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Product Brief

Brocade® G820 Switch

Fixed-Port Switch, Designed to Unleash Performance with Uncompromising Security



Highlights

- Build high-performance fabrics with a powerful, 56-port 1U Fibre Channel switch
- Accelerate workloads with 128G bandwidth and unmatched low latency
- Scale from 24 to 56 x 128G ports in 8-port increments, on demand
- Protect critical information from quantum computing and cybersecurity threats with advanced cryptographic algorithms and enhanced access controls
- Eliminate time-consuming, manual correlation of all application resources
- Learn and adapt to changing application demands by dynamically load balancing across virtual channels
- Simplify complex telemetry into actionable insights to improve performance, reduce downtime, and simplify operations
- Visualize the data to easily understand the health and performance of the SAN
- Unlock greater value and efficiency with access to all software features

Overview

The Brocade® G820 Switch is a high-performance, 1U Fibre Channel switch, purpose-built to meet the demanding needs of modern data centers. With 56 128G SFP+ ports and unmatched low latency, this switch delivers exceptional bandwidth and throughput, making it ideal for fueling enterprise AI and modern workloads.

With its compact design, the Brocade G820 Switch enables efficient use of rack space while providing the scalability necessary for future growth. Its advanced Gen 8 technology combines 128G performance, quantum-safe security, and AI-powered autonomy to enable the most reliable and efficient way to protect and deliver critical information.

As workloads become more demanding, cyber threats become more sophisticated, and the spectrum of threats expands, it is essential to fortify the storage network against hidden risks. The network must deliver optimal performance, operate autonomously, streamline management, and protect critical data. Brocade Gen 8 technology delivers the performance, automation, and security necessary to enable these capabilities.

Integrated security with quantum-resistant encryption and embedded SAN AI technology safeguards SAN fabrics against cybersecurity threats in the era of quantum computing, and modernizes SAN management to operate autonomously and efficiently. This enables faster decision making, improves operational efficiency, and maintains high levels of resiliency.

The Brocade G820 Switch delivers six nines (99.9999%) availability for nonstop operations with minimal downtime. In modern IT infrastructure, humans are not fast enough to respond and maintain the uptime the environment requires, and this drives the need for intelligent autonomy.

Built-in congestion management ensures traffic flows smoothly and performance remains consistent, while self-healing capabilities maintain uptime even when issues arise. Set-and-forget automation eliminates the need for constant monitoring and manual intervention, reducing troubleshooting time and enabling IT teams to focus on strategic initiatives.

Gen 8 Fibre Channel

Brocade Gen 8 Fibre Channel is a purpose-built storage network that secures, automates, and powers the SAN.

It combines 128G performance with advanced security measures and embedded SAN AI technology to safeguard SAN fabrics against cybersecurity threats in the era of quantum computing, automate infrastructure management, and power enterprise AI and modern workloads.

The Brocade G820 Switch is a compact, high-performance switch that can be flexibly deployed as an edge or top-of-rack switch. It provides unprecedented speed, nonstop reliability, and efficient use of rack space to meet the demanding needs of modern data centers.

Build High-Performance Fabrics with Powerful Building Blocks

The Brocade G820 Switch is a fixed-port building block, designed to scale-out fabrics and unleash performance. With 56 ports at 128G and unmatched low latency, in a compact switch design, organizations can accelerate workloads and achieve greater workload density in less space. Offering pay-as-you-grow scalability with Ports on Demand (POD) enables organizations to quickly and easily scale from 24 to 56 ports in 8-port increments on demand. The Brocade pay-as-you-grow architecture enables flexible, cost-effective scalability by allowing organizations to activate only the ports they need and easily expand as requirements grow, reducing upfront costs, eliminating overprovisioning, and providing seamless, nondisruptive capacity growth. This switch provides convenient access to all software features, unlocking greater value and efficiency. Organizations can immediately utilize essential functionality without having to purchase and manage licenses or install any software.

To simplify SAN operations, the Brocade G820 Switch offers easy-to-use management tools that improve efficiency and provide organizations with greater visibility and control. Brocade Web Tools features a built-in simplified user interface, making it easier to manage everyday tasks. To streamline management workflows, organizations can leverage Brocade SANnav™ Management Portal that features modern dashboards, faster troubleshooting, and accelerated deployment of applications, servers, switches, and storage.

