

Brocade ICX Switch Family



HIGHLIGHTS

- Provides a range of fixed form-factor enterprise-class switches to deliver innovative access, aggregation, and core network solutions
- Features a scale-out networking architecture to incrementally add ports across the campus when and where needed, in a cost-effective manner
- Leverages open standards-based technology to aggregate Brocade ICX switches into a single logical switch over distances up to 10 km
- Reduces operational costs by consolidating management, eliminating network layers and individual switch touch points
- Maximizes investment through shared network services that allow premium and entry-level switches to share advanced Layer 2/3 network services
- Meets compliance and data confidentiality requirements across networks and cloud deployments with integrated IPsec VPN security within the Brocade ICX 7450 Switches
- Provides OpenFlow support in hybrid port mode, enabling a gradual transition to Software-Defined Networking (SDN) without disruption

Scalable Fixed Form-Factor Switches for Next-Generation IP Networks

The Brocade® ICX® family of fixed form-factor switches works together to deliver a complete, scalable, and high-performance network solution that supports today's demanding video, Unified Communications (UC), VDI, and mobile applications. They leverage the innovative Brocade Campus Fabric technology, which provides simplified network deployment and management, scale-out networking, and investment protection with the industry's lowest total cost of ownership. In addition, the Brocade ICX 7450 is the industry's first stackable switching solution to extend traditional site-to-site IPsec VPN encryption from the wiring closet, reducing costs and providing pervasive data security and integrity across corporate networks and cloud deployments.

Brocade Campus Fabric Technology

Brocade Campus Fabric technology brings campus networks into the modern era to better support seamless wireless mobility, security, and ease of application deployment. This innovative technology collapses multiple network layers into a single logical switch, flattening the network and eliminating deployment complexity while simplifying network management and reducing operating costs.

Brocade Campus Fabric technology enables organizations to build networks that deliver:

- **Consolidated management:** Reduces unnecessary network layers to create large management domains that eliminate individual switch touch points, reducing maintenance time and costs.
- **Shared network services:** Allows premium and entry-level switches to mesh together into a single logical switch and share advanced Layer 2/3 services, delivering lower price-per-port functionality without compromising performance.

- **Scale-out networking:** Integrates high-performance, fixed form-factor switches to create a single distributed logical switch that is independent of physical location and allows organizations to add ports whenever and wherever needed across the campus without adding complexity.

Brocade Campus Fabric Deployment

Brocade Campus Fabric technology, available on the Brocade ICX 7150¹, 7250, 7450, and 7750 Switches, extends network options and scalability. It integrates premium Brocade ICX 7750 Switches with Brocade ICX 7450, Brocade ICX 7250, and Brocade ICX 7150 Switches, collapsing network access, aggregation, and core layers into a single logical switch. This logical device shares network services while reducing management touch points and network hops through a single layer design spanning the entire campus network. These powerful deployments deliver equivalent or better functionality than large, rigid modular chassis systems, but with significantly lower costs and

smaller carbon footprints. As a result, Campus Fabric technology offers a level of flexibility, ease of deployment, and total cost of ownership unmatched by traditional access, aggregation, and small-core chassis solutions.

Brocade ICX switches support a Distributed Chassis deployment model that uses standards-based optics and cabling interface connections to ensure maximum distance between campus switches—up to 10 km—and minimum cabling costs—up to 50 percent less than incumbent solutions. This gives organizations the flexibility to deliver ports wherever they are needed on campus at a fraction of the cost. The Distributed Chassis design future-proofs campus networks by allowing networks to easily and cost-effectively expand in scale and capabilities.

Mixed Stack Deployment

The mixed stack-enabling technology integrates premium Brocade ICX 6610 and entry-level Brocade ICX 6450 Switches to collapse the network access and aggregation layers into a single domain. This domain shares network

services while reducing management touch points and network hops (due to fewer network layers) as compared to legacy three-tier designs.

Mixed stacking provides all the benefits of traditional stacking, in which all switch members are alike, all links within the stack are active (no Spanning Tree Protocol [STP]), and management is accomplished from a single IP address. However, by adding the unique capability to share network services between switches, a HyperEdge® mixed stack becomes a powerful solution. HyperEdge shared services enable the extension of premium switch services to all ports of all members of the stack, including entry-level switches. This capability provides two distinct advantages: significant per-port cost reduction and long-term investment protection.

Ensuring End-to-End Data Privacy

As organizations move to a hybrid cloud architecture with geographically dispersed business partners, concerns about security breaches are increasing. Many organizations seek to better meet compliance and protect their data in transit—whether across the Internet or the enterprise network. Brocade offers an industry-first stackable switching solution that delivers encryption from the wiring closet, providing a cost-effective way to ensure data security and integrity across the premises without needing to purchase dedicated encryption products.

The Brocade ICX 7450 switch with the integrated IPsec VPN service module consolidates network switching and encryption to provide unprecedented VPN deployment flexibility and cost savings. It can interoperate with a Brocade MLX Router equipped with an IPsec hardware encryption module to deliver an end-to-end data privacy solution. By initiating an IPsec tunnel from the Brocade ICX 7450 for transporting selected traffic, organizations save time and reduce

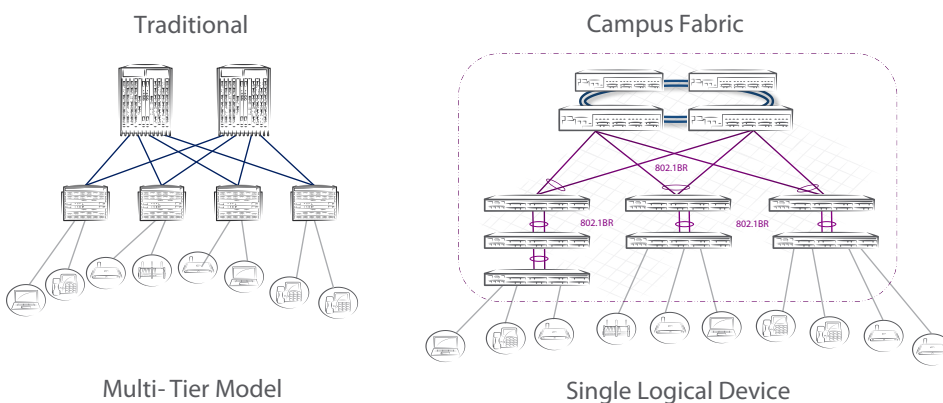


Figure 1: The Brocade Campus Fabric architecture versus a traditional multi-tier campus network.

