Cisco Catalyst 6500 Series Enterprise WAN

The Cisco® Catalyst® 6500 Series is a high-performance modular switch and router ideal for convergence of data center, campus, and WAN services in a single system.

Enterprise WAN, Internet access, and data center interconnect features such as high availability, security, quality of service (QoS), IPv6, Multiprotocol Label Switching (MPLS), and generic routing encapsulation (GRE) together with Cisco IOS® Software modularity extend Cisco Catalyst 6500 Series investment protection across the LAN to the WAN.

| Cisco Catalyst 6500 WAN Hardware Support |
|---|
| Supervisor Engines 32, and 720 |
| SIP-200, SIP-400, SIP-600 with service port adapters (SPAs) |
| Enhanced FlexWAN with port adapters, Ethernet Services Plus (ES+) linecards, VPN SPA (VSPA) |
| FWSM, IDSM, ACE, NAM Service Modules |

Support for a broad range of connectivity options with interfaces ranging from DS0 to OC192/STM64, 10 Mbps to 10 Gigabit Ethernet line cards.

Interface Type	Interface Speed
Ethernet	10 Mbps to 10 Gbps
POS	OC3/STM1 to OC192/STM64
Serial	DS0 to T3
ATM	DS3 to OC48/STM16

Cisco Catalyst 6500 Series Common WAN Edge Features

Features	Benefits
Cisco IOS® Software Modularity	Maximizes uptime for WAN routing
Integrated Cisco IOS IPsec with VSPA	Scalable secure connectivity for deployments to 10 Gbps plus
Integrated security with FWSM	Advanced security and systems protection

Figure 1. Cisco Catalyst 6500 Enterprise WAN Solutions
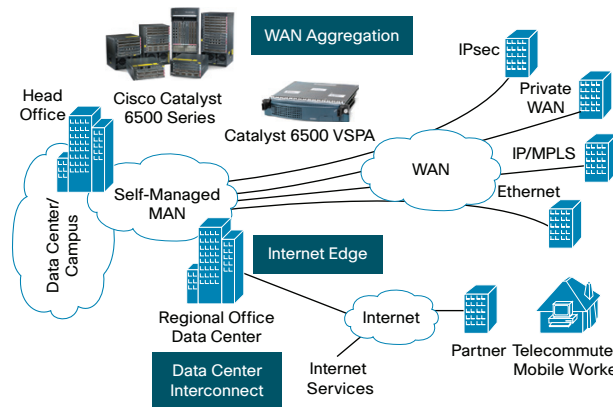
Secure WAN Aggregation

- All technologies: Layer 2/3, MPLS, IPv6
- Broad WAN interface and protocol support
- Scalable IPsec VPN aggregation: up to 8Gbps per VSPA and up to 10 VSPAs per chassis

Internet Edge

- High scalability and density
- Wire-rate access control list (ACL)
- 1 million routes in hardware

Data Center Layer 2 Interconnect

- Data center redundancy, server clustering with domain isolation
- Layer 2 over GRE flexible interconnect over IP core
- Dark fiber with Cisco Catalyst 6500 Virtual Switching System (VSS)
- Ethernet over MPLS, Virtual Private LAN Service (VPLS)
- Support for WAN optimization and application load balancing

MPLS with Cisco Catalyst 6500 Enterprise WAN

Cisco Catalyst 6500 Series Switches form the foundation of campus and WAN architectures with leading IP routing, hardware-enabled IPv4, IPv6, MPLS, and high performance integrated into a single platform. The Cisco Catalyst 6500 Series is the premier Cisco Layer 3 switching platform for the WAN edge.

Scalability, Flexibility, Virtualization

- 720 Gbps integrated switch fabric capacity with Cisco Catalyst 6500 Series Supervisor Engine 720
- Scale to 400 Mpps for switching and routing
- 32 Gbps bus-based architecture
- High-performance CPU for Layer 3 protocol convergence and stability
- Hardware-accelerated IP routing and MPLS
- Virtualization with Layer 2 and 3 MPLS VPN,
- Self-managed MAN with QinQ and VPLS
- MPLS traffic engineering, Multicast VPN (mVPN)
- VRF-aware security, ACLs, QoS

	Up to a Maximum Of
IPv4 Routes	1,000,000
IPv6 Routes	500,000
MPLS VPNs	1,000
EoMPLS Tunnels	4,096

Why Cisco Catalyst 6500 at the WAN Edge?

