Cisco Catalyst **3750 Series** Switches

Product Overview

The new Cisco Catalyst 3750 Series switches are an innovative product line that improves LAN operating efficiency by combining industry-leading ease of use and the highest resiliency available for stackable switches. This new product series represents the next generation in desktop switches, and features Cisco StackWise™ technology, a 32-Gbps stack interconnect that allows customers to build a unified, highly resilient switching system—one switch at a time.

For mid-sized organizations and enterprise branch offices, the Cisco Catalyst 3750 Series eases deployment of converged applications and adapts to changing business needs by providing configuration flexibility, support for converged network patterns, and automation of intelligent network-services configurations. In addition, the Cisco Catalyst 3750 Series is optimized for high-density Gigabit Ethernet deployments and includes a diverse range of switches that meet access, aggregation, or small-network backbone-connectivity requirements.

Configurations

- *Cisco Catalyst 3750G-24TS—24 Ethernet 10/100/1000 ports and 4 SFP uplinks*
- *Cisco Catalyst 3750G-24T—24 Ethernet 10/100/1000 ports*
- *Cisco Catalyst 3750G-12S—12 Gigabit Ethernet SFP ports*
- *Cisco Catalyst 3750-48TS—48 Ethernet 10/100 ports and 4 SFP uplinks*
- *Cisco Catalyst 3750-24TS—24 Ethernet 10/100 ports and 2 small form-factor pluggable (SFP) uplinks*

Cisco Catalyst 3750 Series is available in the Standard Multilayer Software Image (SMI) or the Enhanced Multilayer Software Image (EMI). The SMI feature set includes advanced quality of service (QoS), rate-limiting, access control lists (ACLs), and basic static and routed information protocol (RIP) routing functionality. The EMI provides a richer set of enterprise-class features including advanced hardware-based IP unicast and multicast routing.

Figure 1

Cisco Catalyst 3750 Series Switches for 10/100 and 10/100/1000 access and aggregation

Cisco StackWise Technology—A New Standard in Stackable Resiliency

Cisco StackWise technology is a premium stacking architecture optimized for Gigabit Ethernet. This technology is designed to respond to additions, deletions, and redeployment while maintaining constant performance.

Cisco StackWise technology unites up to nine individual Cisco Catalyst 3750 switches into a single logical unit, using special stack interconnect cables and stacking software. The stack behaves as a single switching unit that is managed by a master switch elected from one of the member switches. The master switch automatically creates and updates all the switching and optional routing tables. A working stack can accept new members or delete old ones without service interruption.

Key Features and Benefits

Ease of Use—"Plug-and-Play" Configuration

A working stack is self-managing and self-configuring. When switches are added or removed, the master switch automatically updates all the routing tables to reflect changes. Upgrades are applied universally and simultaneously to all members of the stack.

Scalability—Fast Ethernet to Gigabit Ethernet

The Cisco Catalyst 3750 Series stacks up to 9 switches as a single logical unit for a total of 468 Ethernet 10/100 ports or 252 Ethernet 10/100/1000 ports. Individual 10/100 and 10/100/1000 units may be joined in any combination to evolve with network needs.

Mix-and-Match Switch Types—Pay as You Expand Your Network

Stacks can be created with any combination of Cisco Catalyst 3750 switches. Customers who need a mixture of

10/100, 10/100/1000 ports and wiring closet aggregation capability can incrementally develop the access environment, paying only for what they need.

Availability—Non-Stop Performance at Layer 2 and Layer 3

The Cisco Catalyst 3750 Series increases availability for stackable switches. Each switch can operate both as master controller and forwarding processor. Each switch in the stack can serve as a master, creating an 1:N availability scheme for network control. In the unlikely event of a single unit failure, all other units continue to forward traffic and maintain operation.

Smart Multicast—A New Level of Efficiency for Converged Networks

With Cisco StackWise technology, the Cisco Catalyst 3750 Series offers greater efficiency for multicast applications such as video. Each data packet is put on to the backplane only once, which provides more effective support for more data streams.

Superior Quality of Service—Across the Stack and at Wire Speed

The Cisco Catalyst 3750 Series offers Gigabit Ethernet speed with intelligent services that keep everything flowing smoothly—even at ten times normal network speed. Industry-leading mechanisms for marking, classification, and scheduling deliver best-in-class performance for data, voice, and video traffic—all at wire speed.

Security—Granular Control for the Access Environment

The Cisco Catalyst 3750 Series supports a comprehensive set of security features for connectivity and access control, including ACLs, authentication, port-level security, and identity-based network services with 802.1x and extensions.

Single IP Management—Many Switches, One Address

Each Cisco Catalyst 3750 Series stack is managed as a single object and has a single IP address. Single IP management is supported for activities such as fault detection, virtual LAN creation and modification, security, and QoS controls.

Jumbo Frames—Support for High-Demand Applications

The Cisco Catalyst 3750 Series supports jumbo frames on the 10/100/1000 configurations for advanced data and video applications requiring very large frames.

IPv6 Capable—Getting Ready For The Future

The Catalyst 3750 supports IPv6 routing in hardware for maximum performance. As network devices grow and the need for larger addressing and higher security become necessary, the Catalyst 3750 will be ready to meet the requirement.

