

# CISCO AND LEVITON Technology in the Data Center

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## CISCO NEXUS OVERVIEW

The Cisco Nexus family of products, including the Nexus 7000, 6000, 5000, and 2000 Series models, provide a wide range of business benefits, including simplifying the data center network, supporting scalability, and integrating intelligent services into the network fabric.

### Convergence

Cisco Nexus solutions simplify the data center network by converging LANs and SANs, and by using Data Center Bridging (DCB), Fibre Channel over Ethernet (FCoE) protocols, and Unified Ports.

- Lower total cost of ownership by up to 50 percent
- Reduce capital expenses through fewer host adapters, switches, and cables
- Cut operational expenses through reduced power, cooling, rack space, and floor space requirements

### Scalability

Cisco Nexus solutions help enterprises scale for the more-complex workloads of virtualization, the proliferation of virtual machines, and the challenges of cloud computing.

- Unify all network locations into one environment
- Provide resilient, scalable networks with predictable performance and reduced complexity
- Simplify management with fabric extensibility

### Intelligence

Cisco Nexus transparently extends the network to encompass all network locations into a single, extended environment with consistent services and policy.

- Make services available consistently across applications and workloads
- Scale service delivery capability automatically

# CISCO NEXUS SWITCHES



## Nexus 7000 Series

Create the network foundation you need for your next-generation Unified Fabric data center and high-performance campus core. Modular Cisco Nexus 7000 Series Switches deliver a comprehensive NX-OS feature set, with high-density 10, 40, and 100 Gigabit Ethernet for the data center and campus core network. The Cisco Nexus 7000 Series was designed around three principles:

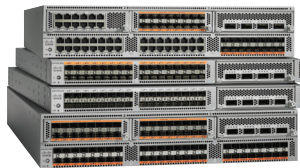
- **Infrastructure scalability:** Virtualization, efficient power and cooling, high density, and performance all support efficient data center infrastructure growth
- **Operational continuity:** The Cisco Nexus design integrates hardware, NX-OS software features, and management to support zero-downtime environments



## Nexus 6004

Cisco Nexus 6000 Series switches are designed to deliver high-density 10 and 40 Gigabit Ethernet in an energy efficient, compact 4RU form factor. It offers a comprehensive integrated Layer 2 and Layer 3 feature set. That makes Cisco Nexus 6000 Series Switches ideal for space-constrained, high-density, and high-performance deployments in traditional, virtualized, and cloud environments.

- Offers operational efficiency with Cisco Fabric Extender (FEX) architecture support and robust analytics tool kit
- Supports 40 GbE Fibre Channel over Ethernet (FCoE) for LAN and SAN convergence



## Nexus 5000 Series

The Nexus 5000 family helps enable any transport over Ethernet, including Layer 2 and Layer 3 traffic and storage traffic, on one common data center-class platform. They provide infrastructure simplicity, to decrease the total cost of ownership, as well as:

- Support for Unified Ports functionality, which can support traditional Ethernet, native Fibre Channel (FC), and Fibre Channel over Ethernet (FCoE)
- Greater operational continuity, based on modular Cisco NX-OS operating system
- Ability to use existing operational models and administrative domains for easy deployment



## NEXUS 2000

Cisco Nexus 2000 Series Fabric Extenders are designed to provide connectivity for rack and blade servers, as well as converged fabric deployments. You gain a consistent, unified server access platform that scales across a range of connectivity solutions, including 100 Megabit Ethernet, 1 Gigabit Ethernet, and 10 Gigabit Ethernet (copper and fiber). With a broad range of configurations, Cisco Nexus 2000 Series Fabric Extenders offer architectural flexibility, highly scalable server access, and simplified operations. The Cisco Nexus 5000 and 7000 Series Switches act as parent switches for the Nexus 2000 fabric extenders.



