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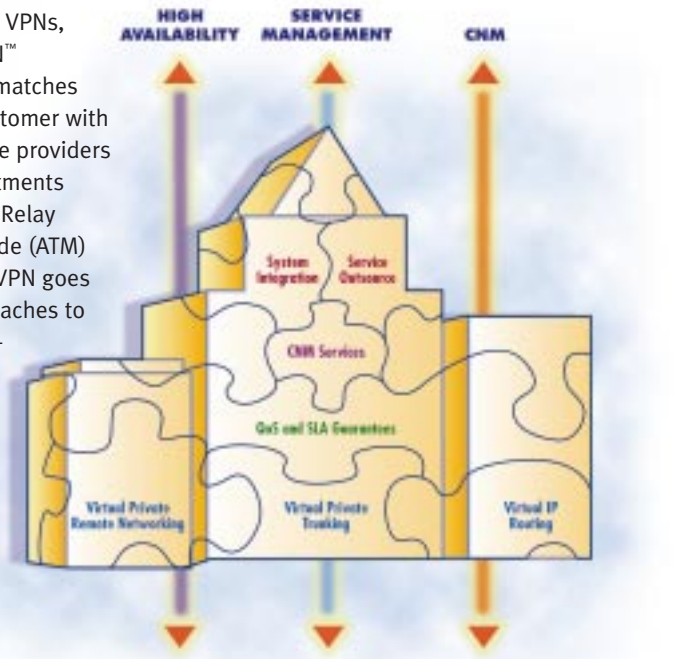
Ascend's Newsletter for Service Provider Partners

Global Vision

VPNs: Beyond the Internet

Virtual Private Networks, or VPNs, present service providers with unprecedented opportunities to create highly differentiated and profitable value-added services for their enterprise customers. According to Michael Howard, CEO and co-founder of Infonetics Research (San Jose, CA), "VPNs are a stepping stone toward the day that private data networks will essentially be a utility offered by service providers." But widespread migration to VPNs has not yet occurred in the enterprise, in large part because of the niche focus of many VPN solutions.

To eliminate this gap between market potential and market reality for VPNs, Ascend introduced its MultiVPN™ strategy this spring. MultiVPN matches the needs of the enterprise customer with VPN solutions that allow service providers to leverage their existing investments in Internet Protocol (IP), Frame Relay and Asynchronous Transfer Mode (ATM) technology and services. MultiVPN goes beyond the conventional approaches to VPNs – tunneling and firewalls – to enable "whole-product" VPN solutions that combine data security and integrity (the privacy aspect of VPNs) with high network availability, Quality of Service (QoS) and network and service management. The result is a solution that for the first time enables service providers to profitably deploy managed VPN services.



Ascend's MultiVPN Solution

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Three-Pronged Strategy Satisfies Multiple Needs

The first strategy with a combined provider/subscriber approach to VPNs, MultiVPN has three components:

- It defines three VPN architectures to provide a comprehensive and flexible foundation for configuring, operating and managing VPNs.
- In doing so, it addresses the fundamental concerns organizations have regarding enterprise-wide VPNs: security, compatibility, availability and manageability.
- It satisfies the operational needs of service providers that maintain the infrastructure required to deliver managed VPN services.

The three VPN architectures that form the basis of the MultiVPN strategy are Virtual Private Remote Networking (VPRN), Virtual Private Trunking (VPT) and Virtual IP Routing (VIPR).

VPRN provides enterprise customers with multiple tunneling options for transporting private corporate traffic over public networks like the Internet. Tunneling options like encryption along with firewalls, give enterprises secure access connectivity, without compromising application compatibility.

> *"VPNs are a stepping stone toward the day that private data networks will essentially be a utility offered by service providers."*
>
> – Michael Howard, CEO and co-founder, Infonetics Research

Ascend's VPT architecture lets service providers take advantage of Frame Relay and ATM service to create VPN configurations at highly attractive price/performance points. Using Ascend's Frame Relay and ATM multiservice switches, VPT assures service availability and optimizes trunk bandwidth to ensure high performance even during periods of heavy congestion.

