product information

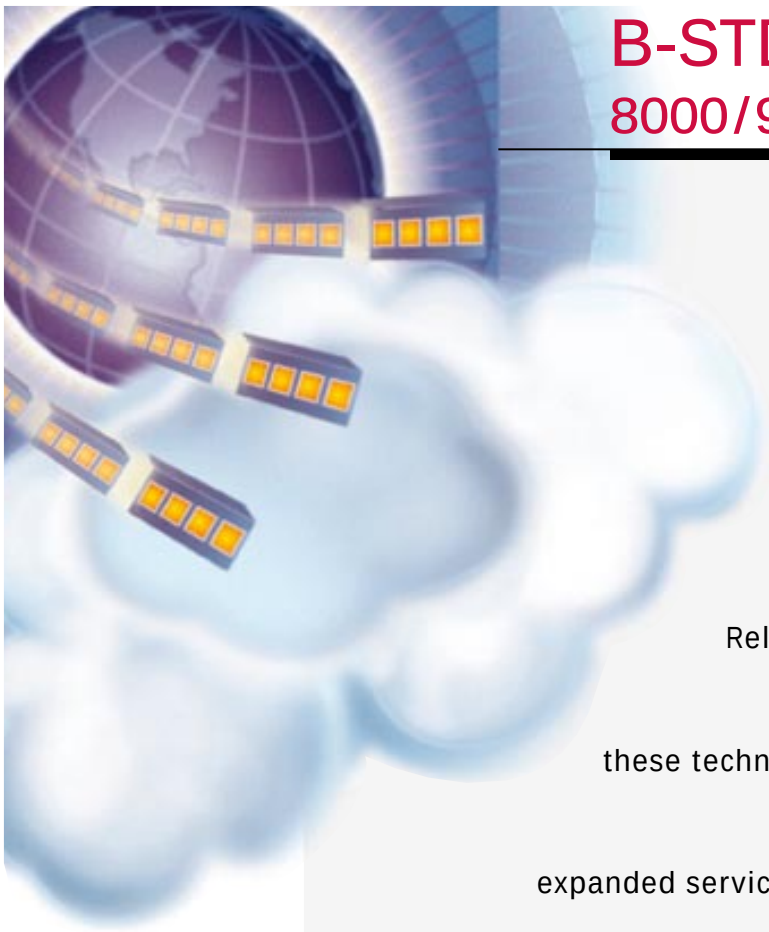
Ascend

B-STDX 8000/9000



Multiservice Frame Relay Switches

ASCEND



B-STDX

8000/9000 Multiservice Switches

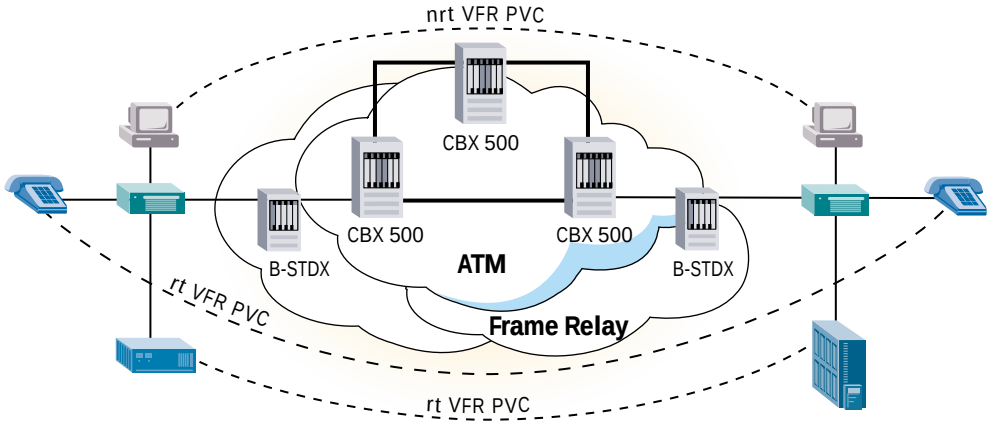
Service providers are building the New Public Network – a next generation, multiservice network combining Frame Relay, ATM and IP technologies. Together these technologies provide improved performance, expanded service capability and increased revenue opportunities. Frame Relay will be the transport for new, value-added services such as IP, voice and SNA while gracefully integrating with backbone cell technology. Helping service providers offer new, more profitable services across the hybrid network, is the Ascend B-STDX 8000 and 9000 family of multiservice switches.