Management Options

The Cisco Catalyst 3750 Series offers both a superior command-line interface (CLI) for detailed configuration and Cisco Cluster Management Suite (CMS) Software, a Web-based tool for quick configuration based on pre-set templates. In addition, CiscoWorks supports the Cisco Catalyst 3750 Series for network-wide management.

Figure 2
Cisco Catalyst 3750 Series Switches

Product Specifications

Table 1 Product Features and Benefits

Feature	Benefit
Ease of use and deployment	• Auto-configuration of new stack units eliminates reconfiguration.
	• Dynamic Host Configuration Protocol (DHCP) auto-configuration of multiple switches through a boot server eases switch deployment.
	• Automatic Cisco IOS Software version checking and updating helps ensure that all stack members have the same software version.
	• Automatic QoS (AutoQoS) simplifies QoS configuration in voice-over-IP (VoIP) networks by issuing interface and global switch commands to detect Cisco IP phones, classify traffic, and enable egress queue configuration.
	• Master configuration management ensures that all switches are automatically upgraded when the master switch receives a new software version.
	• Auto-sensing on each non-SFP port detects the speed of the attached device and automatically configures the port for 10-, 100-, or 1000-Mbps operation, easing switch deployment in mixed 10, 100, and 1000BASE-T environments.
	• Auto-negotiating on all ports automatically selects half- or full-duplex transmission mode to optimize bandwidth.
	• Dynamic Trunking Protocol (DTP) enables dynamic trunk configuration across all switch ports.
	• Port Aggregation Protocol (PAgP) automates the creation of Cisco Fast EtherChannel groups or Gigabit EtherChannel groups to link to another switch, router, or server.
	• Link Aggregation Control Protocol (LACP) allows the creation of Ethernet channeling with devices that conform to IEEE 802.3ad. This feature is similar to Cisco EtherChannel technology and PAgP.
	• DHCP Relay allows a DHCP relay agent to broadcast DHCP requests to the network DHCP server.
	• IEEE 802.3z-compliant 1000BASE-SX, 1000BASE-LX/LH, 1000BASE-ZX, 1000BASE-T and CWDM* physical interface support through a field-replaceable SFP module provides unprecedented flexibility in switch deployment.
	• To help ensure that the switch can be quickly connected to the network and can pass traffic with minimal user intervention, there is a default configuration stored in Flash.
	• Auto-MDIX (media-dependent interface cross-over) automatically adjusts transmit and receive pairs if an incorrect cable type (cross-over or straight-through) is installed.
Availability/Scalability	
Superior redundancy for fault backup	• 1:N master redundancy allows each stack member to serve as a master, providing the highest reliability for forwarding.
	• Cisco CrossStack UplinkFast (CSUF) technology provides increased redundancy and network resiliency through fast spanning-tree convergence (less than 2 seconds) across a switch stack with Cisco StackWise Technology.
	• Cross-Stack EtherChannel provides the ability to configure Cisco EtherChannel technology across different members of the stack for high resiliency.
	• IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) provides rapid spanning-tree convergence independent of spanning-tree timers and benefit of distributed processing.
	• Stacked units behave as a single spanning-tree node.

Table 1 Product Features and Benefits

Feature	Benefit
	• Per VLAN Rapid Spanning Tree (PVRST+) allows rapid spanning-tree reconvergence on a per-VLAN spanning-tree basis, without requiring the implementation of spanning-tree instances. • Cisco Hot Standby Router Protocol (HSRP) is supported to create redundant, failsafe routing topologies. • Command-switch redundancy enabled in Cisco CMS Software allows designation of a backup command switch that takes over cluster management functions if the primary command switch fails. • UniDirectional Link Detection (UDLD) and Aggressive UDLD allow unidirectional links caused by incorrect fiber-optic wiring or port faults to be detected and disabled on fiber-optic interfaces. • Switch port auto-recovery (errdisable) automatically attempts to re-enable a link that is disabled due to a network error. • Cisco Redundant Power System 675 (RPS 675) support provides superior power-source redundancy for up to 6 Cisco networking devices, resulting in improved fault tolerance and network uptime. • Equal-cost routing for load balancing and redundancy. • Bandwidth aggregation up to 8 Gbps through Gigabit EtherChannel technology and up to 800 Mbps through Fast EtherChannel technology enhances fault tolerance and offers higher-speed aggregated bandwidth between switches and to routers and individual servers.
High-performance IP routing	• Cisco Express Forwarding hardware routing architecture delivers extremely high-performance IP routing. • Basic IP unicast routing protocols (static, Routing Information Protocol Version 1 [RIPv1], and RIPv2) are supported for small-network routing applications. • IPv6 routing support in hardware for maximum performance in the future. • Advanced IP unicast routing protocols (Open Shortest Path First [OSPF], Interior Gateway Routing Protocol [IGRP], Enhanced IGRP [EIGRP], and Border Gateway Protocol Version 4 [BGPv4]) are supported for load balancing and constructing scalable LANs. Enhanced Multilayer Software Image (EMI) is required. • Policy-based routing (PBR) allows superior control by enabling flow redirection regardless of the routing protocol configured. EMI is required. • Inter-VLAN IP routing for full Layer 3 routing between 2 or more VLANs. • Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM sparse mode (PIM-SM), PIM dense mode (PIM-DM), and PIM sparse-dense mode. EMI is required. • Distance Vector Multicast Routing Protocol (DVMRP) tunneling interconnects 2 multicast-enabled networks across non-multicast networks. EMI is required. • Fallback bridging forwards non-IP traffic between 2 or more VLANs. EMI is required. • Routing is enabled across the stack. • 1000 switch virtual interfaces (SVIs) (depends on the number of routes and multicast entries) and 468 routed ports are supported per stack.