The third prong of the MultiVPN strategy, VIPR, extends private route tables and address spaces from the enterprise into the service provider's routing/switching infrastructure – seamlessly and securely. Using secure partitioning, VIPR creates virtual routing environments for each enterprise subscriber and uses IP Navigator functionality to deliver QoS. *(See the related story on IP VPN, page 6.)*

The combination is a win-win for both the enterprise and the service provider. "Through our MultiVPN strategy, we are enabling the enterprise to build VPNs with best-of-breed IP, ATM and Frame Relay solutions as well as enabling the service provider to deliver VPN services with assured compatibility and availability," said Kurt Bauer, vice president of access product management for Ascend.



Manageable VPN Reliability

According to Howard of Infonetics, "[Enterprises] expect that VPNs will give them more reliable site-to-site networks than they are currently themselves providing." MultiVPN provides service providers with the tools for satisfying this expectation for high availability networks. The high performance and inherent redundancy of Ascend's carrier-class switching, routing and access systems



Reed Hundt Joins Ascend Board

This summer, Ascend welcomed former Federal Communications Commission (FCC) Chairman Reed E. Hundt to its board of directors. Hundt is a well-known figure to readers of Global Access, having chaired the FCC during the implementation of the Telecommunications Act of 1996, which dramatically changed the competitive landscape for service providers. Hundt also helped negotiate the World Trade Organization Telecommunications agreement, which expanded the telecom market by 69 countries and eliminated barriers to foreign telecom investment. Currently Hundt is co-chairman of The Forum on Communications and Society at the Aspen Institute and is a principal of Charles Ross Partners, LLC, a firm based in Bethesda, Md., providing consulting and investment advice on telecommunications. According to Ascend President and CEO Mory Ejabat, "Reed is a true visionary in this industry, having led the effort to free up telecom competition that is today yielding benefits for individuals and businesses across the US and abroad. We expect he will make a significant contribution to the company."

allow service providers who support MultiVPN to offer QoS and Service Level Agreement (SLA) guarantees.

In addition, MultiVPN supports the service provider's cornerstone for delivering reliable outsourced VPN services and end-to-end manageability. Today, service provider management extends only to the WAN access point, where enterprise management takes over. Ascend's Navis™ network and service management solution eliminates this "separation of powers" with advanced capabilities that permit provider and subscriber systems to work in concert to manage the entire private/public VPN end-to-end.

As a final level of assurance, Ascend's Customer Network Management (CNM) system lets an enterprise subscriber monitor, reconfigure, troubleshoot and manage any or all of its VPN, including its portion of the public network infrastructure. CNM lets service providers share VPN-specific network information with their enterprise customers 24 hours a day. *(See the related story on Ascend's CNM Gateway, page 4.)*

From Concept to Commercial Reality

"Ascend is redefining VPNs to move beyond conventional tunneling with comprehensive solutions that are being widely embraced by service providers and enterprises," says Deb Mielke, senior broadband consultant at TeleChoice, Inc. (Verona, NJ). With its flexible provider/subscriber framework, robust technology, and unequaled service and management capabilities, Ascend is making virtual private networking a cost-effective, reliable WAN solution for enterprises and a viable commercial business for service providers. •

Events Calendar

Promoting, Packaging & Provisioning Secure and Cost Effective Virtual Private Networks

September 17-18
Hotel Monaco
San Francisco, CA

This high-level, two-day conference given by the Institute for International Research will explore leading-edge issues for service providers: packaging services, provisioning solutions, Service Level Agreements (SLAs), Quality of Service (QoS), winning the corporate customer, security issues and more. To register, call (888) 670-8200 in the US.



Ascend's MultiVPN strategy smoothes the road to the profitable deployment of managed Virtual Private Network (VPN) solutions for enterprise customers. MultiVPN lets customers create solutions that leverage their existing investment in Internet Protocol (IP), Frame Relay and Asynchronous Transfer Mode (ATM) technology and services.

Sharing Network Information with Others

As the market for Internet Protocol (IP)-based network services matures, enterprise customers want more information about and control over the services they are paying for. Ascend is helping meet this demand with a new Navis network management software application. Now, for the first time, Service Providers (SPs) have a scalable, secure, cost-effective way to share information about network operations with their enterprise customers, carrier partners and internal employees.

