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Product Brief

Ethernet Routing Switch 8600

Delivering reliable, secure and intelligent Ethernet connectivity for today's convergence and web-based applications

Applications that need a reliable, secure, intelligent network include:

- > IP Telephony
- > Collaboration tools
- > Enterprise Resource Planning (ERP) and CRM
- > Supply chain management
- > Unified Messaging
- > Call center — ACD

More companies are turning to technology to help boost their bottom line and increase employee productivity. Convergence provides a clear path for enabling applications to provide gains in employee productivity and decreases in reoccurring costs. By creating a unified communications network, enterprises can employ collaborative technologies to share resources within the entire organization, improve day-to-day operational

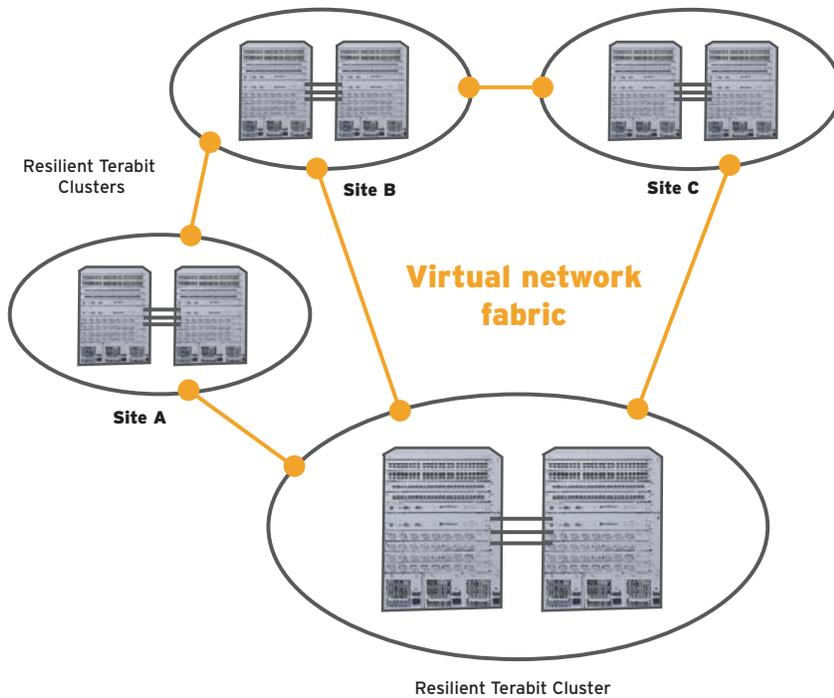
processes and more cost effectively communicate with customers, partners and suppliers.

Converged solutions require reliable, secure and intelligent networks. The ability of the network to handle multiple types of traffic, each with their own requirements, means performance, intelligence and resiliency have to be built into the network:

- > As more revenue-generating services are delivered over the network, resiliency and reliability become critical to an enterprise's success. Network uptime and availability affect the profitability of the enterprise.
- > With the addition of multiple traffic types comes the need to be able to classify traffic intelligently and with granularity. Understanding what traffic receives priority on the network and when becomes more important as the number of traffic types increases.



Figure 1. Resilient Terabit Cluster



› With so much corporate information flowing across the network, including customer information, sales information and corporate strategies, security in the network has become a priority worldwide. Security of data, access to the network and protection against attacks are only a few of the areas being addressed today. Securing the network requires understanding how the business and network work together.

The Ethernet Routing Switch 8600 (formerly known as Passport* 8600) delivers a proven and tested resilient, secure and intelligent network solution. With the capability to deliver hundreds of millions of packets per second (Mpps) performance to the network core, the Ethernet Routing Switch 8600 combines resilient high performance with intelligence and security. The Ethernet Routing Switch 8600 leverages technology from industry-leading products to create an integrated intelligence with the Web Switch module, SSL Acceleration module and the Switched Firewall module.