Table 1 Product Features and Benefits

Feature	Benefit
Integrated Cisco IOS Software features for bandwidth optimization	• Per-port broadcast, multicast, and unicast storm control prevents faulty end stations from degrading overall systems performance. • Web Cache Communication Protocol (WCCP) allows interaction with a Web cache for the purpose of redirecting content requests and performing basic load balancing across multiple caches. EMI is required. • IEEE 802.1d Spanning Tree Protocol support for redundant backbone connections and loop-free networks simplifies network configuration and improves fault tolerance. • PVST+ allows for Layer 2 load sharing on redundant links to efficiently utilize the extra capacity inherent in a redundant design. • IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) allows a spanning-tree instance per VLAN, enabling Layer 2 load sharing on redundant links. • Equal-cost routing for Layer 3 load balancing and redundancy across the stack. EMI is required. • Local Proxy Address Resolution Protocol (ARP) works in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth. • VLAN1 minimization allows VLAN1 to be disabled on any individual VLAN trunk link. • VLAN Trunking Protocol (VTP) pruning limits bandwidth consumption on VTP trunks by flooding broadcast traffic only on trunk links required to reach the destination devices. • Internet Group Management Protocol (IGMP) snooping provides fast client joins and leaves of multicast streams and limits bandwidth-intensive video traffic to only the requestors. • Multicast VLAN Registration (MVR) continuously sends multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons. • Up to 12 EtherChannel groups are supported per stack.
Scalable stacking	• Cisco StackWise stacking creates a 32-Gbps backplane. Stacking does not require user ports. Up to 9 units can be stacked together for a maximum of 468 10/100 ports, 252 10/100/1000 ports, 108 optical aggregation ports, or any mix thereof.
QoS/Control	
Advanced QoS	• Cross-stack QoS allows QoS to be configured across the entire stack. • 802.1p class of service (CoS) and Differentiated Services Code Point (DSCP) field classification are provided, using marking and reclassification on a per-packet basis by source and destination IP address, source and destination Media Access Control (MAC) address, or Layer 4 Transmission Control Protocol/User Datagram Protocol (TCP/UDP) port number. • Cisco control-plane and data-plane QoS ACLs on all ports ensure proper marking on a per-packet basis. • 4 egress queues per port enable differentiated management of up to 4 traffic types across the stack. • Shaped Round Robin (SRR) scheduling ensures differential prioritization of packet flows by intelligently servicing the ingress queues and egress queues. • Weighted Tail Drop (WTD) provides congestion avoidance at the ingress and egress queues before a disruption occurs. • Strict priority queuing guarantees that the highest-priority packets are serviced ahead of all other traffic. • There is no performance penalty for highly granular QoS functionality.

Table 1 Product Features and Benefits

Feature	Benefit
Granular rate limiting	• Cisco Committed Information Rate (CIR) function guarantees bandwidth in increments as low as 8 Kbps. • Rate limiting is provided based on source and destination IP address, source and destination MAC address, Layer 4 TCP/UDP information, or any combination of these fields, using QoS ACLs (IP ACLs or MAC ACLs), class maps, and policy maps. • Asynchronous data flows upstream and downstream from the end station or on the uplink are easily managed using ingress policing and egress shaping. • Up to 64 aggregate or individual policers are available per Fast Ethernet or Gigabit Ethernet port.
Security	
Network-wide security features	• IEEE 802.1x allows dynamic, port-based security, providing user authentication. • IEEE 802.1x with VLAN assignment allows a dynamic VLAN assignment for a specific user regardless of where the user is connected. • IEEE 802.1x with voice VLAN permits an IP phone to access the voice VLAN irrespective of the authorized or unauthorized state of the port. • IEEE 802.1x and port security are provided to authenticate the port and manage network access for all MAC addresses, including that of the client. • IEEE 802.1x with an ACL assignment allows for specific identity-based security policies regardless of where the user is connected. • IEEE 802.1x with Guest VLAN allows guests without 802.1x clients to have limited network access on the Guest VLAN. • Cisco security VLAN ACLs (VACLs) on all VLANs prevent unauthorized data flows to be bridged within VLANs. • Cisco standard and extended IP security Router ACLs (RACLs) define security policies on routed interfaces for control-plane and data-plane traffic. • Port-based ACLs (PACLs) for Layer 2 interfaces allow security policies to be applied on individual switch ports. • Secure Shell (SSH) Protocol, Kerberos, and Simple Network Management Protocol Version 3 (SNMPv3) provide network security by encrypting administrator traffic during Telnet and SNMP sessions. SSH, Kerberos, and the cryptographic version of SNMPv3 require a special cryptographic software image due to U.S. export restrictions. • Private VLAN Edge provides security and isolation between switch ports, which helps ensure that users cannot snoop on other users' traffic. • Bidirectional data support on the Switched Port Analyzer (SPAN) port allows Cisco Secure Intrusion Detection System (IDS) to take action when an intruder is detected. • Terminal Access Controller Access Control System Plus (TACACS+) and Remote Authentication Dial-In User Service (RADIUS) authentication enable centralized control of the switch and restrict unauthorized users from altering the configuration. • MAC address notification allows administrators to be notified of users added to or removed from the network. • Port security secures the access to an access or trunk port based on MAC address. • After a specific timeframe, the aging feature removes the MAC address from the switch to allow another device to connect to the same port.