¹ Support on the Brocade ICX 7150 to be available in a future release.

the costs from having to install and manage encryption software on individual computers or deploy purpose-built encryption products.

The Brocade 7450 Service Module provides hardware-based acceleration for IPsec VPNs using Advanced Encryption Standards (AES). It leverages programmable hardware technology to future-proof data protection, enabling more features to be added to IPsec VPN deployments as business needs evolve. The Brocade 7450 Service Module accelerates IPsec traffic performance by offloading the mathematically intensive part of the process while relying on the switch processor to identify traffic for encryption, negotiate the security associations, and forward encrypted traffic. Thus, the Brocade switch processor extends traditional Layer 3 routing capabilities to include encryption with Suite B algorithms and support for 128-bit and 256-bit AES. With 10 Gbps throughput per service module, a single Brocade ICX 7450 Switch or stack helps ensure that service levels are not impacted as compliance requirements and security needs increase.

SDN-Enabled Programmatic Control of the Network

Software-Defined Networking (SDN) is a powerful new network paradigm designed for the world's most demanding networking environments and promises breakthrough levels of customization, security, and efficiency. The Brocade ICX Switches enable SDN by supporting the OpenFlow 1.3 protocol, which facilitates communication between the Brocade SDN Controller and the underlying network infrastructure.

In today's increasingly mobile world, organizations are looking to OpenFlow and SDN to achieve programmability in the campus LAN. The business needs driving SDN deployment are improved Quality of Service (QoS), enhanced security, and management simplification. With new policies such as BYOD

significantly impacting campus networks, SDN is a powerful solution that better prioritizes and forwards traffic based on the context of a flow and to easily enforce granular policies for regulatory compliance or security reasons.

With hybrid-port mode support on the Brocade ICX Switches, organizations can run traditional protocols and OpenFlow-directed flows at the same time. With the Brocade SDN Controller and additional controller support from the Brocade ICX family, IT organizations can receive the benefits of programmatic control while gradually introducing parts of their network into the controller domain without disruption.

Unified Wired/Wireless Network Management with Brocade Network Advisor

Managing enterprise campus networks continues to become more complex due to the growth in services that rely on wired and wireless networks. Services such as Internet, e-mail, video conferencing, real-time collaboration, and distance learning all have specific configuration and management requirements. At the same time, organizations face increasing demand to provide uninterrupted services for high-quality voice and Unified Communications (UC), wireless mobility, and multimedia applications.

To reduce complexity and the time spent managing these environments, the easy-to-use Brocade Network Advisor discovers, manages, and deploys configurations to groups of IP devices. By using Brocade Network Advisor, organizations can configure Virtual LANs (VLANs) within the network, manage wireless access points, and execute commands on specific IP devices or groups of IP devices. sFlow-based proactive monitoring is ideal for performing network-wide troubleshooting, generating traffic reports, and gaining visibility into network activity from the edge to the core. Brocade Network



Figure 2: Brocade ICX switches can be stacked together using standard SFP+ or QSFP+ ports and optics to create a single logical device over distances up to 10 km.

Advisor centralizes management of the entire family of Brocade wired products and [Ruckus wireless products](#).

Flexible, Long-Distance Stacking for the Most Demanding Enterprise Environments

Brocade stacking technology makes it possible to stack up to 12 Brocade ICX switches into a single logical switch using standard SFP+ or QSFP+ Ethernet connections. This allows Brocade ICX switches to provide class-leading backplane bandwidth, between 80 Gbps and 240 Gbps, as well as simple and robust expandability for future growth at the network edge (see Figure 2).

A selection of standard SFP+ and QSFP+ copper cables or optics can be used to stack Brocade ICX switches together, enabling stacking over distances of up to 10 km and thereby eliminating the need for stacked switches to be colocated in the same wiring closet. This stacked logical switch also has only a single IP address to simplify management and offers transparent STP-free traffic forwarding and shared Link Aggregation Groups (LAG) across a pool of up to 576 1 GbE or 10 GbE ports (depending on the platform deployed). When new switches join the stack, they automatically inherit the stack's existing configuration file, enabling true plug-and-play network expansion.

Brocade stacking technology also delivers high availability, enabling instantaneous hitless failover to a standby stack controller

if the master stack controller fails. In addition, organizations can use hot-insertion and removal of stack members to avoid interrupting network services.

Simplified, Open-Standards-based Management and Monitoring

Brocade ICX switches provide simplified, standards-based management capabilities that help organizations reduce administrative time and effort while securing their networks.

sFlow-based “Always-On” Network Monitoring

sFlow is a modern, standards-based network export protocol (RFC 3176) that addresses many of the challenges that network managers face today. By embedding sFlow hardware support into Brocade ICX switches, Brocade delivers an “always-on” technology that operates with wire-speed performance. sFlow dramatically reduces implementation costs compared to traditional network monitoring solutions that rely on mirrored ports, probes, and line-tap technologies. Moreover, sFlow gives organizations full, enterprise-wide monitoring capability for every port in the network.

