



Cisco Catalyst Blade Switch Series for HP BladeSystem c-Class

Easy, Smart, and Flexible Blade Server I/O Solution

At-A-Glance

Challenges

Organizations of all types continue to invest in IT to develop new revenue opportunities, reduce costs, and improve service levels. However, this continuing investment is exacerbating facilities concerns for organizations, especially in the areas of power, cooling, rack space, and cable management. These challenges are especially salient in the area of server infrastructure, where application proliferation along with the widespread adoption of x86 based scale-out architectures has led to significant server sprawl in the data center.

While blade servers offer a high-density, cost-effective solution for delivering scale-out x86 architectures, they significantly increase the number of network access switches and operational challenges. Cisco Catalyst® Blades Switches address these challenges with innovations such as virtual blade switch (VBS) technology. Cisco® blade switches provide an easy, smart, and flexible blade servers I/O solution that enables customers to gain the full benefits offered by the blade server architecture.

Cisco Catalyst Blade Switches Overview

Cisco Catalyst Blade Switches are a comprehensive I/O solution for blade server network services that transparently extend network fabric from the blade server edge to clients at the network edge. The Cisco Catalyst Blade Switches product family includes Cisco Catalyst Ethernet blade switches and Cisco MDS 9000 family Fibre Channel blade switches, helping ensure blade server and virtual machine availability, simplify operations, and provide virtualized data center infrastructure while lowering total cost of ownership (TCO) and improving end-user and IT productivity.

HP c-Class BladeSystem Enclosure Overview

The HP c-Class BladeSystem Enclosure represents the next generation of blade server and blade switch integration. Figure 1 shows front and back views of the cabinet.

The HP c-Class enclosure can hold up to 16 half-height servers and up to 8 blade switches.

The HP c-Class BladeSystem backplane provides power and network connectivity to the blades. The base I/O module slots house a pair of Cisco Catalyst Blade Switches for HP, which provide a highly available and multihomed environment wherein each server blade is attached through a Gigabit Ethernet port to each Cisco Catalyst Blade Switch for HP. Two Cisco Catalyst Blade Switches within the blade enclosure connect the blade server modules to external network devices such as aggregation-layer switches.

Figure 1: Front and Back Views of HP c-Class BladeSystem Enclosure



Cisco Catalyst Blade Switches for HP

Cisco Catalyst Blade Switches represent the next-generation networking solution for blade server environments. Cisco Catalyst Blade Switches implement a number of technologies and features that provide new options when designing blade server architectures. Specifically, Cisco Catalyst Blade Switches provide options for bandwidth, availability, and flexibility. Cisco Blade Switches are designed to deliver scaleable, high-performance, highly resilient connectivity while supporting ongoing IT initiatives to reduce server infrastructure complexity, and TCO.

Cisco Catalyst Blade Switch 3120 for HP

Cisco has coordinated development with HP to bring the Cisco Catalyst Blade Switches to the HP BladeSystem c-Class blade server enclosure with Cisco Catalyst Blade Switch 3120G and 3120X for HP (Figure 2). The Cisco Catalyst Blade Switch 3120G supports up to eight Gigabit Ethernet uplinks, and the Cisco Catalyst Blade Switch 3120X supports four Gigabit Ethernet uplinks and two 10 Gigabit Ethernet ports. The Cisco Catalyst Blade Switch 3120G configuration allows customers to connect the switch to the existing network fabric using Gigabit Ethernet uplinks, and the Cisco Catalyst Blade Switch 3120X configuration allows customers to connect the switch to the existing network fabric using Gigabit and 10 Gigabit Ethernet uplinks. The Cisco Catalyst Blade Switch 3120 for HP is the next-generation Ethernet blade switch for the HP c-Class BladeSystem, and it provides a high-performance, cost-effective, and scalable solution that can help simplify the network and meet growing bandwidth needs.

