



Highlights

- Delivers high availability and high performance in a power-efficient 1RU form factor
 - Virtual Chassis technology enables up to 10 switches to be interconnected as a single logical device
 - Includes eight class of service (CoS) queues per port, enabling separate prioritization of virtual machines
 - Modular GbE and 10 GbE uplink ports can be installed in the field, providing built-in upgradeability
 - JUNOS Software operating system delivers consistent feature set and shortens the learning curve, lowering operational expenses
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IBM Ethernet Switch J48E

High-performance, scalable Ethernet switch for data center top-of-rack and end-of-row deployments

The IBM Ethernet Switch J48E is designed to combine the high availability and carrier-class reliability of modular systems with the economics and flexibility of stackable platforms, thereby providing a high-performance, scalable solution for data center top-of-rack and end-of-row applications.

Offering a full suite of Layer 2 and Layer 3 switching capabilities as part of the base software, the IBM Ethernet Switch J48E can also satisfy a variety of high-performance branch and campus deployments. A single 48-port switch can be deployed initially; as requirements grow, integrated Virtual Chassis technology allows up to 10 switches to be interconnected over a 128 gigabit-per-second (Gbps) backplane and managed as a single device. This capability delivers a scalable, pay-as-you-grow solution for supporting escalating customer requirements. Optional Gigabit Ethernet (GbE) and 10-GbE uplink modules enable high-speed connectivity to aggregation- or core-layer switches.

This Ethernet switch includes features designed for high availability, such as redundant, hot-swappable internal power supplies and field-replaceable, multi-blower fan trays to maximize uptime. In addition, the switch offers Class 3 Power over Ethernet (PoE), delivering 15.4 watts on the first eight ports to support networked devices such as top-of-rack security cameras and wireless LAN (WLAN) access points for low-density converged networks.



Architecture and key components

The IBM Ethernet Switch J48E is a single rack-unit device that offers 48 10/100/1000BASE-T ports. The eight PoE ports include built-in Link Layer Discovery Protocol-Media Endpoint Discovery (LLDP-MED) services, providing a standards-based component discovery mechanism and making the IBM Ethernet Switch J48E ideal for data center access deployments where a small number of security cameras, WLAN access points or other devices require power.

Pay-as-you-grow scalability

Virtual Chassis technology enables a data center to interconnect as many as 10 IBM Ethernet Switch J48Es to satisfy connectivity requirements, delivering true chassis-like functionality in a compact, one rack-unit (RU) form factor. A unique pay-as-you-grow model allows a single 1 RU top-of-rack switch to be deployed initially; then as demands increase, up to nine more switches can be added incrementally for a total of 10. Resiliently interconnected via a 128 Gbps virtual backplane or front-panel 10 GbE uplink modules, a fully-loaded Virtual Chassis configuration can support up to 480 10/100/1000BASE-T ports plus up to 20 10 GbE uplink ports.

Not only does Virtual Chassis technology help to lower capital expenses by requiring lower up-front investment than legacy chassis systems, it also can help dramatically reduce operating expenses by enabling up to 10 interconnected IBM Ethernet Switch J48Es to operate and be managed as a single logical device. This incremental, pay-as-you-grow model, combined with the compact form factor of the IBM Ethernet Switch J48E, helps data centers not only reduce upfront and recurring rack space usage, but also save on costly power and cooling.



Carrier-class reliability

The IBM Ethernet Switch J48E with Virtual Chassis technology provides the same high-availability features as modular chassis-based systems. Each switch supports internal redundant, load-sharing, hot-swappable power supplies, as well as a field-replaceable hot-swappable fan tray with redundant blowers, any of which can fail without affecting operations.

Virtual Chassis technology provides exceptional device and link high availability utilizing the virtual backplane protocol and operating system software. Each set of interconnected switches automatically takes full advantage of multiple available Routing Engines to deliver graceful protocol restart, while graceful Routing Engine switchover (GRES) and non-stop forwarding ensure uninterrupted operation in the rare event of an individual switch failure.

For added device and link high availability, the IBM Ethernet Switch J48E can be configured to address many different requirements. For example, a single 10-switch Virtual Chassis configuration could instead be configured as two five-switch Virtual Chassis configurations.

Location independence

Virtual Chassis technology can also be extended across the front-panel 10 GbE uplink ports to interconnect switches that are separated by more than a few meters, creating a single virtual switch that spans multiple wiring closets, floors or even data center server racks.

Taking full advantage of Virtual Chassis technology, a scalable IBM Ethernet Switch J48E top-of-rack deployment consumes a minimum amount of space with small form-factor switches that scale with high-density wire-speed ports, lowering heating and cooling costs while conserving space. By enabling up to 10 units to interoperate and be managed as a single device, Virtual Chassis technology dramatically

simplifies configuration and management while reducing operational costs and simplifying cabling. Fewer uplinks are required when up to 10 top-of-rack switches are configured as a single virtual device, further lowering cost and complexity. Most importantly, the servers attached to the top-of-rack devices are interconnected by a single, high-bandwidth, low-latency switch and do not need to rely on traffic going to an aggregation switch for server-to-server communications.

Configurations requiring end-of-row deployments can also take advantage of Virtual Chassis technology by deploying a small form-factor IBM Ethernet Switch J48E that scales with high-density wire-speed ports as needed, lowering heating and cooling costs while conserving space.

IBM Ethernet Switch J48E (427348E) at a glance

Form factor	1U
Dimensions (W x H x D)	17.4 x 1.7 x 16.4 in
Ports	48x 1 GbE (RJ-45), up to 4x 1 GbE SFP or 2x 10 GbE SFP+ with optional dual-mode uplink module 8x 15.4 W PoE ports (first 8 ports of the 48 1 GbE ports) 2x Virtual Chassis ports
Backplane speed	128 Gbps (Virtual Chassis)
Data rate	136 Gbps
Aggregate switching capacity	264 Gbps
Latency	1.96 microseconds
Resiliency	Internal, hot-swappable redundant power supply; field-replaceable fan tray with three fans; graceful Routing Engine switchover (GRES) in Virtual Chassis configuration
Power options	ac: 320 W dual load-sharing hot-swappable internal redundant power supplies
Operating System	Juniper Networks JUNOS Software
Warranty	3-year onsite NBD

For more information

To learn more about the IBM Ethernet Switch J48E, contact your IBM marketing representative or IBM Business Partner, or visit: ibm.com/systems/x



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May 2010
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