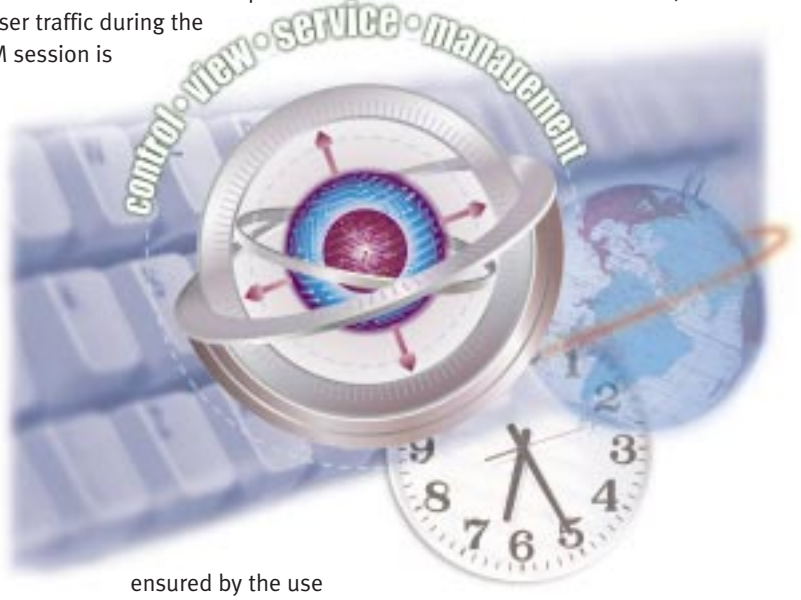
> *"With Ascend's Navis CNM Gateway, service providers are getting commercially viable tools they can use to provide real CNM services to their customers."*
>
> — Deb Mielke, Senior Broadband Consultant, TeleChoice, Inc.

The new Navis Customer Network Management (CNM) Gateway is a turn-key solution that lets customers easily view and control their Virtual Private Networks (VPNs) from their desktops, 24 hours a day.

Providers Define Service

The Navis CNM Gateway has a simple point-and-click interface that lets service providers define different levels of CNM services and set different levels of privileges for subscriber access. Customers can both view and control access to network configuration information, performance, fault statistics, real-time monitoring and historical reporting information for Ascend Frame Relay, Asynchronous Transfer Mode (ATM), IP, Switched Multimegabit Data Service (SMDS), dedicated and dial networks. Customers can even change the operational parameters of their VPNs to meet real-time network demands.

As a member of Ascend's Navis family, Navis CNM Gateway can leverage all the information gathered by other Navis applications. Network information is partitioned so users can see only their private portion of the public network. Secure transport of user traffic during the CNM session is ensured by the use of IPSec, Secure Sockets Layer (SSL) and encryption methods.



Information 24 Hours a Day

The Web-and Java-enabled products allow SPs to deliver access to network information cost-effectively and easily. "With Web-based access to network information 24 hours a day, businesses can feel confident about entrusting network operations to a service provider," said Pam Dodge, director of NMS product marketing at Ascend's Core Systems Division. "This frees corporate IS managers from the expense and trouble of running private networks and allows them to leverage the economies of scale of the public WAN infrastructure."

"With Ascend's Navis CNM Gateway, service providers are getting commercially viable tools they can use to provide real CNM services to their customers," said Deb Mielke, senior broadband consultant, TeleChoice, Inc. "This should help to alleviate customer fears that they don't have any control over VPNs. It will also dramatically help the roll-out of wholesale services and carrier-to-carrier partnerships." •

Israeli ISP Gains Critical Edge With Ascend

ISDNET is a new Israeli ISP that provides high-speed connectivity to the Internet using Integrated Services Digital Network (ISDN) access technology. In addition to offering its users fast ISDN Internet connections for one low monthly rate, ISDNET offers unique Internet applications and innovative technologies.



To support a growing subscriber base, and to enable the delivery of value-added Internet services and applications, ISDNET has built a high-performance backbone based on Ascend's B-STDX 9000 Multiservice Frame Relay switches. The company uses the Navis™ family of network and service management products to manage the backbone.

But as a competitor in the fast-changing ISP market, ISDNET hasn't rested on its laurels. Recently, the company decided to add full Internet Protocol (IP) routing services to its backbone network with Ascend's IP Navigator, which includes a new VPN Routing capability.

