HUAWEI

OceanStor SNS3664/SNS3696E FC Storage Switches

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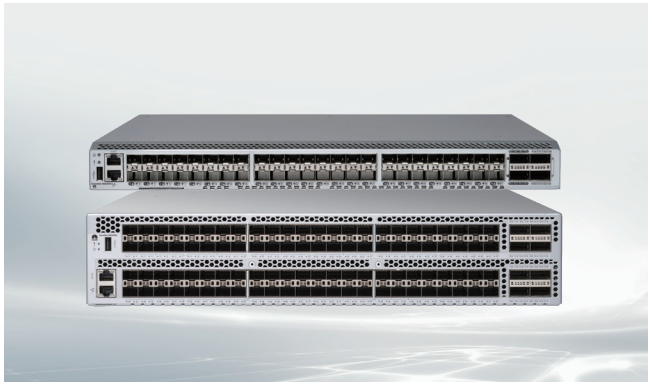

OceanStor SNS3664/SNS3696E FC Storage Switches

HUAWEI OceanStor SNS3664/SNS3696E Switches are the purpose-built network infrastructure for mission-critical storage. Use Gen 6 Fibre Channel, Fabric Vision technology deliver unmatched 32 Gbps performance, increased scalability, and operational stability to ensure hyper-scale virtualization, larger cloud infrastructures, and growing flash-based storage environments.

Product Features

HIGHLIGHTS

- Enables “pay-as-you-grow” scalability—with 24 to 64 ports (SNS3664) /48 to 128 ports (SNS3696E) — for on-demand flexibility
- Powers up from 16 Gbps to 32 Gbps to deliver increased performance on demand. 32 Gbps links application performance barriers with up to 100 million IOPS
- Provides an affordable storage switch that redefines simplicity and flexibility
- Provides proactive, non-intrusive, real-time monitoring and alerting of storage IO health and performance with IO Insight, the industry’ s first built-in device latency and IOPS monitor
- Enables the seamless transition to next- generation NVMe flash arrays, without a disruptive rip and replace
- Proactively monitors and optimizes the health and performance of individual Virtual Machines (VMs), and identifies anomalies with VM Insight
- Increases resiliency by automatically discovering and recovering from common networking problems
- Leverages Fabric Vision technology to simplify administration, quickly resolve problems, increase uptime, and reduce costs

Purpose-Built for Enterprise Deployments

Today's mission-critical storage environments require greater consistency, predictability, and performance to keep pace with growing business demands. Faced with explosive data growth, data centers need more IO capacity to accommodate the massive amounts of data, applications, and workloads. In addition to this surge in data, collective expectations for availability continue to rise. Users expect applications to be available and accessible from anywhere, at any time, on any device.

To meet these dynamic and growing business demands, organizations need to deploy and scale up applications quickly. As a result, many are moving to higher Virtual Machine (VM) densities to enable rapid deployment of new applications and deploying flash storage to help those applications scale to support thousands of users. To increase agility, reduce expenses, and realize the full benefits of these architectures, organizations need the network to deliver the performance required by today's server and storage environments. In addition, storage networks are becoming increasingly important to application performance, which means that they also must become easier to administer and manage. By treating the network as a strategic part of a highly virtualized environment, organizations can increase optimization and efficiency even as they rapidly scale their environments.

SNS3664 Features

SNS3664 is built for maximum flexibility, scalability, and ease of use. Organizations can scale from 24 to 64 ports with 48 SFP+ and 4 Q-Flex ports, all in an efficient 1U package. SNS3664 switch meets the demands of hyper-scale virtualization, larger cloud infrastructures, and growing flash-based storage environments by delivering market-leading Gen 6 Fibre Channel technology and capabilities. It provides a high-density building block for increased scalability, designed to support growth, demanding workloads, and data center consolidation in small to large-scale enterprise infrastructures. Delivering unmatched 32/128 Gbps performance, industry-leading port density, and built-in instrumentation, the SNS3664 accelerates data access, adapts to evolving requirements, and drives always-on business.

SNS3696E Features

The SNS3696E enterprise-class switch delivers industry-leading port density with 128 Fibre Channel ports in an elegant 2U form factor. Organizations can both increase scalability and optimize space utilization. With 96 32 Gbps SFP+ ports and 8 4×32 Gbps Q-Flex ports, the compact design of the switch enables data centers to scale efficiently and deliver more connectivity with fewer switches. Built to support maximum flexibility and dense Fibre Channel fabrics, the SNS3696E Switch offers cost-effective payas-you-grow scalability, expanding from 48 to 128 ports with Ports on Demand(PoD). With the SNS3696E, organizations can seamlessly transition to an all-flash data center and build a foundation to support future innovation and operational efficiency.

