

## Cisco Data Center Interconnect

**Q. What is Cisco® Data Center Interconnect (DCI)?**

**A.** Cisco DCI is a set of solutions for connecting two or more peer data centers.

**Q. What is data center Layer 2 interconnect?**

**A.** Data center Layer 2 interconnect extends the Layer 2 infrastructure existing within a single data center to span two or more peer data centers.

**Q. Why do I need to extend Layer 2 across multiple data centers?**

**A.** The business requirements underlying the need for data center interconnect typically are enterprise applications, which demand a specific type of interconnect solution over the WAN core. For example, data center applications such as geocustering, VMware vMotion, and so on require extension of an existing Layer 2 LAN segment within a data center across the WAN interconnect to one or more peer data centers.

**Q. What solutions are available on the Cisco Catalyst® 6500 Series Switches to extend Layer 2 across data centers?**

**A.** The available design solutions for extending Layer 2 across the data center are based on the transport mechanism used in the interconnect. The interconnect or WAN may use different underlying transport infrastructures to provide Layer 2 interconnectivity. The typical transport types used in the WAN interconnect are:

- Dark fiber
- Multiprotocol Label Switching (MPLS)
- IP

**Q. Does the Cisco Catalyst 6500 Series offer solutions for each of these transport mechanisms?**

**A.** Yes. The Cisco Catalyst 6500 Series offers fundamentally two solutions for Layer 2 interconnectivity: a virtual switching system (VSS) solution if a customer has access to dark fiber and Any Transport over MPLS (ATOM). ATOM traffic can also be encapsulated with generic routing encapsulation (ATOMoGRE), which allows extension of the Layer 2 VLAN infrastructure over an interconnect, which may be based on IP or MPLS.

Both the VSS-based dark fiber solution and the ATOM and ATOMoGRE solution on the Cisco Catalyst 6500 Series are redundant, scalable, and secure.

**Q. What is the VSS-based dark fiber-based solution?**

**A.** When a data center customer has access to dark fiber, one option is to take advantage of dark fiber solutions based on the VSS available on the Cisco Catalyst 6500 Series.

**Q. What is Advanced Virtual Private LAN Services (A-VPLS)?**

**A.** A-VPLS is an enhancement to VPLS specifically for data center deployments, A-VPLS offers a suite of features:

- Enhanced VPLS traffic load-balancing capabilities
- VPLS configuration simplification
- Enhanced VPLS availability

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- Q. What if the customer has an existing MPLS-based WAN interconnect and is interested in extending Layer 2 over this MPLS WAN?**
- A.** For enterprise customers with an MPLS core, the Cisco Catalyst 6500 Series offers Ethernet over MPLS-based solutions for point-to-point connections between two data centers. For multipoint connections, the Cisco Catalyst 6500 Series offers VPLS or A-VPLS solutions. The Cisco Catalyst 6500 Series Supervisor Engine 2T (Sup2T) can support VPLS natively on all supported line cards, and the Cisco Catalyst 6500 Series Supervisor Engine 730 (Sup720) systems use the Cisco Shared Port Adapter Interface Processor 400 (SIP-400) or the Ethernet Services Plus (ES+) line cards for uplink connections to the VPLS core.
- Q. What if the customer has an existing IP-based WAN interconnect and wants an IP-based Layer 2 interconnect solution?**
- A.** Starting with Cisco IOS® Software Release 12.2(33)SXI, the Cisco Catalyst 6500 Series offers a new feature called ATOMoGRE, which allows ATOM-based services on an existing WAN IP core. This means that enterprise customers who want the versatility of ATOM-based services but dislike the complexity of an MPLS-based core can now use the ATOMoGRE feature on the Cisco Catalyst 6500 Series to deploy such services on an IP core.
- Q. Are there any hardware or software requirements for the ATOMoGRE feature on the Cisco Catalyst 6500 Series?**
- A.** The ATOMoGRE feature is currently supported on the Cisco Catalyst 6500 Series on the Cisco Sup2T natively; for Cisco Sup720-based systems, the feature requires the Cisco SIP-400 and ES+ line cards.

### 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).



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