

N-Series Switches

IDEAL FOR DATA CENTER NETWORKS AND HIGH-END CAMPUS NETWORKS

FS N-series switches are designed for data center networks and high-end campus networks, providing stable, reliable and secure Layer 2/Layer 3 switching services.



Build a better network with N-series switches

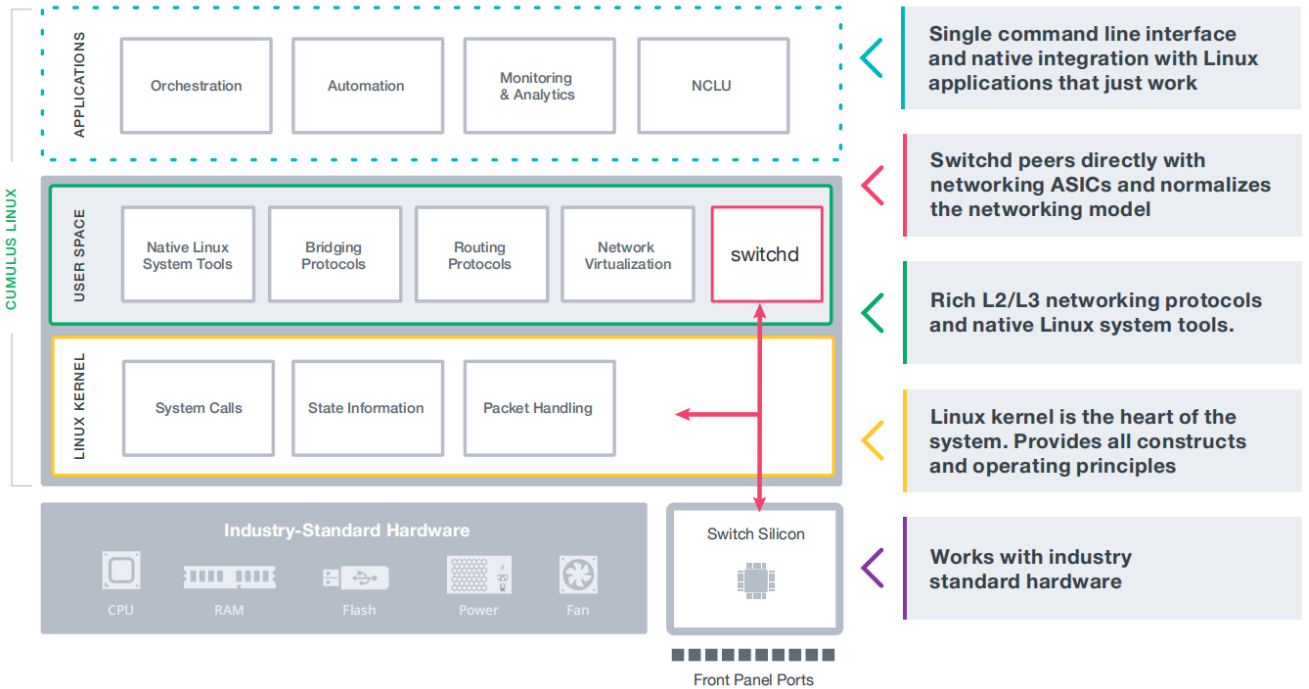
FS N-series switches deliver the high performance and port density with a complete chassis and fabric management solution enabling converged data centers to operate at any scale while reducing operational costs and infrastructure complexity. This family includes a broad portfolio of Top-of-Rack (TOR) switches that range from 32 to 54 ports, with wire speed of 25GbE, 40GbE and 100GbE per port. They have a comprehensive Cumulus Linux feature set, including MLAG, VXLAN, SFLOW, BGP and OSPF etc.

Cumulus Linux enables modern data center architectures while providing a transition path for traditional data center architectures, with support for layer 2, layer 3 and overlay architectures.

Benefits

- Ethernet Virtual Private Networks (EVPN)
- Network Command Line Utility (NCLU)
- OSPF Unnumbered
- BGP Unnumbered
- Redistribute Neighbor
- Prescriptive Topology Manager (PTM)
- Virtual Routing and Forwarding
- Lightweight Network Virtualization (LNV)

Cumulus Linux Architecture



Key Features



ETHERNET VIRTUAL PRIVATE NETWORKS (EVPN)

Get freedom from layer 2 complexities with this modern, standards-based, interoperable technology that allows legacy layer 2 applications to operate over next-generation layer 3 networks.



