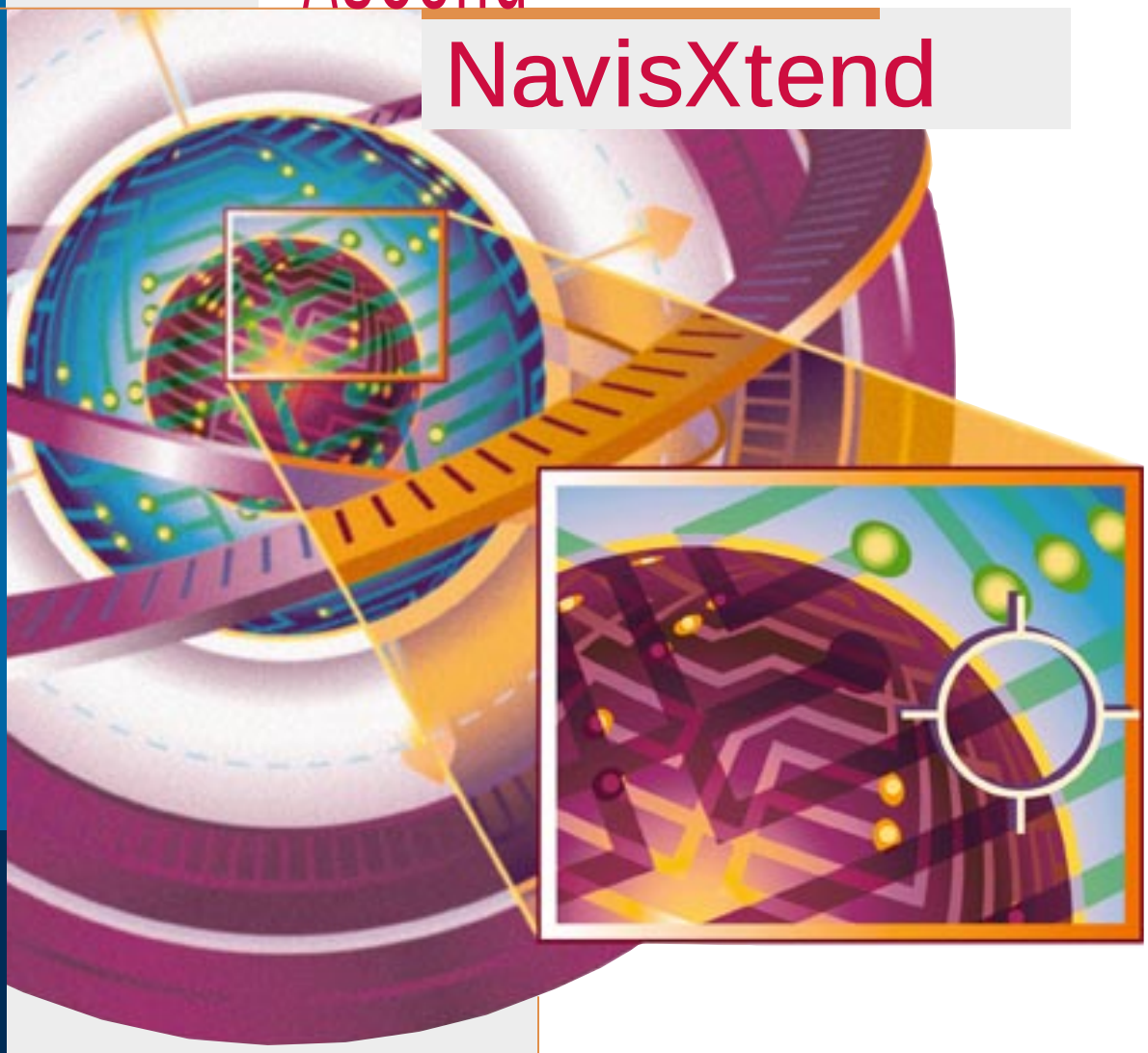
product information

Ascend NavisXtend



NavisXtend empowers service providers with the network management capabilities required to surmount the challenges of global management, new service demands and cost pressures.

Service Providers

IXCs ▾ PTTs ▾ RBOCs ▾ ISPs ▾ LECs ▾ CLECs ▾ CAPs

The NavisXtend™ suite of network management applications provides complete standards-based management of an Ascend IP, Frame Relay, ATM and SMDS backbone network, from end to end, with unprecedented management control. Its scalable and distributed architecture supports hundreds of operators in diverse regions with economical Web-based access. All NavisXtend applications use standards-based Application Programming Interfaces (APIs) to provide flexible interfacing with third-party applications and existing management infrastructure. NavisXtend applications are designed for the competitive telecom market to help service providers reduce operational costs, while deploying profitable new services.