## LEVITON SOLUTIONS VERIFIED BY CISCO

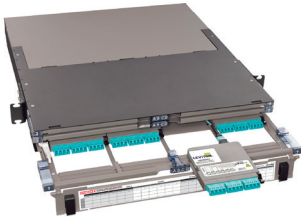
Leviton data center systems are designed for turnkey implementation of the physical layer. With the documented pieces and parts from array cords, trunk cables, patch panels, patch cords, and cassettes, Leviton helps your physical layer infrastructure meet the needs of 10/40/100 GbE requirements. Leviton is a Cisco Network Developer member, and our MTP® fiber system, Cat 6A copper system, data center PDUs, and more have completed interoperability testing with Cisco's Prime LAN Management Solutions, within the Enterprise and Commercial Management category of the Cisco Developer Network.



### Opt-X® Unity 40/100G MTP Fiber System

Update your data center to meet new high-speed applications with the Leviton Opt-X Unity 40/100G Fiber System — a simple connectivity solution that makes it easy to migrate to 40 GbE and 100 GbE speeds. System components include MTP trunk cables, harnesses, array cords, and cassettes. They are available in laser-optimized multimode (OM3/OM4/OM4+) and feature industry-leading 24-fiber MTP connectors. Combine with OM4+ cabling for greater bandwidth and longer reach.

- System of trunks, harnesses, and modules are 40/100G ready
- Industry-leading 24-fiber MTP system
- Trunks, harnesses, modules, and array cords use best-in-class MTP multifiber connectors
- Available in Leviton HDX, SDX, and e2XHD module platforms
- Third-party verification of 40/100G channel performance



### HDX Platform

The HDX platform alleviates the network growing pains faced by many large enterprises and data centers. Compact HDX cassettes and adapter plates help IT managers use existing rack space more efficiently, while creating room for future growth. The cassettes and plates work with high-density UHDX and HDX enclosures, allowing up to 144 LC fibers per rack unit.

- Easily migrate from 10G to 40/100G when used with Opt-X Unity trunks, harnesses, and patch cords
- Fiber cassettes are available in 12- or 24-fiber options with LC or MTP connectors
- 1RU enclosures hold up to 144 fibers (using LC) and 2RU enclosures hold up to 288 fibers using HDX adapter plates and MTP cassettes



### SDX Platform

The SDX platform serves small-to-medium data centers and businesses where network space is less of an issue. It's ideal for maintaining pre-existing infrastructure that requires easy cable management. These cassettes and plates work with SDX rack-mount and wall-mount enclosures, as well as Leviton's Vertigo enclosures that mount outside of the rack.

- Easily to migrate from 10G to 40/100G when used with Opt-X Unity trunks, harnesses, and patch cords
- Cassettes support 48 fibers using MTP-MTP or 24 fibers using MTP-LC



### e2XHD Patching System

The e2XHD Patching System provides a high-density solution for data center applications where fast deployment and simple maintenance are priorities. e2XHD fiber cassettes quickly snap in and pull out of high-density 1RU and 4RU panels, making installation, moves, adds, and changes easier than ever. The e2XHD cassettes work seamlessly with Opt-X Unity trunks, harnesses, and array cords to deliver 10G, 40G, and 100G speeds.

- Panels allow mix and match of Leviton fiber and copper snap-in cassettes
- Fiber cassettes are available in 12- or 24-fiber options and OM3, OM4, or single-mode fiber types
- Adjustable MTP adapter swivels, allowing for easy routing of incoming MTP cables
- Copper cassettes are available on pre-terminated trunks or kitted with field-terminated eXtreme Cat 6A or Cat 6 connectors
- System accessories include a rear cable manager that snaps directly into the panel, blank cassette inserts for unused cassette openings, and a top cover for angled panels, minimizing dust or debris

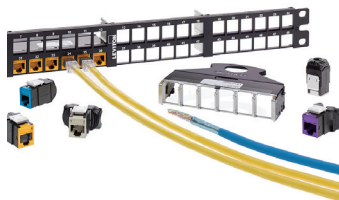
### SAN Solutions — High-Density Replicator® Enclosure



Leviton High-Density Replicator Enclosure supports Storage Area Network (SAN) switches from Cisco. The key feature, Logical Port Management (LPM), is designed to deliver an exact, one-to-one replication (blade number and port count) of switch inputs at main distribution, allowing simplified moves, adds, and changes where the panel is deployed rather than at the switch.

