EMC CONVERGED STORAGE NETWORKING SOLUTIONS FOR THE CLOUD

Get the experience and expertise you need to successfully design and deploy converged storage networks for virtual data centers

Those managing virtualized data centers face increasing demands on network infrastructures—and require higher levels of performance, availability, scalability, and mobility to gain benefits of virtualization and cloud technologies. To effectively utilize available bandwidth capacity, manage data traffic flow, and ensure network security, IT organizations primarily need intelligent storage networks. With EMC® Converged Storage Networking solutions for the cloud, IT managers are realizing significant benefits within their existing data centers. By utilizing Converged Storage Networking solutions, network resources can be shared, less physical hardware is required, complexity is reduced, efficiency is improved, and network administration costs are reduced.

BUSINESS CHALLENGES

Data center networking initiatives are driven by the need to deliver a resilient architecture that accelerates business application delivery and protects server assets with increased flexibility and fewer disruptions. As customers increasingly rely on more powerful virtualized servers for mission-critical workloads, the storage network plays a significantly increasing role.

The result? IT managers face a new set of challenges including:

• Delivering flexible storage network infrastructures to optimize service levels
  – Responding to changing application demands
  – Handling unpredictable workloads
  – Meeting requirements of new service-level agreements

• Improving efficiency and utilization to reduce capital and operating costs
  – Utilizing available network capacity
  – Reducing power and cooling costs
  – Eliminating LAN and SAN redundancies

• Providing highest service levels for the cloud
  – Improved infrastructure and application performance
  – Increased networking reliability
  – Better application mobility
  – High scalability without the infrastructure complexity

• Delivering “always-on” availability
  – Protecting server assets
  – Enabling virtual machine mobility
  – Limiting application disruptions
  – Supporting mission-critical workloads on virtual machines

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ESSENTIALS

EMC Global Services helps you:

• Accelerate your company’s virtualization and cloud initiatives
• Decrease deployment time, implementation risk, and project cost
• Achieve higher levels of performance, availability, scalability, and mobility
• Reduce infrastructure sprawl and eliminate power and cooling constraints
• Deliver a flexible, resilient network architecture that meets the demands of virtual data centers
THE BENEFITS OF CONVERGED STORAGE NETWORKS

Technologies like Fibre Channel over Ethernet (FCoE) and Converged Enhanced Ethernet (CEE) (which is also known as Data Center Bridging) create opportunities to unite LANs and SANs and enable companies with large Fibre Channel installed bases to keep their infrastructures as they migrate to Ethernet-based converged storage networks over time. CSNs also enable companies to migrate to file-based technologies such as NAS and/or choose cost-effective 10 Gigabit iSCSI block-based solutions.

By combining LAN and SAN traffic over a single 10 Gigabit Ethernet connection, FCoE/CEE can unify LANs and SANs onto a common network infrastructure, while preserving existing administration tools and workflows. The technology also enhances traditional Ethernet resiliency to improve network performance and reliability—which is essential for supporting storage traffic.

FCoE/CEE technology provides the following benefits to IT organizations:

- Enables server input/output (I/O) consolidation
  - LAN and SAN traffic converge on a single cable
- Simplifies the physical server, network, and storage infrastructure
  - Reduces the number of cables and server adapters
  - Lowers capital expenditures and administrative costs
  - Reduces server power and cooling costs
  - Increases server utilization
- Improves Ethernet reliability for storage traffic
  - Traditional Ethernet transport method permitted occasional frame loss
  - New Converged Enhanced Ethernet (CEE) will protect Fibre Channel data traveling over Ethernet via FCoE

In large data centers, the most immediate benefit of FCoE/CEE is server I/O consolidation, which is the ability of a server adapter to use the same physical infrastructure to carry different types of network traffic. Today, servers require multiple Ethernet network interface cards (NICs) and Fibre Channel host bus adapters (HBAs) to connect to the LAN and SAN. With FCoE/CEE, customers can use a converged network adapter (CNA)—which contains both NIC and HBA functionality on the same physical adapter, thus eliminating the need for separate interface cards. And with the reduction of cables, ports, and rack-space consumption comes cost savings and improved availability.

WHY EMC FOR CONVERGED STORAGE NETWORKS?

More and more companies are viewing their data centers as cohesive entities rather than collections of piece parts. As a result, solutions that enable customers to architect dynamic data centers that respond to constantly changing business priorities will have the greatest chance of success. EMC, with its comprehensive product portfolio, technical expertise, and industry-leading service offerings, is uniquely positioned to meet these requirements.

With proven virtualization and data center experience, EMC helps customers capitalize on existing infrastructures and technology investments as they transition from physical to virtual architectures. And strong partnerships with VMware® and Microsoft—as well as leading network providers such as Cisco and Brocade—make EMC the partner of choice to assist customers along their journey to the cloud.

Only EMC has the experience and the knowledge base to help you transition to a Converged Storage Networking environment. EMC supports FCoE and 10 Gigabit Ethernet solutions across our storage platforms and validates all configurations on the EMC Support Matrix (ESM) which can be accessed via EMC E-Lab™ Interoperability Navigator. In addition, E-Lab has taken the chapters of the popular EMC Networked Storage Topology Guide and created individual Tech Books. Tech Books are available on EMC.com and within EMC Powerlink® E-Lab Navigator and can be easily found using popular search engines.
EMC'S ADVANCED SERVICES ACCELERATE YOUR JOURNEY TO THE PRIVATE CLOUD

To assist customers transitioning to Ethernet-based storage networks, EMC has introduced these advanced services and products:

• An expanded portfolio of converged networking services for Ethernet environments, including assessment, planning, design, and implementation services

• A suite of tools to assist with the sizing, analysis, design, and migration to converged networks

• 10 Gigabit Ethernet switches that are rigorously tested by E-Lab, supporting a range of protocols including Fibre Channel over Ethernet (FCoE), Converged Enhanced Ethernet (CEE), iSCSI, and NAS

Getting ahead on the journey to cloud requires a strategy, expert planning, and a staff that’s ready to execute “from data center to desktop.” EMC Global Services—consulting, deployment, support, education, and managed services—help you realize your vision.

EMC GLOBAL SERVICES

EMC Global Services provides the strategic guidance and technology expertise organizations need to address their business and information infrastructure challenges and derive the maximum value from their information assets and investments. We are committed to exceptional total customer experience through service excellence. Our 14,000+ professional- and support-service experts worldwide, plus a global network of alliances and partners, leverage proven methodologies, industry best practices, experience, and knowledge derived from EMC’s 30-year information-centric heritage to address the full spectrum of customer needs across the information lifecycle: strategize, advise, architect, implement, manage, and support.