B-STDX Applications

Advanced data services: SNA and voice

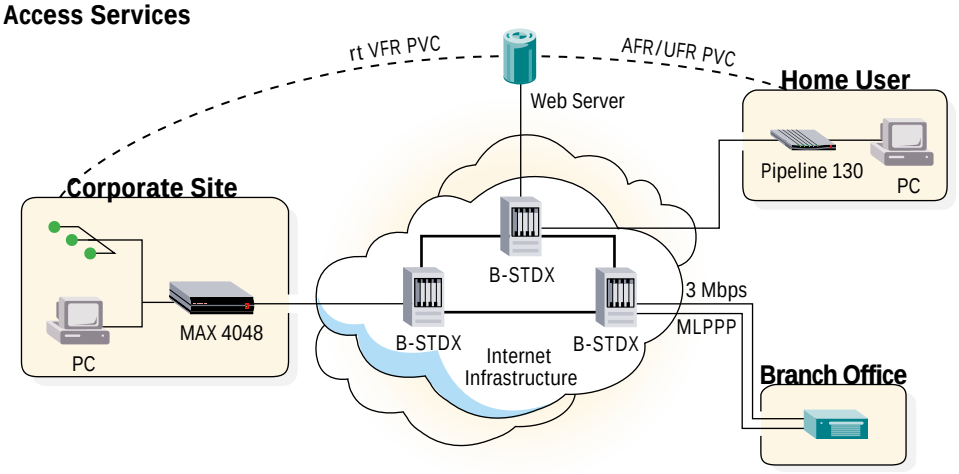
The B-STDX allows providers to give businesses with mission-critical applications new options for data transport without having to resort to expensive leased lines. The B-STDX's advanced architecture and Priority Frame guarantees ensure low-cost, high-throughput of a variety of delay-sensitive traffic classes. With Priority Frame, demand for SNA and voice can be easily and reliably satisfied with new rt-VFR services that offer predictable network delay.

Advanced Data Services



The B-STDX delivers SNA and voice services with quality guarantees.

Internet Access Services



The B-STDX is ideal for business-class and residential Internet services.

Internet Service Provisioning

B-STDX Priority Frame enables Internet Service Providers (ISPs) to deliver unique Internet services. With guaranteed levels of service, ISPs can offer high priority access to corporate users with a rt-VFR PVC and inexpensive AFR/UFR service to residential users. Multi-megabit Internet access can be offered with ML-PPP, which logically bundles multiple 56/64 Kbps or T1/E1 circuits for cost-effective, high-capacity access.

B-STDX Product Overview

B-STDX family delivers a portfolio of new services and capabilities

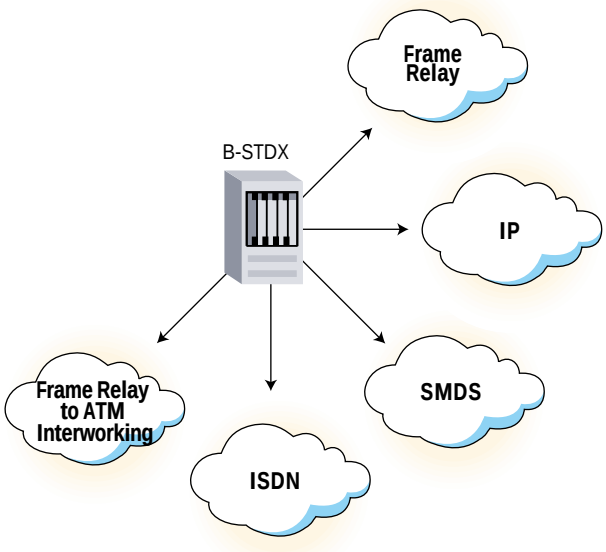
The B-STDX switches offer the industry's most advanced multiservice WAN platform providing new services and capabilities for demanding customers. Frame Relay, IP, ATM, SMDS and ISDN services are all seamlessly managed through Navis™, Ascend's strategic WAN management offering. The result is a dramatic expansion of the services portfolio from a single technology-based solution to a value-added–and more profitable–transport environment for multiple services.

- Carrier-class architecture provides high-performance data transport.
- Advanced Quality of Service (QoS) features deliver services never before possible with existing Frame Relay technology.
- Multiservice capacity allows service providers to offer their customers superior levels of voice, SNA, LAN interconnect video, intranet and Internet access services.
- IP Navigator switching software delivers a full range of integrated IP services.
- Multidimensional scaling provides industry-leading port, circuit, node and trunk counts.