REDISTRIBUTE NEIGHBOR

Get VM and host mobility by plugging your server into any redistribute neighbor-enabled switch, making it layer 3 discoverable on the fabric. If you have to move the server, there's no need to reconfigure.



NETWORK COMMAND LINE UTILITY (NCLU)

Use the rich and simple command line for easy network configuration and operation.



OSPF UNNUMBERED

Create configs faster and simplify automation by no longer depending on unique IP addresses.



PRESCRIPTIVE TOPOLOGY MANAGER (PTM)

Efficiently go from whiteboard to physical cable. With PTM, you can program your data center to verify connections and resolve issues faster.



VIRTUAL ROUTING AND FORWARDING

Run multiple network paths without the need for multiple switches, giving you traffic isolation and network segmentation for multiple devices.



BGP UNNUMBERED

Automation gets even easier with this simplified IP approach. All you need is one IP template for leaf nodes and one for the spine nodes.



LIGHTWEIGHT NETWORK VIRTUALIZATION (LNV)

Accelerate VXLAN deployments with a controllerless solution.

Technical Specification

N-series switches come with the industry-standard hardware and pre-installed Cumulus Linux operating system. Here's a look at the details..

CHARACTERISTICS

| | N8500-48B6C | N8000-32Q | N8500-32C |
|-------------------------|--|--|--|
| Ports | | | |
| Switch Ports | 48x SFP28 and 6x QSFP28 | 32x QSFP+ | 32x QSFP28 |
| Management Ports | 1x Serial Console and 1x MGMT | 1x Serial Console and 1x MGMT | 1x Serial Console and 1x MGMT |
| Operating System | | | |
| OS | Cumulus Linux | Cumulus Linux | Cumulus Linux |
| Key Components | | | |
| Switch Chip | Tomahawk+ BCM56967 | Trident 2 BCM56850 | Tomahawk BCM56960 |
| CPU | Broadwell-DE 2.2Ghz 2-core | Intel Rangeley C2538 2.4Ghz 4-core | Intel Rangeley C2538 2.4Ghz 4-core |
| Performance | | | |
| Switch Class | Layer 3 | Layer 3 | Layer 3 |
| Switching Capacity | 3.6Tbps full-duplex | 2.56Tbps full-duplex | 6.4Tbps full-duplex |
| Forwarding Performance | 4.7Bpps | 1.44Bpps | 4.7Bpps |
| Latency | 500ns | 480ns | 500ns |
| Packet Buffer | 16M | 12M | 16M |
| Flash Memory | 64GB SSD | 16GB SSD | 16GB SSD |
| RAM Memory | 4GB DDR4 | 4GB DDR3 | 4GB DDR3 |
| ROM Memory | 16GB | 8GB | 8GB |
| IPv4 Route Entries | 65536 | 131072 | 65536 |
| IPv6 Route Entries | 8192 | 20480 | 8192 |
| Total Routes | 65536 | 131072 | 65536 |
| MAC Entries | 40960 | 32768 | 40960 |
| DDM | Support | Support | Support |
| Power | | | |
| Input Voltage | 100-127VAC, 50/60Hz, 7.1A 200-240VAC, 50/60Hz, 3.4A | 100-127VAC, 50/60Hz, 5.8A 200-240VAC, 50/60Hz, 2.9A | 100-127VAC, 50/60Hz, 9.4A 200-240VAC, 50/60Hz, 4.7A |
| Max Power Consumption | 550W | 300W | 550W |

CHARACTERISTICS

| | N8500-48B6C | N8000-32Q | N8500-32C |
|-----------------------------------|---|---|---|
| Physical and Environmental | | | |
| Dimensions (HxWxD) | 1.73"x17.08"x20.47" (43.8x433.8x520mm) | 1.73"x17.08"x20.47" (43.8x433.8x520mm) | 1.73"x17.08"x20.47" (43.8x433.8x520mm) |
| Rack Space | 1U | 1U | 1U |
| Hot-swap Power | 1+1 redundant | 1+1 redundant | 1+1 redundant |
| Hot-swap Fans | 3+1 redundant | 4+1 redundant | 4+1 redundant |
| Operating Temperature | 0°C to 45°C (32°F to 113°F) | 0°C to 45°C (32°F to 113°F) | 0°C to 45°C (32°F to 113°F) |
| Storage Temperature | -40°C to 70°C (-40°F to 158°F) | -40°C to 70°C (-40°F to 158°F) | -40°C to 70°C (-40°F to 158°F) |
| Operating Humidity | 5% to 90% non-condensing | 5% to 90% non-condensing | 5% to 90% non-condensing |
| Weight | 10kg | 10kg | 10kg |