Defend the Data Center with Advanced Security

The Brocade G820 Switch is built on a cyber-resilient, quantum-safe architecture that fortifies the SAN to protect critical data and applications from quantum computing and cybersecurity threats. By securing storage traffic through Fibre Channel isolation and role-based access controls, Brocade networks protect against unauthorized access. The switch uses hardened Fabric OS® and hardware, eliminating unnecessary access points, while validating hardware and software roots of trust to ensure only authenticated components operate within the system. These capabilities reduce the risk of hijacking and the installation of malicious software.

The Brocade G820 Switch features Gen 8 technology, which protects SAN fabrics against cyber threats through quantum-resistant 256-bit encryption and advanced cryptographic algorithms. With integrated post-quantum cryptography algorithms, this switch is resistant to quantum attacks, protecting sensitive data and critical infrastructure from being decrypted by future quantum computers. In addition, the Brocade Gen 8 technology further hardens the SAN to minimize the attack surface with strong access controls and limited privileges using the industry-best practice, principle of least privilege architecture. This architecture grants users, applications, and systems only the minimum level of access or permissions necessary to perform their essential functions. Locking down access strengthens the overall system security and reduces vulnerabilities to security breaches, accidental errors, or intentional misuse of privileges.

Brocade SANnav Management Portal captures Monitoring and Alerting Policy Suite (MAPS) alerts to further enhance security by enabling real-time monitoring of the SAN's security configuration, fabric health, and performance. It automates security assessments and helps you maintain best practices, providing alerts for security configuration inconsistencies or issues. Daily security assessments from Brocade Support Link (BSL) services provide a clear and continuous picture of your SAN's health, security posture, and compliance with best practices. These proactive measures help detect vulnerabilities early and offer guidance on how to address them, ensuring that your enterprise data remains secure against both cyber threats and operational disruptions.

Brocade Global Support

Brocade Global Support has the expertise to help organizations build resilient, efficient SAN infrastructures. Leveraging more than 30 years of expertise in storage networking, Global Support delivers world-class technical support, implementation, and migration services to enable organizations to maximize their hardware and software investments, accelerate new technology deployments, and optimize the overall performance of their network.

Maximizing Investments

To help optimize technology investments, Brocade, a Broadcom company, 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.broadcom.com/brocade

For information about supported SAN standards, visit: www.broadcom.com/sanstandards

Modernize SAN Management with AI-Powered Autonomy

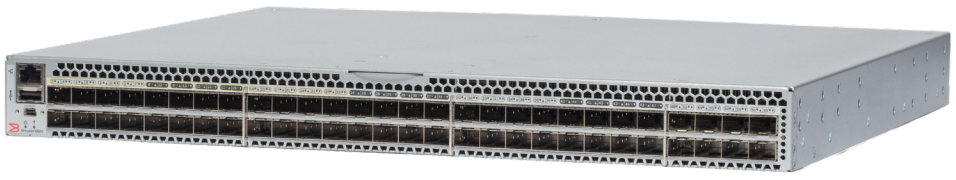
Brocade Gen 8 technology offers a comprehensive suite of features that maximize network uptime, simplify SAN management, and provide unprecedented visibility and insight across the storage network. The Brocade G820 Switch with Gen 8 technology is equipped with embedded SAN AI technology, which automates application infrastructure management and offers a robust analytics architecture that reduces the need for manual administration, ensuring a resilient network that remains stable and efficient even as workloads and infrastructure complexity continue to grow. Brocade Gen 8 technology modernizes SAN management with AI-powered autonomy that learns, adapts, and responds to potential issues using intelligence and automation technologies developed over three decades in the most demanding IT environments.

With SAN Fabric Intelligence (SAN FI), administrators can eliminate time-consuming, manual correlation of all application resources. This advanced feature combines monitoring, troubleshooting, and cross-correlation of servers, storage, virtual machines (VMs), and fabric connections to provide a comprehensive view of the fabric. Utilizing SAN FI provides administrators with complete, end-to-end visibility for all connected devices and components within your SAN fabric and the ability to drill down into points of interest to accelerate troubleshooting and drive smarter management decisions. This automation helps alleviate the chronic understaffing of IT infrastructure teams, providing a significantly faster response time than a human could achieve.

With self-optimizing capabilities, Brocade technology utilizes actionable intelligence to maximize performance. Real-time monitoring of health and performance characteristics enables the network to make smarter decisions on traffic prioritization, congestion management, and notification, ensuring optimal network performance for applications and storage. Brocade Adaptive Traffic Optimizer guarantees critical application performance by automatically prioritizing traffic. When traffic characteristics in the fabric change, the performance groups dynamically adapt to provide the optimal performance group configuration for the individual fabric. This advanced capability classifies and separates traffic with similar characteristics, such as protocol, speed, and latency. Additionally, Adaptive Traffic Optimizer can help avoid application performance impacts by automatically isolating traffic that is adversely impacting other flows.

