

Passport 7400 Multiservice Switch



Overview

Like the Passport 6400 Multiservice Switches, the Passport 7400 Multiservice Switches allow for the integration of LAN/WAN services into a single easily managed solution over leased lines, public/private frame relay or ATM. Passport 7400 also offers value-added functionality such as multiservice access technology that allows for the provisioning of multiple services on a single FP high density voice networking and voice transport. This makes Passport 7400 ideal for corporations with distributed call centres; MPLS, which allows for corporations to evolve to MPLS when and if it makes business sense; and enhanced virtual IP routing which allows for corporations to deploy scalable embedded IP routing over ATM with COS/quality of service (QoS) and/ or to deploy their own private network-based IP VPN for segregating traffic at layer 3 (by departments, ministries, network applications) over a shared infrastructure.

Ideal For

- Organisations looking for network consolidation of voice, video, LAN and data traffic over a common network infrastructure
- Enterprise sectors such as finance and insurance, utilities, transport, railways and air traffic control, police and emergency services, government networks and defence networks
- Organisations with mission critical applications that require virtually zero downtime
- Organisations with distributed call centres who are looking for a high quality packetized voice solution to save on facilities costs
- Large organisations/governments who are looking for layer 3 traffic segregation (by department, government ministry, network application), over a common infrastructure

Business Challenges

- Is cost control one of your top networking priorities?
- Are you currently running multiple services across multiple WAN links?
- Do you have a distributed network, either nationally or internationally?
- Is one of your largest concerns about network reliability?
- Do you have a private PBX network with tie lines?

- Is administering your PBX network one of your largest operational costs?
- Do you have a distributed call centre where reliable call handling is a must?
- Are you looking to save money in facilities costs?
- Are you looking for a solution that will optimise your bandwidth requirements?
- Are you a government body that would like to facilitate transactions and information sharing between departments and are looking for a private network-based IP VPN solution as a mechanism to do this?

Typical Applications

- Backbone switching solution for branch access
- Voice/fax networking for PBXs
- IP routing with COS/QoS
- Private network-based IP VPN services
- Layer 2 connectivity (eg ATM, FR) for existing data equipment/network
- Video conferencing
- Packet voice gateway (PVG)

Key Points

- **Bandwidth savings** – achieve bandwidth savings through dynamic bandwidth allocation, voice (8K) and data compression, silence suppression, fax demodulation and optimised LAN access protocols
- **QoS optimisation** – Passport supports multiple priority system (MPS) to allow dynamic traffic management based on application characteristics and QoS priorities
- **Network consolidation** – Passport 7400 provides consolidation for ATM, voice, fax, video, LAN and data services across a single network link
- **Scalability** – the high density MSA32 FP and the 4-port MVP FP provide scalable, flexible, cost-effective multiservice and voice solutions. Network-wide, Passport 7400 can support thousands of nodes
- **Low cost of operations** – Passport 7400 supports switched virtual circuits, avoiding a large number of provisioned connections and dynamically providing the best available traffic path
- **High voice quality** – Passport allows for TDM voice quality over ATM, supporting a wide range of signalling protocols, codecs, voice features and COS and priority queuing
- **Capacity** – Passport PVG converts conventional circuit-switched voice traffic to packet voice for Succession network evolution

Features and Benefits

Passport 7400	Key Features	Benefits
System networking	Redundancy	Redundancy available at CP, FP, system bus, fan unit and power supply to avoid single point failure
	Multiple priority system	Allocates bandwidth dynamically, reducing traffic congestion and delivering the least possible network latency, guaranteeing service level for all traffic
	M-PANL networking with PP4400	Inter-working with Passport 4400 for both data and voice services
ATM	SVC/PNNI/IISP support	Provides ease of configuration and management with reduced latency for voice and improved connectivity for LAN traffic
	Next generation ATM IP module	Dedicated ASIC to optimise IP performance over ATM
	Multi QoS ATM VPTs	Gives the ability to support multiple ATM VCCs with different QoS' in a single VPI. Can equate to reduced public ATM costs (only require buying one VPI rather than multiple VCCs for QoS)
Frame relay	RFC 1490 WAN PVC over frame relay protocol	Provides seamless inter-working between Passport 7400 and routers
	QoS-enabled for frame relay service	Supports QoS prioritisation (TP) for FR circuits over Passport network
	IP aware frame relay	Ability to prioritise IP traffic (based on the diffServ code point) within a single frame relay PVC/SVC