Table 1 Product Features and Benefits

Feature	Benefit
	• Trusted boundary provides the ability to trust the QoS priority settings if an IP phone is present and to disable the trust setting in the event that the IP phone is removed, thereby preventing a malicious user from overriding prioritization policies in the network. • Multilevel security on console access prevents unauthorized users from altering the switch configuration. • The user-selectable address-learning mode simplifies configuration and enhances security. • Bridge Protocol Data Unit (BPDU) guard shuts down Spanning-Tree Protocol PortFast-enabled interfaces when BPDUs are received to avoid accidental topology loops. • Spanning Tree Root Guard (STRG) prevents edge devices not in the network administrator's control from becoming Spanning Tree Protocol root nodes. • IGMP filtering provides multicast authentication by filtering out non-subscribers and limits the number of concurrent multicast streams available per port. • Dynamic VLAN assignment is supported through implementation of VLAN Membership Policy Server (VMPS) client functionality to provide flexibility in assigning ports to VLANs. Dynamic VLAN enables the fast assignment of IP addresses. • Cisco CMS Software security wizards ease the deployment of security features for restricting user access to a server as well as to a portion or all of the network. • 1000 access control entries (ACEs) are supported.
Manageability	
Superior manageability	• Cisco IOS CLI support provides common user interface and command set with all Cisco routers and Cisco Catalyst desktop switches. • Service Assurance Agent support facilitates service-level management throughout the LAN. • Switching Database Manager templates for access, routing, and VLAN deployment scenarios allow the administrator to easily maximize memory allocation to the desired features based on deployment-specific requirements. • VLAN trunks can be created from any port, using either standards-based 802.1Q tagging or the Cisco Inter-Switch Link (ISL) VLAN architecture. • Up to 1024 VLANs per switch or stack and up to 128 spanning-tree instances per switch are supported. • 4000 VLAN IDs are supported. • Voice VLAN simplifies telephony installations by keeping voice traffic on a separate VLAN for easier administration and troubleshooting. • Cisco VLAN Trunking Protocol (VTP) supports dynamic VLANs and dynamic trunk configuration across all switches. • Cisco Group Management Protocol (CGMP) server functions enable a switch to serve as the CGMP router for CGMP client switches. EMI is required. • IGMP snooping provides fast client joins and leaves of multicast streams and limits bandwidth-intensive video traffic to only the requestors. • Remote Switch Port Analyzer (RSPAN) allows administrators to remotely monitor ports in a Layer 2 switch network from any other switch in the same network. • For enhanced traffic management, monitoring, and analysis, the Embedded Remote Monitoring (RMON) software agent supports 4 RMON groups (history, statistics, alarms, and events).

Table 1 Product Features and Benefits

Feature	Benefit
	• Layer 2 traceroute eases troubleshooting by identifying the physical path that a packet takes from source to destination. • All 9 RMON groups are supported through a SPAN port, which permits traffic monitoring of a single port, a group of ports, or the entire stack from a single network analyzer or RMON probe. • Domain Name Services (DNS) provide IP address resolution with user-defined device names. • Trivial File Transfer Protocol (TFTP) reduces the cost of administering software upgrades by downloading from a centralized location. • Network Timing Protocol (NTP) provides an accurate and consistent timestamp to all intranet switches. • Multifunction LEDs per port for port status; half-duplex and full-duplex mode; and 10BASE-T, 100BASE-TX, and 1000BASE-T indication as well as switch-level status LEDs for system, redundant-power supply, and bandwidth utilization provide a comprehensive and convenient visual management system. • SPAN works across all the ports in a stack.
Cisco CMS Software	• Cisco CMS Software provides an easy-to-use, Web-based management interface through a standard Web browser. • Cisco AVVID (Architecture for Voice, Video and Integrated Data) wizards need just a few user inputs to automatically configure the switch to optimally handle different types of traffic: voice, video, multicast, and high-priority data. • A security wizard is provided to restrict unauthorized access to applications, servers, and networks. • Cisco CMS Software allows management of up to 16 interconnected Cisco Catalyst 3750, 3550, 2950, 2950 LRE, 3500 XL, 2900 XL, 2900 LRE XL, and 1900 switches through a single IP address, without the limitation of being physically located in the same wiring closet. Full backward compatibility helps ensure any combination of the above switches can be managed with a Cisco Catalyst 3750 Series switch. • The cluster software upgrade feature allows one-click software upgrade across an entire cluster of Cisco Catalyst 3750, 3550, 2950, 2950 LRE, 3500 XL, 2900 XL, 2900 LRE XL, and 1900 switches. Configuration cloning enables rapid deployment of networks. The master switch automatically upgrades each stack. • Cisco CMS Software has been extended to include multilayer feature configurations such as routing protocols, ACLs, and QoS parameters. • Cisco Clustering now supports member discovery and cluster creation across a single Cisco Catalyst 3750 Series switch routed hop, enabling the entire LAN to be managed through a single Web interface (and with a single IP address, if desired). • Cisco CMS Software Guide Mode assists in the configuration of powerful advanced features by providing step-by-step instructions. • Cisco CMS Software provides enhanced online help for context-sensitive assistance. • The easy-to-use graphical interface provides both a topology map and front-panel view of the cluster and stacks. • Multidevice and multiport configuration capabilities allow administrators to save time by configuring features across multiple switches and ports simultaneously. • Web-based management for a Cisco Aironet Wireless Access Point is launched by clicking the relevant icon in the topology map.