Figure 2: Cisco Catalyst Blade Switch 3120 for HP



Cisco Catalyst Blade Switch 3020 for HP

The Cisco Catalyst Blade Switch 3020 for HP (Figure 3) is an integrated switch for the HP c-Class BladeSystem that extends resilient and secure Cisco infrastructure services to the server edge and takes advantage of existing network investments to help reduce operating expenses. The Cisco Catalyst Blade Switch 3020 provides an integrated switching solution that dramatically reduces cable complexity. This solution offers consistent network services such as high availability, quality of service (QoS), and security. It also uses a comprehensive Cisco management framework to simplify ongoing operations.



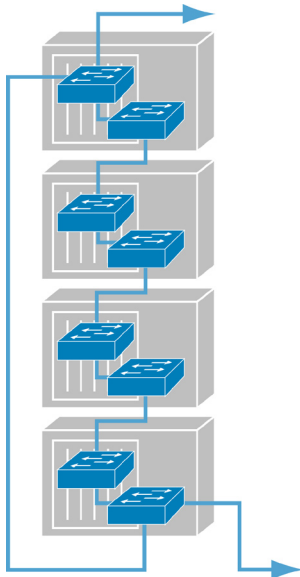
Figure 3: Cisco Catalyst Blade Switch 3020 for HP



Virtual Blade Switch

With the Cisco Catalyst Blade Switch 3120, Cisco has a unique technology called VBS. Much like server virtualization technology, this switch virtualization technology treats the individual physical switches within a rack as one logical switch (Figure 4). As with server virtualization technology, this innovation allows the switches to deliver better utilization, increased performance, and greater resilience while simplifying operations and management.

Figure 4: VBS Allows Up to Eight Switches to Be Treated as a Single Virtual Switch



Benefits of Cisco Catalyst Blade Switches

Built on the market-leading Cisco hardware and Cisco IOS® Software, the Cisco Catalyst Blade Switches are engineered with innovative technologies specifically designed to meet the rigors of blade server-based application infrastructure. Specifically, the switch is designed to support blade servers in their new role by delivering scalable, high-performance, highly resilient connectivity while supporting ongoing initiatives to reduce server infrastructure complexity and TCO.

- **Easy:** Easy to operate and deploy
 - Fewer switches to manage with VBS technology, which solves problem of switch sprawl
 - Consistent management interface and tools throughout the Cisco data center and blade switch portfolio, which accelerates service provisioning and simplifies troubleshooting
 - VBS technology provides operational transparency and efficiency during replacement and addition of switches
- **Smart:** Feature-rich “server-smart” networking solution
 - Provides highly resilient LAN uplinks to increase blade server and virtual machine availability using innovations such as trunk failover and EtherChannel
 - Helps secure application servers and virtual machines by using private VLANs and access-control lists (ACLs)
 - Provides intelligent congestion management mechanisms to optimize network bandwidth using QoS
 - Provides advanced Layer 2 and 3, IPv4, IPv6, and multicast capabilities to facilitate smart end-to-end server networking in the data center

- **Flexible:** Flexible solution to scale resources and facilitate data center virtualization
 - Provides flexibility with VBS to configure network topology based on application needs such as performance, scalability, and resiliency
 - Provides investment protection and a flexible transition path with VBS and the capability to mix and match Gigabit Ethernet and 10 Gigabit Ethernet switches
 - Provides flexible options for configuration and management such as a command-line interface (CLI) and a GUI

Conclusion

The Cisco Catalyst Blade Switches product family designed for Data Center 3.0 provides the following benefits to server, storage, and network organizations:

- Lowers costs with VBS by reducing the number of cables required to connect blade servers
- Increases IT productivity with simplified and consistent management and troubleshooting tools
- Helps ensure blade server and virtual machine availability after live migrations with innovative LAN features
- Provides faster server deployments by taking advantage of an end-to-end virtualized Data Center 3.0 architecture

For More Information

See <http://www.cisco.com/go/bladeswitch>.