The NavisXtend architecture extends the functionality of existing NavisCore™ and HP OpenView environments. NavisXtend cost-effectively distributes operator access, opens programming interfaces to integrate—not replace—existing OSS systems, and divides network management tasks into discrete functional components that align with specific business operations. And, NavisXtend functions map directly to Telecommunications Management Network (TMN) layers to support a standards-based approach to management. The NavisXtend software products are ideal for complex service provider networks performing multiple operations across regionally, nationally, or globally distributed areas.

ASCEND

Network Management Applications for Service Providers

The NavisXtend family consists of six functionally discrete applications.

Automatically Configures Trunks, Ports, and Circuits

The Provisioning Server application completely automates network provisioning tasks to speed the delivery of new services and reduce daily operating costs. With standards-based API support, service providers can use their existing order entry systems to configure their Ascend IP, Frame Relay, SMDS or ATM network. Provisioning Server automates management tasks and dramatically reduces provisioning overhead, while it speeds circuit setup times. This increases network operations center productivity and allows service providers to deploy new circuits quickly and efficiently. Any Ascend B-STDX 8000/9000, STDX 6000, CBX 500 network can be configured via a Web-based Graphical User Interface (GUI), C/C++ API, SNMP, or Command Line Interface (CLI). Automated, geographically-dispersed network provisioning tasks and batch processing for timed configurations further reduce operating costs.

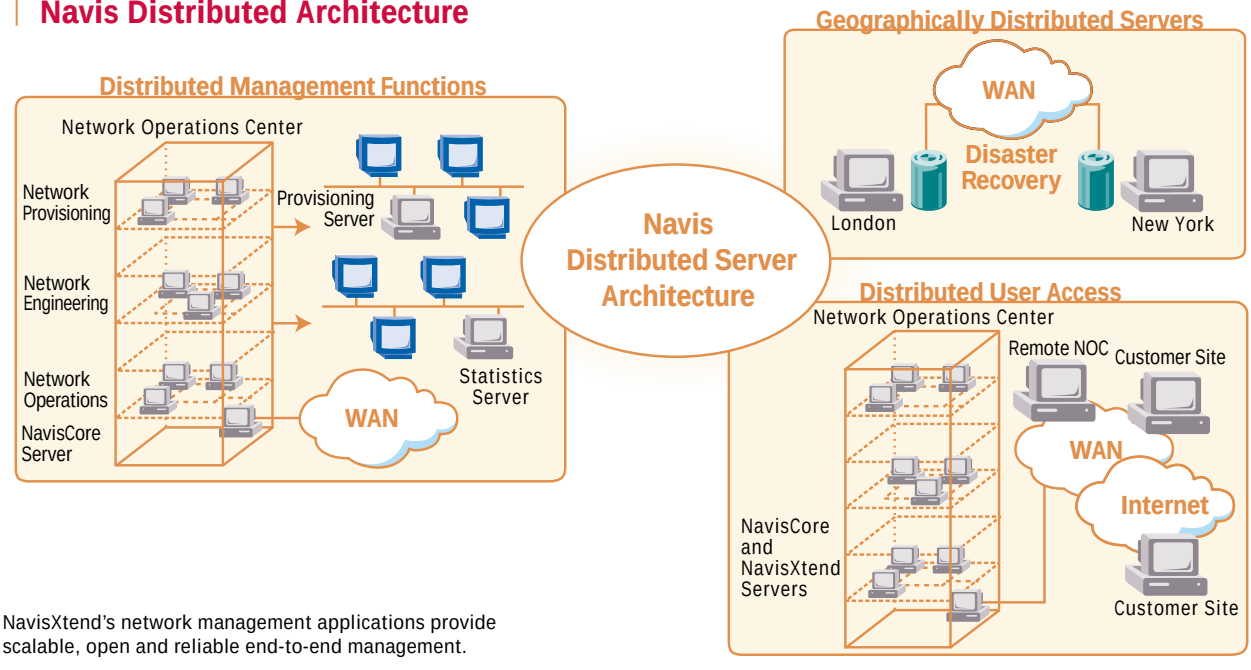
The powerful NavisXtend distributed client/server architecture allows service providers to support hundreds of provisioning operators in dispersed locations. Operator "clients" can access the Provisioning Server application directly from their PC/UNIX station with any standard Web browser (such as Netscape or Explorer), SNMP MIB browsers, or the CLI.