- Up to 384 channel capacity (768 fiber strands)
- Available with LC and MU connector interfaces
- Replicator kits available with trunks, MTP panels, and harnesses

### Atlas-X1™ Cat 6A System

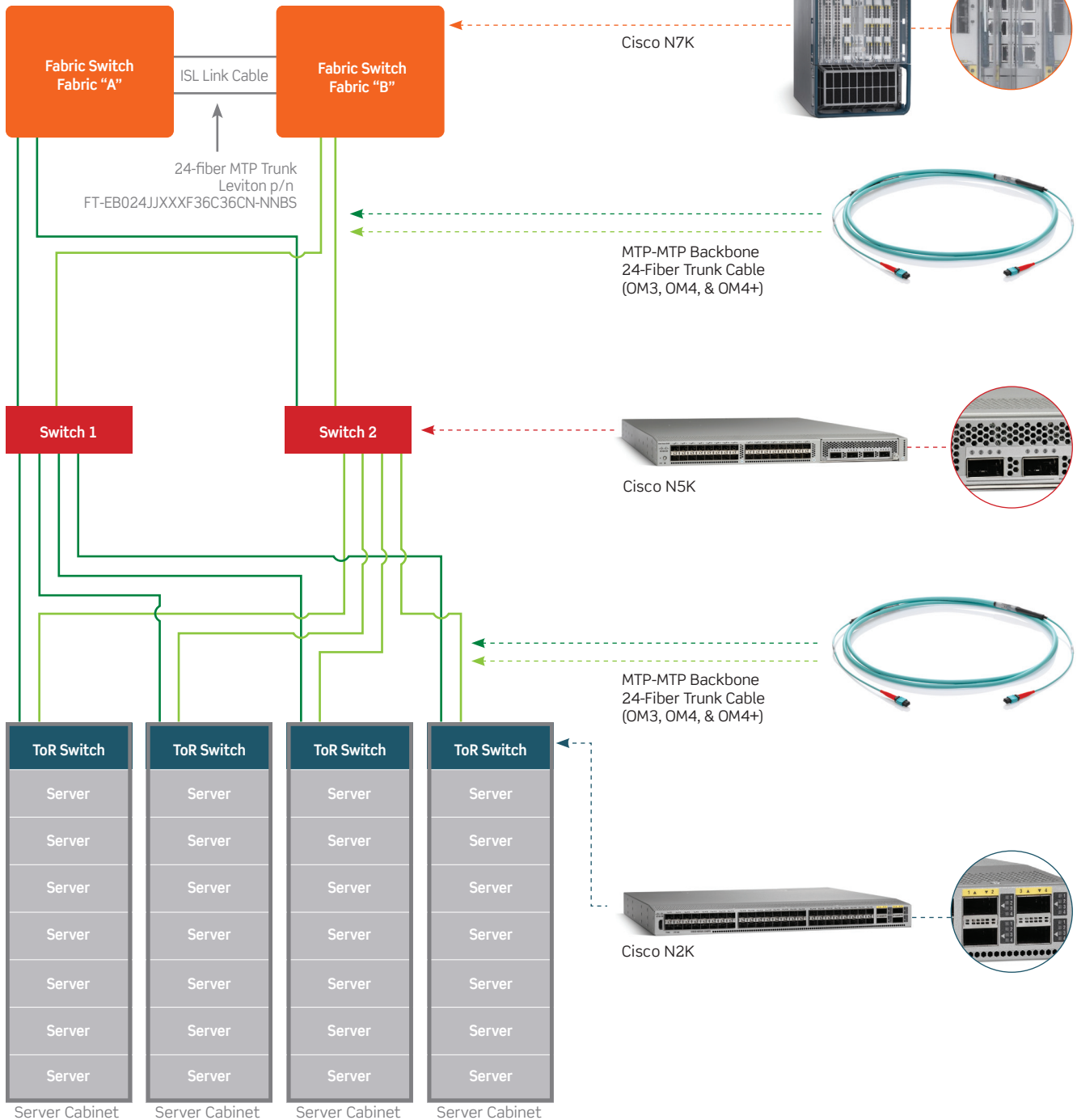


Leviton's Cat 6A component-rated system delivers the highest level of verified performance for today's high-bandwidth applications. The system's connectors, patch panels, and patch cords have each been independently tested and verified by Intertek (ETL) to meet or exceed ANSI/TIA-568-C.2 component performance. When combined with approved horizontal cable, this ensures greater permanent link and channel margins to support 10GBASE-T networks up to 500 MHz.