Simplified, Automated Deployment with Auto-Provisioning

Brocade ICX switches support auto-configuration, simplifying deployment with a truly plug-and-play experience. Organizations can use this feature to automate IP address and feature configuration of the switches without requiring a highly trained network engineer onsite. When the switches power up, they automatically receive an IP address and configuration from DHCP and Trivial File Transport Protocol (TFTP) servers. At this time, the switches can also automatically receive a software update to be at the same code revision as currently installed switches.

Open-Standards Management

Brocade ICX switches include an industry-standard Command Line Interface (CLI) and support Secure Shell (SSHv2), Secure Copy (SCP), and SNMPv3 to restrict and encrypt management communications to the system. In addition, support for Terminal Access Controller Access Control System (TACACS/TACACS+) and RADIUS authentication helps ensure secure operator access.

Enterprise-Class Availability

When every second matters, Brocade ICX switches help deliver continuous availability to optimize the user experience. Brocade stacking technology delivers high availability, performing real-time state synchronization across the stack and enabling instantaneous hitless failover to a standby controller in the unlikely event of a failure of the master stack controller. Organizations also can use hot-insertion/removal of stack members to avoid interrupting service when adding a switch to increase the capacity of a stack or replacing a switch that needs servicing.

In addition to stack-level high availability, Brocade ICX switches include system-level high-availability features, such as dual hot-swappable, load-sharing, and redundant power supplies (depending on the platform deployed). The modular design also has dual hot-swappable fan trays. These features provide another level of availability for the campus wiring closet, all in a compact form factor.

The Brocade ICX 7000 Series Switches support stack-level In Service Software Upgrade (ISSU)¹, a unique Brocade capability that enables a stack of Brocade ICX Switches to go through a software upgrade without service interruption, enabling continuous operation during system upgrades.

Silent Operation

The Brocade ICX 7150 can operate silently through either a fanless design or a “fanless mode” configuration option. This capability enables the PoE switches to operate with the fan disabled while providing a PoE budget of 150 Watts for the 24-port model and 150 Watts for the 48-port model.

This Brocade-exclusive feature enables the Brocade ICX 7150 Switches to be deployed outside of the wiring closet without disrupting the environment. This capability is critical for certain verticals such as hospitality, education, healthcare, and retail where networking equipment needs to be deployed into a work environment or living space such as a classroom, hotel room, patient room, operating room, or retail space with minimal disruption.

Key Solution Areas

The Brocade ICX family provides high-performance, cost-effective solutions for many types of campus and data center environments, including 1 GbE access, 10/40 GbE core and aggregation of campus access switches, Top-of-Rack (ToR) server connectivity, and HPC environments.

Traditional Three-Tier Enterprise Campus Networks

The comprehensive range of products in the Brocade ICX family offers many options for campus access aggregation and core deployment. The Brocade ICX 6430, 6450, 7150, and 7250 deliver a cost-effective access solution without sacrificing features or performance. The Brocade ICX 7450 and 6610 provide high modularity and flexibility with the highest performance in their class, offering a highly scalable solution for campus access and 1 GbE campus aggregation. In addition, the Brocade ICX 7750 provides the necessary advanced Layer 2 and Layer 3 features, high 10/40 GbE port density, and high-availability capabilities to be deployed as a campus aggregation or core solution.

¹ ISSU support on the Brocade ICX 7150 to be available in a future release.

A stack of Brocade ICX 7750 Switches interconnected with 40 GbE links makes a cost-effective, highly available campus aggregation solution (see Figure 3).

Collapsed Campus Aggregation/Core

Traditional three-tier network design, with “big-box” chassis at the aggregation and core layers, requires a significant up-front investment and offers limited deployment flexibility and future-proofing. In contrast, a distributed “multi-box” architecture at the aggregation and core layers can deliver much greater scalability and future-proofing with an easier “upgrade as you go” model. This type of architecture enables network architects to add capacity exactly where it is needed in the network, unlike a big-box chassis approach, with all ports located in the same closet.

Leveraging rapid technology evolution and innovative thinking, Brocade is able to offer the first stackable solution for campus aggregation and small core that delivers higher performance and port density than a traditional midsize chassis, while offering the same level of reliability and availability. Brocade long-distance stacking technology enables a ring of Brocade ICX 7750 Switches interconnected with 40 GbE stacking links and separated by up to 10 km each to be used as a combined aggregation and core layer for midsize campuses (see Figure 4).

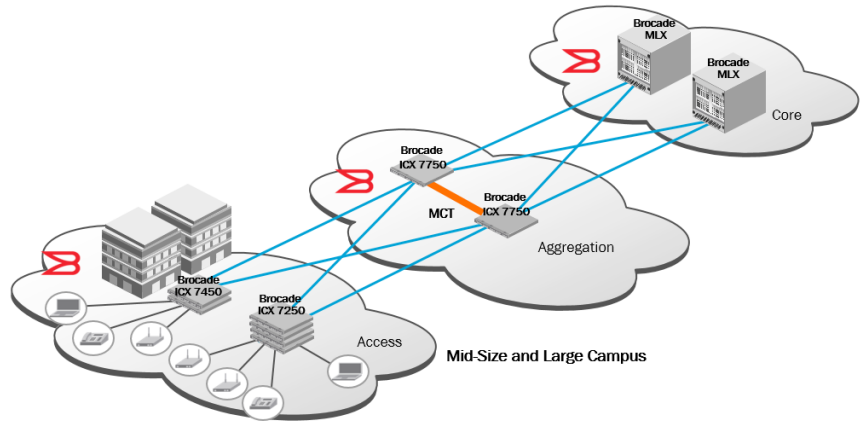


Figure 3: The Brocade ICX 7750 is an ideal solution for deployment as a cost-effective, high-performance campus aggregation solution, thanks to its market-leading 10/40 GbE density, high availability, and Layer 2 and Layer 3 features.

