

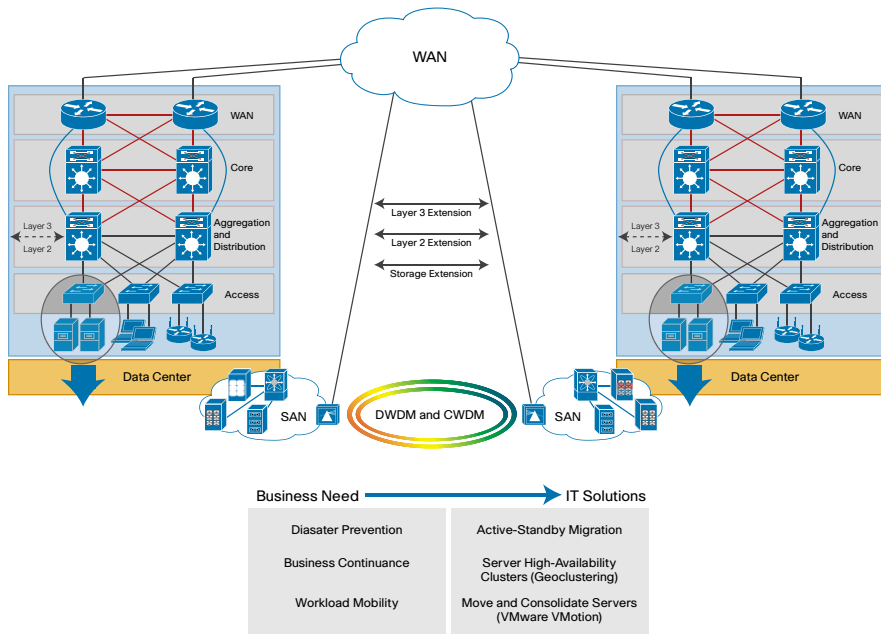
# Cisco Data Center Interconnect



## Why Is Cisco 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 (geoclustering) to provide high-performance, nonstop access to critical business applications and information (Figure 1).

Figure 1. Cisco DCI: Business Needs and IT Solutions



## Why Cisco Data Center Interconnect Solutions?

Cisco® Data Center Interconnect (DCI) solutions offer:

- Technology breadth: Comprehensive Cisco 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 solutions.

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

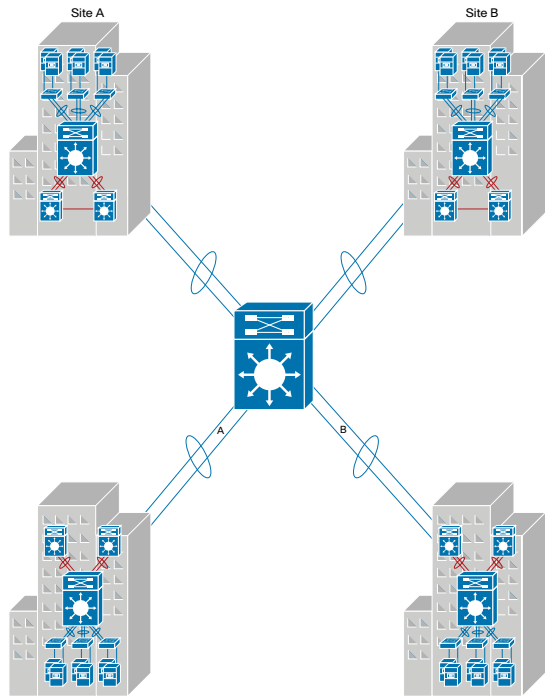
| Requirement                         | Solution   | Platform  |
|-------------------------------------|--|---|
| Layer 2 over fiber                  | Virtual switching system (VSS)                               | Cisco Catalyst® 6500 Series VSS   |
|                                     | Virtual PortChannel (vPC)                                    | Cisco Nexus® 7000 Series Switches vPC   |
| Layer 2 over MPLS                   | Ethernet over MPLS (EoMPLS)                                  | Cisco Catalyst 6500 Series Switches or Cisco ASR 1000 Series Aggregation Services Routers   |
|                                     | Virtual private LAN service (VPLS)<br>Advanced VPLS (A-VPLS) | Cisco Catalyst 6500 Series<br><ul style="list-style-type: none"> <li>• Supervisor Engine 2T (Sup2T): VPLS (native support)</li> <li>• Supervisor Engine 720 (Sup720): For A-VPLS, needs Cisco Shared Port Adapter Interface Processor 400 (SIP-400) or Ethernet Services Plus (ES+) line cards; for VPLS, needs SIP-400 or SIP-600 or ES+ line cards</li> </ul> |
| Layer 2 over IP                     | EoMPLS over generic routing encapsulation (EoMPLSoGRE)       | Cisco Catalyst 6500 Series or Cisco ASR 1000 Series   |
|                                     | A-VPLS over GRE (A-VPLSoGRE)                                 | Cisco Catalyst 6500 Series Sup720 (needs Cisco SIP-400 or ES+ line card)  |
| Encryption                          | IEEE 802.1ae   | Cisco Nexus 7000 Series or Cisco Catalyst 6500 Series Sup2T   |
|                                     | IP Security (IPsec)  | Cisco Catalyst 6500 Series Sup720 (with VPN SPA [VSPA] module and Cisco SPA Services Card 600 [SSC-600]) or Cisco ASR 1000 Series   |
| Multilevel quality of service (QoS) | Hierarchical QoS (HQoS)                                      | Cisco Catalyst 6500 Series Sup720 or Cisco ASR 1000 Series  |



