

# Cisco Catalyst 6500 Series Content Switching Module

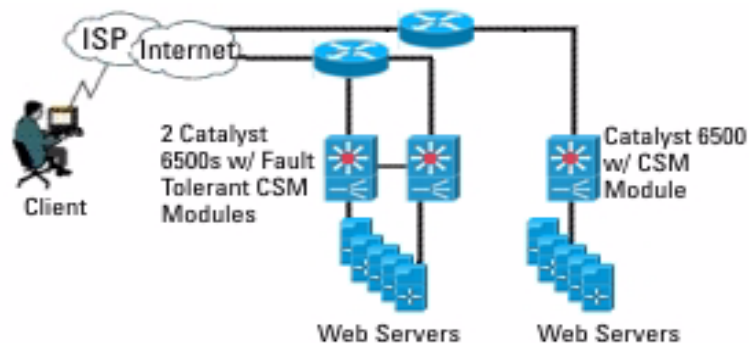


The Cisco Content Switching Module (CSM) is a Catalyst® 6500 line card that balances client traffic to farms of servers, firewalls, SSL devices, or VPN termination devices. The CSM provides a high-performance, cost-effective load balancing solution for enterprise and Internet Service Provider (ISP) networks. The CSM meets the demands of high-speed Content Delivery Networks, tracking network sessions and server load conditions in real time and directing each session to the most appropriate server. Fault tolerant CSM configurations maintain full state information and provide true hitless failover required for mission-critical functions.

The CSM provides the following key benefits:

- *Market-leading performance*—Establishes up to 200,000 Layer 4 connections per second\* and provides high-speed content switching, while maintaining 1 million concurrent connections.
- *Outstanding price/performance value for large data centers and ISPs*—Features a low connection cost and occupies a small footprint. The CSM slides into a slot in a new or existing Catalyst 6500 and enables all ports in the Catalyst 6500 for layer 4 through layer 7 content switching. Multiple CSMs can be installed in the same Catalyst 6500.
- *Ease of configuration*—Uses the same Cisco IOS Command Line Interface (CLI) that is used to configure the Catalyst 6500 Switch.

Figure 1



Content Switching Module Key Features:

#### Firewall Load Balancing

The CSM allows you to scale firewall protection by distributing traffic across multiple firewalls on a per-connection basis, while ensuring that all packets belonging to a particular connection go through the same firewall. Both stealth and regular firewalls are supported.

#### URL and Cookie-based Load Balancing

The CSM allows full regular expression pattern matching for policies based on URLs, cookies, and HTTP header fields. The CSM supports any URL or cookie format-allowing it to load balance existing Web content without requiring URL/cookie format changes.

#### High Performance

The CSM performs up to 200,000 new Layer 4 TCP connection setups per second\*. These connections can be spread across 4096 virtual services (16,384 real servers) and all of the ports in a Catalyst 6500, or they can be focused on a single port. This provides a benefit over competitors who use distributed architectures that require all of the ports to be used in order to gain maximum performance.

#### Network Configurations

The CSM supports many different network topology types. A CSM can operate in a mixed bridged and routed configuration, allowing traffic to flow from the client side to the server side on the same or on different IP subnets.

#### IP Protocol Support

The CSM accommodates a wide range of common IP protocols-including TCP, User Datagram Protocol (UDP). Additionally, the CSM supports higher-level protocols, including Hypertext Transfer Protocol (HTTP), File Transfer Protocol (FTP), Telnet, Real Time Streaming Protocol (RTSP), Dynamic Name Server (DNS), and Simple Mail Transfer Protocol (SMTP).

#### User Session Stickiness

Whenever encryption or e-commerce is involved, it is important that the end user is consistently directed to the same server—that is, the server where the user's shopping cart is located or the encryption tunnel terminates. The CSM's User Session Stickiness provides

the ability to consistently bring users back to the same server—based on Secure Socket Layer (SSL) session ID, IP address, cookie, or HTTP redirection.

#### Load Balancing Algorithms

The CSM supports the following load balancing algorithms:

- Round robin
- Weighted round robin
- Least connections
- Weighted least connections
- Source and/or destination IP hash (subnet mask also configurable)
- URL hashing

#### Quality of Service

Providing differentiated levels of service to end users is important when generating revenue from content. The CSM leverages the robust QoS of the Catalyst 6500 enabling traffic differentiation as follows:

- Correctly prioritizes packets based on Layer 7 rules
- Directs users who are paying more for services to faster or less loaded servers

#### High Availability

The CSM continually monitors server and application availability using Health Monitoring probes, Inband Health Monitoring, Return Code Checking, and Dynamic Feedback Protocol (DFP). When a real server or gateway failure occurs, the CSM redirects traffic to a different location. Servers can be added and removed without disrupting service—systems can easily be scaled up or down.

#### Connection Redundancy

Optionally, two CSMs can be configured in a fault-tolerant configuration to share state information about user sessions and provide connection redundancy. In the event the active CSM fails, open connections are handled by the standby CSM without interruption, and users will experience hitless failover - an important requirement for e-commerce sites and sites where encryption is used.

#### Global Server Load Balancing

The CSM communicates directly with Cisco Distributed Director, for use in global content networks.

## Configuration Limits

- 256 total VLANs (client and server)
- 4000 virtual servers
- 4000 server farms
- 16,000 real servers
- 4000 probes
- 16,000 access control list (ACL0 items)

## Performance Summary

### Connections

- 1,000,000 concurrent TCP connections
- 200,000 connection setups per second—Layer 4<sup>1</sup>

### Throughput

- 4 Gigabits-per-second total combined (client-to-server and server-to-client)throughput

## Catalyst Switch Platform Requirements

- Cisco IOS Software only—Catalyst Operating System is not supported
- Functions as a bus enabled line card- not fabric enabled
- Multilayer switch feature card—MSFC or MSFC2

## Physical Specifications

- Occupies slot in the Catalyst 6500 chassis
- Dimensions: 1.2 x 14.4 x 16 in. (3.0 x 35.6 x 40.6 cm) (H x W x D)

- Weight: 5 lb. (2.27 kg)

## Operating Environment

- Operating temperature: 32 to 104.5° F (0 to 40° C)
- Nonoperating temperature: -40 to 158° F (-40 to 70° C)
- Operating relative humidity: 10 to 90% (noncondensing)
- Nonoperating relative humidity: 5 to 95% (noncondensing)
- Operating and nonoperating altitude: Sea level to 10,000 ft. (3050 m)

## Agency Approvals

- Emissions: FCC Part 15 (CFR 47) Class A, ICES-003 Class A, EN55022 Class A, CISPR22 Class A, AS/NZS 3548 Class A
- Safety: CE Marking according to UL 1950, CSA 22.2 No. 950, EN 60950, IEC 60950, TS 001, AS/NZS 3260

## Catalyst 6500 CSM Ordering Information

Product Number	Product Description
WS-X6066-SLB-APC	Catalyst 6500 Content Switching Module

<sup>1</sup> Depends upon software version.



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