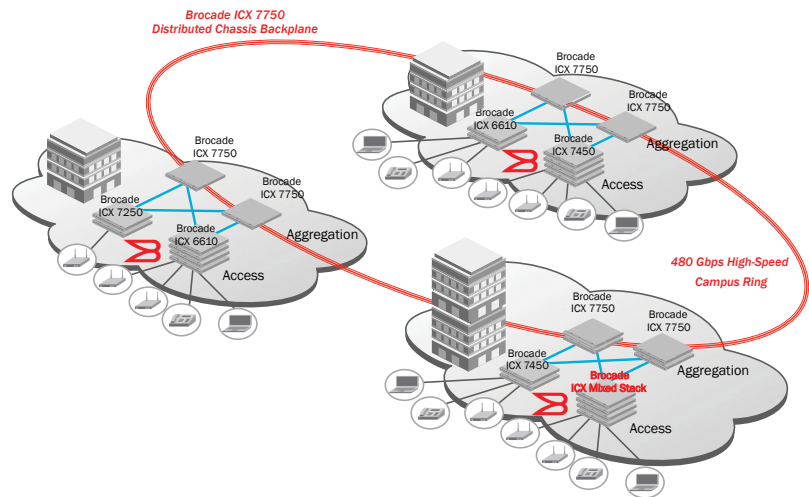


Figure 4: Legacy three-tier architectures can be simplified with the stackable Brocade ICX 7750, ideal for deployment as a cost-effective, high-performance solution, forming a single campus-wide ring and combining the aggregation and core layers in a single logical device.

Data Center 10 GbE ToR Server Connectivity

The Brocade ICX 7750 is designed to fit in server racks, and it consumes only one rack unit. To simplify cabling, the 10 GbE Network Interface Cards (NICs) in the servers connect to Brocade ICX 7750 10 GbE ports using fiber and SFP+ optical transceivers, SFP+ direct-attached copper cable, or standard copper Ethernet twisted pair cables with 10GBASE-T (see Figure 5).

If any servers in the rack have only 1 GbE-capable NICs, organizations can connect them to the same Brocade ICX 7750 Switch using a 10 GbE port as a 1 GbE port through an SFP or copper port. As a ToR switch, the Brocade ICX 7750 switch can connect to the data center middle-of-row/end-of-row aggregation chassis with either 10 GbE or 40 GbE, usually through link aggregation.

The Brocade ICX 7750 provides data center ToR access while Brocade MLXe Routers provide an aggregation/core solution.

Cost-Effective 10 GbE Aggregation

In data center environments where most servers are 1 GbE-capable, the Brocade ICX 7750 provides a compact and cost-effective 10 GbE aggregation switch. It connects to the data center core through 10 GbE or 40 GbE ports, and it uses 10 GbE links to connect to Brocade ICX ToR switches at the edge of the network (see Figure 6).

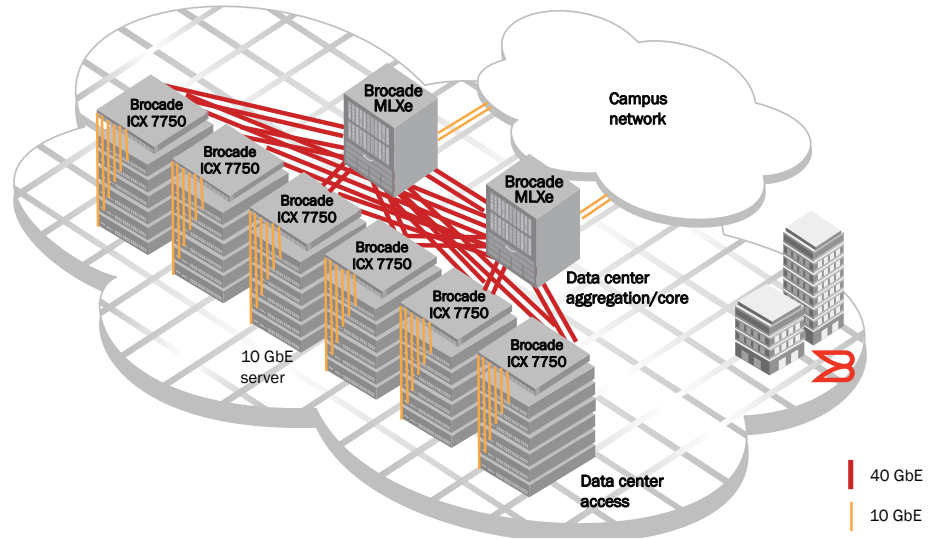


Figure 5: The Brocade ICX 7750 provides data center ToR access while Brocade MLXe routers provide an aggregation/core solution.