From its inception, the B-STDX family of broadband packet switches was designed to support true hybrid networking for carrier-class services. The switches provide a flexible cost-effective multiservice WAN platform based on a 1.2 Gb/s backplane bus capable of supporting multiple services including Frame Relay, IP, ATM, SMDS and ISDN. With the highest port density in the industry, the B-STDX switches can build the largest, most sophisticated networks with speeds ranging from sub-DS0 to OC-3/STM-1.

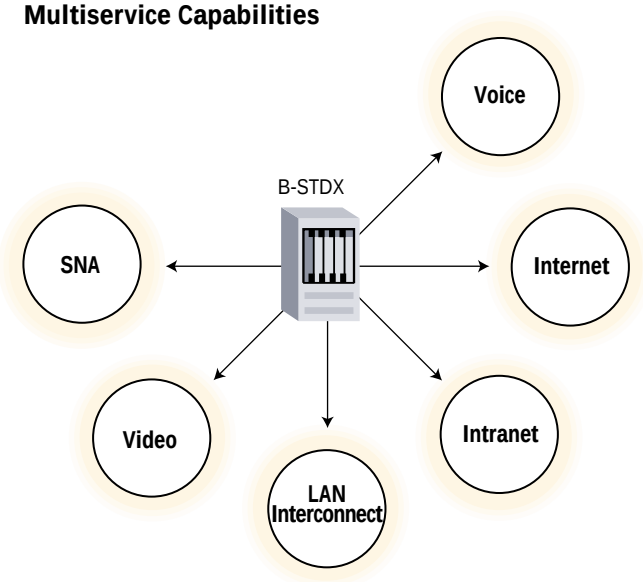
For large networks with high-bandwidth requirements, the B-STDX 9000 features 16 slots with multiservice support for interworking among broadband packet networks, including Frame Relay, IP, ATM, SMDS and ISDN. The B-STDX 8000 8-slot modular multiservice platform delivers the same service portfolio and performance advantages for low to medium density sites. The entire B-STDX family of switches and modules can be graphically displayed and monitored from the Navis network management system. Offering unsurpassed performance, scalability and reliability, and the industry's most comprehensive standards support, the B-STDX is the best solution for optimal performance in public carrier networks.

B-STDX Multiservice Support



The B-STDX offers integrated support for multiple technologies.

Service Expansion through Multiservice Capabilities



The B-STDX offers an extensive portfolio of services.

Presenting Priority Frame — services that let you stake a more profitable claim to Frame

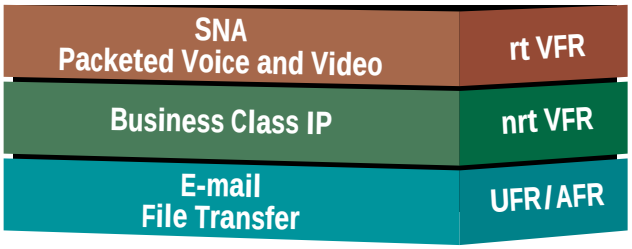
At the heart of the advanced services capabilities of these exceptional switch platforms is Ascend's Priority Frame technology. Priority Frame supports the introduction of delay-sensitive, mission-critical applications over Frame Relay technology by providing the QoS guarantees they need. At the same time, it preserves the simplicity, economy and familiarity of the existing Frame Relay infrastructure for maximum return on a minimal additional investment.

Leveraging our industry-leading ATM capabilities, Ascend has created a Frame Relay QoS solution that tightly integrates Frame and ATM technologies, allowing providers to deliver end-to-end performance guarantees. Priority Frame extends ATM-like QoS to Frame Relay, creating the following new Frame Relay service classes:

- Real-Time Variable Frame Rate (rt-VFR)
- Non-Real-Time Variable Frame Rate (nrt-VFR)
- Available Frame Rate/Unspecified Frame Rate (AFR/UFR)

