Connections

NEWS AND INFORMATION FROM ASCEND COMMUNICATIONS, INC. JUNE 1997

Emerging Networks: Going Beyond the LAN

The explosion of the Internet has sent the Information Age into a tailspin and has sparked the need for a whole new set of requirements for today's networking environment. Corporations, carriers and Internet Service Providers all have the same dilemma: how do you accommodate a myriad of end-user needs while protecting investment in the current network infrastructure.

Organizations unable to solve these issues typically end up with incompatibility problems, high-operating costs and lost revenue opportunities. Ascend Communications bridges the gap between your existing technology and next generation networking with an extensive line of scalable remote networking products. Unlike other vendors, Ascend offers a comprehensive solution that is compatible with existing equipment, affordable, scalable and designed to provide the services needed to accommodate user applications far into the future.

"With Ascend, corporations, carriers and service providers aren't held back by a particular technology," said Mory Ejabat, president and CEO of Ascend Communications. "We have products that grow with our customers on a real-time basis. So the same platform they buy today to support a handful of remote users can be used to support thousands of users in the future."

BUILDING REMOTE NETWORKS FROM END TO END

Ascend's products include the features and functionality required to address the changing needs of customers in the access, concentration and backbone layers: optimal performance, support for multiple carrier services, LAN/WAN support, security, network management capabilities, compatibility with existing equipment and multiprotocol support. So whether you're a service

CONTINUED ON PAGE 11

Growing the Corporate Network with the MAX 2012 & 2024 3.
New MAX Products Provide an Ideal Platform for Entry Level Remote Access

Ascend's Hollywood Debut 4.
Webcast Central uses Ascend MAX for Scorsese Web Broadcast

Managing Success 5.
IPF.net uses Ascend MAX for Scalable, Multiservice Remote Access

Product News 6.
New Pipeline 15, Multiband MAX, SDSL, GRF 1600

Customer Programs 10.
Ascend's Next-Generation Web



PRESIDENT'S LETTER



This issue marks the first year of our quarterly newsletter, *Connections*. We look forward to bringing you another year of informative articles that document our outstanding growth, leading-edge products and plans for serving our customer's end-to-end remote networking needs.

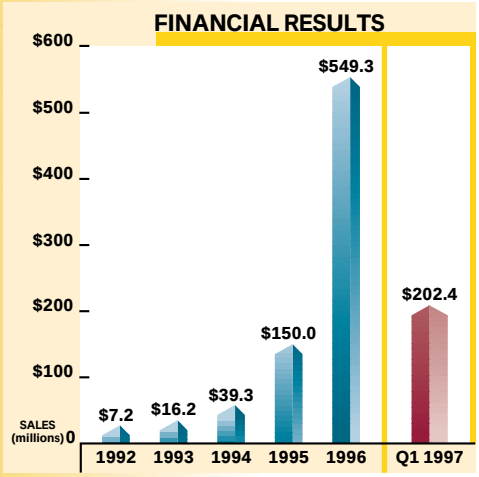
NEW PRODUCT DEVELOPMENTS

The first part of 1997 has been filled with new and exciting product innovations designed to meet the needs of our customers in the four key areas of the emerging network infrastructure: access switching and concentration, IP switching, backbone switching and remote access.

In January, we launched a new line of Multiband MAX™ products. These bandwidth-on-demand controllers provide the software corporate customers need to support multi-media applications, and a migration path for upgrading to remote access in the future.

We continue to make remote access more cost-effective for telecommuters and home users with the Pipeline®15. This easy-to-use external terminal adapter offers Dynamic Bandwidth Allocation™ and integrated analog and digital support—everything needed for high-speed remote access to a central site or the Internet.

And for our central site customers, we've made several changes to enhance the performance of our industry-leading MAX™ WAN access switches. With a MAX and Series56™ Digital Modems, corporations and network service providers can offer users the ability to download data from the Internet or a corporate network at almost twice the speed of their old modems. These modems are based on the same K56flex technology that will be installed in an estimated 80% of the end user modem market.