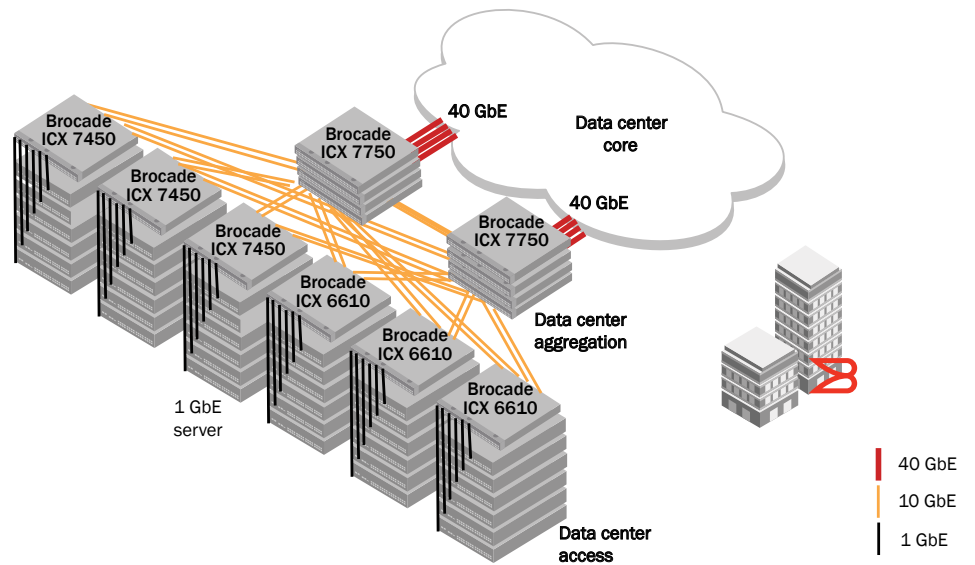


Figure 6: The Brocade ICX 7750 provides data center aggregation with Brocade ICX 6610 and 7450 Switches providing ToR access.

Overview of Brocade ICX Switches

	Access				Access/Aggregation		Aggregation/Core
	ICX 6430 ICX 6430-C	ICX 6450 ICX 6450-C	ICX 7150 ICX 7150-C	ICX 7250	ICX 7450	ICX 6610	ICX 7750
Switch Capacity							
Switching capacity (max)	104 Gbps	176 Gbps	180 Gbps	256 Gbps	336 Gbps	576 Gbps	2.56 Tbps
1 GbE RJ-45 ports	12, 24, or 48	12, 24, or 48	12, 24, or 48	24 or 48	24, 32, or 48	24 or 48	48
1 GbE RJ-45 uplink ports	2 or 0 ⁵	2 or 0 ⁵	2				48
1 GbE SFP ports	2 or 4 ⁶	2 or 4 ⁶	2 or 4 ⁶	8	48	24	48
1/2.5 GbE RJ-45 ports					8		
10 GbE SFP+ ports (max.)		2 or 4 ⁶	2 or 4 ⁶	8	12	8	96
10 GbE RJ-45 ports (max.)					12		48
40 GbE QSFP ports (max.)					3	4 ²	32
Switches per stack (max.)	4	8	8	12	12	8	12
Aggregated stack bandwidth	16 Gbps	320 Gbps	320 Gbps	480 Gbps	960 Gbps	1.23 Tbps	5.76 Tbps
Key Features							
PoE/PoE+	●	●	●	●	●	●	
Redundant power option	●	●		●	●	●	●
Stacking	●	●	● ³	●	●	●	●
sFlow		●	●	●	●	●	●
Base Layer 3 capability		●	● ³	●	●	●	●
OpenFlow		● ⁴	● ³	● ³	●	●	●
EEE			● ³	●	●		
Campus Fabric technology			● ³	●	●		●
Advanced Layer 3 capability		●	● ³	● ³	●	●	●
- RIP/OSPF		●	● ³	● ³	●	●	●
- BGP					●	●	●
- VRF					●	●	●
ISSU			● ³	●	●		●
MACsec					●	●	
IPsec VPN					●		
Hot-swappable PSUs and fans					●	●	●
PoH (95 W)					●		
Front-to-back or back-to-front airflow					●	●	●
MCT							●

² The Brocade ICX 6610 offers four QSFP+ dedicated stacking ports.

³ To be supported in a future software release.

⁴ OpenFlow support in a Brocade ICX 6450/6610 mixed stack configuration.

⁵ Two 1 GbE RJ-45 uplink ports for the compact 12-port switch or zero 1 GbE RJ-45 uplink ports for the 24/48-port switch.

⁶ Two 1 GbE SFP ports for the compact 12-port switch or four 1 GbE SFP ports for the 24/48-port switch.

A Complete Line of Products for Campus Access, Aggregation, and Core Deployment

With the innovative Brocade ICX family of enterprise network switches, Brocade is making The Effortless Network® a reality. Brocade ICX switches support Brocade Campus Fabric technology and are designed to work together to deliver consolidated network management and services sharing between premium and entry-level switches—reducing both complexity and costs while protecting capital investments.

Brocade ICX 6430/6450

Brocade ICX 6430 and 6450 Switches provide enterprise-class stackable LAN switching solutions to meet the growing demands of campus networks. Designed for small to medium-size enterprises, branch offices, and distributed campuses, these intelligent, scalable edge switches deliver enterprise-class functionality at an affordable price—without compromising performance and reliability. The Brocade ICX 6430 and 6450 are available in 12-, 24-, and 48-port 10/100/1000 Mbps models and 1 GbE or 10 GbE dual-purpose uplink/stacking ports with or without Power over Ethernet (PoE) to support enterprise edge networking, wireless mobility, and IP communications.

Brocade ICX 6430-C and 6450-C Compact Switches with fanless design are ideal for deployment outside the wiring closet. The Brocade ICX 6450-C can be powered from its internal power supply or with PoE/PoE+ through its two RJ-45 uplink ports, enabling the switch to be deployed in environments where no AC power outlet is present. Both switches offer two 1 GbE RJ-45 and two 1 GbE SFP ports for uplink and 12 1 GbE RJ-45 ports with four PoE/PoE+ capable ports.

Brocade ICX 6430/6450 Switches

Brocade ICX 6430/6450 Switches offer a single integrated power supply and fan, one RJ-45 network management port, one mini USB serial management port, and one USB storage port.