Table 1 Product Features and Benefits

Feature	Benefit
	• The user-personalized interface allows modification of polling intervals, table views, and other settings within Cisco CMS Software and retains these settings. • Alarm notification provides automated e-mail notification of network errors and alarm thresholds.
Easy Web setup	• Web browser setup utility allows one-click initialization for IP addresses and passwords.
CiscoWorks support	• CiscoWorks network-management software provides management capabilities on a per-port and per-switch basis, providing a common management interface for Cisco routers, switches, and hubs. Stacking is supported. • SNMP v1, v2c, and v3 and telnet interface support delivers comprehensive in-band management, and a CLI-based management console provides detailed out-of-band management. • Cisco Discovery Protocol versions 1 and 2 enable a CiscoWorks network-management station for automatic switch discovery. • The CiscoWorks 2000 LAN Management Solution provides support.

Table 2 Hardware

Description	Specification
Performance	• 32 Gbps maximum forwarding bandwidth at Layer 2 and Layer 3 switching fabric • Stack forwarding rate of 38.7 millions of packets per second (mpps) for 64-byte packets • Forwarding rate: 6.5 mpps (Cisco Catalyst 3750-24-TS), 13.1 mpps (Cisco Catalyst 3750-48TS), 17.8 mpps (Cisco Catalyst 3750G-12S), 35.7 mpps (Cisco Catalyst 3750G-24T), 38.7 mpps (Cisco Catalyst 3750G-24TS) • 128 MB dynamic random-access memory (DRAM) and 16 MB Flash memory (Cisco Catalyst 3750G-24TS, Cisco Catalyst 3750G-24T, Cisco Catalyst 3750G-12S, Cisco Catalyst 3750-24TS, and Cisco Catalyst 3750-48TS) • Configurable up to 12,000 MAC addresses (Cisco Catalyst 3750G-24TS, Cisco Catalyst 3750G-24T, Cisco Catalyst 3750G-12S, Cisco Catalyst 3750-24TS, and Cisco Catalyst 3750-48TS) • Configurable up to 20,000 unicast routes (Cisco Catalyst 3750G-12S) and up to 11,000 unicast routes (Cisco Catalyst 3750G-24TS, Cisco Catalyst 3750G-24T, Cisco Catalyst 3750-24TS, and Cisco Catalyst 3750-48TS) • Configurable up to 1000 IGMP groups and multicast routes (Cisco Catalyst 3750G-24TS, Cisco Catalyst 3750G-24T,Cisco Catalyst 3750G-12S, Cisco Catalyst 3750-24TS, and Cisco Catalyst 3750-48TS) • Configurable maximum transmission unit (MTU) of up to 9018 bytes (Jumbo frames) for bridging on Gigabit Ethernet ports, and up to 1546 bytes for bridging and routing on Fast Ethernet ports