Allows for Innovative Customer Billing Plans

The Accounting Server application collects ATM Switched Virtual Circuit (SVC) and Permanent Virtual Circuit (PVC) information on a per-call basis so service providers can offer new, competitive data call plans and precise performance information on a per-call, real-time basis to their customer accounts.

The Accounting Server application, in conjunction with software on the CBX 500 switches, measures billable data traffic being passed through the network. Cell counts for each call are efficiently measured at only the egress or ingress of the PVC/SVC, minimizing the impact of accounting on the network as a whole. The records can be kept at a per-switch, per-port, or per-circuit level, depending upon the billing requirements. The Accounting Server application correlates multiple records pertaining to the same call to present concise data, formats the data in either ASCII or BAF, and forwards the data to the service provider account billing system for generation of invoices or performance reports. This allows service providers to deliver new flexible billing plans that meet their customers' business demands.

Navis Distributed Architecture



NavisXtend's network management applications provide scalable, open and reliable end-to-end management.

Enables Customized Reports on Network Operations

The Statistics Server application collects real-time information on network performance and utilization. The Report Generator application displays the results in tables and graphs to let service providers and their customers obtain customized reports and gain real-time access to statistical information. Service providers can extend their understanding and analysis of network operations to proactively plan for network growth and uncover emerging network problems before service is affected. Service providers can also deliver tangible proof of service and Quality of Service (QoS) levels to their customers, supporting the rollout of QoS-based services and the generation of increased revenues.

The Statistics Server application supports intelligent processing of the statistical information, presenting cumulative totals, delta changes, or maximum values to the operator. It efficiently gathers network statistics to minimize the bandwidth impact of statistics collection. One or multiple Statistics Servers can examine a network. Statistics Server allows configuration of poll times (from five minutes to one hour) and output values (ASCII or Sybase data). The service provider can upload the information into a higher level management system to standardize reports in a multivendor environment or to fit an existing TMN architecture.

Provides Intelligent Fault Management for Busy Service Provider Networks

The Fault Server application intelligently manages network fault information. It passes the faults or events through a number of rules-based processes to focus operators on service-affecting faults and provide the most pertinent and concise trap information. Using powerful client/server, Web, and IP technologies, it cost-effectively distributes fault management tasks and scales network performance.

The NavisXtend Fault Server software application intelligently distills the flood of SNMP event information found in busy, complex service provider networks into a concise, meaningful representation of network status. The application enhances fault management capabilities by consolidating, correlating and prioritizing incoming network events to enable service provider operators to quickly identify and respond to network issues.

A threshold event can generate an alarm, multiple events can be consolidated into a single alarm, or multiple events can be sent through as multiple alarms with varying severity levels. All corresponding base events are stored in a Sybase relational database so all information is available for analysis and report generation. This allows operators to use Standard Query Language (SQL) to sort alarms and to perform complex queries with multiple levels of granularity.

Ensures Support for Disaster Recovery Plans

The NavisXtend Standby Server software application provides complete redundancy for critical network management data created by NavisCore to maximize network uptime on IP, Frame Relay, SMDS, and ATM networks. The Standby Server application protects the valuable data assets to allow service providers to rely on continuous network operations. This high level of data integrity allows service providers to implement internal disaster recovery plans via data backup over the WAN, to offer new “disaster” services to their customer base and to provide high-uptime Service Level Agreements (SLAs).

The Standby Server application delivers network management data from a primary Network Management Station (NMS) to a standby NMS to ensure that backup data is in place in case of primary site failure. Databases are kept tightly synchronized, minimizing data loss in the event of primary site failure. In case of primary site, network, or host failure, the secondary NMS is prepared for immediate action.

NavisXtend's Strategic Benefits

Delivers Customized Services to Increase Revenue

The Customer Network Management (CNM) Server application works with the service provider CNM gateway to let service providers offer partitioned views of Ascend Frame Relay networks to their customers. This allows service providers to offer tangible proof of network performance in support of their QoS and SLA agreements. This application also enables service providers to deliver new services to their customers such as real-time status viewing, configuration checking and fault forwarding.

