# Delivering RoCE for Converged Enterprise & Cloud Deployments

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# Emulex Strategy

**Connect** → **Monitor** → **Manage**

**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….
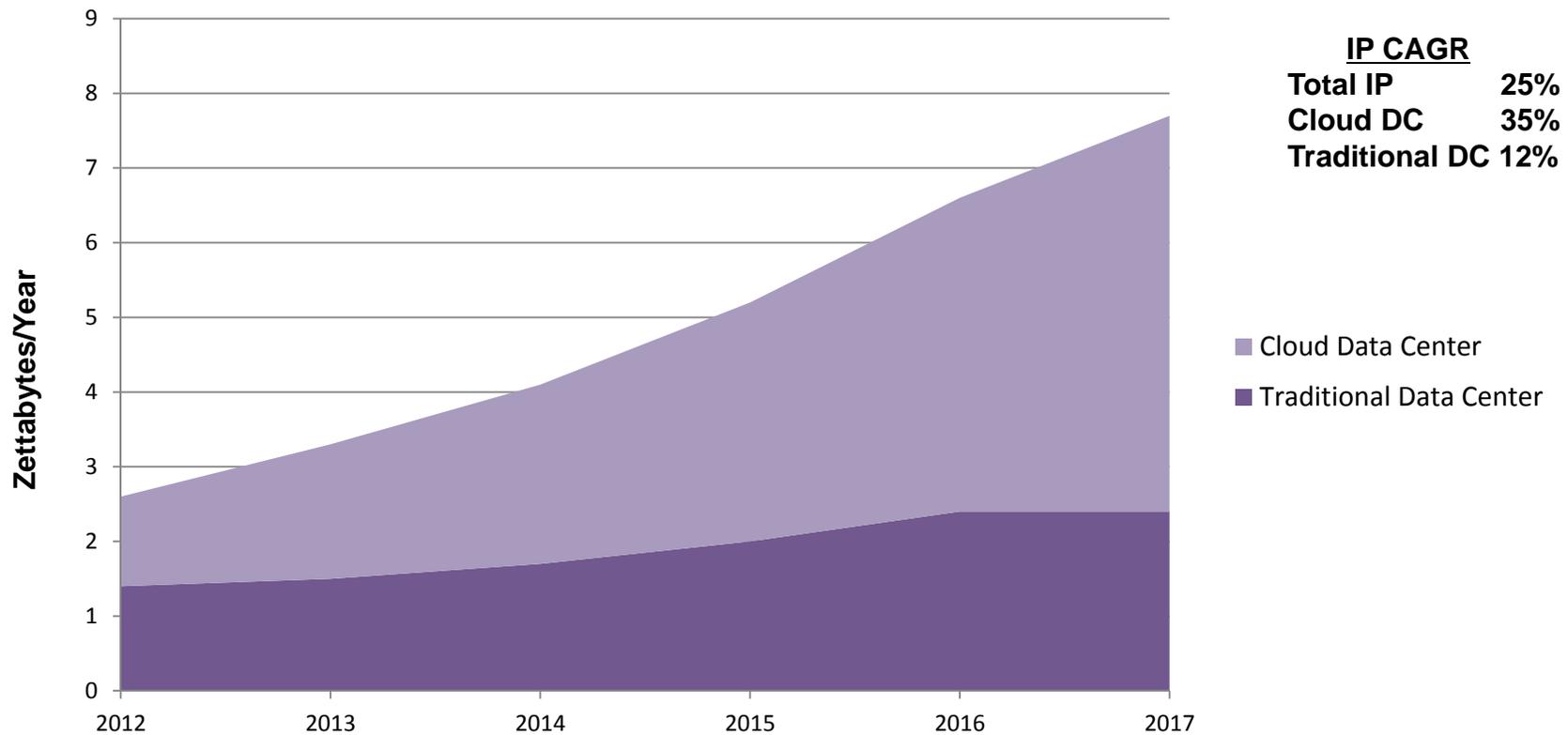Have concerns over too much data in the public cloud.