Resilient Terabit Cluster

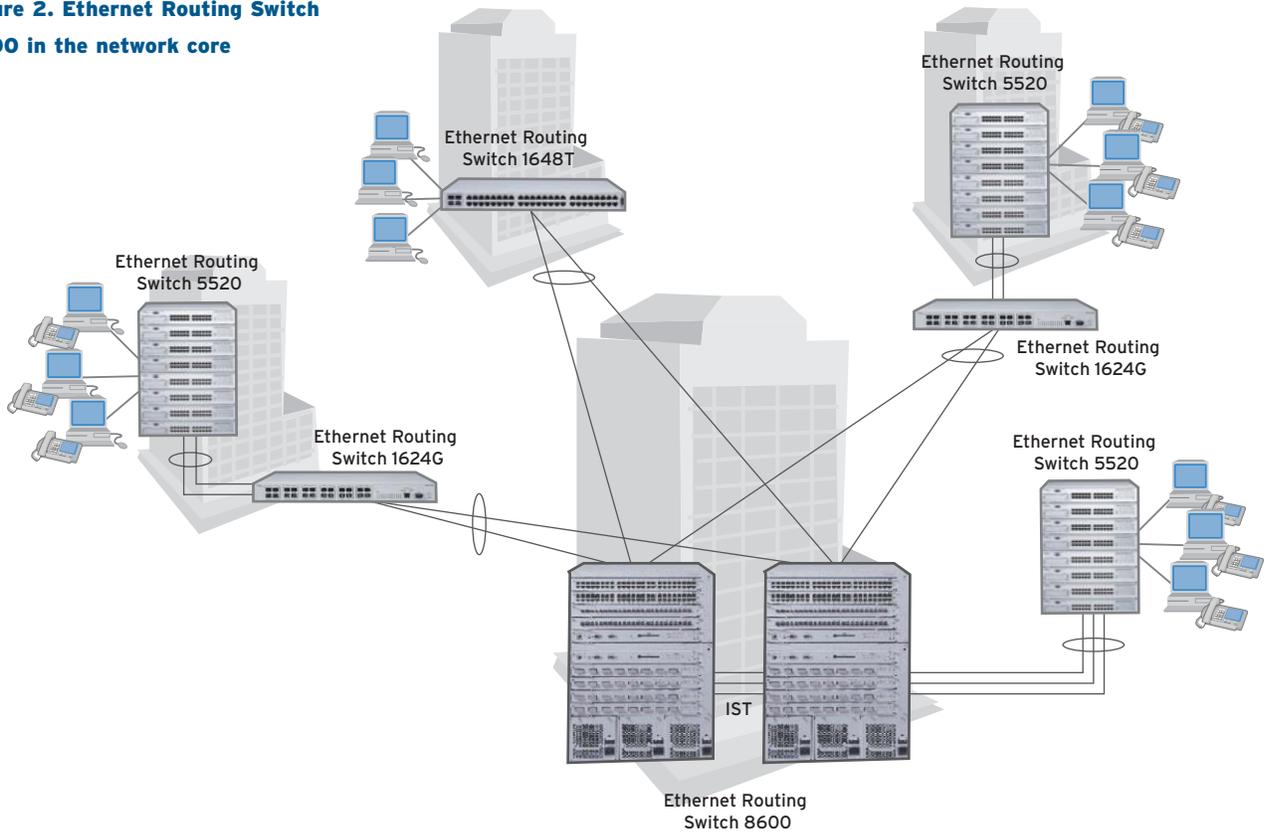
With the latest release of Ethernet Routing Switch 8600 hardware and software, Nortel introduces the next evolution in networking with the Resilient Terabit Cluster. This solution combines the unique resiliency features of the Ethernet Routing Switch 8600 with Terabit performance and scalability to create a highly-resilient, high-performance secure solution. With pairs of switches functioning as one logical switch (forming a cluster), the Ethernet Routing Switch 8600 is able to deliver Terabit performance and at the same time provide industry-leading resiliency. By linking these clusters of switches, you can create a virtual network fabric that, when interconnected, supplies increased reliability network-wide, thereby enabling large-scale deployment of web and converged applications. This solution helps you provide an infrastructure that is built to handle today's applications as well as hedging your bets for what is coming tomorrow. Resiliency, intelligence and security have become items you cannot ignore.

Delivering resiliency

Network resiliency is the most basic requirement when implementing a converged network. The network needs to be available to be able to support the applications whose ultimate promise is increasing the bottom line. The Ethernet Routing Switch 8600 addresses resiliency at multiple levels for maximum coverage. At the hardware level, the Ethernet Routing Switch 8600 provides hot swappable modules including fan trays and N+1 power supplies. The Ethernet Routing Switch 8600 software ensures resiliency for the network core with industry-leading features like Split Multi-Link Trunking (SMLT), VRRP Active/Active and Routed Split Multi-Link Trunking (R-SMLT).

Connectivity within the network often relies on trunks or groups of ports connecting disparate areas of the network. The resiliency of these trunks can mean the difference between a highly available network and a network plagued with outages and crippling delays. Multi-Link Trunking support allows up to eight ports to be grouped into a single trunk, providing increased bandwidth and resilient connections. Split Multi-Link Trunking combines the increased bandwidth of MLT with industry-leading resiliency. SMLT allows desktop or access switches to be dual homed/connected to Ethernet Routing Switch 8600s in the network core and have all links active. This innovative technology delivers a solution that provides increased bandwidth as well as sub-second failover. R-SMLT extends the reliability of SMLT to the routed core networks. By providing subsecond failover for Layer 3 information, R-SMLT ensures converged applications are operating effectively throughout the network. The Ethernet Routing Switch 8600 also supports standard resiliency protocols like 802.3ad, Virtual Router Redundancy Protocol (VRRP) and Equal Cost Multi-Path Routing

Figure 2. Ethernet Routing Switch 8600 in the network core



(ECMP). Nortel offers a unique enhancement to VRRP in the 8600 with the support of the Active/Active feature. This feature allows you to utilize both switches and links that would normally go unused with the standard implementation of VRRP. Both of these protocols work to ensure that users stay connected to the network and that the network provides the best bandwidth utilization with the fastest convergence time.

With these features, the Ethernet Routing Switch 8600 delivers increased available bandwidth, dramatically increased network availability and resiliency designed for unified communications architecture.

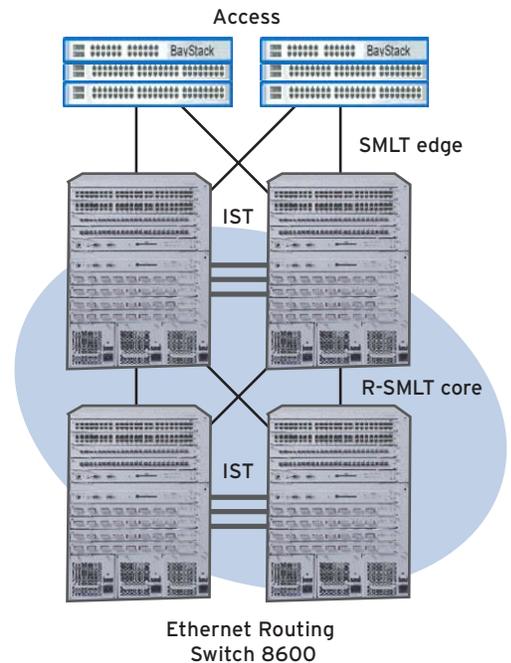
Offering intelligence

Network traffic is becoming more diverse and more prolific. Because of this trend, network devices need to be keenly aware of traffic types and be able to handle specific types of traffic differently. This

sense or awareness of differing traffic types combined with the ability to process each type differently is what sets intelligent networks apart from typical LANs. The Ethernet Routing Switch 8600 combines intelligence and performance to create a next-generation intelligent network solution.

With built-in best-of-breed Layer 4-7 performance, the Ethernet Routing Switch 8600 is able to mark and classify thousands of traffic types without affecting switch performance. Server load balancing, SSL acceleration and integrated firewall allow the Ethernet Routing Switch 8600 to provide data center services for an entire network with a low Total Cost of Ownership. Quality of Service (QoS) and extensive traffic filtering ensure that bandwidth is allocated to the applications that need it the most. Filtering or Access Control Lists (ACLs) can also be used to provide security as well as manage traffic flows.

Figure 3. Reliability with SMLT/R-SMLT



The Ethernet Routing Switch 8600 is a resilient, intelligent, secure solution that allows corporate networks to provide a truly unified communications network. Resiliency, intelligence and security are the basic network building blocks that allow an enterprise to use their network to grow their business and provide a solid foundation for their future network growth.

Wire speed routing and non-blocking switch fabrics provide the performance required for today's unified communication applications. With an architecture capable of supporting 720 Gbps, the Ethernet Routing Switch 8600 is designed to scale as well as provide performance. Two active redundant switch fabrics provide seamless failover delivering maximum resiliency. The Ethernet Routing Switch 8600 supports up to 240 non-blocking Gigabit Ethernet ports and provides connectivity for high-density 10/100 Ethernet and 10 Gigabit Ethernet, as well as connections for Wavelength Division Multiplexing (WDM), ATM and Packet over SONET. As network traffic increases, scalability and performance become even more critical for network core devices.

Ensuring security

With voice, video and data traveling across the network, there has never been a more urgent need for keeping the network secure. All devices on the network need to ensure network element security as well as data integrity. The Ethernet Routing Switch 8600 employs

several layers of built-in security for both switch access and network data. Firewalls, passwords, access policies, secure protocols, address and port filtering, routing policies and DoS prevention mechanisms help ensure that the network and its data stay secure.

Firewall, VPN and Intrusion Detection System (IDS) load balancing provide both security load balancing and redundancy for maximum effectiveness. Standardized secure protocols for access to the Ethernet Routing Switch 8600 like SNMPv3 and SSH are designed to ensure the switch stays secure from the inside out. VLANs provide a mechanism to logically separate traffic and are the first step towards ensuring disparate network traffic is not mixed. Support for authentication protocols like 802.1x EAP and RADIUS allow existing authentication systems to be used with the Ethernet Routing Switch 8600 with little network disruption. An integrated firewall means fewer security devices to configure, manage and maintain. Fewer devices translates into less errors which means better security protection.

Summary

The Ethernet Routing Switch 8600 is a resilient, intelligent, secure solution that allows corporate networks to provide a truly unified communications network. As part of a Resilient Terabit Cluster solution, the Ethernet Routing Switch 8600 allows you to scale converged and web applications network wide. Resiliency helps ensure that network resources are always available. Intelligence delivers bandwidth and performance for those applications that need it the most when they need it. Security helps ensure that the information traveling across your network remains secure and unaltered. Resiliency, intelligence and security are the basic network building blocks that allow an enterprise to use their network to grow their business and provide a solid foundation for their future network growth.

Ordering information

Chassis

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|------------------|--|
| DS1402001 | 8010 10-slot chassis. Includes chassis, dual backplane, two fan trays, RS232 cable for management console, rack mount kit and cable guide kit. Requires at least one power supply, up to three power supplies supported. |
| DS1402002 | 8006 6-slot chassis. Includes chassis, dual backplane, fan tray, RS232 cable for management console, rack mount kit and cable guide kit. Requires at least one power supply, up to three power supplies supported. |
| DS1402003 | 8003 3-slot chassis. Includes chassis, fan tray, RS232 cable for management console, rack mount kit and cable guide kit. Requires at least one 8003 power supply, up to two power supplies supported. Minimum SW version 3.1.2 required. |
| DS1402004 | 8010co 10-slot NEBS chassis. Includes chassis, fan trays, RS232 cable for management console, rack mount kit and cable management. Requires at least two 8004 power supplies, up to three power supplies supported. Minimum SW version 3.1.2 required. |

Software

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|----------------------|---|
| DS1410003-4.0 | 8000 Routing Switch Software Kit (Includes v4.0 SW license, Device Manager and complete SW documentation set). One license kit required per chassis. (Support contracts must be purchased separately.) Version 4.0. |
| DS1410005-4.1 | Optivity Switch Manager version 4.1. |

Modules

| | |
|------------------|--|
| DS1304008 | 8672 ATME 2-Slot MDA Baseboard. Accepts two MDAs, supports up to 8 OC-3 or 2 OC-12 ports. |
| DS1404060 | 8683 POSM 3-Slot MDA Baseboard. Accepts three MDAs, supports up to 6 OC-3 or 3 OC-12 ports. Expanded memory. |
| DS1404011 | 8616SXE Routing Switch Module. 16-port 1000BASE-SX Gigabit Ethernet interface module. |
| DS1404024 | 8632TXE Routing Switch Module. 32 10/100TX plus 2 GBIC interface modules. Requires Release 3.1.2 or higher. |
| DS1404034 | 8616GTE Routing Switch Module. 16-port 1000BASE-T Gigabit Ethernet interface module. |
| DS1404035 | 8648TXE Routing Switch Module. 48-port autosensing 10BASE-T/100BASE-TX Ethernet Layer 3 switching interface. |
| DS1404036 | 8608SXE Routing Switch Module. 8-port 1000BASE-SX Gigabit Ethernet interface module. |
| DS1404037 | 8624FXE Routing Switch Module. 24-port 100BASE-FX Ethernet Layer 3 switching interface module. |
| DS1404038 | 8608GBE Routing Switch Module. 8-port 1000 Base GBIC (GBICs sold separately). |
| DS1404044 | 8608GTE Routing Switch Module. 8-port 1000BASE-T Gigabit Ethernet interface module. |
| DS1404052 | 8681 XLW Single port 1310 nm WAN serial 10 gig Ethernet interface module. |
| DS1404053 | 8681 XLR Single port 1310 nm LAN serial 10 gig Ethernet interface module. |
| DS1404063 | 8630GBR Routing Switch Module. 30-port SFP GBIC baseboard. (SFPs sold separately.) |
| DS1404065 | 8692SF Switch Fabric/CPU to enable redundant terabit core configurations. One required with R Modules, second for load-sharing and redundancy. Operable with pre-E, E and M modules. Includes 256MB SDRAM and 64MB PCMCIA. |
| DS1404080 | 8660 Service Delivery Module with Four Firewall iSD Modules for the Ethernet Routing Switch 8600. |
| DS1404081 | 8660 Service Delivery Module with two Firewall iSD Modules for the Ethernet Routing Switch 8600. |
| DS1404090 | 8691SF Routing Switch Module with 256MB CPU memory CPU/Switch Fabric module - One required for per Ethernet Routing Switch 8000 Routing Switch chassis. Note: Includes 64MB PCMCIA flash memory card and 256MB motherboard DRAM. |
| DS1404092 | 8648GTR Routing Switch Module. 48 port autosensing 10BASE-T/100BASE-TX/1000Base-T Ethernet Layer 3 switching interfaces. |
| DS1404101 | 8683XLR three-port 10GBase-X XFP Routing Switch Module baseboard (XFPs purchased separately). |
| DS1404104 | 8660 Service Delivery Module with one Firewall iSD Modules for the Ethernet Routing Switch 8600. |
| DS1404070 | 8661 SSL Acceleration Module (SAM) for the Ethernet Routing Switch 8600. Secures web-based applications and business communications while enabling content networking features on secure sessions. (See Note 1.) |
| DS1404045 | WSM. 4-port 1000BASE-SX Gigabit or 10BASE-T/100BASE-TX Ethernet Layer 4-7 Web Switching Module. |

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