

# Intel, Cisco, Panduit 10 Gigabit Ethernet Solution Demonstration Featuring 10GBASE-T

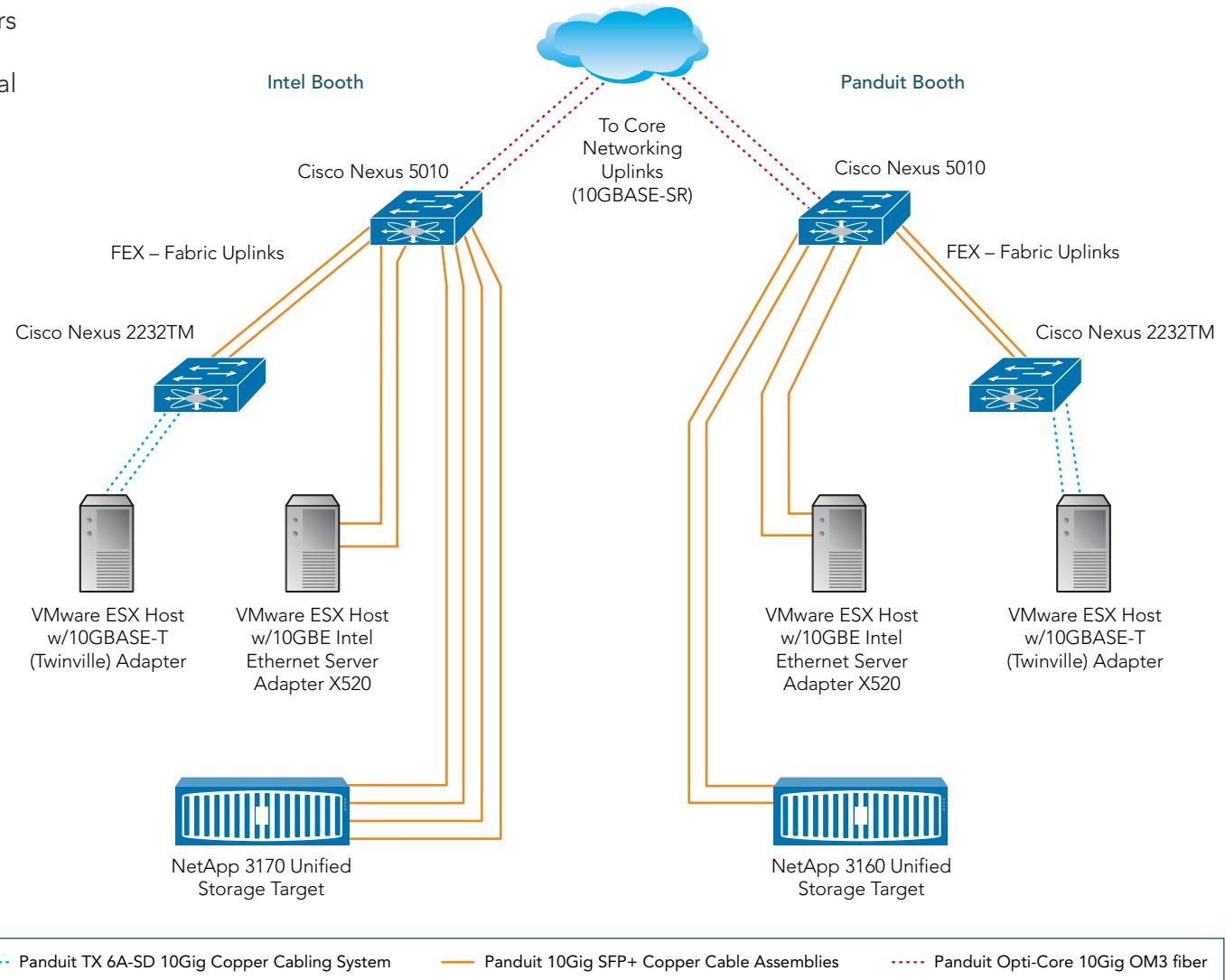
## Overview

Intel, Cisco, and Panduit—technology leaders in their respective product categories of server adapters, switching fabric, and physical media infrastructure—have joined together to demonstrate an end-to-end 10 Gigabit Ethernet (10GbE) networking system solution. This solution includes 10GbE over short range fiber, Direct Attach Copper Twinax, and Category 6A (Cat6A) copper cabling to showcase a cost-effective, high-performance, and highly flexible 10 GbE network.