K56flex-compatible modems are available with every MAX, including the new MAX 2012 and 2024. The MAX 2012 and 2024 includes the multiprotocol support, dial-out client software and integrated dynamic firewall that companies need to offer secure remote access to the resources on their backbone.

In March, we began shipping SDSL Line Cards for the MAX TNT™ and the DSLPipe™-S for remote users who access SDSL services. These products, as part of Ascend's comprehensive MultiDSL™ strategy, offer support for today's high-speed services and unsurpassed speeds over the local loop.

With Ascend's other flagship product family, we surpassed our own performance benchmark with the GRF™ 1600. The new GRF 1600 is the only IP switch capable of delivering 10 million packets per second throughput with a fully loaded 16-slot configuration of high-speed media cards.

Together, these enhancements bolster our ability to address the diverse needs of our customers in each area of emerging network infrastructure.

Q1 FINANCIAL RESULTS

For the 18th consecutive quarter, Ascend has shattered analyst expectations with our net sales and income figures. First quarter net sales were $202.4, up 120% over the $92.0 million reported for the first quarter of 1996. Net income for the quarter was $46.3, or $.36 per share before the effect of an $18 million ($.09 per share) charge for purchased research and development relating to the acquisition of InterCon Systems Corporation.

OUR PLAN FOR 1997

Our first quarter has laid the groundwork for meeting the end-to-end remote access needs of our customers. The acquisition of Cascade Communications Corporation will allow us to combine the products, technologies and sales channels that have made each company successful in delivering "best-of-class" networking solutions. By expanding our capabilities, we are able to continue to service the carrier and ISP marketplace with high-density, cost-effective products while at the same time developing the features and functionality that our corporate customers need for their unique networking environment.

We hope you enjoy this issue of *Connections*. Your comments and suggestions are welcome–just drop us a line at info@ascend.com.



Mory Ejabat
President and Chief Executive Officer

Growing the Corporate Network with the MAX 2012 and MAX 2024



New MAX Products Provide an Ideal Platform for Entry-Level Remote Access

The Internet explosion as well as the availability of a wide range of inexpensive access services have made wide-area networks accessible to all types and sizes of businesses. However, many companies are still hesitating to jump on board. These businesses are paralyzed by security worries, performance and interoperability issues, manageability concerns, and a fear that the particular technology path they choose will turn into a dead end.

Ascend eliminates these stumbling blocks with the MAX™ 2012 and 2024, a new line of preconfigured, entry-level MAX WAN access switches. The MAX 2012 and 2024 have the features and functionality network managers need to set up their remote networking environment: multiprotocol routing, rich dial-out client software, integrated dynamic firewall technology as well as easy-to-use configuration software.

"We're taking the technology that has made Ascend's MAX the switch of choice for ISPs and tailoring it to meet the needs of our corporate customers," said Kurt Bauer, vice president of core product management at Ascend. "The MAX 2012 and MAX 2024 both offer businesses a feature-rich WAN access platform that is cost-effective, easy to use and comes with the most comprehensive firewall and authentication security available."

The MAX 2012 ships with a 12-port Series56™ Digital Modem module and an empty slot, while the MAX 2024 comes fully configured with two of the modules. With Series56 Digital Modems and an Ascend MAX at the corporate site, telecommuters and home users can download data over analog lines at 56 Kbps.

"Ascend is the first vendor to ship K56flex-capable digital modems," said Bauer. "With these installed at a central site, remote users can attain a data rate never before achieved with an analog modem."

Network Managers can add these remote users to the network quickly and easily using a Java-based configuration utility. In less than 15 minutes, telecommuters and home users can be up and running and dialing into the network. The MAX 2012 and 2024 also handle network growth with MAX Stack, a capability which allows network managers to transparently link multiple MAX units together to create a single, more powerful WAN access switch.

"As businesses grow and their needs expand, the MAX 2012 and 2024 will expand with them," said Bauer. "Not only do our corporate customers get a comprehensive remote networking solution, they get one that will work for them far into the future."