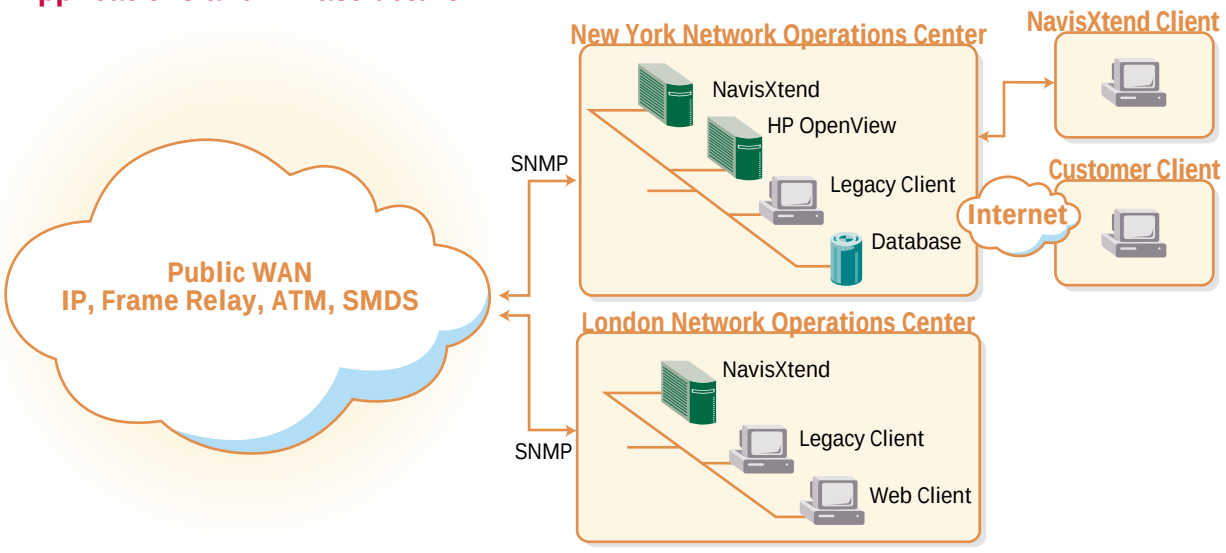
The CNM Server application has a standards-based SNMP interface with full support for the FRF.6 CNM Implementation Agreement. It receives incoming SNMP requests from the gateway and responds with the appropriate data either by querying a local database or the Ascend switches. The CNM Server has an independent Sybase database to cache a local copy of network information. This greatly enhances response times for customer requests, while securing the operational database by isolating it from customer queries.

The CNM Server makes intelligent decisions regarding data fulfillment: static data is processed from the local cache, while real-time requests are retrieved from the switch network. The CNM Server also implements a multithreaded architecture to take full advantage of multi-CPU network management hosts for service providers who need to support hundreds of CNM customer requests per second.

The NavisXtend applications are designed with both business and operations in mind; they are focused on helping service providers deliver profitable, competitive, new services to their customers. They also help increase profit margins and new service potential. Through adherence to standards, NavisXtend eases integration with the existing management infrastructure. With NavisXtend, network management becomes a strategic business tool, providing:

- Scalability capable of supporting hundreds of operators located in varying regions with cost-effective Web-based access to expand management reach to operators, internal managers, and end users
- Open standards-based adherence for seamless integration into existing management infrastructure to automate and streamline operations and improve efficiency
- End-to-end configuration and control for all services from one application set to ease configuration management and service control
- High levels of reliability and security to strengthen the integrity of the data network information
- New opportunities to enable, revenue generating services with a flexible, distributed architecture and increased customer access

NavisXtend's Compatibility with Existing Applications and Infrastructure



All of NavisXtend's applications use standards-based APIs to provide the ultimate flexibility for interfacing with third-party applications and the existing management infrastructure.

Network Management Solutions for Network Service Providers

Integration reduces costs and streamlines operations

Ascend recognizes that recurring operational costs represent the largest network expenditure. NavisXtend reduces operating costs by integrating multiservice, multidevice control with existing management infrastructures to streamline day-to-day operations.

- Custom engineering and consulting services to help integrate NavisXtend components with existing systems to meet specific service provider requirements
- Open standards-based APIs that interface to existing management OSS infrastructures
- Multiservice IP, ATM, Frame Relay and SMDS control from a simple platform

Scalable client/server design satisfies tomorrow's network and customer demands

NavisXtend expands the boundaries of earlier monolithic applications with a completely distributed client/server architecture that makes use of Web, Java and IP access technologies. This scalability supports even the most demanding service providers' networks with hundreds of switches, tens of thousands of PVCs or SVCs, and thousands of simultaneous operators and end users. Management investment is protected even as infrastructure expands.

- Single CPU platform management of smaller service provider networks
- Multiple dispersed CPUs to meet the performance demands of larger networks
- Distributed management access for global location of operators at multiple global sites
- Network management applications co-located with their associated business operations
- Competitive service and offerings to customers on a regional, national, or global basis

Flexible architecture supports a wide range of innovative services

With worldwide competition service providers must deliver innovative services to their customer base quickly and profitably. The flexibility of the NavisXtend architecture lets them offer service plans across a range of transport technologies. End users get the networking tools they need to run their businesses; service providers get ubiquitous service provisioning, control and reporting.