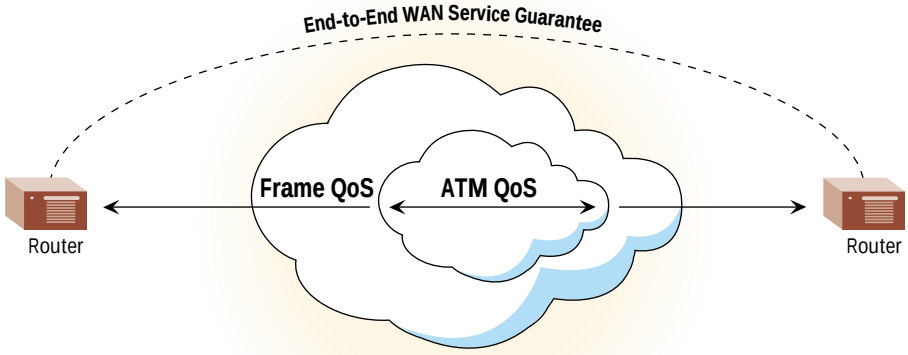
Through these classes, Priority Frame expands service options for providers, enabling differentiable, value-added services including mission-critical SNA, high-quality packetized voice, prioritized Internet access and LAN interconnect and real-time video. Ascend network management makes provisioning and delivering these classes of service simple through easy-to-use templates, dialog boxes and customer network management.

Expanding Service Offerings with Priority Frame



Priority Frame delivers a variety of service options.

Priority Frame



Priority Frame allows service providers to extend Quality of Service to Frame Relay.

B-STDX Benefits

Carrier-class solutions for Network Service Providers

Powerful architecture for service delivery

Ascend's standards-compliant hardware and software architecture sets a new benchmark in ease of implementation and management of diverse network technologies. Defining a better way to combine Frame Relay and ATM networks for seamless transmission of all classes of traffic, the B-STDX delivers scalable, high-performance operation.

Virtual Network Navigator provides quality-aware routing

Virtual Network Navigator (VNN), Ascend's enhanced version of the industry-standard OSPF algorithm, is the basis of the B-STDX switches' superior service delivery, providing seamless data transmission across complex networks. VNN establishes a network path supporting a virtual circuit's service class requirements based on the following:

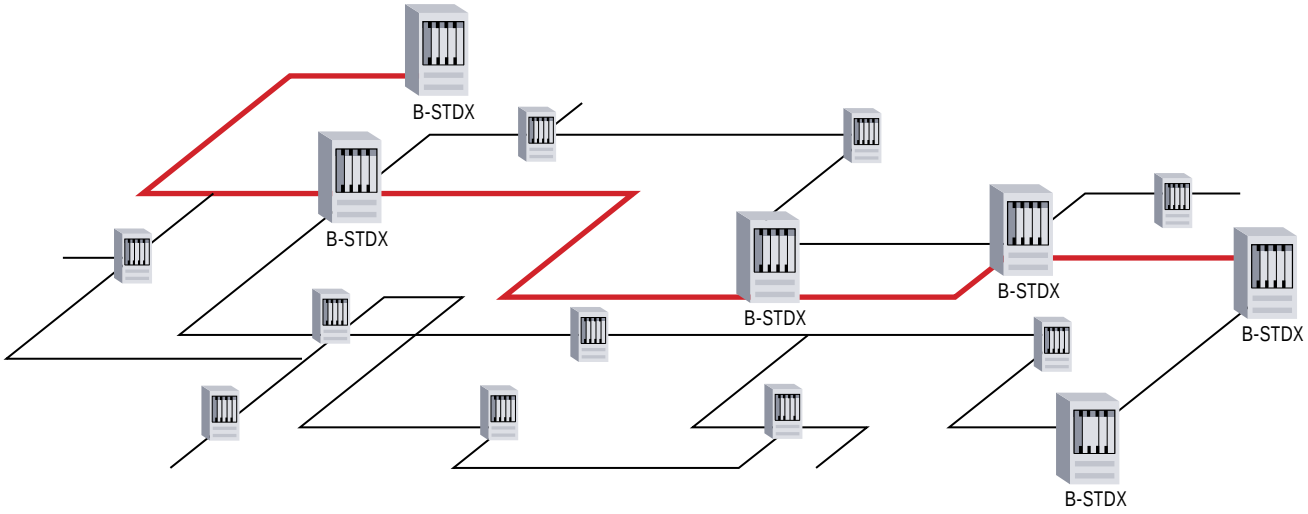
- Available bandwidth
- Network delay
- Buffer availability
- Administrative cost

This allows providers to offer services with different characteristics depending upon the application or customer requirement. With all services, VNN determines the optimum path to support the customer's level of service guarantees. The Ascend network management platform makes this superior VNN technology transparent, since operators simply point and click on endpoints and VNN automatically establishes the best route.