Series56 Digital Modem Modules Shipping

Corporations, carriers, and Internet Service Providers using the MAX platform for dialup access can get a big performance boost from Ascend's new Series56 Digital Modem modules.

By doubling downstream modem speed, the Series56 modules enable network service providers to offer a new class of service to customers and/or users who continue to rely on modem access.

The Series56 modems are based on K56flex technology and have several features that ease migration concerns. They support V.34 and other modes so remote users migrate to 56 Kbps gradually. In addition, future updates to 56 Kbps standards can be downloaded via software, locally or remotely.

The modules incorporate multiple DSPs in a hierarchical architecture that enables the modems to process digital connections directly. This eliminates the digital-to-analog conversion step that has hindered traditional digital modem performance in the past.

Ascend's Hollywood Debut

Webcast Central uses Ascend MAX for Scorsese Web Broadcast



The gala event was shimmering with Hollywood stars. Sharon Stone, Gregory Peck, Winona Rider, Quentin Tarantino. They had gathered at the Beverly Hilton Hotel in February to honor filmmaker Martin Scorsese with the American Film Institute's Lifetime Achievement Award.

Thanks to Webcast Central, the entire Internet audience was given a front row seat and back stage pass. Webcast Central produced and directed a live webcast that highlighted the red-carpet arrival of the celebrities, the awards ceremony and the glitzy party that followed. Webcast Central's robotic cameras scanned the audience while photographers took digital stills of the event. Not only did web viewers watch the show, but they participated by voting online for their favorite Scorsese film. The winner was "The Age of Innocence."

"The key to doing this kind of entertainment event live on the Internet is remote network access," said Kitty Wells, of Webcast Central. "We were given such short notice—would you believe six days?—that we really had to scramble on this project. We needed a great deal of bandwidth to carry the audio/video streaming and dynamically updated web site, but with less than a week to put together the project, there was no time to install a T1 line."

BEHIND THE SCENES: THE SHOW MUST GO ON

Brainstorm Networks, Webcast Central's Internet Service Provider and an Ascend Pipeline® reseller, regularly assists Wells and her partner Frank Schwartz on projects just like this. After securing two MAX™ 4004 units, Webcast Central used multiple ISDN lines to connect to the wide area network.

"So we basically set up two networks, one to handle the audio/video streaming and one to handle everything else. We determined the appropriate bandwidth to support the streaming and throughput needed for our webcasting," said Schwartz, who produced the Webcast. "We configured a total of six ISDN lines at Brainstorm Networks in Mountain View to sum up six B-channels, which gave us 384K for each MAX."

APPLAUSE FOR RELIABILITY AND FLEXIBILITY

Wells said she knew she wouldn't have to worry about Ascend providing a reliable and creative solution to Webcast Central's unique bandwidth requirements.

"When coordinating webcasts of this magnitude, you need to have complete confidence in your equipment—one glitch, and your audience is frozen out of the festivities," Wells said. "Only Ascend's equipment has consistently provided us with the kind of reliable and scalable service we need to successfully host these events."

Webcast Central has used Ascend MAX 4004 units and Pipeline 50 products in several of its past projects, including a webcast of the Hollywood premiere party of "Feeling Minnesota," and Phantasm, a "virtual party" billed as an interactive entertainment prototype.

"What we do is a real test of how flexible the equipment is," Schwartz said. "For us, the MAX is a special-purpose product that we'll continue to use in any situation where we need to combine multiple ISDN lines or even to break out T3s into multiple T1s when the time comes."

Webcast Central plans to continue using Ascend's MAX and Pipeline products for future webcasts, and Schwartz says he looks forward to producing the type of content for which new technology offerings, such as 56K modems, are designed.

Meanwhile, not only has Ascend made its Hollywood debut, but it was listed with the credits at the end of the American Film Institute Webcast, "Network routers supplied by Ascend." Stills of the webcast can be seen at www.webcastcentral.com.