FEATURES

| Functionality | Description |
|------------------|---|
| Layer 3 Features | <p>IPv4/v6 routing suite including OSPFv2, OSPFv3, BGPv4/v6.</p> <p>Virtual routing and forwarding (VRF) and VRF route leaking</p> <p>Equal-cost multi-path (ECMP) and ECMP resilient hashing for IPv4 and IPv6 traffic.</p> <p>Bidirectional forwarding detection (BFD) across all platform & interface types, IPv4 and IPv6, BGP and OSPF, VXLAN.</p> <p>Protocol-independent multicast (PIM, PIM-SM, PIM-SSM).</p> <p>Policy-based routing.</p> |
| Layer 2 Features | <p>Bridge management with STP (IEEE 802.1d), RSTP (IEEE 802.1w), PVRST, PVST, bridge assurance, BPDU guard, BPDU filter.</p> <p>VLANs, VLAN trunks (IEEE 802.1q), LACP (IEEE 802.3ad), LACP bypass, unicast/broadcast storm control, LLDP, CDP, IPv6 neighbor discovery, IPV6 route advertisement.</p> <p>MLAG (clagd daemon).</p> <p>IGMPv2/v3 snooping, MLDv1/v2 snooping.</p> <p>Virtual router redundancy (VRR - active-active first hop redundancy protocol)</p> |

FEATURES

| Functionality | Description |
|------------------------------|---|
| Network Virtualization | <p>VXLAN support.</p> <p>L2 gateway services integration with VMware NSX.</p> <p>VXLAN head end replication.</p> <p>VXLAN active-active bridging with MLAG.</p> <p>Controller-less Network virtualization with EVPN and lightweight network virtualization (LNV).</p> |
| Management | <p>Single command line tool to configure and operate the switch (NCLU).</p> <p>Native Linux management tools such as OpenSSH, SCP, FTPS.</p> <p>Automated install and provisioning: zero touch install and zero touch provisioning. Management VRF.</p> <p>DHCP, v4/v6 DHCP relays.</p> <p>Authentication with LDAP, authorization with sudo NTP.</p> <p>Interface configuration management (ifupdown2).</p> <p>Advanced management/orchestration through third party add-on packages.</p> <p>Snapshot and rollback of the entire system to eliminate the risk from system upgrades.</p> |
| Monitoring & Troubleshooting | <p>Monitor traffic patterns and preemptive capacity planning with buffer monitoring</p> <p>Traditional monitoring with SNMPv2 and network-specific MIBs, hardware monitoring via watchdog, analytics with SPAN, ERSPAN, ACL-based counters, DOM optics data, thermal sensors, real time queue-depth and buffer utilization reporting.</p> <p>Troubleshooting with dnstools, syslog, reachability tools, hardware inventory, log files, server-style filesystem, and merchant silicon-specific commands.</p> <p>Advanced troubleshooting and ease of use with Prescriptive Topology Manager.</p> |
| Security | <p>Access control lists (ACLs) L2-L4 classification through IP/EPtables, CPU protection through hardware enforced ACL-based rate limiting DoS control.</p> <p>Authenticate and authorize attached devices with 802.1X</p> |

FEATURES

| Functionality | Description |
|---------------|---|
| QoS | Link PAUSE. Classification based on Class of Service (CoS) (IEEE 802.1p) or DSCP (queuing, scheduling (DWRR and Strict Priority), buffer allocation). Ingress ACL-based classification/policing. Priority flow control and explicit congestion notification (ECN). |

Accessories



Console Cable*1



Power Cords*2



Grounding Cable*1



Screws M4/M6*14



Rubber Pads*2



Rack Mount Brackets*4



Dummy PSU Bracket*1



User Manual*1

Get started today

Getting started with FS N-series switches is easy. In fact, you can explore and test them without spending too much time. Try FS N-series switches, they will lower the total cost of your ownership, and bring your network with high scalability and agility as well.



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