Scalable architecture simplifies service delivery across complex networks

VNN builds truly scalable networks, making it simple to deliver services across complex network topologies. It also builds a single unified routing domain across all services deployed in the network, including Frame Relay, IP and ATM. This integrated domain enables the construction of large feeder-to-backbone network topologies, making the Ascend family of products the best choice for building the New Public Network.

VNN: Solving the topology management challenge



The B-STDX allows for intelligent virtual circuit setup.

Meeting — and exceeding — your availability expectations

Carrier-class reliability guarantees SLAs

The B-STDX family incorporates a redundancy strategy designed to deliver the high availability that carriers require. A combination of switch, trunk and network redundancy capabilities allows providers to deliver service level agreements with very high availability levels.

Switch redundancy ensures maximum reliability

Each B-STDX platform offers fully-redundant, hot-swappable control processors, I/O modules, power supplies and fan modules—with automatic failover—for maximum network availability in mission-critical carrier environments.

Trunk and access link redundancy provides fault-tolerant services

To give providers cost-effective redundancy without dedicating bandwidth to backup paths, the B-STDX deploys ISDN fault-tolerant services. In case of a trunk or access failure, ISDN dial-up facilities can be used to restore service.

Network redundancy provides uninterrupted service

Powerful VNN rerouting capability automatically reroutes all circuits to an alternate backup path upon failure of the primary path. Providers are also able to designate high priority circuits that will be given reroute preference during congestion or link failure.

High-performance architecture supports growing networks

The Ascend B-STDX architecture creates new and better options in network design through its incorporation of leading edge hardware and shared software components. A powerful hardware architecture delivers scalable, high-performance packet switching for high-bandwidth transmission environments or for high port density configurations. Special hardware features deliver efficient allocation of processing power between packet processing and background chores.

Distributed switching and routing tables combine to create the industry's fastest routing decisions by avoiding a centralized approach to processing that can create bottlenecks and limit port and circuit counts.

- Distributed routing tables distribute OSPF or fast circuit setup and rerouting.
- Distributed switching allows the B-STDX to deploy processing power on each module for high-speed switching with minimal latency.



B-STDX Benefits

Superior scalability grows with your business

Scaling a network is a multi-dimensional problem.

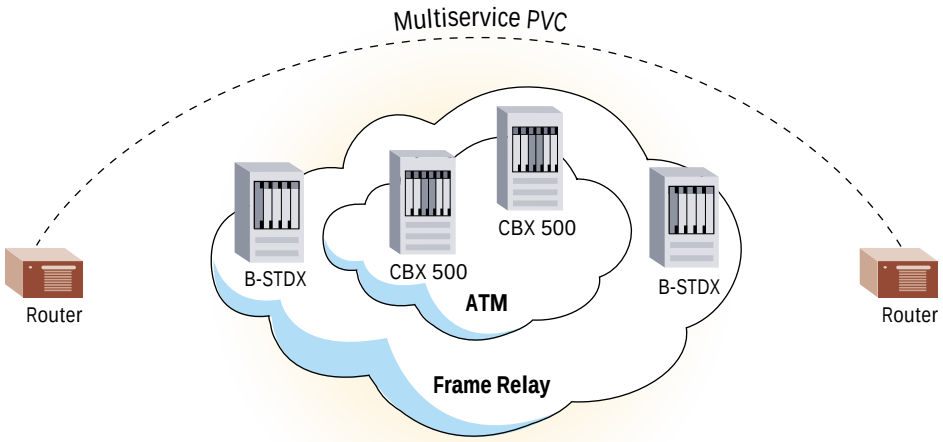
Efficient scaling is required in multiple areas including ports, circuits, nodes, trunks and speeds. The B-STDX family significantly extends the bounds of network scalability with new capabilities that provide a growth path for existing customer networks while improving overall performance. The B-STDX provides a superior platform in all categories, supporting some of the largest, most complex networks in the world within a single domain. Through functionality such as distributed OSPF and high performance processing power, the B-STDX allows networks to grow without performance degradation. The B-STDX can start small and grow as your business grows.

Standards-based implementation ensures robust connectivity

Connectivity for end-to-end networking continues to be refined by Ascend's efforts to define, adopt and implement all relevant standards for transparent network operation. The B-STDX multiservice switch family reflects the importance of that standards-based approach to network design. Ascend is a leader in the Frame Relay Forum (FRF) and will continue to provide innovative, interoperable solutions by implementing new standards first. Ascend continues to offer the most comprehensive support of FRF standards in the industry. In fact, Ascend was first in the industry with innovations including ATM Service Interworking and ATM Network Interworking, fault tolerant permanent virtual circuit, switched virtual circuits, Frame Relay multicast, and high-speed (45 Mbps) Frame Relay.