Performance for Solid State Storage Architectures

Faced with unpredictable virtualized workloads and growing flash storage environments, organizations need to ensure that the network does not become the bottleneck. The SNS FC switch delivers increased performance for growing and dynamic workloads through a combination of market-leading throughput and low latency across 32 Gbps links.

Administrators can achieve optimal bandwidth utilization, high availability, and load balancing by combining up to eight ISLs in a 256 Gbps framed-based trunk.

Moreover, exchange-based Dynamic Path Selection (DPS) optimizes fabric-wide performance and load balancing by automatically routing data to the most efficient, available path in the fabric. This augments ISL Trunking to provide more effective load balancing in certain configurations.

Meet Critical SLAs

The SNS FC switch, with Gen 6 Fibre Channel technology and built-in instrumentation, helps organizations achieve greater control and insight to quickly identify root cause at the storage tier, reducing time to resolution so critical Service Level Agreements (SLAs) can be met. The IO Insight capability non-intrusively gathers IO statistics, which can be used within an intuitive, policy-based monitoring and alerting suite to configure thresholds and alarms. In-band device latency and IOPS monitoring detects degraded storage performance, allowing administrators to proactively optimize performance and availability to ensure maximum performance.

Simplify Management

The SNS3664 features up to 64 Fibre Channel ports in an efficiently designed 1U form factor, SNS3696E enterprise-class switch delivers density with 128 Fibre Channel ports in an 2U form factor, delivering industry-leading port density and space utilization for simplified scalability and data center consolidation. With this high-density design, organizations can pack more into a single data center with a smaller footprint, reducing costs and management complexity. Along with providing best-in-class scalability, the SNS3664/SNS3696E simplifies end-to-end network management by automating monitoring and diagnostics through Fabric Vision technology.

A Building Block for Virtualized, Private Cloud Storage

The SNS3664/SNS3696E provides a critical building block for today’ s highly virtualized and cloud environments. It both simplifies server virtualization and meets the high-throughput demands of Solid State Disks (SSDs). The SNS3664/ SNS3696E also supports multitenancy in cloud environments through Virtual Fabrics, Quality of Service (QoS), and fabric-based zoning features. In addition, internal fault-tolerant and enterprise-class RAS features help minimize downtime to support mission-critical cloud environments.

Access Gateway Mode

SNS3664 can be deployed as a full-fabric switch or as a Access Gateway, which simplifies fabric topologies and heterogeneous fabric connectivity (the default mode setting is a switch). Access Gateway mode utilizes N_Port ID Virtualization (NPIV) switch standards to present physical and virtual servers directly to the core of SAN fabrics. This makes it transparent to the SAN fabric, greatly reducing management of the network edge.