Ascend offers custom network management programming and consulting services to enhance service metrics and speed deployment. NavisXtend applications can be tailored for the service provider environment with projects, such as interface development to support legacy systems, creation of new reporting systems to measure SLA parameters, or complete design of complex CNM services.

Delivery of new services will provide revenues and competitive differentiation, such as:

- Network-View Service—Customers can view their own network operation, gathering statistics and viewing network response time.
- QoS-View Service—Service providers can show customers the throughput of their portion of the network, on a daily, weekly or monthly basis.
- Capacity-Sell Service—Opportunities for proactive monitoring and servicing of customer accounts based on monthly or seasonal traffic volumes.
- Uptime Guarantee—Intelligent gathering of network usage statistics points out problems before they cause outages, while intelligent highlighting of network events leads technicians to immediate corrective action.

Network Management Business Tools for Service Provider Networks

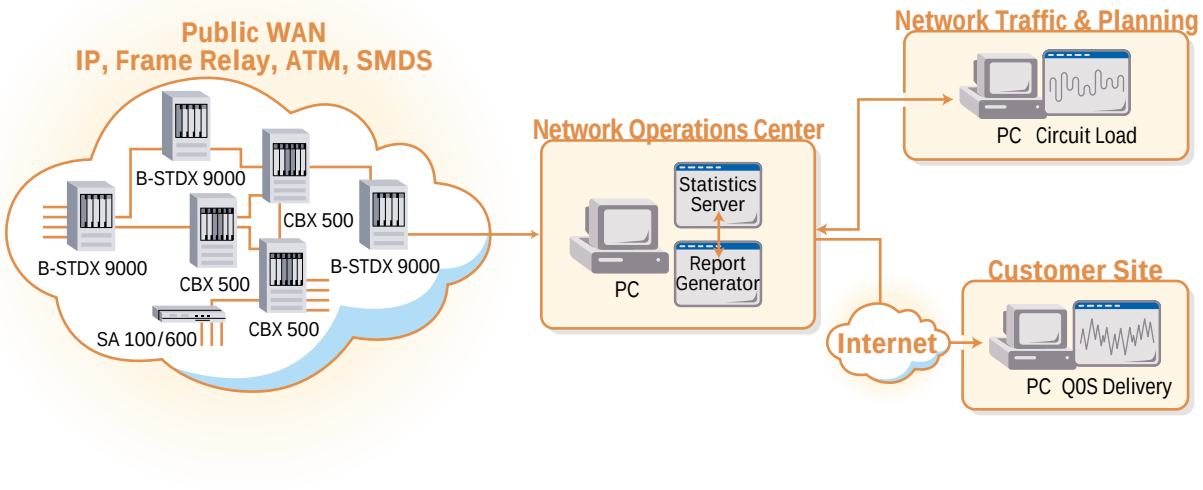
NavisXtend is management for the business of networking.

As IP, ATM, Frame Relay and SMDS service deployment moves forward, NavisXtend is the only network management system that reliably scales with network growth and provides the open approach to management to let service providers focus on the business of networking. Ascend, the leader in service provider backbone networking with its IP, Frame Relay, ATM and SMDS wide area network switches, delivers NavisXtend, powerful management ready for the business of networking.

NavisCore

NavisCore is an HP OpenView application tailored for configuration and centralized control of the Ascend core switches. NavisCore is the first network management software to support multiservice (IP, Frame Relay, ATM and SMDS) management from a single platform.

Assessing Network Operations with NavisXtend Applications



NavisXtend applications are discrete components that can be combined on a single CPU platform to manage smaller service provider networks or dispersed across multiple CPUs to meet the performance demands of larger networks.

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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, IP, MAX, Multiband, MultiDSL, Navis, Pipeline, SA, SecureConnect and STDX families of products. Ascend products are available in more than 30 countries worldwide.

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NavisXtend Servers

The NavisXtend family includes the following servers:

Accounting Server	Collects Switched Virtual Circuit (SVC) and Permanent Virtual Circuit (PVC) call detail that can be used to generate customer invoices
Customer Network Management Server	Allows service providers to offer managed data services with customer viewing
Fault Server	Intelligently correlates and consolidates network event and alarm information to quickly identify network problems
Provisioning Server	Reduces configuration steps by automating the provisioning of cards, ports and circuits
Standby Server	Allows warm standby of primary network management database to increase the level of data availability in the event of an outage to the primary site
Statistics Server and Report Generator	Collects network statistics and generates graphical reports that are easily understood by end users

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ISO 9001 REGISTERED