Table 2 Hardware

Description	Specification
Connectors and cabling	• 10BASE-T ports: RJ-45 connectors, 2-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling • 100BASE-TX ports: RJ-45 connectors, 2-pair Category 5 UTP cabling • 1000BASE-T ports: RJ-45, 2-pair Category 5 UTP cabling • 1000BASE-T SFP-based ports: RJ-45 connectors, 2-pair Category 5 UTP cabling • 1000BASE-SX, -LX/LH, -ZX, and CWDM* SFP-based ports: LC fiber connectors (single-mode, or multimode fiber) • Cisco StackWise stacking ports: copper-based Cisco StackWise cabling • Management console port: RJ-45-to-DB9 cable for PC connections
Power connectors	Customers can provide power to a switch by using either the internal power supply or the Cisco RPS 675. The connectors are located at the back of the switch. **Internal Power Supply Connector** • The internal power supply is an auto-ranging unit. • The internal power supply supports input voltages between 100 and 240 volts alternating current (VAC). • Use the supplied alternating-current (AC) power cord to connect the AC power connector to an AC power outlet. **Cisco RPS Connector** • The connector offers connection for an optional Cisco RPS 675 that uses AC input and supplies direct-current (DC) output to the switch. • The connector offers a 675-watt (W) RPS that supports up to 6 external network devices and provides power to 1 failed device at a time. • The connector automatically senses when the internal power supply of a connected device fails and provides power to the failed device, preventing loss of network traffic. • Only the Cisco RPS 675 (model PWR675-AC-RPS-N1=) should be attached to the redundant-power-supply receptacle.
Indicators	• Per-port status LEDs: link integrity, disabled, activity, speed, and full-duplex indications • System-status LEDs: system, RPS, and bandwidth-utilization indications
Dimensions	• 2.59 x 17.5 x 11.6 inches (in.) (6.59 x 44.5 x 29.5 centimeters [cm]) (Cisco Catalyst 3750G-24TS) • 1.73 x 17.5 x 12.83 in (4.39 x 44.5 x 32.6 cm) (Cisco Catalyst 3750G-24T) • 1.73 x 17.5 x 12.83 (4.39 x 44.5 x 32.6 cm) (Cisco Catalyst 3750G-12S) • 1.73 x 17.5 x 11.83 in. (4.39 x 44.5 x 30.1 cm) (Cisco Catalyst 3750-48TS) • 1.73 x 17.5 x 11.83 in. (4.39 x 44.5 x 30.1 cm) (Cisco Catalyst 3750-24TS)
Weight (H x W x D)	• 12.5 pounds (lb) (5.68 kilograms [kg]) (Cisco Catalyst 3750G-24TS) • 10.0 lb (4.55 kg) (Cisco Catalyst 3750G-24T and Catalyst 3750G-12S) • 9.1 lb (4.1 kg) (Cisco Catalyst 3750-48TS) • 8.0 lb (3.6 kg) (Cisco Catalyst 3750-24TS)
Environmental ranges	• Operating temperature: 32˚ to 113˚ F (0˚ to 45˚ C) • Storage temperature: –13˚ to 158˚ F (–25˚ to 70˚ C) • Operating relative humidity: 10 to 85% (noncondensing) • Operating altitude: Up to 10,000 feet (ft) (3049 meters [m]) • Storage altitude: Up to 15,000 ft (4573 m)

Table 2 Hardware

Description	Specification
Acoustic noise	• International Organization for Standardization (ISO) 7779: bystander position operating to an ambient temperature of 30 C • Cisco Catalyst 3750G-24TS: 42 decibels (dB) • Cisco Catalyst 3750G-24T: 42 dB • Cisco Catalyst 3750G-12S: 42 dB • Cisco Catalyst 3750-48TS: 42 dB • Cisco Catalyst 3750-24TS: 42 dB
Mean time between failure (MTBF)	• 188,574 hours (Cisco Catalyst 3750G-24TS) • 210,936 hours (Cisco Catalyst 3750G-24T) • 215,000 hours (Cisco Catalyst 3750G-12S) • 217,824 hours (Cisco Catalyst 3750-48TS) • 294,928 hours (Cisco Catalyst 3750-24TS)

Table 3 Power Specifications

Description	Specification
Power consumption	165W (maximum), 563 British thermal units (Btus) per hour (Cisco Catalyst 3750G-24TS) 135W (maximum), 460 Btus per hour (Cisco Catalyst 3750G-24T) 120W (maximum), 409 Btus per hour (Cisco Catalyst 3750G-12S) 42W (maximum), 143 Btus per hour (Cisco Catalyst 3750-24TS) 60W (maximum), 205 Btus per hour (Cisco Catalyst 3750-48TS)
AC input voltage and frequency	100 to 127/200 to 240 VAC (auto-ranging), 50 to 60 Hertz (Hz)
DC input voltages	RPS input
	+12 Volts (V) at 17A (Cisco Catalyst 3750G-24TS) +12V at 13A (Cisco Catalyst 3750G-24T and Catalyst 3750G-12S) +12V at 8.5A (Cisco Catalyst 3750-48 and Cisco Catalyst 3750-24)

Table 4 Management and Standards Support

Description	Specification
Management	BRIDGE-MIB CISCO-CDP-MIB CISCO-CLUSTER-MIB CISCO-CONF-MAN-MIB CISCO-ENTITY-FRU-CONTROL-MIB CISCO-ENVMON-MIB CISCO-FLASH-MIB CISCO-FTP-CLIENT-MIB