Frame-to-ATM Interworking Innovation



Integrated Frame Relay and ATM solutions support future growth.

A unified view of Frame to ATM Interworking

By fully integrating the B-STDX Frame Relay and CBX ATM platforms, Ascend has created the foundation for service providers to build the hybrid frame and cell New Public Network.

The B-STDX's Frame to ATM Interworking capability allows multiple Frame Relay access networks connected to an ATM backbone to communicate as a single domain. Ascend's industry-first, standards-based implementation of Frame Relay to ATM Service Interworking and Frame Relay to ATM Network Interworking ensures robust connectivity.

Frame Relay and ATM integration—easy migration to future growth

As the market for WAN services increases, service providers must scale their networks to keep pace with their customers' requirements. ATM technology allows them to scale the backbone infrastructure of the Frame Relay network to deliver increased network performance without equipment or service upgrades that could impact the ever-increasing number of customers. Ascend is an innovator in Frame Relay to ATM Interworking, providing the industry's first Service and Network Interworking solutions in 1994.

Frame Relay to ATM Network Interworking

Ascend's implementation of the Frame Relay to ATM Network Interworking standard (FRF.5) enables two Frame Relay devices or networks to communicate across an ATM backbone. This technology allows Frame Relay networks to use high-speed ATM as a transport for a Frame Relay Network-to-Network Interface.

Frame Relay to ATM Service Interworking

Ascend's implementation of the Frame Relay to ATM Service Interworking standard (FRF.8) allows a Frame Relay user device to connect to an ATM user device over a common WAN backbone, enabling seamless communication between ATM and Frame Relay network or end-user devices.

B-STDX Benefits

Point • Click • Done

Navis makes service provisioning simple

With Ascend's Navis network management solutions, provisioning of multi-service Frame, IP and ATM networks has never been easier. Using NavisCore point-and-click commands, network configuration is only a matter of selecting network endpoints via the network monitor. Or use order entry systems to automate network provisioning with the NavisXtend Provisioning Server. Navis delivers comprehensive management control for configuration, real-time and historical monitoring, educated fault handling and per call accounting to yield comprehensive network views and fine-tuning of network performance.

Ascend's Navis network management provides detailed real-time and historical statistics to show network health and utilization information. Navis collects this information from the B-STDX's Simple Network Management Protocol (SNMP) agent which supports Ascend Enterprise Management Information Base (MIB), standard MIB II and other MIBs required by the Frame Relay Forum and ATM Forum. All of this information is accessible to generate real-time reports for performance and billing, allowing you to deliver meaningful SLAs to your customers. In addition, network information can be shared with end customers via Navis' powerful CNM features.

Navis delivers the network management required for the WAN: powerful, scalable features that help you deploy new services faster and more profitably.

Navis Network Management



Leading carrier-class products deliver the solution

Simple, yet sophisticated, service-ready and standards-based, the Ascend B-STDX family of Frame Relay switches represents a formidable combination of performance, investment protection and profit potential. For future-proof solutions that create both higher levels of service satisfaction among customers and expanded business opportunities for service providers, the B-STDX family is the path for business growth with margin protection.

The Navis product family

Both NavisCore™ and NavisXtend™ applications can be used to manage the Ascend WAN switch families.

- NavisCore operates in conjunction with HP OpenView to provide multiservice IP, Frame Relay, ATM and SMDS configuration and management of Ascend core switches from a single hardware platform.
- The NavisXtend family of applications extends the capabilities of NavisCore to align network management with the service providers' management and business infrastructure to reduce costs and enable new service offerings. Examples include, automation of provisioning tasks, enhanced statistics gathering and SQL storage and intelligent fault handling.

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Ascend Communications, Inc. develops, manufactures and sells wide area networking solutions for telecommunications carriers, Internet service providers, and corporate customers worldwide. For more information about Ascend and its products, please visit the Ascend Web site at http://www.ascend.com, or e-mail info@ascend.com.

Ascend markets the B-STDX, CBX, GRF, GX, IP, MAX, Multiband, MultiDSL, Navis, Pipeline, SA, SecureConnect and STDX families of products. Ascend products are available in more than 40 countries worldwide.

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