

Welcome!

Thanks for joining us. We'll begin in a few moments...

Today's Webinar: Maximizing Data Center Efficiency with 10 Gigabit Ethernet

Upgrading from Gigabit Ethernet to 10 GbE: Slashing Backup Times and Increasing IT Staff Productivity

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Today's presenters:

Neterion

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Oil & Gas Company

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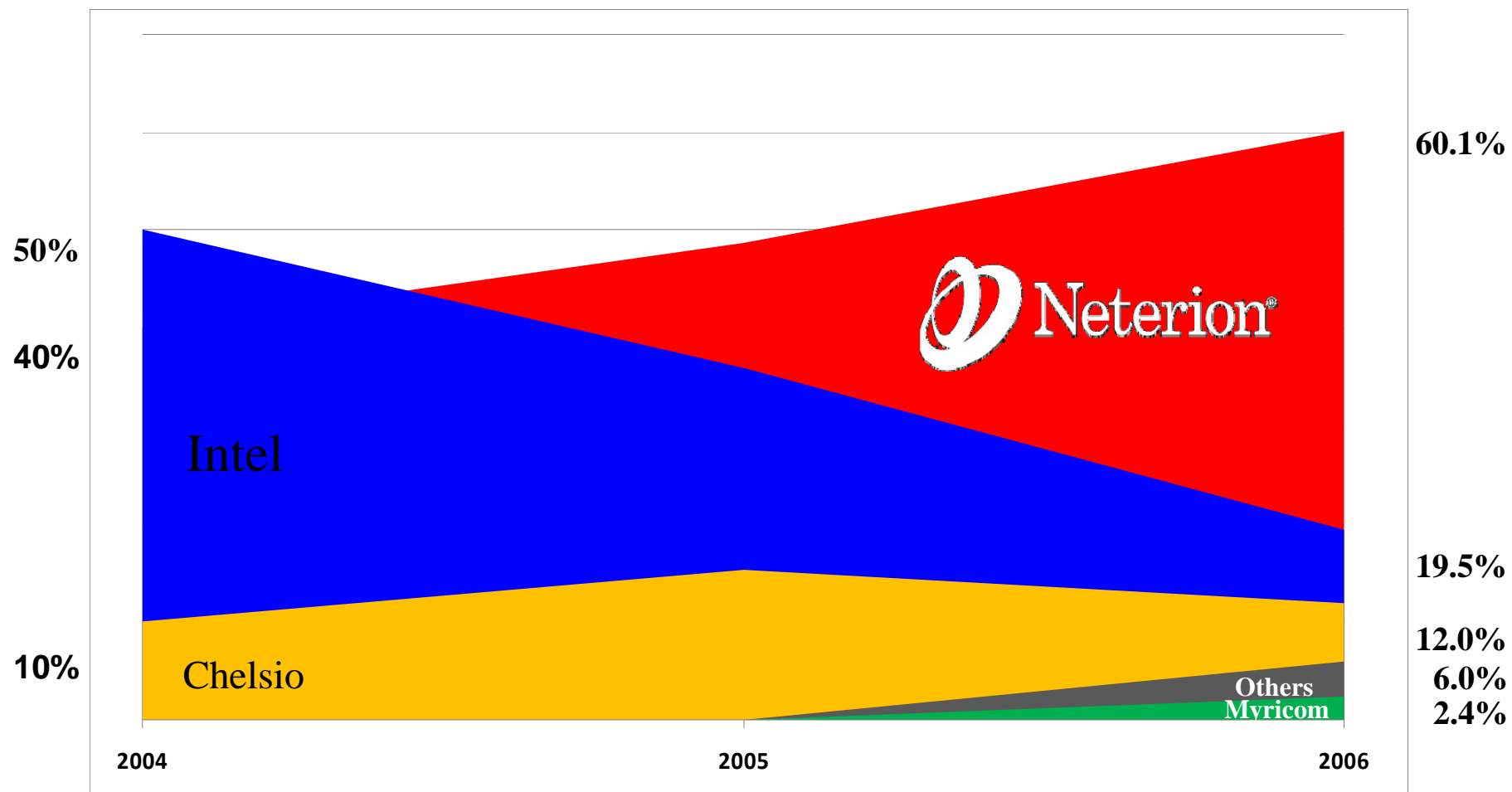
Neterion - The 10 GbE Market Leader...