Table 4 Management and Standards Support

Description	Specification
	CISCO-HSRP-MIB
	CISCO-HSRP-EXT-MIB
	CISCO-IGMP-FILTER-MIB
	CISCO-IMAGE-MIB
	CISCO-L2L3-INTERFACE-CONFIG-MIB
	CISCO-MAC-NOTIFICATION-MIB
	CISCO-MEMORY-POOL-MIB
	CISCO-PAGP-MIB
	CISCO-PING-MIB
	CISCO-PROCESS-MIB
	CISCO-RTTMON-MIB
	CISCO-STACK-MIB
	CISCO-STACKMAKER-MIB
	CISCO-STP-EXTENSIONS-MIB
	CISCO-SYSLOG-MIB
	CISCO-TCP-MIB
	CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB
	CISCO-VLAN-MEMBERSHIP-MIB
	CISCO-VTP-MIB
	ENTITY-MIB
	ETHERLIKE-MIB
	IF-MIB
	IGMP-MIB
	IPMROUTE-MIB
	OLD-CISCO-CHASSIS-MIB
	OLD-CISCO-FLASH-MIB
	OLD-CISCO-INTERFACES-MIB
	OLD-CISCO-IP-MIB
	OLD-CISCO-SYS-MIB
	OLD-CISCO-TCP-MIB
	OLD-CISCO-TS-MIB
	OSPF-MIB (RFC 1253)
	PIM-MIB
	RFC1213-MIB
	RFC1253-MIB
	RMON-MIB
	RMON2-MIB
	SNMP-FRAMEWORK-MIB
	SNMP-MPD-MIB
	SNMP-NOTIFICATION-MIB
	SNMP-TARGET-MIB
	SNMPv2-MIB
	TCP-MIB
	UDP-MIB

Table 4 Management and Standards Support

Description	Specification
	IEEE 802.1s
	IEEE 802.1w
	IEEE 802.1x
	IEEE 802.3ad
	IEEE 802.3x full duplex on 10BASE-T, 100BASE-TX, and 1000BASE-T ports
	IEEE 802.1D Spanning-Tree Protocol
	IEEE 802.1p CoS Prioritization
	IEEE 802.1Q VLAN
	IEEE 802.3 10BASE-T specification
Standards	IEEE 802.3u 100BASE-TX specification
	IEEE 802.3ab 1000BASE-T specification
	IEEE 802.3z 1000BASE-X specification
	1000BASE-X (SFP)
	1000BASE-SX
	1000BASE-LX/LH
	1000BASE-ZX
	RMON I and II standards
	SNMPv1, SNMPv2c, SNMPv3

Table 5 Safety and Compliance

Safety certifications	• UL to UL 60950, Third Edition • C-UL to CAN/CSA C22.2 No. 60950-00, Third Edition • TUV/GS to EN 60950:2000 • CB to IEC 60950 with all country deviations • NOM to NOM-019-SCFI • CE Marking
Electromagnetic emissions certifications	• FCC Part 15 Class A • EN 55022: 1998 (CISPR22) • EN 55024: 1998 (CISPR24) • VCCI Class A • AS/NZS 3548 Class A • CE • CNS 13438 Class A • MIC
Telco	• CLEI code
Warranty	• Limited lifetime warranty

Service and Support

Cisco Systems is committed to minimizing total cost of ownership (TCO). Cisco offers a portfolio of Technical Support Services to help ensure that Cisco products operate efficiently, remain highly available, and benefit from the most up-to-date system software. The services and support programs described in the table below are available as part of the Cisco Desktop Switching Service and Support solution, and are available directly from Cisco and through resellers.

Service and Support	Features	Benefits
Advanced Services		
Cisco Total Implementation Solutions (TIS), available direct from Cisco Cisco Packaged TIS, available through resellers	• Project management • Site survey, configuration, and deployment • Installation, text, and cutover • Training • Major moves, adds, and changes • Design review and product staging	• Supplements existing staff • Ensures functions meet needs • Mitigates risk
Cisco SMARTnet and SMARTnet Onsite, available direct from Cisco Cisco Packaged SMARTnet, available through resellers	• 24-hour access to software updates • Web access to technical repositories • Telephone support through the Cisco Technical Assistance Center (TAC) • Advance replacement of hardware parts	• Enables proactive or expedited issue resolution • Lowers TCO by taking advantage of Cisco expertise and knowledge • Minimizes network downtime

Ordering Information

Part Number	Description
WS-C3750G-24TS-E	• 24 Ethernet 10/100/1000 ports and 4 SFP-based Gigabit Ethernet ports • 32-Gbps, high-speed stacking bus • Innovative stacking technology • 1.5 rack units (RU) stackable, multilayer switch • Enterprise-class intelligent services delivered to the network edge • EMI installed • Full dynamic IP routing
WS-C3750G-24TS-S	• 24 Ethernet 10/100/1000 ports and 4 SFP-based Gigabit Ethernet ports • 32-Gbps, high-speed stacking bus • Innovative stacking technology • 1.5 RU stackable, multilayer switch • Enterprise-class intelligent services delivered to the network edge • Standard Multilayer Software Image (SMI) installed • Basic RIP and static routing, upgradable to full dynamic IP routing
WS-C3750G-24T-E	• 24 Ethernet 10/100/1000 ports • 32-Gbps, high-speed stacking bus • Innovative stacking technology • 1 RU stackable, multilayer switch • Enterprise-class intelligent services delivered to the network edge • EMI installed • Full dynamic IP routing
WS-C3750G-24T-S	• 24 Ethernet 10/100/1000 ports • 32-Gbps, high-speed stacking bus • Innovative stacking technology • 1 RU stackable, multilayer switch • Enterprise-class intelligent services delivered to the network edge • SMI installed • Basic RIP and static routing, upgradable to full dynamic IP routing
WS-C3750G-12S-E	• 12 SFP-based Gigabit Ethernet ports • 32-Gbps, high-speed stacking bus • Innovative stacking technology • 1 rack unit (RU) stackable multilayer switch • Delivers enterprise-class intelligent services to the network edge • EMI installed Provides full dynamic IP routing
WS-C3750G-12S-S	• 12 SFP-based Gigabit Ethernet ports • 32-Gbps, high-speed stacking bus • Innovative stacking technology • 1 rack unit (RU) stackable multilayer switch • Delivers enterprise-class intelligent services to the network edge • SMI installed • SMI provides basic RIP and static routing, upgradable to full dynamic IP routing

