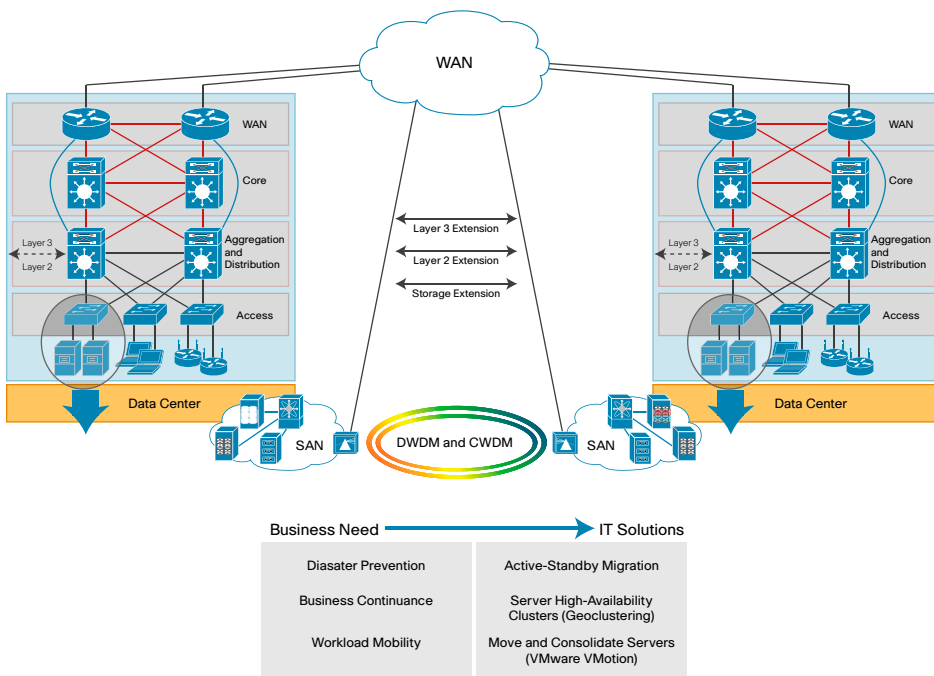


Why Is Data Center Interconnect Important?

Today's business is more distributed and mobile than ever, and companies are moving existing servers, building new data centers, and clustering servers in geographically separate locations (geocustering) to provide high-performance, nonstop access to critical business applications and information (Figure 1).

Figure 1. Data Center Interconnect: Business Needs and IT Solutions



Why Cisco Data Center Interconnect Solutions?

Cisco® Data Center Interconnect (DCI) solutions offer:

- Technology breadth: Comprehensive DCI solution for LAN, Layer 3, and SAN extensions
- Flexibility: No physically bound application areas, enabling application mobility

Cisco DCI LAN Extension Solutions

A loop-free LAN extension stretching across the data center WAN is a crucial part of Cisco DCI solution.

Cisco offers a range of multisite DCI solutions for redundant, scalable, and secure LAN extension across WAN networks based on dark fiber, Multiprotocol Label Switching (MPLS), and IP technologies (Table 1).

Table 1. Cisco DCI LAN Extension Solutions

Requirement	Solution	Platform
Layer 2 over fiber	Virtual switching system (VSS)	Cisco Catalyst® 6500 Series VSS
	Virtual PortChannel (vPC)	Cisco Nexus™ 7000 Series Switches vPC
Layer 2 over MPLS	Ethernet over MPLS (EoMPLS)	Cisco Catalyst 6500 Series Switches and Cisco ASR 1000 Series Aggregation Services Routers
	Virtual private LAN service (VPLS)	Cisco Catalyst 6500 Series
Layer 2 over IP	EoMPLS over generic routing encapsulation (EoMPLSoGRE)	Cisco Catalyst 6500 Series and Cisco ASR 1000 Series
	VPLS over GRE (VPLSoGRE)	Cisco Catalyst 6500 Series
Encryption	IEEE 802.1ae	Cisco Nexus 7000 Series
	IP Security (IPsec)	Cisco Catalyst 6500 Series and Cisco ASR 1000 Series
Multilevel quality of service (QoS)	Hierarchical QoS	Cisco Catalyst 6500 Series and Cisco ASR 1000 Series

Cisco DCI Solution for Dark Fiber Connectivity

(See Table 2 and Figure 2.)