Passport 7400	Key Features	Benefits
	FRF.12 fragmentation	Fragments large data frames to eliminate "jitter" for voice packets being transported over a low speed frame relay link
Voice	Toll-quality voice (Clearvoice)	Support single-hop SVC for voice connection to deliver toll-quality voice at G.729
	FAX demodulation	Efficient consolidation of fax with other services reduces communication costs. Transmits faxes with only 9.6/14.4 Kbps instead of 64 Kbps
	A-law and Mu-law conversion	Inherently provides signalling conversion and avoids the need for external signalling equipment
	Echo cancellation	On-board echo cancellation with 64ms tail delay delivers superior voice quality and eliminates the need for external devices
	Support for both VoATM and VoIP with PVG	AAL2 channel multiplexing for greater networking efficiency. Option to deploy high density VoATM or VoIP
LAN	Virtual IP routing support: RIP, RIPv2, OSPF, BGP-4, EGP	Provides flexibility in building IP networks
Private network-based IP VPN	Quality of service (QoS)	Supports diffServ-compliant IP class of service
	Business grade IP VPN	Carrier-grade IP routing capabilities that provide non-stop service availability and IP data forwarding even in the event of equipment failure or switchovers
	High security	Operates as a set of separate, independent VRs so data from each VPN is kept separate from all other data flows
	Scalability	Scale to hundreds of VPNs per node with the introduction of the VPN extender cards
Scalability	32 Port MSA FP	A flexible card that supports a mix of services (ATM, frame relay, CES, IP) and greatly enhances the organisation's ability to adapt to growth in different services without having to deploy separate FPs and incur incremental costs to spare multiple FPs
	4 Port MVPe	A 4-port version of the existing 1 port MVPe which provides significant port density and cost improvements
	MPLS	Support for evolving MPLS standards to deliver significant traffic handling improvements in multiservice IP-based networks

Market Information

Other vendors position their products as multi-service WAN solutions suitable for enterprises. Upon close inspection, it is obvious that Passport 7400 systems are designed to more properly address enterprise requirements:

- The Passport 7400/4400 is the only integrated WAN/branch access solution available. Both voice and LAN traffic are properly terminated by both the 7400 and 4400 devices. By contrast, some vendor products only act as a pass-through device and have no ability to terminate LAN or voice traffic and cannot talk directly to it
 - Passport can establish up to 255 SVCs per permanent virtual connection (PVC) when communicating to a Passport 4400. Multiple PVCs are possible and a single 7400 can establish up to 4400 SVC connections to various PP4400s within a large network
 - Passport supports LAN interfaces with virtual IP routing. If LAN services are required, other products need to position external routers in the network to work with their products. This is a costly two-box solution that requires two separate network management systems
 - Passport offers an extremely broad range of interfaces from DS1/E1 to OC3 with a variety of fast Ethernet and serial interfaces
 - Passport modules can have individual lines configured for either trunk or line mode
- Passport's fully distributed network has no additional hardware forming added points of failure. Furthermore, the distributed nature of Passport voice networking permits the solution to be extremely scalable
 - With support of 24 or 30 channels per interface, Passport supports a full T1 or E1 on one card for all compression algorithms
 - With the addition of the new 4-port MVPe FP, a full 4 T1s or E1s can be deployed on one card – increasing the number of channels to 96 or 120 per card
 - Passport supports 2.5 call setups per-second, per-voice FP
 - Meridian 1 (M1) is one of the most common PBXs used today – Passport has added native Meridian customer defined networking (MCDN) support. With MCDN, Passport 7400 offers the extremely rich feature set of the M1 PBX. Supporting the feature natively ensures support for the MCDN features and eliminates overhead, delay and processing associated with the transmission of encapsulated protocols
 - Passport collects information to a hard disk (mirroring) drive on the on switch. It also has historical and real-time network performance statistics available

Ordering Information

For further information please contact your local Nortel Networks representative.