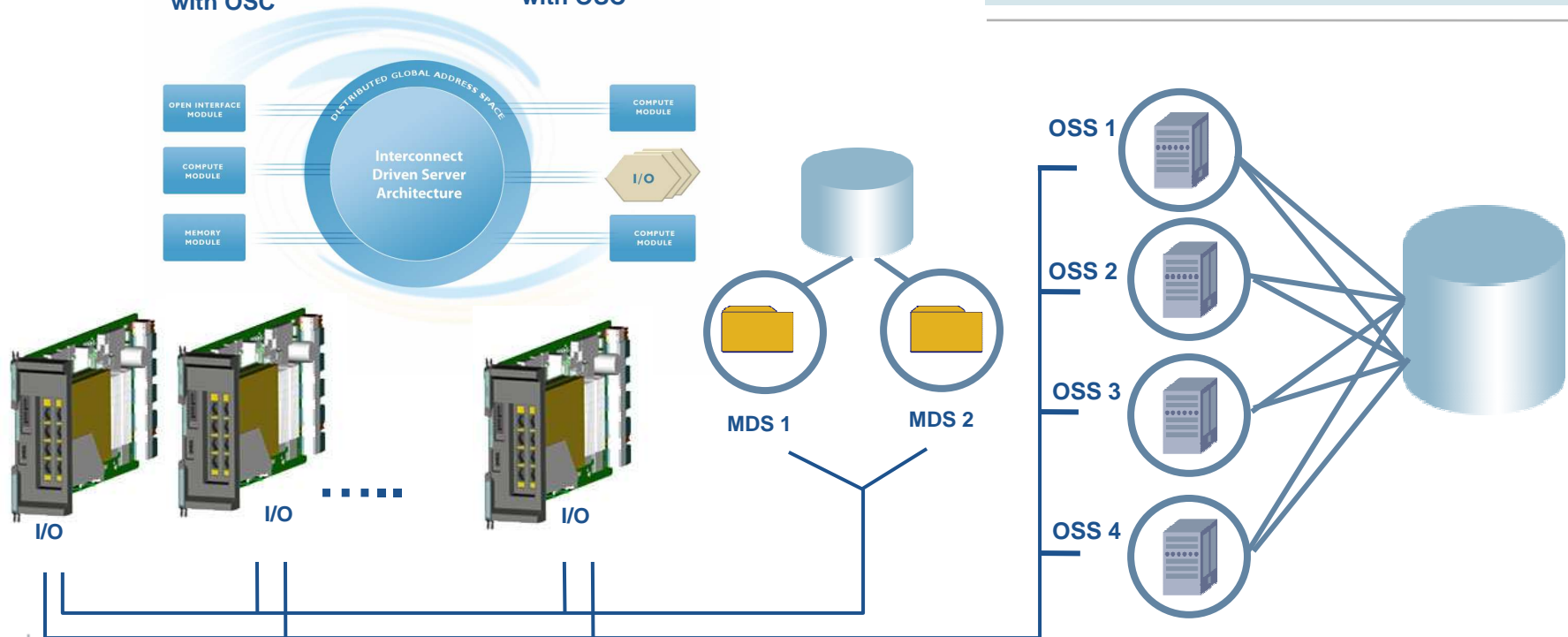




LiquidIQ™ Lustre integration into existing Lustre infrastructure



- LiquidIQ integration into existing Lustre infrastructure
- OSC in CMs
- IOM connects to MDS and OSS





Availability

- LiquidIQ entering beta phase in May
- Lustre LiquidIQ beta in July with Lustre 1.6
- LiquidIQ GA in Q3 2006