- **Founded in 2001**
- **Shipping products since 2003**
- **Three generations of 10 GbE silicon**
- **Pioneer of IOV on 10 GbE**
- **Combined experience of executive team is >100 years**
 - Alteon, Nortel, Emulex, HP, Quantum and NetApp



10 Gig E Adapter Revenue Share



Source: The Linley Group – May '07

Note: revenue rounded to nearest \$500K

*Myri-10G NICs used for 10 GbE (excludes Myrinet mode)

**Includes NetEffect & NetXen

10 Gigabit Ethernet – Value Proposition

Faster, simpler, more cost-effective than 1 GbE

Fast

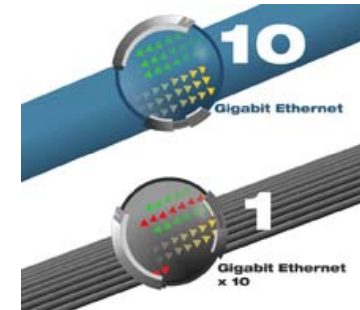
- Up to 10X the bandwidth of Gigabit Ethernet
- 50% lower latency, 40% lower CPU utilization (per Gigabit/s)

Simple

- 30 years of Ethernet Standard (proven, reliable, low TCO)
- Support of all major OSs
- Easy integration, no OS modifications required
- Reduced cabling and management complexity

Cost-effective

- Free-up server expansion slots
- Reduce Power consumption and heat dissipation
- Preserve network infrastructure (admin tools, cabling, etc.)
- Preserve personnel training – Lower TCO



Leading Neterion Customers



i n v e n t



HITACHI
Inspire the Next



Neterion Xframe[®] Product Line Up



Xframe[®] II:

- 10 GbE PCI-X 2.0 Server & Storage adapter
- Industry's fastest, taking advantage of Double Data Rate bus at 266 MHz
- Delivers full line rate of 10 Gigabit per second (and up to 14 Gbps bi-directional)
- CX4, SR and LR available



Xframe[®] II Sun Fire:

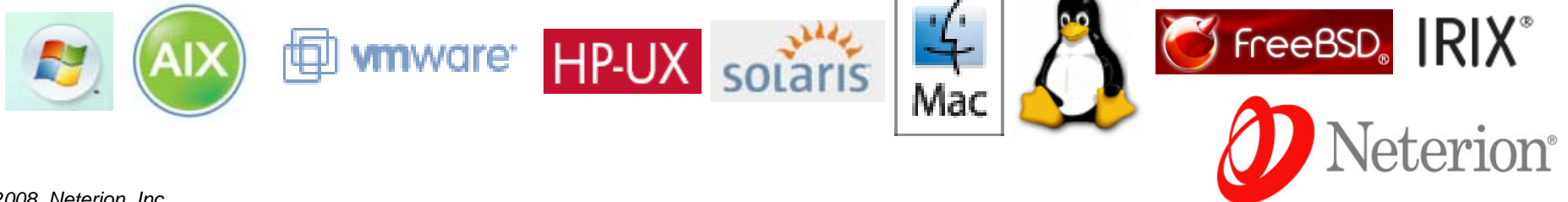
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Xframe[®] E:

- 10 GbE PCI-express Server & Storage adapter
- Industry's first 10 GbE adapter designed for new generation bus
- CX4, SR and LR available

Industry's broadest OS support





Oil & Gas Case Study Review

Maximizing Data Center Efficiency

- **Initial Requirements**
- **The Challenges**
- **The Road Taken**
- **Results**

INITIAL REQUIREMENTS



Maximizing Data Center Efficiency

Initial Requirements

- **Support the Backups**
 - AIX Backend Backup Servers
 - Clients are a mix of various ages
 - Disk Storage includes 3-7 years of technology
 - Snapshots needed in a reasonable time
 - Current tape technology is VERY FA\$T
 - Reduce Backup Times

Maximizing Data Center Efficiency

Initial Requirements

- **Provide a method to support very large snapshots**
 - Legal retention
 - Development snapshots
 - Testing and ongoing server support
 - Large (5-16TB) data archives

Maximizing Data Center Efficiency

Initial Requirements

- **Act as a sort of Universal Translator**
 - Provides a way for disparate OS environments and platforms to have access to large amounts of data very quickly, even when unplanned

