

Access Stack Node (ASN) Enterprise Router

ASN features and benefits

- Ensures network availability
- Enhances network performance
- Extends network connectivity
- Simplifies network administration
- Provides low cost of ownership



The Nortel Networks Access Stack Node (ASN) is a stackable router architecture providing cost-effective solutions for enterprise network centers. The ASN provides seamless integration of multiple ASN units stacked together and managed as a single router. Adding interfaces beyond a unit's capacity does not require replacing routers or adding complexity to the network. An ASN stack supports up to 200,000 packets per second with up to 48 network interfaces.

The ASN router supports all major network and bridging protocols, wide area services, and IBM standards. Its fault-resilient system software ensures high network availability. Its LAN and WAN interfaces meet connectivity needs for remote and campus offices, and its data compression co-processor provides compression over all WAN interfaces, reducing the number of circuits required to meet network bandwidth needs.

The ASN satisfies connectivity, performance, and availability requirements ranging from workgroup or remote site access to high performance, highly available network centers.

Benefits

Ensures network availability

The ASN operates the BayRS* suite of extensive, proven multiprotocol and IP services. The ASN maintains high availability through hardware and software fault isolation and recovery, and online dynamic reconfiguration. The ASN's hot-swap capability supports replacement of individual ASN units within a stack. ASN stack configurations also support the use of multiple PCMCIA Flash memory cards for redundant nonvolatile storage of system software. Flash partitioning provides file system redundancy for single ASN configurations.

Redundant LAN interfaces and router features, along with redundant power supplies, ensure continued network operation.

Enhances network performance

The ASN provides high-system performance up to 50,000 pps per ASN unit. A four-unit ASN stack supports forwarding performance up to 200,000 pps, with 512 megabits per second (Mbps) of bandwidth using dual network modules between ASNs. User-configurable DRAM and fast packet cache options optimize system memory requirements.

Extends network connectivity

The ASN provides a cost-effective, entry-level solution for network centers. The ASN's unique "stackable" architecture supports up to four ASNs (with up to 12 network interfaces per unit) which can interconnect many networks.

Simplifies network administration

An ASN stack of any size is managed as a single device in the network. As the ASN stack expands, the workload of network operations staff does not increase to support the router. The ASN requires only one software image and configuration file.

Provides low cost of ownership

The ASN reduces equipment costs with features such as high port densities and integrated MCT1, CSUs/DSUs. The ASN also supports large numbers of virtual circuits in a single node. Data compression further reduces the number of required circuits. ASNs allow multiple individual routers to be interconnected to create a single multi-processor router. This inherent scalability allows future needs to be addressed.

Flexible network environments

The ASN uses a highly scalable architecture, which provides cost-effective, growth-oriented solutions for enterprise network centers (see Figure 1). Typical applications and configurations include:

- Remote office
- Large offices consisting of several LANs, SNA/SDLC devices, or high-speed LANs
- Network centers with application servers and services supporting an extended enterprise network

Hardware features

High-performance processor

The ASN's processor module maintains high filtering and forwarding rates. The ASN's 8, 16, or 32 megabytes of DRAM is configurable to support buffers which prevent traffic overflow and network delays. The ASN's optional 256 KB Fast Packet Cache increases forwarding performance. The ASN supports a standard PC Type 2 flash memory card for non-volatile storage of the ASN's system software, configuration file, and event log. The flash can be locally divided into two partitions of equal size, or additional PC cards can be used to store backup copies of the software image and configuration file. The ASN's processor module has four interface module (net module) positions for cost-effective network connectivity.

LAN and serial interfaces

The ASN provides network connectivity via a selection of net modules (see Table 1).

Hardware-based data compression co-processor net module

The data compression co-processor net module offloads compression and decompression tasks from the main CPU. This module supports ISDN, PPP, and Frame Relay links, and is interoperable with hardware and software compression operating in other Nortel Networks routers (see Table 1).

Stack Packet Exchange Hot-Swap (SPEX-HS)

The SPEX-HS net module and cable combine to interconnect ASN base units together into a single router and allow any individual unit in an ASN stack to be removed from or added to the stack, without affecting the operation of the remaining units in the stack. The cable has four connectors and forms a bus interconnecting from two to four ASN units. Using an extra cable provides redundancy and higher bandwidth.

The SPEX-HS net module operates the interconnect bus at 256 Mbps. When two SPEX-HS cables are used, the effective speed of the SPEX-HS is 512 Mbps.

Packaging and power options

The ASN is available in a single power supply model with one 100 to 240 VAC power supply and in redundant power supply models supporting 100 to 240 VAC or -48 VDC power supplies.

Table 1: ASN technical specifications**Technical specifications**

Architecture	<ul style="list-style-type: none"> - Processor module based on Motorola 68040 microprocessor - Four net modules per processor module - Four-unit stack configuration via SPEX-HS - Symmetric, multiprocessor architecture with multiple units - 256 Mbps, processor interconnect with SPEX-HS - 512 Mbps, processor interconnect with two SPEX-HS - 32 Context, hardware compression co-processor net module - 128 Context, hardware compression co-processor net module 	
Connectivity	<ul style="list-style-type: none"> - Ethernet Interface (15-pin AUI connector or 8-pin modular) - Token Ring Interface (9-pin MAU connector) - FDDI (two MIC, one RJ-11 optical bypass) - Synchronous Interface (44- and 50-pin connector to RS-422, RS-232, V.35, X.21 adapter cable) - ISDN BRI and ISDN PRI - 100BASE-T Interface (40-pin MII connector or 8-pin modular) - MCT1 (RJ-48C, 15-pin, DB connector) - MCE1 (BNC, 75 ohm, 8-pin modular, 120 ohm) 	
Packaging redundant	Type Tabletop/Rack-Mount Dimensions (H x W x D) Weight AC voltage Wall receptacle	4.33 x 17.50 x 17.00 in. 10.99 x 44.45 x 43.18 cm 27 lb (12.30 kg) 100-240 VAC at 4.0 A max (50-60 Hz) NEMA 5-15R (100-240 VAC, for use in North America)
DC voltage requirements	Input voltage Input current Inrush current	-48 VDC 8.5 A max 60 A max
Environmental and regulatory	Altitude Humidity Temperature Safety RFI/EMI	0-8,000 ft (0-2,400 m) 20%-80% (noncondensing) 32°-104°F (0°-40°C) UL 1950, TUV EN60 950, CSA C22.2 #950 FCC Part 15 Class A, EN55022 Class A

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