

# resiliency

**Product Brief**  
**Passport 8600**  
**Routing Switch**

*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*

**Delivering reliable, secure, and intelligent Ethernet connectivity for today's convergence applications**

**M**ore 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 becomes 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. Understanding what traffic receives priority on the network and when becomes more important as the number of traffic types increases.
- 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 the infrastructure are only a few of the areas being addressed today. Securing the network requires understanding how the business and network work together.



resiliency. SMLT allows desktop or access switches to be dual homed/connected to Passport 8600s in the network core and have all links active. This innovative technology delivers a solution that provides increased bandwidth available from the wiring closets 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 viable and maintainable throughout the network. The Passport 8600 also supports standard resiliency protocols like 802.3ad, Virtual Router Redundancy Protocol (VRRP), and Equal Cost Multi-Path Routing (ECMP). 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 Passport 8600 delivers increased available bandwidth, dramatically increased network availability, and resiliency designed for unified communications architecture.

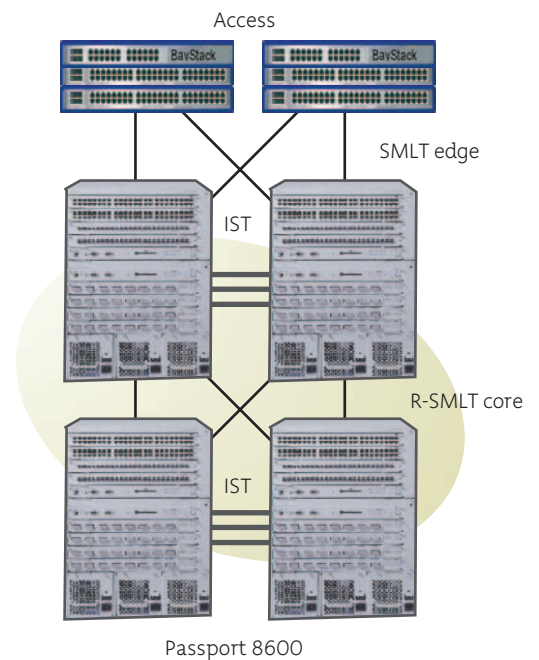
### Offering intelligence

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 Passport 8600 combines intelligence and performance to create a next-generation intelligent network solution.

With built-in best-of-breed Layer 4-7 performance, the Passport 8600 is able to mark and classify a variety of traffic types without affecting switch performance. Server load balancing, SSL acceleration, and an integrated firewall<sup>†</sup> allow the Passport 8600 to provide data center services for an entire network. Quality of Service (QoS) and extensive traffic filtering ensure that bandwidth is allocated to the applications that need it the most. Filtering can also be used to provide security as well as manage traffic flows.

Wire speed routing and non-blocking switch fabrics provide the performance required for today's unified communication applications. With the capacity to support up to 512 Gbps, the Passport 8600 is designed to scale as well as provide performance. Two active redundant switch fabrics provide seamless failover delivering maximum resiliency. The Passport 8600 supports up to 128 Gigabit Ethernet ports and provides connectivity for 10/100 Ethernet, Gigabit and 10 Gigabit Ethernet, Wavelength Division Multiplexing (WDM), ATM, and Packet over SONET. As network traffic increases, scalability and performance become even more critical for network core devices.

Figure 2. Reliability with SMLT/R-SMLT



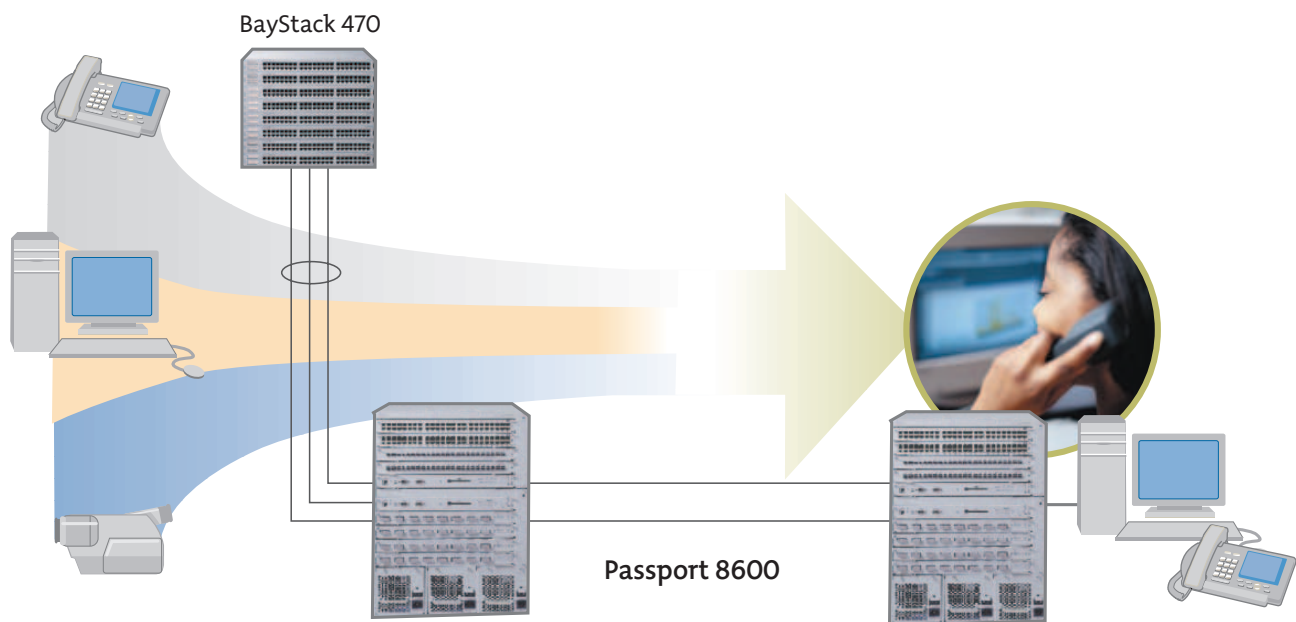


Figure 3. Convergence solution

### 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 Passport 8600 employs several layers of built-in security for both switch access and network data. 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 Passport 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 Passport 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 Passport 8600 is a resilient, intelligent, secure solution that allows corporate networks to provide a truly unified communications network. 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.

## Passport 8600 Routing Switch modules

### Core switching and processing

**Routing switch fabric/CPU module**—High-performance 256 Gbps Layer 2 and Layer 3 traffic switching. One per chassis; two for maximum redundancy.

### Ethernet

**48-port 10BASE-T/100BASE-TX Ethernet Routing Switch module (RJ-45)**—Cost-effective switching/routing via 48 auto-sensing 10/100 Mbps ports, for high-density server farms and high-end wiring closets

### Ethernet/Gigabit Ethernet

**Passport Routing Switch Module 8632TX**—32-port mixed-media module for 10BASE-T/100BASE-TX switching and routing, with two slots for Gigabit Interface Converters (GBICs), used where high port density and minimal number of gigabit ports are required

### Fast Ethernet

**24-port 100BASE-FX Fast Ethernet Routing Switch module (MT-RJ)**—Cost-effective 10/100 switching and routing over long cable runs (up to 2 kilometers over multimode fiber)

### Gigabit Ethernet

**16-port 1000BASE-SX Gigabit Ethernet Routing Switch module (MT-RJ)**—Up to 128 Gigabit Ethernet ports per 10-slot chassis, for high-density gigabit Ethernet

**16-port 1000BASE-T Gigabit Ethernet Routing Switch module (RJ-45)**—Gigabit Ethernet over Category 5 copper cabling, up to 128 Gigabit Ethernet ports per 10-slot chassis, for high-density gigabit Ethernet

**8-port 1000BASE-T Gigabit Ethernet Routing Switch module (RJ-45)**—Gigabit Ethernet over Category 5 copper cabling, a low-cost solution for runs up to 100 meters

**8-port 1000BASE-SX Gigabit Ethernet Routing Switch module (SC)**—8 Gigabit Ethernet ports with SC connectors, for cost-effective gigabit switching and routing using multimode fiber

**8-port Gigabit Ethernet Routing Switch module**—Uses one or more plug-in GBICs for customers wishing to mix and match interface types on a single module using copper, multi-mode, or single-mode fiber. GBICs available in 1000BASE-T, short distance (SX), long distance (LX), and extended distance (XD and ZX).

### 10-Gigabit Ethernet

**Single port 10-Gigabit Ethernet Routing Switch modules**—Auto sensing, fully featured LAN and WAN connectivity with the full functionality and intelligence of the Passport 8600

### ATM and Packet over SONET

**2-slot ATM MDA Baseboard**—Supports up to either four ports of DS-3 or eight OC-3 or two OC-12 ports for ATM interface applications such as permanent virtual circuit VLAN bridging and routing, maintaining QoS prioritization

**3-slot POS MDA Baseboard**—Supports up to six OC-3 or three OC-12 ports for SONET interface applications such as routing/bridging between sites with SONET ADMs, interconnecting sites with private/leased fiber connections, and IP over PPP connections

### Application specific

**Web Switching Module**—4-port 1000BASE-SX Gigabit or 10BASE-T/100BASE-TX scales to support over 4 million concurrent sessions at a rate of 2.4 million sessions per second with wire-speed filtering for over 48,000 security and policy services

**SSL Acceleration Module**—Features 3,000 SSL sessions per second, 260 Mbps and 64,000 concurrent connections per module

<sup>1</sup>Supported in a future release.



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