Maximizing Data Center Efficiency

Initial Requirements

- **Decrease IT Staff Workload**
 - The less time the backups and data movements take, the less often IT staff has to monitor systems into the night to be certain of success
 - If a problem occurs, it can be re-executed and completed before the window closes

THE CHALLENGES



Maximizing Data Center Efficiency

The Challenges

- **Support the Backups**
 - AIX Backend Backup Servers
 - p-Series I/O drawer PCI limits
 - 64-bit OS allows lots of RAM
 - Clients are a mix of various ages
 - Windows 200x Servers 32/64 bit
 - AIX Servers (physical and virtual)
 - VMware Servers and Guests
 - Windows XP, 2000, 2003, Vista, Linux, etc
 - Disk Storage includes 3-7 years of technology
 - SCSI / SAS / SATA / FC Local Storage
 - SAN Storage includes several incompatible models
 - IBM DS4000, DS8000 (RDAC, SDD)
 - Across several platforms & combinations



Maximizing Data Center Efficiency

The Challenges

- **Snapshots needed in a reasonable time**
 - 4-12 TB for each in 8-10 hours max
 - Flash-Copy is only a small piece of the solution, as the data still needed to be moved to tape

Maximizing Data Center Efficiency

The Challenges

- **Current tape technology is VERY FA\$T**
 - Exceeds the real-world throughput of a single 1 GbE (2/4Gb FC per drive)
 - Tape HW compression can be a huge CPU savings on the hosts
 - Expensive drives, library slots and licensing
 - HW Compression of virtual disks when they are mostly empty further increases the pressure on the LAN

Maximizing Data Center Efficiency

The Challenges

- **Virtual SANs are priced by the managed TB**
 - Keeping historical copies is still less costly on tape in many cases and the off-site storage/DR is a mature process

Maximizing Data Center Efficiency

The Challenges

- **Reduce Backup Times**

- As the data always grows, the window available for backup is put under more pressure
- Other maintenance tasks compete for disk I/O resources for AV scans, defragmentation, indexing runs, etc...

THE ROAD TAKEN



Maximizing Data Center Efficiency

The Road Taken

- **The Players**

- Neterion® Xframe II® 10 GbE NICs
- Cisco Catalyst 6500 LAN 1 GbE/10 GbE
- Brocade FC SAN 1G,2G,4G
- IBM SAN Storage DS4000/DS8000
- IBM Tape Libraries (3592 Family)
 - 3000 Client Workstations (LAN/WAN)
 - 200 Wintel Servers (IBM x-Series)
 - 100 AIX Servers (IBM p-Series)

(Phy to Virt migration in progress on both)
VMware 2.x / 3.x (migration)
All kinds of software...



Maximizing Data Center Efficiency

The Road Taken

- **The Game**

- Edge 10 GbE switches (standalone and blade-centric) are now a very reasonable :: approx.\$500-1000/port
- This is making the 10 GbE decision much more obvious as edge servers and blades can easily saturate 1 GbE and thus their iSCSI, but not really so with 10 GbE
- L3 10 GbE is not usually required
- Very few sites need more than one subnet/VLAN for backups and data migration at 10 GbE speeds
- Core switches can be used mostly for L3 subnet transitions and longer runs between cores
- Many sites can use host-host interconnects with all the benefits of 10 GbE, but no cost in infrastructure. (KISS) Indeed, two or three clients can be connected to a single fast server for less than the cost of a single port in some high-end switches.
- Switches can always be added later with no risk in the technology like there could be with InfiniBand, FC-IP, etc...



THE RESULTS



Maximizing Data Center Efficiency

The Results

- **Basic premise is similar to previous LAN migrations**
 - Shared → Bridged
 - Bridged → Switched
 - 10Mbps → 100Mbps
 - 100Mbps → 1 GbE
 - 1 GbE → 10 GbE
- **1.5-3X+ Increase in Performance**
- **Greatly Improved Throughput**
- **Reduced Backup Times**
- **Low cost for the quantity and impact of the improvements gained**
- **Better utilization of more expensive servers, storage and other infrastructure**
- **Zero additional staff overhead as we are still leveraging Ethernet and IP**



Please submit any questions
you may have now...

Need More Information? Contact us...

sales@neterion.com





Thank you, again.

We appreciate your time today.