- Cat 6A system supports short-length applications in server rows down to 10 feet
- Connector features robust metal body to increase longevity and virtually eliminate alien crosstalk
- SlimLine-boot patch cord features a narrow profile for less congestion in higher density applications

# CISCO AND LEVITON: CONNECTIONS

**Basic Topology as defined by ANSI/TIA-942-A**  
Telecommunications Infrastructure Standard for Data Centers



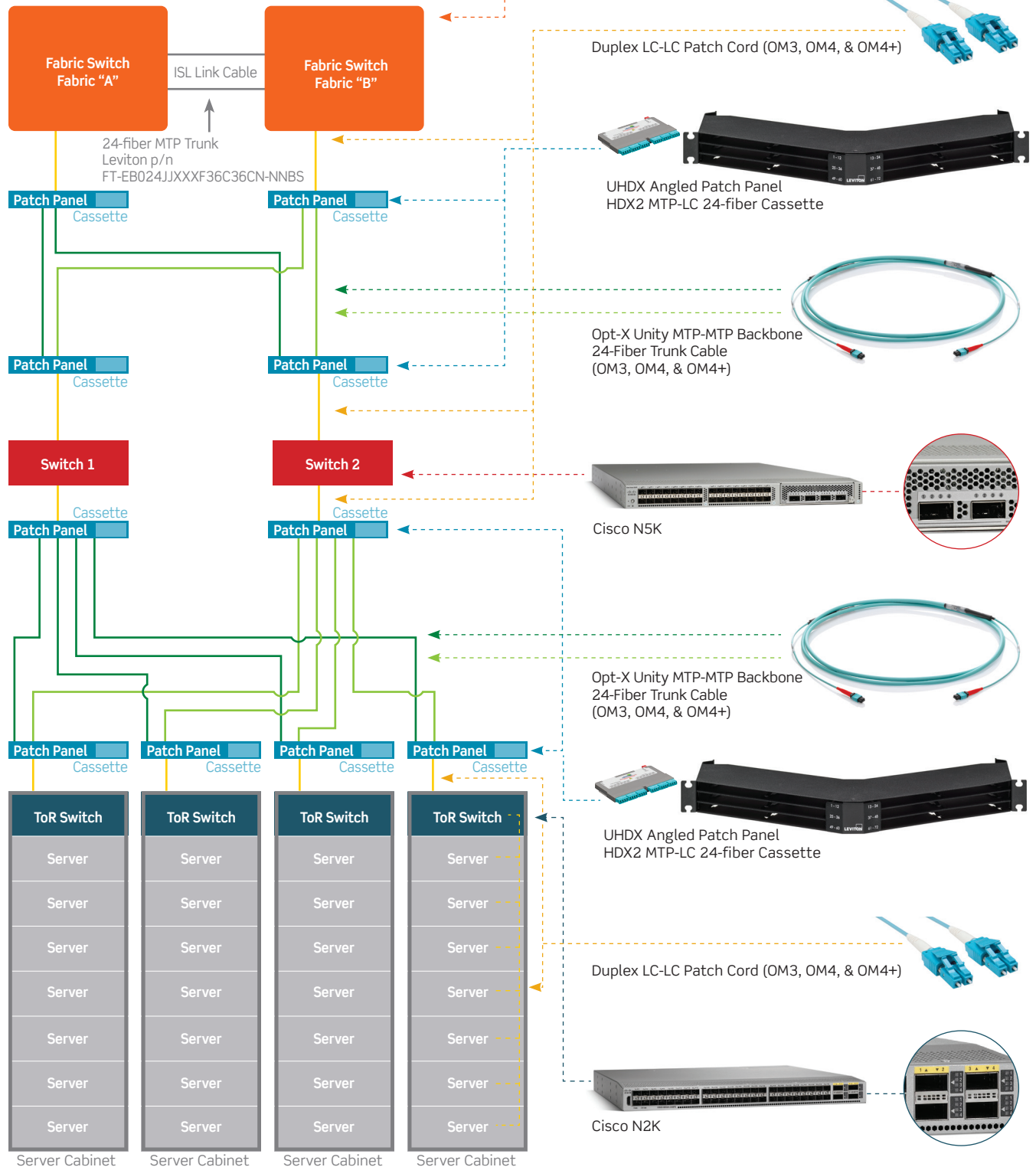
## Migration from 10 GbE to 40 GbE and 100 GbE