Brocade ICX 6430-C12

12-port 1 GbE compact switch (4 PoE+), 2×100 Mbps/1 GbE SFP and 2×100 Mbps/1 GbE copper uplinks, fanless



Brocade ICX 6430-24

24-port 1 GbE switch with 4×1 GbE SFP uplink/stacking ports, fanless



Brocade ICX 6430-24P

Same as above with the addition of PoE/PoE+ support



Brocade ICX 6430-48

48-port 1 GbE switch with 4×1 GbE SFP uplink/stacking ports



Brocade ICX 6430-48P

Same as above with the addition of PoE/PoE+ support



Brocade ICX 6450-C12-PD

12-port 1 GbE compact switch (4 PoE+) with 2×100 Mbps/1 GbE SFP and 2×100 Mbps/1 GbE copper uplinks, fanless, Layer 3, PoE-powered



Brocade ICX 6450-24

24-port 1 GbE switch with 2×1 GbE SFP+ (upgradable to 10 GbE) and 2×1/10 GbE SFP+ uplink/stacking ports



Brocade ICX 6450-24P

Same as above with the addition of PoE/PoE+ support



Brocade ICX 6450-48

48-port 1 GbE switch, 2×1 GbE SFP+ (upgradable to 10 GbE) and 2×1/10 GbE SFP+ uplink/stacking ports



Brocade ICX 6450-48P

Same as above with the addition of PoE/PoE+ support

Brocade ICX 6430/6450 External Power Supply Options

The optional Brocade ICX 6400-EPS1500 is an external power supply source to provide additional power for up to three Brocade ICX 6430/6450 Switches. It can be used for system power redundancy and increased PoE/PoE+ power budget.



ICX6400-EPS1500

Brocade ICX 6430/6450 1,500 W external power supply for RPS/EPs (connect up to three switches)

Brocade ICX 7150

The Brocade ICX 7150 Switch raises the bar for the entry-level stackable switches product category. It offers enterprise-class stackable switching at an entry-level price, allowing organizations to buy what they need today and easily scale as demand grows and new technologies emerge.

The Brocade ICX 7150 goes beyond other entry-level switches in its price range with enterprise-class performance and scalability with up to 4x10 GbE SFP+ ports for stacking⁷ or uplinks. It provides class-leading stacking⁷ scalability with up to eight switches per stack, 320 Gbps of aggregated stacking bandwidth, and long-distance stacking up to 10 km using standard optics. With a class-leading PoE+ budget, it can power wireless access points and video surveillance equipment with up to 740 W of PoE power.

The Brocade ICX 7150 can reduce complexity and enhance the reliability of enterprise networks through basic Layer 3 support⁷, including static routing and RIP through an upgrade license that brings premium Layer 3 capabilities to the network edge.

With its fanless mode, the Brocade ICX 7150 Switch enables silent operation and allow it to be deployed outside of the wiring closet and blend into the environment.

Brocade ICX 7150 simplifies network operations and protects investments with support for Brocade Campus Fabric Port Extender mode⁷, as well as Brocade Assurance Limited Lifetime Warranty protection.

Brocade ICX 7150 Switches

All Brocade ICX 7150 models offer single integrated power supply, one RJ-45 Ethernet port for out-of-band network management, one USB Type-C port for console management, one RJ-45 port for serial console management, and one USB port for external file storage.



Brocade ICX 7150-C12P Compact Switch
12x10/100/1000 Mbps POE+ RJ-45 ports
124 W power budget
2x10/100/1000 Mbps uplink RJ-45 ports
2x1/10 GbE uplink/stacking SFP/SFP+ ports



Brocade ICX 7150-24
24x10/100/1000 Mbps RJ-45 ports
2x10/100/1000 Mbps uplink RJ-45 ports
4x1/10 GbE uplink/stacking SFP/SFP+ ports



Brocade ICX 7150-24P
24x10/100/1000 Mbps RJ-45 ports
2x10/100/1000 Mbps uplink RJ-45 ports
4x1/10 GbE uplink/stacking SFP/SFP+ ports
PoE/PoE+ support, 370 W PoE budget



Brocade ICX 7150-48
48x10/100/1000 Mbps RJ-45 ports
2x10/100/1000 Mbps uplink RJ-45 ports
4x1/10 GbE uplink/stacking SFP/SFP+ ports



Brocade ICX 7150-48P
48x10/100/1000 Mbps RJ-45 ports
2x10/100/1000 Mbps uplink RJ-45 ports
4x1/10 GbE uplink/stacking SFP/SFP+ ports
PoE/PoE+ support, 370 W PoE budget



Brocade ICX 7150-48PF
48x10/100/1000 Mbps RJ-45 ports
2x10/100/1000 Mbps uplink RJ-45 ports
4x1/10 GbE uplink/stacking SFP/SFP+ ports
PoE/PoE+ support, 740 W PoE budget

⁷ Feature to be supported in a future software release.

Brocade ICX 7250 Switches

Except as noted, all Brocade ICX 7250 Switches offer eight uplink/stacking ports, a single integrated power supply and fan, one RJ-45 network management port, one mini USB serial management port, and one USB storage port on the front panel.



Brocade ICX 7250-24G
24×10/100/1000 Mbps RJ-45 ports, with 4×1 GbE uplink ports



Brocade ICX 7250-24
24×10/100/1000 Mbps RJ-45 ports with 8×1 GbE uplink/stacking ports upgradable to 10 GbE



Brocade ICX 7250-24P
Same as above with the addition of PoE/PoE+ support



Brocade ICX 7250-48
48×10/100/1000 Mbps RJ-45 ports with 8×1 GbE uplink/stacking ports upgradable to 10 GbE



Brocade ICX 7250-48P
Same as above with the addition of PoE/PoE+ support

Brocade ICX 7250 External Power Supply Options

The optional Brocade ICX-EPS4000 is an external power supply source to provide additional power. It can be used for system power redundancy and increased PoE/PoE+ power budget.