## Cisco Data Center Interconnect Solutions

Figure 2 and Table 2 provide details of the Cisco DCI LAN extension over dark fiber WAN solution.

**Figure 2.** Cisco DCI LAN Extension over Dark Fiber WAN

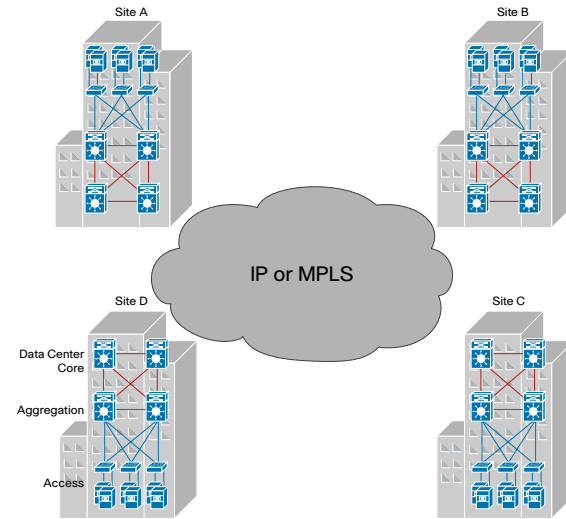


**Table 2.** Cisco DCI Solutions over Dark Fiber WAN

| Requirement        | Solution                                | Platform   |
|--------------------|---|--|
| Layer 2 over fiber | VSS and Multichassis EtherChannel (MEC) | Cisco Catalyst 6500 Series VSS                                   |
|                    | vPC                                     | Cisco Nexus 7000 Series vPC                                      |
| Encryption         | IEEE 802.1ae                            | Cisco Nexus 7000 Series or Cisco Catalyst 6500 Series with Sup2T |

Figure 3 and Table 3 provide details of the Cisco DCI LAN extension over IP- or MPLS-based WAN solution.

**Figure 3.** Cisco 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 | EoMPLS       | Cisco Catalyst 6500 Series or Cisco ASR 1000 Series  |
|                   | VPLS         | Sup2T: VPLS (native)   |
|                   | A-VPLS       | Sup720: A-VPLS needs SIP-400 or ES+ line cards; VPLS needs SIP-400 or SIP-600 or ES+ line cards    |
| Layer 2 over IP   | EoMPLSoGRE   | Cisco Catalyst 6500 Series or Cisco ASR 1000 Series  |
|                   | A-VPLSoGRE   | Cisco Catalyst 6500 Series Sup720 with Cisco SIP-400 or ES+  |
| Encryption        | IEEE 802.1ae | Cisco Nexus 7000 Series or Cisco Catalyst 6500 Series Sup2T  |
|                   | IPsec        | Cisco Catalyst 6500 Series Sup720 (with Cisco SSC-600 and VSPA), or Cisco ASR 1000 Series          |
| Multilevel QoS    | HQoS         | Cisco Catalyst 6500 Series Sup720 (with Cisco SIP-400 or SIP-600 or ES+), or Cisco ASR 1000 Series |

## For More Information

[http://www.cisco.com/en/US/prod/switches/ps5718/ps708/data\\_center\\_interconnect\\_promo.html](http://www.cisco.com/en/US/prod/switches/ps5718/ps708/data_center_interconnect_promo.html).