

# Cisco Midmarket Catalyst LAN Switching Solution

## The Case for Robust Networks in the Midmarket

Recently, data network infrastructures have played an increasingly critical role within many of the world's most successful organizations. Large enterprise corporations have realized dramatic productivity and efficiency gains from the implementation of client/server and Internet business applications, such as e-commerce, supply chain integration, and customer relationship management. New productivity enhancing and cost-saving applications, such as voice telephony and live video will further elevate the network infrastructure as an integral component of the modern enterprise. These trends, initially limited to the larger enterprise corporations, are now also impacting midsize corporations—businesses ranging in size from 250 to 1000 employees. Whereas the high-cost and technically savvy previously associated with high-performance networking restricted the initial deployment to only the largest corporations, lower-cost structures and reduced complexity have recently made these solutions more accessible to a new class of midmarket customers.

Cisco Systems, the leader in data and voice internetworking, is pleased to introduce a complete local-area network (LAN) switching solution to address the specific needs of these midmarket customers. The new fixed configuration Cisco Catalyst® LAN switching products offer many of the intelligent network services available in enterprise-class products, yet at an affordable price. The new family of fixed configuration desktop switches and routing switches provide a range of connectivity requirements and include

Cisco IOS® software services and management interface to deliver the most comprehensive midmarket LAN solution available on the market.

As network managers within midmarket corporations redesign their networks to support next-generation applications such as voice and video, they need to design more robust networks than ever before. These new designs must ensure the highest levels of performance, availability, and quality of service. The Cisco midmarket LAN solution is ideally suited to meet these end-to-end networking requirements, while ensuring an affordable total solution cost.

## Midmarket Catalyst Solution: Products, Features, and Benefits

Based on extensive experience with customers worldwide, Cisco has developed a structured midmarket LAN design methodology that enables customers to build scalable, high-performance, reliable networks. A fundamental element of Cisco reference designs is the deployment of high-performance Layer 2 switches in the LAN access layer and intelligent switch routing services in the LAN backbone.

### Products

The new Cisco midmarket LAN solution comprises a set of fixed configuration switches that meet the specific requirements of the midmarket customer: affordable, with premium features that support advanced networked applications. The solution includes two families of Layer 2 desktop switches that offer robust access layer services: the Catalyst 2900 series XL and Catalyst 3500 series XL. The solution also includes two new Layer 3 routing switches to provide multilayer routing

services: the Catalyst 2948G-L3 and 4908G-L3. Cisco switching solutions are optimized to address both the growing needs for high-performance Gigabit Ethernet-based solutions as well as the need for a low-cost Fast Ethernet-based solution.

Gigabit Ethernet Product Offerings:

- The Catalyst 3500 series XL—a 10/100 and Gigabit Ethernet stackable switch family offers the most powerful stackable Gigabit Ethernet solution for the wiring closet available in the industry. This switch family includes a variety of port densities and stacking options to meet a range of customer configuration and performance needs.
- Catalyst 4908G-L3—an eight-port worshiped Gigabit Ethernet Layer 3 routing switch, providing a very high-performance midmarket core switch with multilayer Cisco IOS features and multiprotocol support (RIP, RIP v2, OSPF, IGRP, and EIGRP).

Fast Ethernet Product Offerings:

- Catalyst 2900 series—a 10/100 Ethernet switch family offering a very cost-effective and scalable Fast Ethernet solution for the wiring closet. This switch family includes a range of port densities and high-speed uplink options to meet all customer configuration and performance needs.
- Catalyst 2948G-L3—a 48-port 10/100 + 2-port Gigabit Ethernet Layer 3 routing switch, providing a very high performance mid-market core switch for Fast Ethernet networks with multiprotocol support (RIP, RIP v2, OSPF, IGRP, and EIGRP).

#### Features and Benefits

The Cisco midmarket LAN solution provides a full range of intelligent network services that will ensure the timely and efficient delivery of critical networked application data, including:

**Best-in-Class Performance**—wirespeed Gigabit Ethernet and Fast Ethernet bridging and routing ensure the maximization of network utility. Additionally, Cisco implements the following features to ensure the highest utility of the network:

- Per VLAN Spanning Tree (PVST+)—PVST+ offers users the capability to load balance across multiple uplinks in a single subnet without creating spanning tree loops. By distributing traffic loads over multiple links, users boost their network performance and do not waste investments in redundant connections.

- Fast/Gigabit EtherChannel® technologies—these technologies allow users to aggregate multiple trunks to significantly boost throughput to the network core and server farms. They have been widely adopted by the industry's server and network interface card (NIC) vendors.
- CGMP/IGMP Fast Leave—Cisco efficient multicast control mechanisms provide very efficient distribution of multicast video/data streams at all networking layers.

**High Availability**—Many Cisco premium IOS features ensure the highest uptime and redundancy for mission critical networks:

- Redundant Gigabit/Fast Ethernet uplink/downlink connections in all devices offer the highest levels of redundancy available on the market.
- Cisco IOS Uplink Fast and Backbone Fast technologies ensure the fastest possible spanning tree convergence—much faster than the standard IEEE 802.1D Spanning Tree protocol.
- Cisco Hot Standby Router Protocol (HSRP) redundant routing protocol provides a redundant routed connection in the rare event that a primary routing connection fails.
- Cisco offers redundant management capabilities in its stackable LAN switches via Switch Clustering technology.

**Quality of service (QoS)**—Cisco offers an integrated set of QoS features that ensure prioritization of delay-sensitive, high-priority traffic from traffic origination to destination.