ICX-EPS4000-SHELF
1U EPS external chassis that can accept up to 4 individual power supplies

RPS17 power supply
920 W AC power supply for EPS 4000 chassis

Brocade ICX 7250

The Brocade ICX 7250 Switch delivers the performance, flexibility, and scalability required for enterprise Gigabit Ethernet (GbE) access deployment. It scales up to 8×10 GbE ports for uplinks or stacking and market-leading stacking density with up to 12 switches (576×1 GbE) per stack. In addition, the Brocade ICX 7250 combines enterprise-class features, manageability, performance, and reliability with the flexibility, cost-effectiveness, and “pay as you grow” scalability of a stackable solution.

The Brocade ICX 7250 Switch provides enterprise-class stackable LAN switching solutions to meet the growing demands of campus networks. Designed for small to medium-size enterprises, branch offices, and distributed campuses, these intelligent, scalable edge switches deliver enterprise-class functionality at an affordable price—without compromising performance and reliability. The Brocade ICX 7250 is available in 24- and 48-port 10/100/1000 Mbps models with 1 GbE or 10 GbE dual-purpose uplink/stacking ports—with or without IEEE 802.3af PoE and 802.3at PoE+—to support enterprise edge networking, wireless mobility, and IP communications without the need for additional power outlets or power injectors.

Brocade ICX 7450

The Brocade ICX 7450 Switch offers the performance, flexibility, and scalability required for enterprise Gigabit Ethernet (GbE) access deployment. It delivers market-leading stacking density with up to 12 switches (576 1 GbE and 48 10 GbE ports) per stack and combines chassis-level performance and reliability with the flexibility, cost-effectiveness, and “pay as you grow” scalability of a stackable solution. In addition, this stackable switch is the first in its class to offer 40 GbE uplinks, enabling enterprises to dramatically increase their network capacity while using their existing optical wire infrastructure.

The unique design of the Brocade ICX 7450 provides three modular slots, offering up to 12 1/10 GbE SFP/SFP+ ports, 12 10GBASE-T ports, or up to three 40 GbE QSFP+ ports for uplink or stacking. As a result, the Brocade ICX 7450 can easily deliver sufficient bandwidth between the edge and aggregation layers to support expanding video traffic, VDI adoption, and high-speed wireless 802.11ac deployment.

The modular design of the platform also enables the deployment of additional services for high-performance IPsec encryption. Unlike traditional site-to-site encryption, the Brocade ICX 7450 with the service module for IPsec VPN extends encryption from the wiring closet. This helps meet increasing compliance and data security requirements while providing significant cost savings and flexible VPN deployments in the enterprise network and across premises.

The Brocade ICX 7450 is an ideal network solution for campus network 1 GbE access or small aggregation deployment with 10 GbE or 40 GbE uplinks to the core. The Brocade ICX 7450 also makes a very suitable data center Top-of-Rack (ToR) solution, delivering a mix of 1 GbE and 10 GbE server connectivity ports with 10 GbE or 40 GbE uplinks to the data center aggregation or core.

Brocade ICX 7450 Switches

The Brocade ICX 7450 is available in six different models, offering three modular slots for interchangeable uplink/stacking modules (one in the front, two in the back), dual power supply slots, dual fan trays, one RJ-45 network management port, one mini USB serial management port, and one USB storage port on the front panel.



Brocade ICX 7450-24
24×10/100/1000 Mbps RJ-45 ports



Brocade ICX 7450-24P
Same as above with the addition of PoE/PoE+ support and with 8 pre-assigned ports supporting PoH (95 W)



Brocade ICX 7450-32ZP
24×10/100/1000 Mbps RJ-45 ports and 8×100/1000 Mbps/2.5 Gbps RJ-45 ports with PoE/PoE+ support and 8 pre-assigned ports supporting PoH (95 W)



Brocade ICX 7450-48
48×10/100/1000 Mbps RJ-45 ports



Brocade ICX 7450-48P
Same as above with the addition of PoE/PoE+ support and with 8 pre-assigned ports supporting PoH (95 W)



Brocade ICX 7450-48F
48×100/1000 Mbps SFP ports

Brocade ICX 7450 Port and Service Module Options

Four different optional port modules are offered for Brocade ICX switches. An optional service module for IPsec VPN encryption is offered for the Brocade ICX 7450 Switch. Except as noted, these modules are interchangeable and can be installed in any of the three modular slots within Brocade ICX switches.

ICX7400-4X1GF module	4-port 100 Mbps/1 GbE SFP
ICX7400-4X10GF module	4-port 1/10 GbE SFP/SFP+
ICX7400-4X10GC module	4-port 1/10 GbE 10GBASE-T copper
ICX7400-1X40GQ module	1-port 40 GbE QSFP+ for uplink or stacking
ICX7400-SERVICE-MOD module	Service module for IPsec VPN encryption

Brocade ICX 7450 Power Supply Options

The Brocade ICX 7450 offers a selection of PoE/non-PoE and AC/DC power supply options with front-to-back or back-to-front airflow cooling options. The DC power supply can be installed in either PoE or non-PoE switches.

RPS15 power supply	Non-PoE 250 W AC offered with back-to-front or front-to-back airflow models
RPS16 power supply	PoE 1,000 W AC offered with back-to-front or front-to-back airflow models
RPS16DC power supply	PoE 510 W DC offered with back-to-front or front-to-back airflow models

Brocade ICX 6610 Switches

The Brocade ICX 6610 is available in five models, all offering two slots for load-sharing, redundant power supplies, dual redundant fan trays, one RJ-45 network management port, one mini USB serial management port, and one USB storage port.

Each switch comes with 8×1 GbE SFP uplink ports upgradable to 8×10 GbE SFP+ ports, and 4×40 Gbps QSFP+ ports in back of the unit dedicated to stacking.