The following pages show 10, 40, and 100 GbE network topologies, using Cisco switches and Leviton connectivity. Each application includes the same 24-fiber MTP® backbone trunk cables and patch panels.

# 10 GBE APPLICATION

## Basic 10 GbE Solution Building Blocks:

- Opt-X® Unity 40/100G Pre-Terminated MTP Trunks
- UHDX Ultra High-Density Angled Patch Panels
- HDX MTP®-LC Cassettes
- LC Duplex Patch Cords (OM3, OM4, & OM4+)

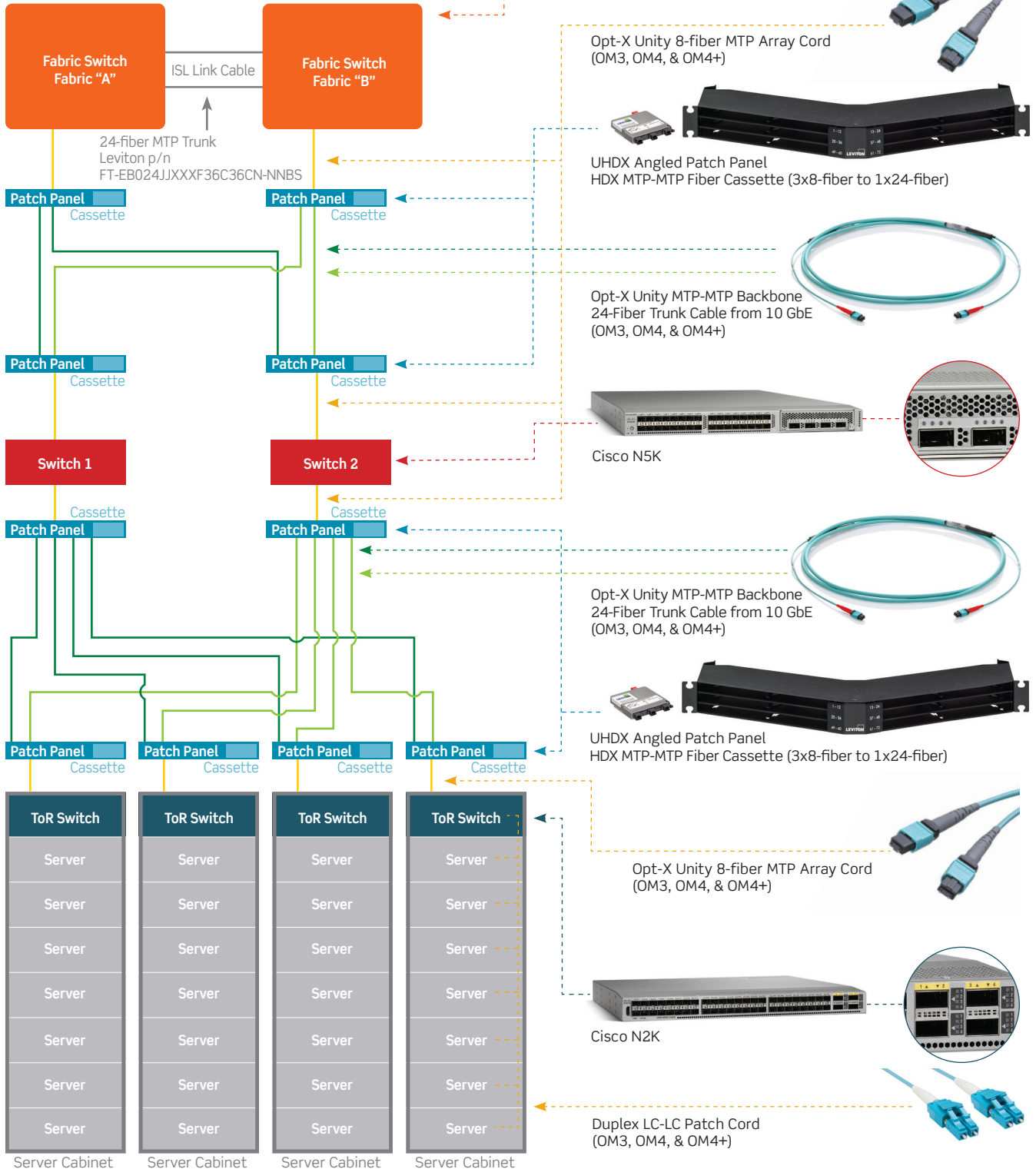


# 40 GBE (SR4) APPLICATION

Migration from 10 GbE to 40 GbE

## Required component change to enable 40 GbE Solution:

- HDX MTP®-MTP (3x8-fiber to 1x24 fiber) Cassettes
- Opt-X® Unity 8-fiber MTP Array Cords