- At the edge of the LAN, Cisco Layer 2 switches provide 802.1p classification and queuing, as well as per-port prioritization capabilities.
- At the LAN core, Cisco Layer 3 switches provide a rich set of QoS features, including prioritization and reclassification, sophisticated queuing mechanisms, and congestion avoidance techniques.
- All Layer 2 and Layer 3 switches are compatible with Cisco VoIP telephones that support classification and policing at the edge of the network.
- QoS functionality can be integrated and policed by Cisco QoS Policy Manager (release date 1HCY'00)

**Security and Policy Enforcement**—The new fixed Cisco configuration Layer 3 switches, the Catalyst 4908G-L3 and 2948G-L3, support standard and extended Access Control Lists (ACLs) for increased network security and policy enforcement. To control access to sensitive information, network administrators can control access by IP/MAC address, TCP/UDP port ID, and other parameters.

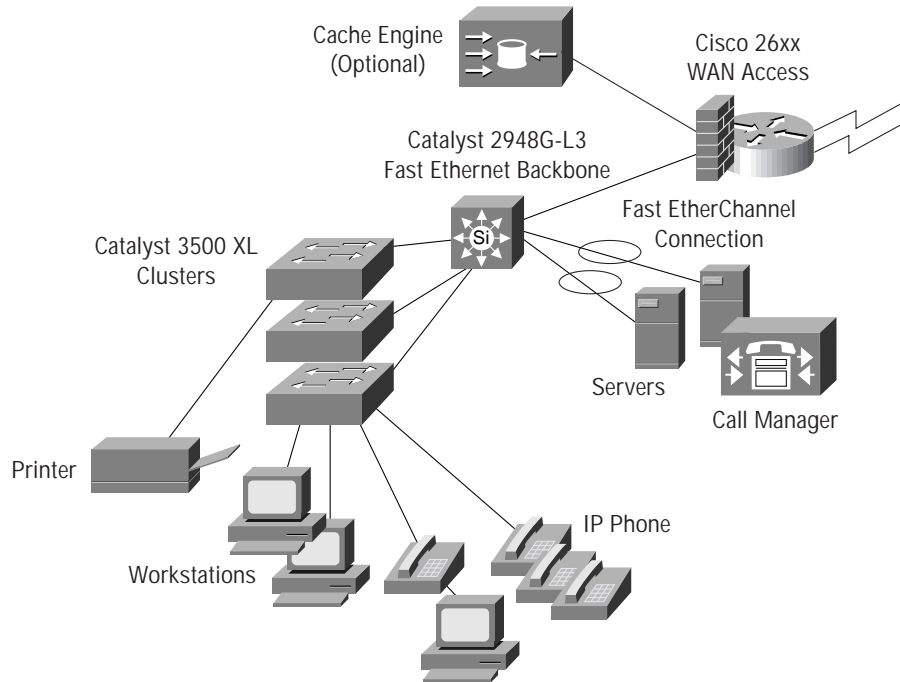


### Cost-Effective Layer 3 Network Design

For cost-conscious customers who want the premium features and services of a Layer 3 LAN switching solution, Cisco offers another set of products. If customers don't anticipate the need for a Gigabit Ethernet backbone, the Catalyst 2948G-L3 and 2900 series XL product families offer a powerful Fast Ethernet-based Layer 3 combination.

In midmarket designs where gigabit performance is not required, the Catalyst 2948G-L3 can be used to create a Layer 3 backbone with Fast Ethernet performance. Server connections can use Fast Ethernet or Fast EtherChannel technology. The Catalyst 2948G-L3 performs inter-VLAN routing, offloading the WAN router. The workgroups are created using Catalyst 2900 XL 10/100 switches. Figure 2 illustrates this Fast Ethernet product solution.

Figure 2 A Midmarket Network with Fast Ethernet Collapsed Backbone Design



These midmarket solutions are part of the larger family of Cisco Catalyst switching products, which offer a range of configuration flexibility, modularity, protocol support, multilayer services, and performance needs. These midmarket solutions are specifically targeted to customers that operate standard IP/IPX-Ethernet networks, need very cost-effective solutions, and do not anticipate dynamic network size growth. Other Catalyst switching solutions offer more robust solutions. For example, customers who have higher port

density growth expectations, need multiprotocol support, or want a more scalable migration path might choose a modular chassis such as the Catalyst 4000 in the access layer or a Catalyst 6X00 in the core layer. For more information on the broader Catalyst switch family, including the Catalyst 1900, 2900 XL, 3500 XL, 4000, 5X00, 6X00, and 8500, please visit the following Web site: [http://www.cisco.com/public/products\\_prod.shtml](http://www.cisco.com/public/products_prod.shtml)



**Corporate Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
<http://www.cisco.com>  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

**European Headquarters**

Cisco Systems Europe s.a.r.l.  
Parc Evolic, Batiment L1/L2  
16 Avenue du Quebec  
Villebon, BP 706  
91961 Courtaboeuf Cedex  
France  
<http://www-europe.cisco.com>  
Tel: 33 1 69 18 61 00  
Fax: 33 1 69 28 83 26

**Americas Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
<http://www.cisco.com>  
Tel: 408 526-7660  
Fax: 408 527-0883

**Asia Headquarters**

Nihon Cisco Systems K.K.  
Fuji Building, 9th Floor  
3-2-3 Marunouchi  
Chiyoda-ku, Tokyo 100  
Japan  
<http://www.cisco.com>  
Tel: 81 3 5219 6250  
Fax: 81 3 5219 6001

**Cisco Systems has more than 200 offices in the following countries. Addresses, phone numbers, and fax numbers are listed on the Cisco Connection Online Web site at <http://www.cisco.com/offices>.**

Argentina • Australia • Austria • Belgium • Brazil • Canada • Chile • China • Colombia • Costa Rica • Croatia • Czech Republic • Denmark • Dubai, UAE  
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