



Cisco Catalyst Blade Switch Series for IBM BladeCenter

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 server 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.

IBM BladeCenter Open Fabric Manager Overview

IBM BladeCenter Open Fabric is an integrated server I/O portfolio that offers an open, high-performance, and comprehensive set of interconnects and smart management tools. Along with Cisco, IBM BladeCenter Open Fabric provides Ethernet switch modules that offer an easy way to manage high-performance Ethernet networking capabilities for IBM BladeCenter systems. IBM BladeCenter Open Fabric Manager address virtualization simplifies the constant provisioning and reconfiguring processes faced by server administrators while moving, adding, or changing servers. IBM BladeCenter Open Fabric Manager also gives network administrators transparency in troubleshooting. IBM BladeCenter Open Fabric Manager can help simplify blade deployment, redeployment, and expansion, and it is designed to reduce downtime with action plans for automated (inter-chassis and intrachassis) failover.

Cisco Catalyst Blade Switches for IBM

The Cisco Catalyst Blade Switches represent the next-generation I/O solution for blade server environments. The Cisco Catalyst Blade Switches implement a number of innovative technologies and features that provide new options when designing blade server architectures. Specifically, Cisco Catalyst Blade Switches provide options for bandwidth, availability, and flexibility. The Cisco Catalyst Blade Switches introduce an innovative technology called VBS. This technology, which allows up to eight physical switches to be combined into a single logical switch, is the foundation of many of the added functions that the Cisco Catalyst Blade Switches deliver.

Cisco Catalyst Switch Module 3110 for IBM BladeCenter

Cisco has coordinated development with IBM to bring the Cisco Catalyst Blade Switches to the IBM BladeCenter blade server enclosure with the release of the Cisco Catalyst Switch Module 3110G and 3110X for IBM BladeCenter (Figure 1). These products offer identical functions except that the Cisco Catalyst Switch Module 3110G supports four 10/100/1000 BASE-T ports, and the Cisco Catalyst Switch Module 3110X supports one 10 Gigabit Ethernet X2-based port.

Figure 1: Cisco Catalyst Switch Module 3110 for IBM BladeCenter



Cisco Catalyst Switch Module 3012 for IBM BladeCenter

The Cisco Catalyst Switch Module 3012 for IBM BladeCenter (Figure 2) is an integrated switch for IBM BladeCenter customers that extends resilient and secure Cisco infrastructure services to the server edge and uses existing network investments to help reduce operating expenses. The Cisco Catalyst Switch Module 3012 provides IBM BladeCenter customers with 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 uses the comprehensive Cisco management framework to simplify ongoing operations. Cisco advanced network services in combination with simplified management help reduce TCO.

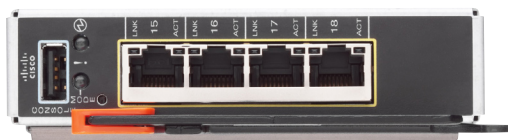


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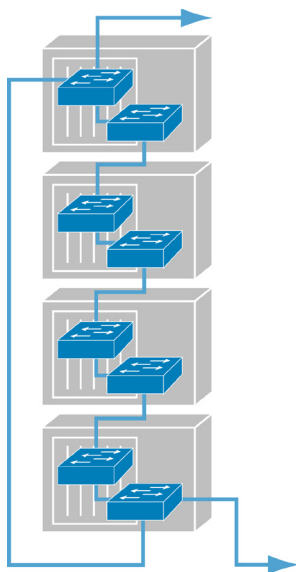
Figure 2: Cisco Catalyst Switch Module 3012 for IBM BladeCenter



Virtual Blade Switch

With the Cisco Catalyst Switch Module 3110, 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 3). 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 3: 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>.