Brocade Gen 8 leverages extensive data collection capabilities coupled with powerful analytics to quickly understand the health and performance of the environment and identify any potential impacts or trending problems. Built-in intelligence automatically collates millions of data points from across the fabric and simplifies complex telemetry into actionable insights to improve performance, reduce downtime, and simplify operations. In addition, autonomous SAN features monitor fabric behavior, detect anomalies, and self-correct before issues impact performance.

Figure 1: The Brocade G820 High-Performance, 1U Fibre Channel Switch: Purpose-Built to Meet the Demanding Needs of Modern Data Centers



Brocade Access Gateway Mode

The Brocade G820 Switch can be deployed in full-fabric switch mode or in Brocade Access Gateway mode, which simplifies connecting the switch to existing storage area networks. By utilizing the Fibre Channel N_Port ID Virtualization (NPIV) standard, Brocade Access Gateway mode can connect to the core SAN switches as a transparent edge switch, simplifying SAN fabric configuration and management while connecting physical and virtual servers directly to larger SAN fabrics. The Brocade G820 Switch in Brocade Access Gateway mode connects servers to NPIV-enabled SAN fabrics.

Organizations can enable Brocade Access Gateway through command line, Web Tools, or Brocade SANnav Management Portal. Key benefits of Brocade Access Gateway mode include the following:

- Improved scalability for large or rapidly growing server and virtual server environments
- Reduced management of the network edge, since Brocade Access Gateway does not have a domain identity and appears transparent to the core fabric
- Support for heterogeneous SAN configurations without reduced functionality for server connectivity

Brocade G820 Switch Specifications

System Architecture	
Fibre Channel Ports	Switch mode (default): 56 128G SFP+ ports, each supporting E_Ports, F_Ports, N_Ports, M_Ports, D_Ports, and EX_Ports 24-port base configuration: additional ports are enabled with four 8-port SFP+ PODs (Ports on Demand), scaling the switch from 24 ports to 56 ports Brocade Access Gateway default port mapping: 56 F_Ports, 8 N_Ports
Scalability	Full-fabric architecture with a maximum of 239 switches
Certified Maximum	4K active nodes; 56 switches, 19 hops in Brocade Fabric OS fabrics
Performance	Fibre Channel: 112.2Gb/s line speed, full duplex; 57.8Gb/s line speed, full duplex; 28.05Gb/s line speed, full duplex; 14.025Gb/s line speed, full duplex; autosensing of 128, 64, 32, and 16G port speeds depending on SFPs used
ISL Trunking	Frame-based trunking with up to eight SFP+ ports per ISL trunk; up to 1024Gb/s per ISL trunk Exchange-based load balancing across ISLs with Dynamic Path Selection (DPS) included in Brocade Fabric OS
Aggregate Bandwidth	7.168Tb/s
Maximum Fabric Latency	Latency for locally switched ports is 580 ns at 128G with dual forward error correction (FEC)
Maximum Frame Size	2112-byte payload
Frame Buffers	40K
Classes of Service	Class 2, Class 3, Class F (interswitch frames)
Port Types	D_Port (ClearLink® diagnostic port), E_Port, EX_Port, F_Port, M_Port; optional port-type control Brocade Access Gateway mode: F_Port and NPIV-enabled N_Port
Data Traffic Types	Fabric switches supporting unicast
Media Types	128G FC SFP+ LC connector: SWL, LWL, ELWL 64G FC SFP+ LC connector: SWL, LWL, ELWL All Brocade transceivers are PC/UPC compatible.
USB	One standard USB port for firmware download, SupportSave, and configuration upload or download
Fabric Services and Features	BB Credit Recovery; Brocade Advanced Zoning (Default Zoning, Port/WWN Zoning, Peer Zoning); Congestion Signaling; Dynamic Path Selection (DPS); Extended Fabrics; Fabric Performance Impact Notification (FPIN); Fabric Vision; FDMI; FICON CUP; Flow Vision; F_Port Trunking; FSPF; Integrated Routing; ISL Trunking; Management Server; Name Server; NPIV; NTP v3; Port Decommission/Fencing; QoS; Registered State Change Notification (RSCN); SAN Fabric Intelligence (SAN FI); Slow Drain Device Quarantine (SDDQ); Target-Driven Zoning; Adaptive Traffic Optimizer; Virtual Fabrics (Logical Switch, Logical Fabric); VMID+ and AppServer Note: Some fabric services do not apply or are unavailable in Brocade Access Gateway mode
Long Distance	Fibre Channel, in-flight compression (Brocade LZO) and encryption (AES-GCM-256 encryption on FC ISLs [E_Port]); support for DWDM MAN connectivity
FICON	FICON Logical Switch, FICON CUP, FICON cascading