"IP Navigator gives us a critical competitive edge by enabling us to supply a very large number of high-speed connections and to support our Internet peering requirements at the same time."

– Dov Lapid, CEO, ISDNET

"IP Navigator gives us a critical competitive edge by enabling us to supply a very large number of high-speed connections and to support our Internet peering requirements at the same time," said Dov Lapid, CEO of ISDNET. "With IP Navigator in place, we can switch thousands of subscribers simultaneously and dynamically control large amounts of data and applications."

IP Navigator is a pre-standard implementation of Multi-Protocol Label Switching (MPLS), a standard being developed by the Internet Engineering Task Force (IETF). MPLS will integrate the flexibility of Layer-3 routing with the performance of Layer-2 switching. MPLS will thus be able to offer IP services along with much needed Quality of Service (QoS) and VPN capabilities. Because IP Navigator has Ascend's "Absolute" QoS capability, ISDNET can go beyond today's best-effort services to support applications such as toll quality voice, video as well as real time data and offer next-generation Internet services that meet bandwidth and delay specifications.

One Network, Many VPNs

The VPN Routing capability of IP Navigator allows ISDNET's physical network to represent many separate logical routing networks, which to customers appear to function exactly like completely independent networks. The ability to create many VPNs on a single physical infrastructure also yields benefits for ISDNET because the VPNs are centrally managed with Navis and statistical multiplexing reduces bandwidth costs.

Because it can now create VPNs in its infrastructure, ISDNET is able to offer its customers new applications. A corporate customer with multiple offices can securely connect its headquarters to its remote offices via IP. Cooperating companies, such as a manufacturer and its suppliers, can communicate over ISDNET's IP network while maintaining security.

"With the new VPN Routing capability for IP Navigator we can offer our customers services with the same level of security and QoS they have come to expect from their private networks," said Lapid. "This will save them the costs and time involved in maintaining a private network." •

Ascend Delivers Service, Quality, to VPNs

The market for Virtual Private Networks (VPNs) is exploding and so is the need for service providers to deliver Service Level Agreements (SLAs) with an agreed-upon Quality of Service (QoS) to their VPN customers. Meeting this need is a key element in Ascend's MultiVPN™ strategy. *(See related story, page 1)*. Now service providers that use Ascend's IP Navigator software can provide SLA-specified Internet Protocol (IP) services to their enterprise customers with VPN Routing. This new product, an industry first, enables enterprise customers to build their internal IP networks across a public service provider network while maintaining the same IP addressing space, security and QoS of their private network.

IP Navigator is an IP routing capability based upon the emerging Multi-Protocol Label Switching (MPLS) standard within the Internet Engineering Task Force (IETF). IP Navigator with VPN Routing incorporates MPLS concepts to enable more than 1,000 VPNs per WAN switch and more than 10,000 VPNs in a service provider network.

IP WAN Demand Soaring

The demand for managed IP WAN services is expected to soar as enterprise customers move away from private WANs. According to recent research conducted by Tom Nolle, president of CIMI Corp., SLA-specified IP VPN services will be a $10 billion market by the year 2000 and a $90 billion market by the year 2010. "VPNs are the largest revenue opportunity in carrier history and the most important issue in realizing that revenue is quality of service for IP," said Nolle. Ascend's IP Navigator was the very first product to support an MPLS architecture, and it is the best product available today for the melding of IP services with ATM network versatility and efficiency."

WAN Expansion Made Easy

VPN Routing makes IP Navigator even more useful by simplifying network expansion and management for enterprises. Previously, enterprise WAN expansion typically required a network growth forecast and a capital budget justification process. VPN Routing eliminates the need for capital budget justification because it is a monthly revenue service expense. The service provider can deliver monthly reports to show how it met the SLA, as well as trend analysis and forecasts of network traffic.

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>
> – Tom Nolle, president, CIMI Corp.

"Ascend's commitment to MPLS and its key extensions for IP VPNs, QoS and bandwidth-management capabilities enables service providers running IP Navigator to offer services with bandwidth and delay requirements," said Prabhu Kavi, IP business marketing manager in Ascend's Core System Division. "These capabilities set the stage for mission-critical applications delivered over the public network." •

For more information about Navis Customer Network Management Gateway and IP Navigator with VPN Routing visit Ascend's Web site at **http://www.ascend.com.**

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