Security

Availability

Performance

Mission: Build AWS inside the data center with ability to burst to public

# Trends in IP Traffic
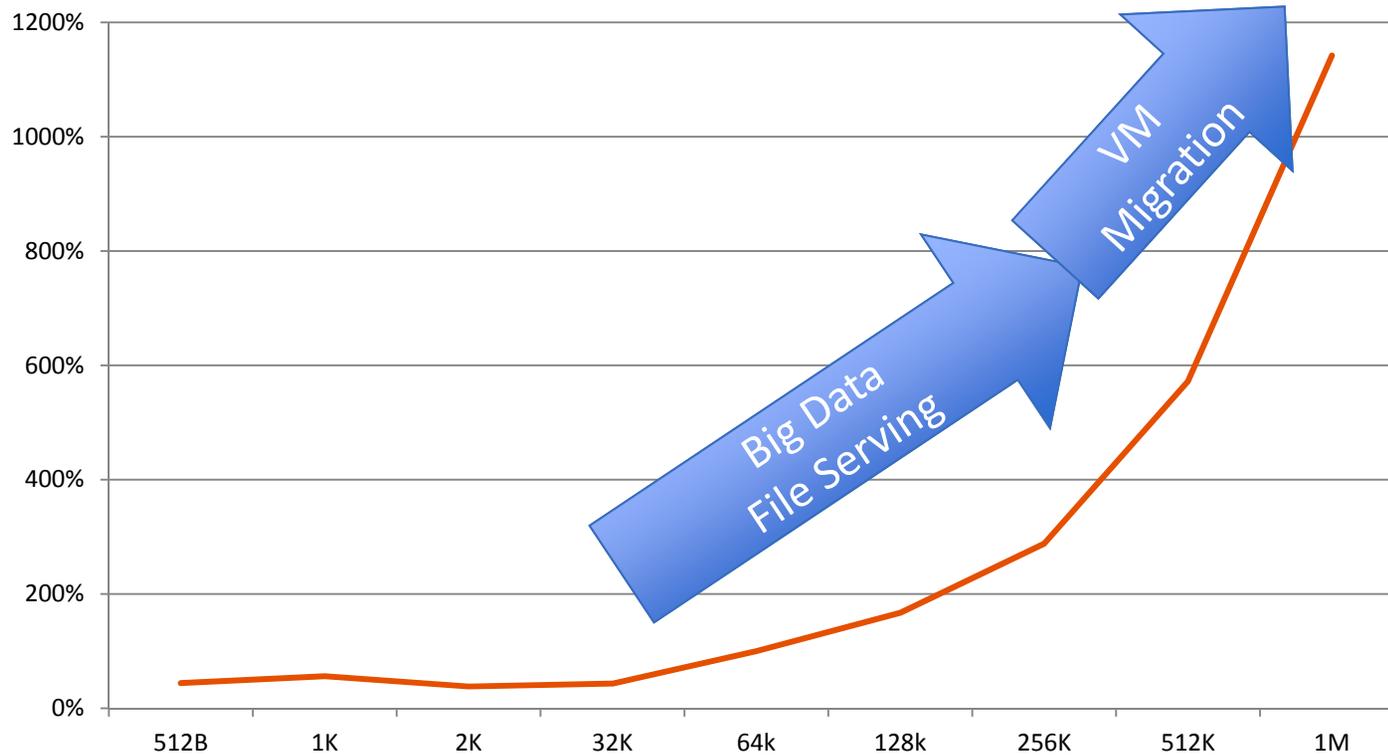
**OPENFABRICS ALLIANCE**

## Total Data Center IP Traffic



**IP CAGR**
**Total IP        25%**
**Cloud DC       35%**
**Traditional DC 12%**

Cloud Data Center
Traditional Data Center

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

# Enterprise Cloud Needs RDMA
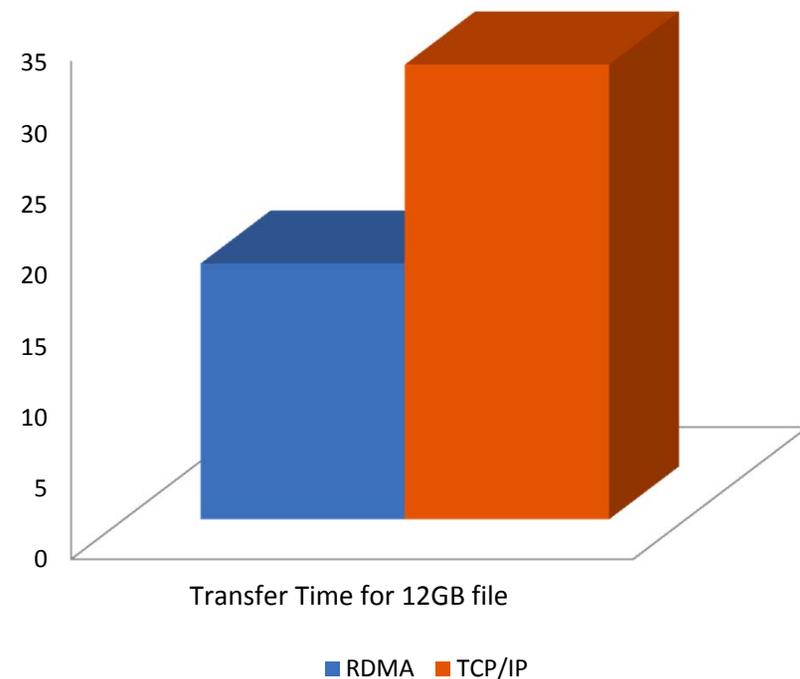
**RDMA Read Efficiency Gains vs. TCP/IP**



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
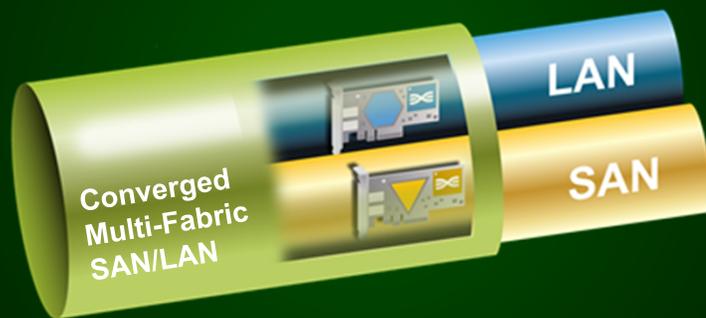
**RDMA delivers 77% faster transfers**