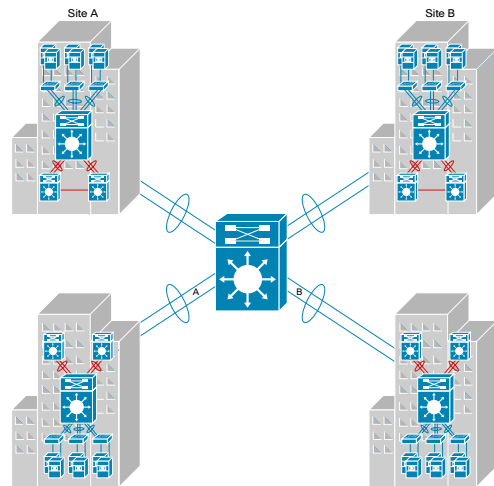
Table 2. Cisco DCI Solutions over Dark Fiber WAN

Requirement	Solution	Platform
Layer 2 over fiber	VSS/MEC	Cisco Catalyst 6500 Series VSS
	Virtual PortChannel (vPC)	Cisco Nexus 7000 Series vPC
Encryption	IEEE 802.1ae	Cisco Nexus 7000 Series

Benefits

- Native Ethernet LAN extension with multiple 10-Gbps multipoint DCI capability
- Multi-chassis Etherchannel for loop-free LAN extension with no dependence on spanning-tree convergence
- IEEE 802.1ae encryption with Cisco Nexus 7000 Series

Figure 2. Cisco DCI LAN Extension over Dark Fiber WAN



Cisco DCI Solution for IP and MPLS WAN
(See Figure 3 and Table 3.)

Figure 3. DCI LAN Extension over IP- or MPLS-Based WAN

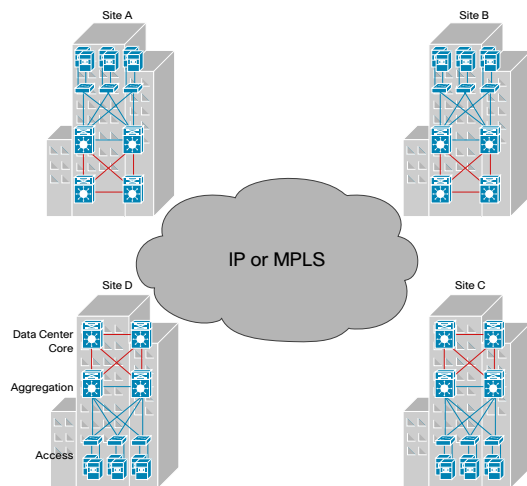


Table 3. Cisco DCI Solutions over IP- or MPLS-Based WAN

Requirement	Solution	Platform
Layer 2 over MPLS	Ethernet over MPLS (EoMPLS)	Catalyst 6500 Series with Cisco Shared Port Adapter (SPA) Interface Processor (SIP-400) or SIP-600, or Cisco ASR 1000 Series
	Virtual private LAN service (VPLS)	Catalyst 6500 Series with Cisco SIP-400 or SIP-600
Layer 2 over IP	EoMPLS over generic routing encapsulation (EoMPLSoGRE)	Catalyst 6500 Series with Cisco SIP-400, and Cisco ASR 1000 Series
	VPLSoGRE	Catalyst 6500 Series with Cisco SIP-400
Encryption	IEEE 802.1ae	Cisco Nexus 7000 Series
	IP Security (IPsec)	Catalyst 6500 Series with Cisco SPA Services Card 600 (SSC-600) or VPN SPA (VSPA), and Cisco ASR 1000 Series
Multilevel quality of service (QoS)	Hierarchical QoS	Catalyst 6500 Series with Cisco SIP-400 or SIP-600, and Cisco ASR 1000 Series

Benefits

- Multipoint connectivity with Spanning Tree Protocol isolation
- Integrated IP Security (IPsec) encryption with Cisco ASR 1000 Series and Cisco Catalyst 6500 Series
- Hierarchical QoS with Cisco ASR 1000 Series and Cisco Catalyst 6500 Series

Why Cisco?

Cisco offers innovative products and solutions together with a broad range of services programs to accelerate customer success, delivered through a combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction.