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Product Brief

Nortel Networks

Passport 15000

Multiservice Switch

As a voice and data service provider, chances are you find yourself in a continuous race with the competition to provide customers with new services—and new opportunities.

Today's customers expect you to deliver a rich portfolio of data and voice services, and the necessary bandwidth to meet unpredictable surges in demand. You must meet stringent QoS (quality of service) commitments for mission-critical applications by providing premium levels of availability, reliability, and responsiveness.

Market conditions require a comprehensive strategy that can meet these challenges while positioning your network for the data-centric future.

As an integral part of that strategy, Nortel Networks offers the Passport 15000 Multiservice Switch—a versatile, reliable, and scalable platform for multiservice access and transport.

NORTEL NETWORKS™

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What makes the Passport 15000 exceptional?

Versatility, reliability, and scalability are integral to the Nortel Networks Passport 15000 design—making it ideal for the challenges of today's service provider networking environment.

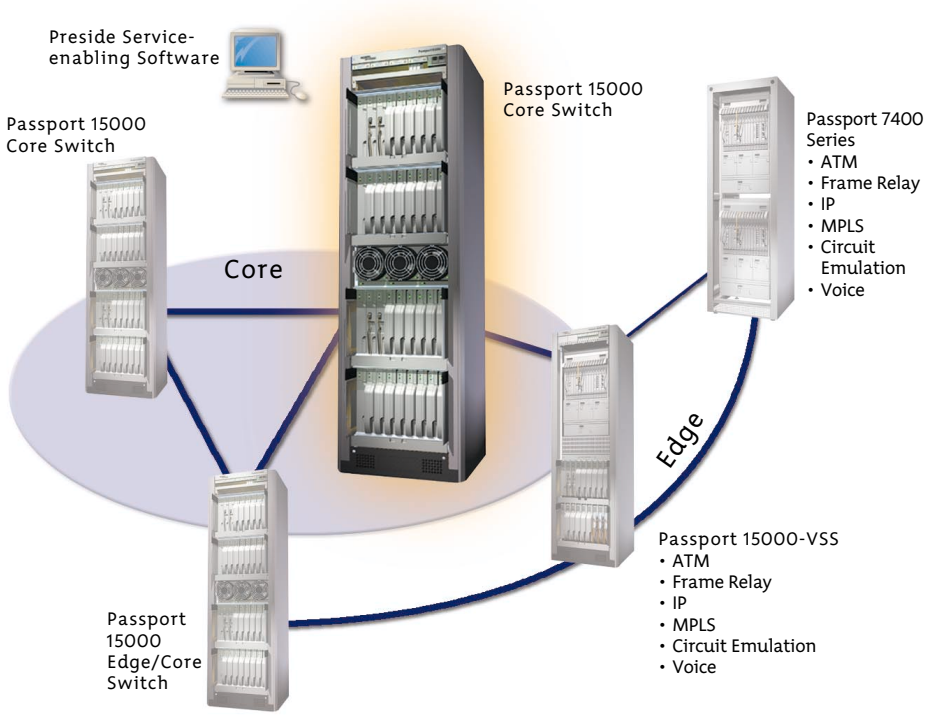
Versatility

Think of the possibilities... One platform to deploy ATM, frame relay, IP, MPLS, circuit emulation, and voice. One platform to serve as a multiservice edge switch or core backbone. One platform under the control of a powerful, integrated network management system.

Passport's versatile design also allows you to mix and match function processors to support all interface speeds from DS-0 to high-speed OC-48c/STM-16 with future evolution to OC-192/STM-64 Packet over SONET/SDH (POS). The Passport 15000 also provides the industry's most diverse array of both physical and logical interface connectivity to address numerous networking configurations.

Passport 15000 supports intelligent standards-based ATM networking including IISP, PNNI (private network-to-network interface), and Multi-Hierarchy PNNI. These networking capabilities offer interoperability and scalability, with proven quality of service (QoS), in a dynamic networking environment. PNNI intelligent networking provides lower operating costs through high network and link utilization via load balancing, fast rerouting, and route optimization features.

Passport 15000 also supports Multi-Protocol Label Switching (MPLS), which enables exceptional control over how traffic is routed across the network—whether it be policy-based, QoS-based, or defined by signaled traffic parameters. Passport 15000 is unique in its ability to support both CR-LDP or RSVP-TE.



The Passport 15000 is adaptable for both edge and core applications.

Reliability

Designed to meet the most stringent service provider requirements, the carrier-grade Passport 15000 protects service revenue and provides peace of mind through equipment protection, quick and accurate fault detection, robust networking features, and in-service software upgrades.

Passport 15000 offers high node availability through "hot-swappable" common equipment protection. In addition, a wide array of optional line and equipment protection redundancy schemes are available such as 1+1 (inter-card and intra-card) SONET APS/SDH MSP and 1:1 or 1:N redundancy for all electrical ATM, frame relay, and voice function processors.

Passport networking ensures cost-effective operations through intelligent features such as PNNI Edge-based Rerouting, and MPLS Hot Standby LSPs (label switched paths), which provide effective fault recovery and route optimization at all times. Passport also protects service revenue by eliminating one of the largest contributors to network and node downtime through support of hitless software migration. This support enables connections to be maintained during software upgrades.

Scalability

Passport 15000 lets you scale your network to support extreme growth—providing insurance against the uncertainties of the future while extending the value of today's systems.

A single Passport 15000 multiservice shelf supports up to 40 Gbps of user capacity. Scalability can be increased through higher speed interfaces and interworking with Nortel Networks innovative OPTera Packet Core up to 19.2 terabits and beyond.

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The Passport solutions portfolio

Packet Voice Gateway—Integrate packet voice and data traffic into the existing public network infrastructure, while simultaneously providing toll-quality voice and bandwidth savings.

Wireless data evolution—Evolve traditional wireless networks to high-touch, high-speed 3-G networks to address the rapidly growing demand for wireless data applications.

DSL aggregation and core ATM switching—Easily handle high-volume traffic while preserving multiple QoS levels for simultaneous applications on a carrier-grade network.

IP-VPN services—Take advantage of the burgeoning demand for network outsourcing service with Passport IP—the industry's leading solution for high margin, secure, policy-based IP-VPN services.

Private line and DCS replacement—Capitalize on the TDM-to-packet evolution by supporting Private Line Services over ATM and decreasing the dependency on digital cross-connect systems.

Layer-2 services—Capture your share of the rapidly growing frame relay and ATM service markets with the industry's most scalable switch.

Comprehensive network management

Nortel Networks industry-leading Preside network management and operational efficiency tools give service providers the power to create, implement, and manage high-value, in-demand, and revenue-generating applications.

With Preside Multiservice Data Manager, service providers can take advantage of comprehensive fault management, simplified end-to-end provisioning, and detailed configuration management for high-quality customer care.

Together with Management Data Provider, Preside Multiservice Data Manager delivers an extensive set of data for usage billing—enabling rigorous SLA reporting that enhances customer trust.

Passport 15000 is the industry's most versatile, reliable, and scalable multiservice switching platform—meeting the challenges of even the most volatile marketplace. Its powerful networking features and capabilities not only make it the ideal choice for today, but for tomorrow, too. It positions your business for data-centric, next-generation networks, simplifies your network, reduces operational costs, and unleashes new revenue opportunities.

Key technical specifications—services

ATM services
- SVCs, SPVPs, SPVCs, PVPs, and PVCs
- UNI 3.0, 3.1, 4.0 with interworking ILMI 4.0, AINI
- Point-to-multipoint (logical and spatial)
- Inverse multiplexing over ATM (IMA) *n x* DS-1/E1
- VPT (Virtual Path Termination)

ATM traffic management services

ATMF service categories (TM4.1)
- CBR, VBR (rt/nrt), UBR, ABR, GFR, UBR+

Shaping and UPC enhancements
- Dual leaky bucket traffic shaping (inverse UPC) and policing
- DGCRA, separate stats for GCRA1 and GCRA2 UPC violations

Congestion management
- EPD/PPD/LPD, W-RED (per connection, virtual circuits in virtual path)
- AAL5 auto detection

Advanced queuing and scheduling
- Eight quality-of-service classes per link/channel
- Per connection WFQ (weighted fair queuing) for each class

Circuit emulation services
- ATM CES 2.0 (AAL1), structured and unstructured
- DS-3 structured, channelized to the DS-0
- DS-1, structured and unstructured
- PVCs, SVCs, and SPVCs

IP services
- IP-VPNs for intranet service, VPN access
- IP class of service
- Routing protocols: OSPF, RIP v.1, 2, BGP-4
- IP-VPN over ATM or MPLS with CR-LDP and RSVP-TE
- IP accounting

Frame relay services
- FR UNI and NNI (FRF.1, FRF. 2)
- (ITU-T, ANSI, Frame Relay and Vendor Forum)
- Frame relay usage-based accounting and detailed statistics
- X.121 and E.164 addressing schemes
- PVCs and SVCs
- Closed user groups (CUGs), signaled per DLCI and per port
- SVC call redirection and huntgroups (FRF.4)
- FR-ATM service and network interworking (FRF.8 and FRF.5)
- Multilink Frame Relay (MLFR) (FRF.16)

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Voice transport services

- Toll-quality, ITU-T G.711 PCM, G.726 ADPCM or G.729 A/B CS-ACELP
- Silence suppression, comfort noise generation, and dynamic downspeeding
- Congestion management
- 56/64-kbps clear-channel fax and modem support
- ITU-T G.165 and G.168-compliant echo cancellation: ITU-T G.164 and G.165-compliant tone detection
- PRI signaling support (ANSI/ETSI), CAS signaling support

Networking services

ATM networking

- IISP, PNNI, AINI
- SPVCs and SPVPs across UNI, IISP, and PNNI interfaces
- PNNI-IMA interworking

Key technical specifications—physical

Interfaces

ATM UNI/NNI interfaces

- unchannelized—IMA (nxDS-1/nxE1), DS-3/E3, OC-3c/STM-1, OC-12c/STM-4, OC-48c/STM-16
- channelized—DS-3, OC-12c/STM-4, OC-48c/STM-16

Frame relay interfaces

- DS-3, DS-3ch, STM-1ch

IP interfaces

- DS-3, DS-3ch, STM-1ch
- IP over frame relay, IP over PPP, IP over ATM

Circuit emulation and voice interfaces

- DS-3, DS-3ch, DS-3ch TDM, OC-3/STM-1
- Structured and unstructured

Multiservice access interfaces

- Any service, any channel

Packaging

Standards compliance

- Telcordia GR-1089-CORE, GR63-CORE
- Safety: CSA C22.2 no. 950, EN 60950, UL 1950
- EMC: EN 55022/FCC Part 15B Class A
- Seismic: up to Zone 4

Dimensions

- 2125 mm x 600 mm x 600 mm (h x w x d) (83.66" x 23.62" x 23.62")
- ETSI/NEBS compliant

Smart cable management—Cable management guides and trays; rear cabling for power and alarms

Power—48 Vdc/-60 Vdc nominal voltage

Alarm Systems—Frame- and shelf-level Major, Minor, Power, and Fan alarms

Nortel Networks supplied cabinet or standard 23" ETA rack

NORTEL NETWORKS™

In the United States
Nortel Networks
4001 E. Chapel Hill-Nelson Hwy
P.O. Box 13010
Research Triangle Park,
North Carolina 27709

In Canada
Nortel Networks
8200 Dixie Road
Suite 100
Brampton, Ontario
Canada L6T 5P6

http://**www.nortelnetworks.com**

For more information, contact your Nortel Networks representative, or call 1-800-4 NORTEL or 1-800-466-7835 from anywhere in North America.

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