Management	
Management	Brocade Advanced Web Tools; Brocade SANnav Management Portal and SANnav Global View; command-line interface (CLI); HTTP/HTTPS; RESTful API; SNMP v1/v3 (FE MIB, FC Management MIB); SSH
Security	AES-GCM-256 encryption on FC ISLs (E_Port); Device Connection Control (DCC); DH-CHAP (between switches and end devices); Federated Authentication; FCAP switch authentication; HTTPS; IP filtering; OpenLDAP; port binding; principle of least privilege architecture; user-defined role-based access control (RBAC); Secure Boot; Secure Copy (SCP); Secure Syslog; SFTP; SSH v2; SSL; Switch Binding; TLS1.3; PQC algorithms; Trusted FOS Certificates (TruFOS); USGv6 compliant
Management Access	1000Mb/s Ethernet (RJ-45) port and serial console port (mini-USB with thumb screws, plus a mini-USB to RJ-45 adapter for regular RJ-45 console port access)
Diagnostics	Active Support Connectivity (ASC) and Brocade Support Link (BSL); built-in flow generator; ClearLink optics and cable diagnostics, including link traffic/latency/distance; Fabric Performance Impact Monitoring (FPI); flow mirroring; dual forward error correction (FEC); frame viewer; IO Insight for SCSI and NVMe monitoring; Monitoring and Alerting Policy Suite (MAPS); nondisruptive daemon restart; optics health monitoring; POST and embedded online/offline diagnostics, including environmental monitoring, FCping, and Pathinfo (FC traceroute); power monitoring; RAStrace logging; Rolling Reboot Detection (RRD); SAN Fabric Intelligence (SAN FI); Syslog/Audit Log; VM Insight
Mechanical	
Enclosure	Front-to-back airflow; nonport-side exhaust; power from back, 1U Back-to-front airflow; nonport-side intake; power from back, 1U
Size	Width: 44.00 cm (17.32 in.) Height: 4.37 cm (1.72 in.) Depth: 39.68 cm (15.62 in.)
System Weight	8.39 kg (18.5 lb) with two power supplies, fans, without transceivers 9.48 kg (20.9 lb) with two power supplies, fans, fully populated with transceivers
Environment	
Operating Environment	Temperature: 0°C to 40°C (32°F to 104°F) Humidity: 10% to 85% (non-condensing)
Non-operating Environment	Temperature: –25°C to 70°C (–13°F to 158°F) Humidity: 10% to 90% (non-condensing)
Operating Altitude	Up to 3000m (9842 ft)
Storage Altitude	Up to 12 km (39,370 ft)
Shock	Operating: Up to 10g, 11 ms half-sine Non-operating: Up to 40g, 18 ms half-sine, 3 axis
Vibration	Operating: 1.0 Grms sine, 0.40 Grms random, 5.9 Hz to 500 Hz Non-operating: 2.4 Grms sine, 1.12 Grms random, 5.9 HZ to 500 Hz
Heat Dissipation	Typical: 56 ports at 1146.79 Btu/hr Maximum: 56 ports at 1638.28 Btu/hr
Power	
Power Supply	Dual, hot-swappable, redundant power supplies with integrated system cooling fans 80 Plus Platinum
AC Input	90V to 264V, maximum input current 9.7A
AC Input Line Frequency	50 Hz to 60 Hz nominal, 47 Hz to 63 Hz range
AC Power Consumption	Measured based on 240V input and 128G SWL SFP+ optics Idle power draw: 146W for an empty chassis with no transceivers Typical power draw: • 262W with 28 128G SWL optics modules under 50% traffic rate, low fan speed, ambient temperature 25°C • 336W with 56 128G SWL optics modules under 50% traffic rate, low fan speed, ambient temperature 25°C Maximum power draw: 478W with 56 128G SWL optics modules under 100% traffic rate, max. fan speed, ambient temperature 40°C

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