Delivering RoCE for Converged Enterprise & Cloud Deployments

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Emulex Strategy

Visibility and Optimization Over High-Speed Networks!
Why the Enterprise Cloud Data Center?

Enterprises see the CAPEX and OPEX gains from utilizing cloud computing paradigms, but....

Have concerns over too much data in the public cloud.

Mission: Build AWS inside the data center with ability to burst to public
Trends in IP Traffic

Total Data Center IP Traffic

Cisco Global Cloud Index: Forecast and Methodology, 2012–2017
Enterprise Cloud Needs RDMA

RDMA Read Efficiency Gains vs. TCP/IP

Internal testing - Emulex OCe14000 using SMB 3.0 on Windows Server 2012 R2
Importance of File Transfer Performance

• Our pockets are generating Big Data
  – Growing amount of digital content on mobile devices

RDMA delivers 77% faster transfers

Transfer Time for 12GB file

Internal Testing: Emulex OCE14000 Using OFED 3.5.2
Move to Software-defined Convergence

Multi-Fabric Block I/O (FC, FCoE & iSCSI)

- 6% CAGR Through 2016*

Software-Defined Convergence

- 25% 10/40G CAGR Through 2016*

Sources: *Crehan Research: Server-class Adapter and LOM Controller Long-range Forecast, July 2013 and **Dell’Oro Group: Fibre Channel Adapter Vendor Report 2Q2013, Aug. 2013
## Benefits of Standardization for Enterprise Cloud

### Reduces Costs
- Reduces CAPEX spending through consolidation
- Reduces OPEX spending by reducing system and networking management
- Reduces expensive switches, cables and optics required by consolidating network fabrics
- Reduces power consumption through consolidated fabric

### Reduces Complexity
- Run multiple protocols with one converged network fabric
- Designed with multiple workloads in mind

### Improves Performance
- Higher throughput enterprise cloud networks
- Accelerates data delivery to critical applications and improves time taken to migrate virtual workload
- Superior small packet performance ensures faster data delivery
- Reduces power consumption through protocol offload
Emulex RoCE Offerings

- OCe14101/2 10GbE SFP+ Ethernet Adapters
- OCe14401 40GbE QSFP+ Ethernet Adapters
- XE100 Series 10/40GbE Network Controller
- XE100/OCe14000: 10G & 40G PCIe3 x8
- FCoE
- iSCSI
- RoCE
- NIC
- Virtual Network Acceleration (VNeX)
- Enhanced Multi Channel

April 2-3, 2014 #2014IBUG
Making NFS over RDMA Enterprise Ready

- Today users must specifically configure NFS to use RDMA vs. TCP
- Other platforms have ability to use either transport and prefer RDMA if available
  - Transparent to end user
- Emulex working with Red Hat on TCP/RDMA transparency layer
  - Both TCP and RDMA connections available for high availability/failover
Summary

• Enterprises moving to Web Scale architectures to stay competitive
  – Enterprise Cloud, scale-out applications
• Challenges with large number of apps and virtualization becoming Big Data apps
  – Driving a need to move from TCP/IP to RoCE
• Emulex focused on Enterprise Cloud with its offerings