Transfer Time for 12GB file

■ RDMA  ■ TCP/IP

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*

# Benefits of Standardization for Enterprise Cloud

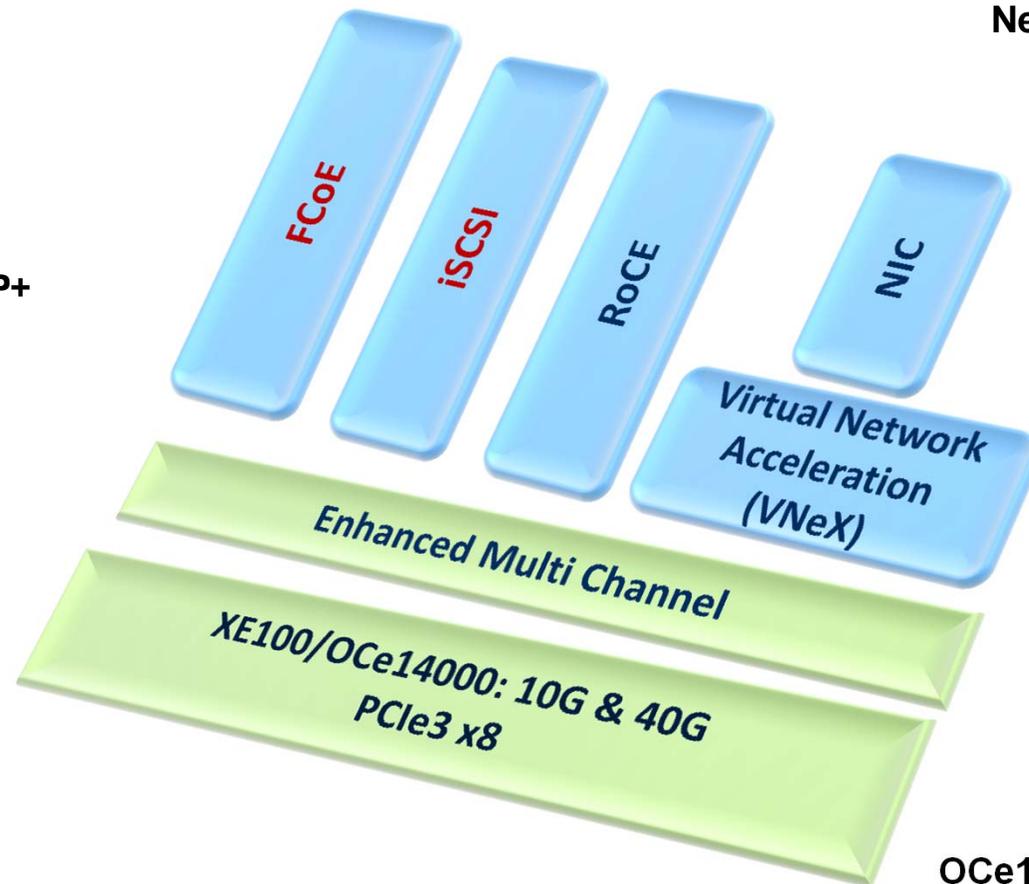| REDUCES COSTS | REDUCES COMPLEXITY | IMPROVES PERFORMANCE |
|---|---|---|
| ✓ Reduces CAPEX spending through consolidation<br><br>✓ Reduces OPEX spending by reducing system and networking management<br><br>✓ Reduces expensive switches, cables and optics required by consolidating network fabrics<br><br>✓ Reduces power consumption through consolidated fabric | ✓ Run multiple protocols with one converged network fabric<br><br>✓ Designed with multiple workloads in mind | ✓ Higher throughput enterprise cloud networks<br><br>✓ Accelerates data delivery to critical applications and improves time taken to migrate virtual workload<br><br>✓ Superior small packet performance ensures faster data delivery<br><br>✓ Reduces power consumption through protocol offload |

# Emulex RoCE Offerings

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XE100 Series 10/40GbE
Network Controller

OCe14101/2 10GbE SFP+
Ethernet Adapters

FCoE    iSCSI    RoCE    NIC

Virtual Network
Acceleration
(VNeX)

Enhanced Multi Channel

XE100/OCe14000: 10G & 40G
PCIe3 x8

OPENFABRICS ALLIANCE
iol TESTED
www.iol.unh.edu

OCe14401 40GbE QSFP+
Ethernet Adapters

# 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