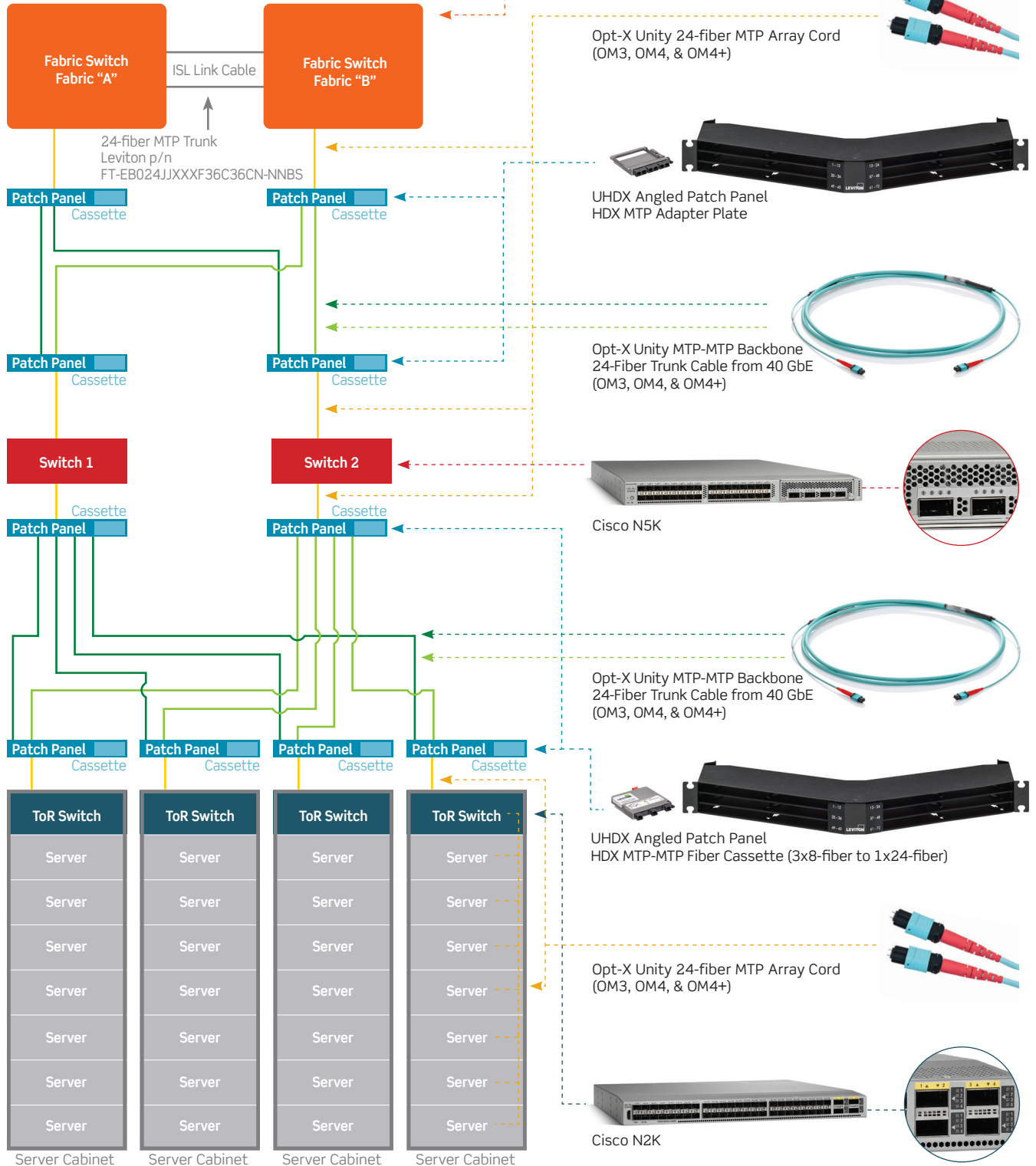


# 100 GBE (SR10) APPLICATION

Migration from 40 GbE to 100 GbE