Brocade ICX 6610-24
24×10/100/1000 Mbps RJ-45 ports



Brocade ICX 6610-24P
Same as above with the addition of PoE/PoE+ support



Brocade ICX 6610-48
48×10/100/1000 Mbps RJ-45 ports



Brocade ICX 6610-48P
Same as above with the addition of PoE/PoE+ support



Brocade ICX 6610-24F
24×100/1000 Mbps SFP ports

Brocade ICX 6610

The Brocade ICX 6610 Switch provides unprecedented levels of performance, availability, and flexibility in a stackable form factor for 1 GbE access solutions. It delivers wire-speed, non-blocking performance across all ports to support latency-sensitive applications such as real-time voice/video streaming and VDI. In addition, each switch can provide up to eight 10 Gigabit Ethernet (GbE) ports for high-speed connectivity to the aggregation or core layers. Brocade ICX 6610 switches can be stacked using four full-duplex 40 Gbps stacking ports that provide an unprecedented 1.23 Tbps of aggregated stacking bandwidth with full redundancy, eliminating inter-switch bottlenecks.

Brocade ICX 6610 Port Options

The Brocade ICX 6610 offers a “bandwidth on demand” license upgrade.

4×10 GbE license upgrade	License to upgrade 4 ports of 1 GbE SFPP uplink to 10 GbE
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Brocade ICX 6610 Power Supply Options

Brocade ICX switches offer a selection of PoE/non-PoE and AC/DC power supply options with front-to-back or back-to-front airflow cooling options. The DC power supply can be installed in either PoE or non-PoE switches.

RPS15 power supply	Non-PoE 250 W AC offered with back-to-front or front-to-back airflow models
RPS16 power supply	PoE 1,000 W AC offered with back-to-front or front-to-back airflow models
RPS16DC power supply	PoE 510 W DC offered with back-to-front or front-to-back airflow models

Brocade ICX 7750

The Brocade ICX 7750 Switch delivers industry-leading 10/40 GbE port density, advanced high-availability capabilities, and flexible stacking architecture, making it the most robust Brocade aggregation and core distributed chassis switch offering for enterprise LANs. In addition to rich Layer 3 features, the Brocade ICX 7750 supports 12-unit distributed-chassis stacking or Multi-Chassis Trunking (MCT) and is an integral part of Brocade Campus Fabric technology for campus LANs.

Part of the Brocade ICX family of Ethernet switches for campus LAN and classic Ethernet data center environments, the Brocade ICX 7750 Switch is a 1U high-performance, high-availability, and market-leading-density 10/40 GbE solution that meets the needs of business-sensitive campus deployments and classic Ethernet data center environments. With industry-leading price/performance and a low-latency, cut-through, non-blocking architecture, the Brocade ICX 7750 provides a cost-effective, robust solution for the most demanding deployments.

Brocade ICX 7750 Switches

All Brocade ICX 7750 Switches offer two slots for load-sharing, redundant power supplies, four fan slots, one RJ-45 network management port, one mini USB serial management port, and one USB storage port.



Brocade ICX 7750-26Q
26×40 GbE QSFP+ ports



Brocade ICX 7750-48F
48×1/10 GbE SFP+ ports and
6×40 GbE QSFP ports



Brocade ICX 7750-48C
48×1/10 GbE RJ-45 10GBASE-T
ports and 6×40 GbE QSFP ports

Brocade ICX 7750 Port Options

All Brocade ICX 7750 Switches offer one modular interface slot in the back of the unit for additional ports.

ICX7750-6Q module 6×40 GbE QSFP+ module

Brocade ICX 7750 Power Supply Options

The Brocade ICX 7750 offers a selection of AC/DC power supply options with front-to-back or back-to-front airflow cooling options.

RPS9 power supply 500 W AC power supply

RPS9DC power supply 500 W DC power supply

Warranty

Brocade ICX Switches are covered by the Brocade Assurance® Limited Lifetime Warranty. For details, visit www.brocade.com/warranty.

Maximum Operational Efficiency with Technical Support

To jumpstart investment protection, Brocade ICX 7750 Switches come with 90 days of free technical support⁸ from the Brocade Technical Assistance Center (TAC). For continued access to the TAC past the initial 90 days, customers must purchase a Brocade Technical Support contract. With Technical Support, organizations gain peace of mind while freeing up IT budget and resources to grow their businesses. For details, visit <http://www.brocade.com/en/support/essential-support/essential-support-hardware.html>.

Brocade Global Services

Brocade Global Services has the expertise to help organizations build scalable, efficient cloud infrastructures. Leveraging 20 years of expertise in storage, networking, and virtualization, Brocade Global Services delivers world-class professional services, technical support, network monitoring services, and education, enabling organizations to maximize their Brocade investments, accelerate new technology deployments, and optimize the performance of networking infrastructures.

Affordable Acquisition Options

Brocade Capital Solutions helps organizations easily address their IT requirements by offering flexible network acquisition and support alternatives. Organizations can select from purchase, lease, Brocade Network Subscription, and Brocade Subscription Plus options to align network acquisition with their unique capital requirements and risk profiles. To learn more, visit www.brocade.com/capitalsolutions.

Maximizing Investments

To help optimize technology investments, Brocade and its partners offer complete solutions that include professional services, technical support, and education. For more information, contact a Brocade sales partner or visit www.brocade.com.

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Refer to www.brocade.com for the latest version of this document.

⁸ Check individual product data sheet for applicability.

Corporate Headquarters

San Jose, CA USA
T: +1-408-333-8000
info@brocade.com

European Headquarters

Geneva, Switzerland
T: +41-22-799-56-40
emea-info@brocade.com

Asia Pacific Headquarters

Singapore
T: +65-6538-4700
apac-info@brocade.com



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