The inclusion of 10GBASE-T (10GbE over CAT6A copper cabling) in this solution delivers both greater deployment flexibility and an easy migration path from Gigabit Ethernet (GbE). Intel, Cisco, and Panduit each offer products designed to provide customers with simple, scalable, and high-performance 10GBASE-T deployments.

Key products included in this solution:

- Cisco Nexus® 5010
- Cisco Nexus® 2232TM 10GBASE-T Fabric Extender
- Panduit TX6A-SD 10Gig UTP Copper Cabling System
- Intel® Ethernet next-generation 10GBASE-T server adapters
- Intel® Ethernet Server Adapter X520



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## Panduit Copper Cabling Technology

Panduit TX6A 10GIG UTP Copper Cabling System offers an innovative cable design and advanced connector compensation techniques to reduce cable size without compromising internal and alien crosstalk performance. Panduit TX6A 10GIG UTP Copper Cabling Systems are available in 100m and now in new SD 70m versions. The new TX6A-SD version offers a very small cable diameter of 0.24 inch, which is sized similarly to Cat6 cable and allows reuse of existing pathways and cable managers, optimizing cost-effective 10 GbE deployments in data centers.

Key benefits of the advanced next-generation UTP cabling system include:

- **Risk mitigation:** Advanced connectivity and cable design provides significant headroom over the Cat6A and Class Ea standards, eliminating the need to field test for alien crosstalk.
- **Agility and flexibility:** Scalable and modular system provides a clear migration path to meet next-generation application demands. A wide range of data center architectures and applications (long and short channels) are supported, and bundling and comingling of other copper category cables is allowed.
- **Reduced capital expenditures (CapEx):** Space utilization is increased through high-density physical infrastructure solutions combined with leading data center reference architectures. QuickNet pre-terminated solutions are also available, reducing installation time by up to 75%.

- **Reduced operating expenses (OpEx):** Energy efficiency is improved through better airflow management due to smaller, effectively shaped cabling.

For more information, see  
<http://www.panduit.com/LandingPages/HighSpeedDataTransport/index.htm>

## Intel® Ethernet Server Adapters

The Intel® Ethernet Server Adapter X520-T2 delivers easy-to-deploy, high-volume 10 GBASE-T connectivity over existing copper infrastructures. These adapters deliver advantages in cost, power, and server slot savings compared to the use of multiple GbE adapters. Backward compatibility with 1000BASE-T infrastructures helps ensure easy deployment and upgrading.

The Intel Ethernet Server Adapter X520-T2 is Intel's third-generation 10GBASE-T adapter and includes new features to support high-volume 10 Gigabit Ethernet:

- Dual-port design for redundancy and greater throughput
- Send and receive offloads to accelerate Internet Small Computer System Interface (iSCSI) traffic, and optimizations for multicore processors to improve efficiency
- Intel Virtualization Technology for Connectivity, including Virtual Machine Device Queues and single-root I/O virtualization (SR-IOV), delivers I/O virtualization to boost throughput and improve overall system performance in virtualized and non-virtualized servers.
- PCI Express Generation 2-compliance for dual-port, line-rate 10 Gigabit Ethernet throughput

Showcased in this demo, the next-generation Intel Ethernet dual-port 10GBASE-T server adapter is based on Intel's upcoming "Twinville" 10GBASE-T controller. This single-chip controller will also be integrated onto mainstream server motherboards later in 2011, making 10GBASE-T the default connection for the next generation of servers.

For more information, see  
[www.intel.com/go/ethernet](http://www.intel.com/go/ethernet)

## Cisco Nexus 2232TM 10GBASE-T Fabric Extender

The Cisco Nexus 2232TM 1/10GBASE-T Fabric Extender builds on the success of the Nexus 2000 platform and the benefits of 10GBASE-T technology.

The Nexus 2000 Fabric Extenders (FEX) are fixed form-factor platforms that act as remote line cards for a Cisco Nexus 5000 or 7000 parent switch. They provide operational simplicity at scale for datacenter server access designs.

The Nexus 2232TM Fabric Extender supports highly scalable 1/10GBASE-T environments, with ease of migration from 1GBASE-T to 10GBASE-T, and flexible use of Category 6/6a/7 cabling. It comes with an uplink module that supports eight 10 Gigabit Ethernet fabric interfaces to connect to a parent switch.

The Cisco Nexus 2232TM is available today for connectivity to a Cisco Nexus 5000 parent switch. The minimum software release required is Cisco NX-OS Software Release 5.0(3)N2(1). A single point of management can support up to 768 10GBASE-T ports with a combination of Nexus 5K and N2K.

More information is available at  
<http://www.cisco.com/go/nexus2000>



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