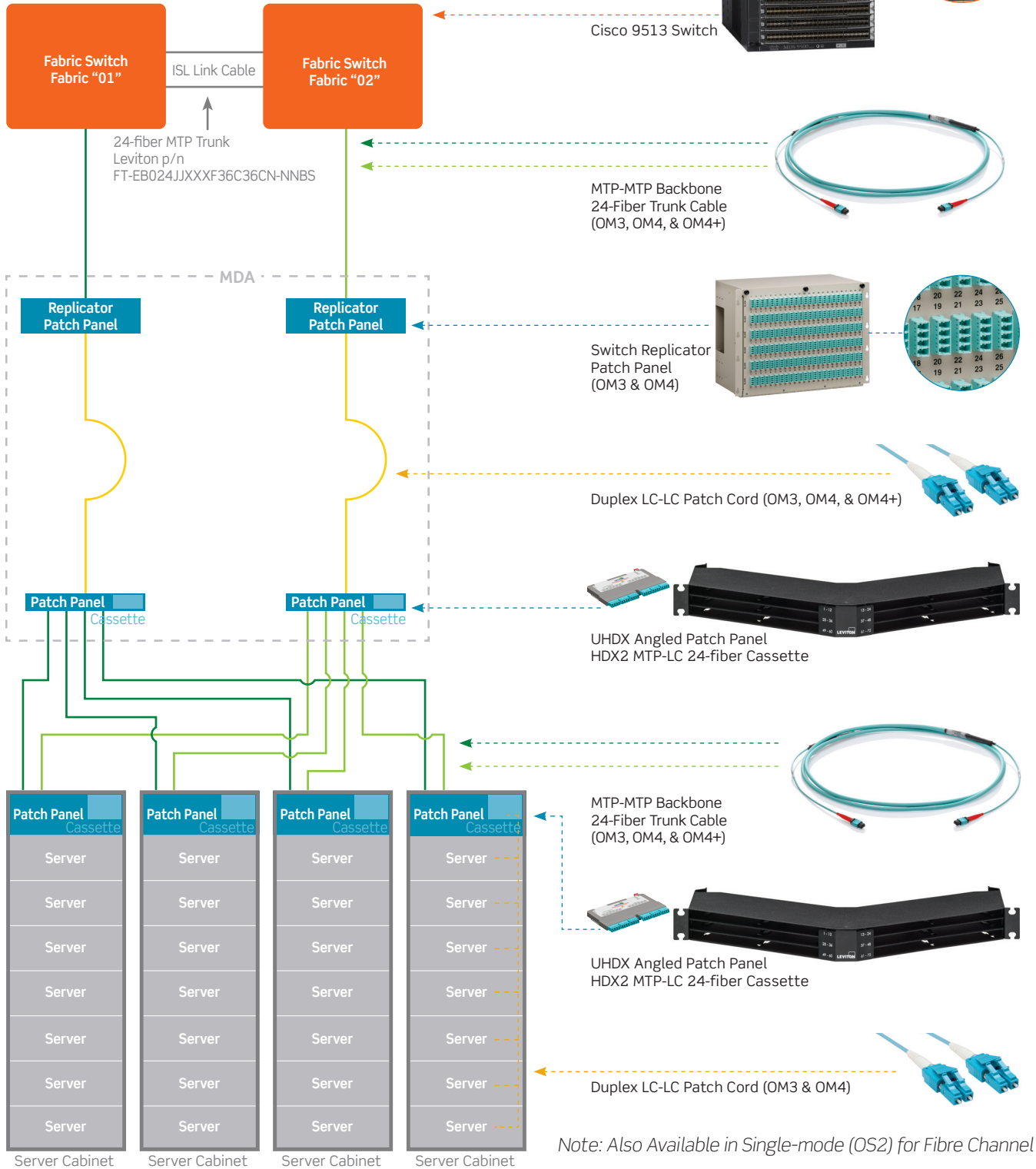
## Required Leviton component changes to enable 100 GbE Solution:

- HDX MTP® Adapter Plate
- Opt-X® Unity 24-fiber MTP Array Cords



# SAN TOPOLOGY FOR THE CISCO 9513 SWITCH

- High-Density Port Replicator Enclosure
- LC Duplex Patch Cords (OM3 & OM4)
- UHDX Ultra High-Density Angled Patch Panels
- HDX MTP®-LC Cassettes
- Opt-X® Unity 40/100G Pre-Terminated MTP Trunks



Note: Also Available in Single-mode (OS2) for Fibre Channel

## TOPOLOGY INFRASTRUCTURE CONSIDERATIONS:

- Topologies adhere to the following standards: ANSI/TIA-942-A, ASHRAE, IEEE 802.3bac, BICSI, OSHA, other International standards
- Migration strategy for 10/40/100 GbE infrastructure as OEM equipment and internal needs require migration to higher bandwidth speeds
- Cable jacket material should be LSZH, Plenum
- Color-coding for fabrics: available in multiple colors to allow for visual identification
- Patch cord / array length is based on 42U cabinet: top third = 3 ft, middle third = 5 ft, bottom third = 8 ft
- High-density UHDX panels allow up to 72 channels in 1RU and up to 288 channels in 4RU
- Panels are available that can be mounted above racks: either inside cabinets or overhead
- Angled UHDX panels conserved rack space by eliminating the need for additional horizontal cable management

## MORE OPTIONS AVAILABLE

### **[Leviton.com/datacenter](https://leviton.com/datacenter)**

See Leviton's complete offering of data center solutions, including trunks, patch cords, enclosures, panels, cassettes, and cable management.

### **[Leviton.com/configurator](https://leviton.com/configurator)**

Custom configure pre-terminated solutions and build detailed part numbers.

Contact your local Leviton or Cisco representative for assistance building your data center network infrastructure.

# THE SMART CHOICE FOR A BETTER NETWORK

High-performance connectivity backed by  
the industry's best service and support

We invent the industry's best technologies. We build them to last. And we stand behind every product and every installation – delivering industry-leading performance and unbeatable service and support – throughout the life of your structured cabling system. Add in the peace of mind that comes from working with a stable, century-old supplier, and you get far and away the highest return on infrastructure investment.

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