Part Number	Description
WS-C3750-48TS-E	• 48 Ethernet 10/100 ports and 4 SFP-based Gigabit Ethernet ports • 32-Gbps, high-speed stacking bus • Innovative stacking technology • 1 RU stackable, multilayer switch • Enterprise-class intelligent services delivered to the network edge • EMI installed • Provides full dynamic IP routing
WS-C3750-48TS-S	• 48 Ethernet 10/100 ports and 4 SFP-based Gigabit Ethernet ports • 32-Gbps, high-speed stacking bus • Innovative stacking technology • 1 RU stackable, multilayer switch • Enterprise-class intelligent services delivered to the network edge • SMI installed • Basic RIP and static routing, upgradable to full dynamic IP routing
WS-C3750-24TS-E	• 24 Ethernet 10/100 ports and 2 SFP-based Gigabit Ethernet ports • 32-Gbps, high-speed stacking bus • Innovative stacking technology • 1 RU stackable, multilayer switch • Enterprise-class intelligent services delivered to the network edge • EMI installed • Full dynamic IP routing
WS-C3750-24TS-S	• EMI upgrade kit for standard versions of the Cisco Catalyst 3750G-24TS, 3750G-24T, 3750-48TS, and 3750-24TS switches • Advanced IP routing
PWR675-AC-RPS-N1=	Cisco Redundant Power System 675 (RPS 675) with 1 connector cable
CAB-RPS-1614=	1.2 meter cable for Cisco RPS 675 to external device connection
CD-3750G-EMI=	• Enhanced Multilayer Software Image (EMI) upgrade kit for standard versions of the Catalyst 3750G-24TS, 3750G-24T, 3750G-12S switches • Provides advanced IP routing
CD-3750-EMI=	• Enhanced Multilayer Software Image (EMI) upgrade kit for standard versions of the Catalyst 3750-48TS, 3750-24TS switches • Provides advanced IP routing
CAB-STACK-50CM=	Cisco StackWise 50CM Stacking Cable
CAB-STACK-1M=	Cisco StackWise 1M Stacking Cable
CAB-STACK-3M=	Cisco StackWise 3M Stacking Cable
RCKMNT-3550-1.5RU=	Spare rack mount kit for the Catalyst 3750G-24TS
RCKMNT-1RU=	Spare rack mount kit for the Catalyst 3750-24TS, 3750-48TS, 3750G-24T
RCKMNT-REC-1.5RU=	1.5RU recessed rack mount kit for the Catalyst 2970, 3550, 3750
RCKMNT-REC-1RU=	1RU recessed rack mount kit for the Catalyst 2970, 3550, 3750
GLC-LH-SM=	GE SFP, LC connector LH transceiver

Part Number	Description
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-ZX-SM=	GE SFP, LC connector ZX transceiver
GLC-T=	GE SFP, RJ45 connector, 10/100/1000BT transceiver
CWDM-SFP-1470= *	Cisco CWDM SFP 1470 nm; Gigabit Ethernet and 1G/2G FC (Grey)
CWDM-SFP-1490= *	Cisco CWDM SFP 1490 nm; Gigabit Ethernet and 1G/2G FC (Violet)
CWDM-SFP-1510= *	Cisco CWDM SFP 1510 nm; Gigabit Ethernet and 1G/2G FC (Blue)
CWDM-SFP-1530= *	Cisco CWDM SFP 1530 nm; Gigabit Ethernet and 1G/2G FC (Green)
CWDM-SFP-1550= *	Cisco CWDM SFP 1550 nm; Gigabit Ethernet and 1G/2G FC (Yellow)
CWDM-SFP-1570= *	Cisco CWDM SFP 1570 nm; Gigabit Ethernet and 1G/2G FC (Orange)
CWDM-SFP-1590= *	Cisco CWDM SFP 1590 nm; Gigabit Ethernet and 1G/2G FC (Red)
CWDM-SFP-1610= *	Cisco CWDM SFP 1610 nm; Gigabit Ethernet and 1G/2G FC (Brown)
CSS5-CABLX-LCSC=	CSS11500 10-Meter Fiber Single Mode LX LC-to-SC Connectors
CSS5-CABSX-LC=	CSS11500 10-Meter Fiber Multimode SX LC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-Meter Fiber Multimode SX LC-to-SC Connectors
CAB-SM-LCSC-1M	1-Meter Fiber Singlemode LC-to-SC Connectors
CAB-SM-LCSC-5M	5-Meter Fiber Singlemode LC-to-SC Connectors

* Check 3750 bulletins for TAC supported SFPs

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