Technical Specifications

Model	SNS3664	SNS3696E
System Architecture		
Number of ports	Switch mode (default): Minimum of 24 ports and maximum of 64 ports. Port numbers above minimum are enabled through 12-port SFP+ increments via Ports on Demand (PoD) licenses and through one 4-port QSFP PoD; Access Gateway default port mapping: 40 SFP+ F_Ports, 8 SFP+ N_Ports	Offers a base configuration of 48 ports, two 24-port SFP+ PoD (Ports on Demand), and one 32-port QSFP PoD. The switch has a total of eight 32 Gbps QSPF ports. This allows users to grow from 48 ports to 128 ports.
Port types	D_Port(ClearLink Diagnostic Port), E_Port, EX_Port, F_Port, M_Port, AE_Port; optional port-type control ; Access Gateway mode: F_Port and NPIV-enabled N_Port	D_Port (ClearLink Diagnostic Port), E_Port, EX_Port, F_Port, AE_Port, optional port-type control
Scalability	Full-fabric architecture with a maximum of 239 switches	
Certified maximum	6,000 active nodes; 56 switches, 19 hops in Fabric OS® fabrics; larger fabrics certified as required	
Performance	Fibre Channel: 4.25 Gbps line speed, full duplex; 8.5 Gbps line speed, full duplex; 10.53 Gbps line speed, full duplex; 14.025 Gbps line speed, full duplex; 28.05 Gbps, full duplex; 112.2 Gbps, full duplex; auto-sensing of 4, 8, 16, 32 Gbps port speeds and capable of supporting 128 Gbps speeds; 10 Gbps optionally programmable to fixed port speed.Auto-sensing of 4×32 / 4×16 / 4×8 / 4×4 Gbps speeds on the QSFP ports with FOS v8.2.0.	Fibre Channel: 4.25 Gbps line speed, full duplex; 8.5 Gbps line speed, full duplex; 10.53 Gbps line speed, full duplex; 14.025 Gbps line speed, full duplex; 28.05 Gbps, full duplex; 112.2 Gbps, full duplex; auto-sensing of 4/8/10/16/32 Gbps port speeds and capable of supporting 128 Gbps speeds; 10 Gbps optionally programmable to fixed port speed.Auto-sensing of 4×32 / 4×16 / 4×8 / 4×4 Gbps speeds on the QSFP ports with FOS v8.2.0.
ISL Trunking	Frame-based trunking with up to eight 32 Gbps SFP+ ports per ISL trunk or up to two 128 Gbps QSFP ports per ISL trunk. Exchange-based load balancing across ISLs with DPS included in Fabric OS	Frame-based trunking with up to eight 32 Gbps SFP+ ports per ISL trunk or up to two 128 Gbps QSFP ports per ISL trunk. Exchange-based load balancing across ISLs with DPS included in Fabric OS
Aggregate bandwidth	2 Tbps	4 Tbps
Maximum fabric latency	Latency for locally switched ports is ≤ 780 ns (including FEC) compression is 1 µs per node	Latency for locally switched ports is < 780 ns (including FEC); Latency between port groups is 2.6 µs, cut-through routing at 32 Gbps between locally switched groups.compression is 1 µs per node
Maximum frame size	2,112-byte payload	
Frame buffers	15,360 dynamically allocated	15,360 dynamically allocated
Classes of service	Class 2, Class 3, Class F (inter-switch frames)	
Data traffic types	Fabric switches supporting unicast	
USB	One USB port for system log file downloads or firmware upgrades	
Extension	Integrated optional 10 Gbps Fibre Channel for DWDM MAN connectivity; Fibre Channel, in-flight compression (LZO) and encryption (AES-GCM-256)	Integrated optional 10Gbps Fibre Channel for DWDM MAN connectivity; Fibre Channel, in-flight compression (LZO) and encryption (AES-GCM-256)
Management		
Supported management software	HTTP/HTTPS, SNMP v1/v3 (FE MIB, FC Management MIB), SSH, Telnet; Auditing, Syslog; NTP v3; Web Tools; Command Line Interface (CLI); Brocade SANnav Management Portal and SANnav Global view; EZSwitchSetup; SMI-S compliant; REST API; Administrative Domains; trial licenses for add-on capabilities	HTTP/HTTPS, SNMP v1/v3 (FE MIB, FC Management MIB), SSH, Telne; Auditing, Syslog; NTP v3; Web Tools; Command Line Interface (CLI); Brocade SANnav Management Portal and SANnav Global view; EZSwitchSetup; SMI-S compliant; REST API; trial licenses for add-on capabilities
Management access	10/100/1000 Mbps Ethernet (RJ-45 or mini-USB), in-band over Fibre Channel, serial port (RJ-45) and one USB port	

Model	SNS3664	SNS3696E
Mechanical		
Enclosure	Front-to-back airflow; non-port-side exhaust; power from back, 1U Back-to-front airflow; non-port-side intake; power from back, 1U	Front-to-back airflow; non-port-side exhaust; power from back, 1U Back-to-front airflow; non-port-side intake; power from back, 1U
Size	Width: 44 cm (17.32 in.) Height: 4.39 cm (1.73 in.) Depth: 35.56 cm (14 in.)	Width: 44.0 cm (17.32 in.) Height: 8.67 cm (3.41 in.) Depth: 60.96 cm (24 in.)
System weight	7.73 kg (17 lb) with two power supply FRUs, without transceivers	21.31 kg (47.00 lb) with two power supply FRUs,and three fan FRUs without transceivers
Mechanical		
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 3,000 m (9,842 ft)	
Storage altitude	Up to 12 km (39,370 ft)	
Shock	Operating: Up to 20 G, 6 ms half-sine Non-operating: Half-sine, 33 G 11 ms, 3/eg axis	Operating: Up to 20 G, 6 ms half-sine Non-operating: Half-sine, 33 G 11 ms, 3/eg axis
Vibration	Operating: 0.5 g sine, 0.4 grms random, 5 Hz to 500 Hz Non-operating: 2.0 g sine, 1.1 grms random, 5 Hz to 500 Hz	
Heat dissipation	64 ports at 716 BTU/hr	128 ports at 3,512 BTU/hr
Power		
Power supply/Fan	Dual, hot-swappable redundant power supplies with integrated system cooling fans	Dual, hot-swappable redundant power supplies with integrated system cooling fansThree hot-swappable redundant Fans
AC input	90 V to 264 V ~3.5 A	90 V to 264 V ~12 A
AC input line frequency	47 Hz to 63 Hz	
Power consumption	204 W with all 64 ports populated with 48×32 Gbps SFP+ SWL optics and 4× (4×32 Gbps) QSFP SWL optics 85 W for empty chassis with no optics	Maximum 942 W with all 128 ports operating at 32 Gbps (96 ports populated with 32 Gbps SWL optics and 8 QSFP ports populated with 4×32 Gbps SWL optics) Maximum of 495 W for empty chassis with no optics in idle configuration

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