LAN and WAN operational consistency

- Common platform, spares, modules
- Cisco IOS Software modularity

Integrated services operating efficiency

- Routing and switching
- Application intelligence
- Manageability: NetFlow, QoS, MIBs

Security services consistency

- Cisco Catalyst integrated security
- Hardware service modules
- Virtualization and segmentation

For More Information

http://www.cisco.com/go/6500

Security

- Memory protection, fault containment, and improved scalability through dedicated TCAMs for NetFlow, ACLs, security, and QoS deployments
- Protect enterprise networks against DoS attacks and unauthorized access with hardware-assisted security features

Tunneling	Description
Security ACL entries	32K
Reflexive ACL	128K
uRPF checkin hardware	Up to 6 paths
CPU rate limiter	Yes

Integrated firewall and intrusion detection service modules provide superior security, reliability, and performance, stopping attacks at the WAN edge.

High Availability

- Cisco IOS Software modularity delivers fault containment, memory protection, process restartability, and In Service Software Upgrade (ISSU) for patch fixes
- Hardware redundancy for nonstop operation: fans, power supplies, fabrics, and clocks
- Complete separation of control and data planes for enhanced resiliency
- Leadership in high availability and service uptime; nonstop forwarding (NSF) and stateful switchover

(SSO) help ensure minimal traffic loss and subsecond recovery in IP networks

- Increased data path protection through Bidirectional Forwarding Detection (BFD), Performance Routing (PfR), MPLS Fast Reroute (FRR), and MPLS Traffic Engineering

QoS and Multicast

- Advanced QoS mechanism to enable triple play and TLS services on the same infrastructure, such as per-port policing and DSCP/VLAN-based traffic classification
- Granular traffic queuing and congestion avoidance and management mechanisms such as Priority Queuing, WRED, SRR to guarantee low jitter, low latency, and minimal or null packet loss for sensitive and real-time classes of service
- Advanced and innovative IP Multicast features to support Media Ready Network services and optimize video delivery
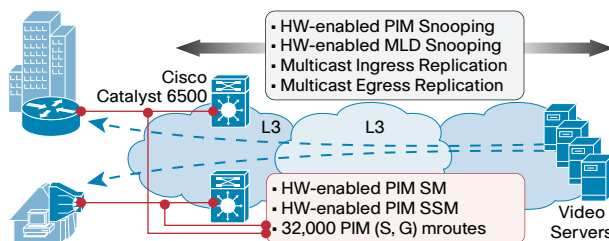
Operational Control

- Enhanced and scalable network monitoring, traffic profiling, and capacity planning by enabling hardware-based NetFlow, up to a maximum of 256,000 entries with Cisco Catalyst 6500 Series Sup720-3BXL
- Proactively manage your network through Onboard Failure Logging (OBFL), Embedded Event Manager (EEM), Generic Online Diagnostics (GOLD), Call

Home, proactively detect and address potential faults in the switch

- Safe Harbor testing for Cisco Catalyst 6500 Series WAN deployments delivers customers a certified Cisco OS version for critical deployment to increase overall network stability

Key Enterprise WAN/Metro Ethernet Features on Cisco Catalyst 6500 Series Switches

IP Routing Features
IPv4 Forwarding
IPv6 Forwarding
WCCP (v1, v2)
Policy-Based Routing
OSPF/EIGRP/ISIS/BGP4/RIP
Performance Routing
eBGPv4
eBGPv4 Multihop
eBGPv4 Load-Balancing
RIPng, IS-IS for v6, OSPFv3

Tunneling
L2TPv3
GRE
Hardware-Enabled EoMPLS
L2/L3 MPLS VPN
MVPN Extranet
Encrypted Mcast over GRE

VRF-Aware Features
VRF-Aware uRPF
VRF-Aware Firewall
VRF-Aware NAT
VRF-Aware IPsec
VRF-Aware Ping
VRF-Aware HSRP