Managing Success

IPF.net uses Ascend MAX for Scalable, Multiservice Remote Access

All network service providers face challenges with infrastructure and support, but phenomenal growth can push providers to the breaking point. IPF.net GmbH, an Internet service provider in Germany, has watched its business grow as fast as the Internet itself. Starting with a single point of presence in Frankfurt, IPF.net quickly accumulated 35 POPs to emerge as one of Europe's largest ISPs.

"To keep pace with our rapid growth, we needed more than remote access equipment," said Daniel David, general manager, IPF.net GmbH. "We needed a scalable, multiservice remote access solution that would help us manage the increasing capacity demands of our customers. That's why we selected Ascend's family of MAX™ 4000 WAN access switches."

BURDENED WITH MODEM BANKS AND PHONE LINES

Before selecting Ascend's remote access solution, each POP supported dozens of analog phone lines and modem banks. As the need for more advanced digital services grew, IPF.net added separate banks of incoming ISDN lines and terminal adapters.

"The modems were mounted in dozens of 19-inch modem racks, and were difficult to cable together and even more difficult to service," said David. "Breakdowns occurred frequently, and it was nearly impossible to isolate the problem.

To make matters worse, if a single modem malfunctioned, others in the same rack wouldn't work."

Separate ISDN terminal adapters also proved difficult and costly to support. Eventually, the support problems became so commonplace that the company's technical staff found they were spending more time servicing equipment than supporting customers.

SINGLE BOX MANAGES ALL THE EQUIPMENT

Working closely with their local VAR, Telindus GmbH, they installed a network of WAN access switches.

"The MAX solves our problems by eliminating the need for separate modem banks, terminal adapters and other difficult-to-manage equipment," said David. "One box supports traffic from analog and digital services, including ISDN, leased line and Frame Relay."

The MAX concentrates all of IPF.net's Internet traffic, aggregating calls from dial-up and ISDN subscribers onto E1/PRI lines. ISDN services, synchronous PPP, asynchronous PPP or SLIP, are built directly into the MAX.

Another advantage of the MAX solution is the remote management functionality. "We can execute all support functions from our main POP in Frankfurt. Technicians can manage the MAX units using SNMP or a Telnet session to perform configuration, diagnostics and other control functions remotely," said David.

FUTURE CONNECTIONS IN EUROPE

If worldwide growth continues at the current rate, market research indicates that by the year 2000, the number of Internet users worldwide could swell to 150 million. To meet this challenge, David says that IPF.net will use Ascend's MAX products to build more points of presence throughout Europe.

"The MAX 4000 products are the proven hardware standard for IPF.net," says David. "Ascend's integrated solution has eliminated our equipment problems, lowered support costs, and ensures we're able to meet the capacity and performance requirements of our customers."



New Pipeline 15 Provides More for Less



Ascend is breaking into the low-end remote networking market with the Pipeline® 15, an external ISDN terminal adapter that combines rich functionality with affordable remote access.

The Pipeline 15 sits on the desktop and connects to any computer with a standard serial port. It's been designed with ease-of-use in mind, allowing users to point and click their way through an installation in less than 15 minutes. In addition to ISDN BRI, the Pipeline 15 includes dual analog ports that handle voice and fax connections and provide true Caller ID support.

Like other Pipeline products, the Pipeline 15 uses Ascend's Dynamic Bandwidth Allocation technology to maximize bandwidth and minimize connection charges. A second B-channel is automatically added or dropped as needed, during ongoing sessions.

To protect your investment, software upgrades for the Pipeline 15 can be downloaded into Flash memory in the adapter. ✹

Scalable Controllers Grow with Your Network

The new family of cost-effective Multiband MAX™ controllers comes bundled with everything you need to support videoconferencing, multimedia, and backup and overflow applications today—and offers a migration path to remote access in the future.

All Multiband MAX models incorporate the Ascend Inverse Multiplexer (AIM) and Ascend's Dynamic Bandwidth Allocation technologies, giving you the speed and bandwidth you require for applications like videoconferencing, while minimizing your line charges. When you need remote access, a software upgrade turns the Multiband MAX into a remote access switch that supports 16 to 96 analog and digital dial-up lines.

The Multiband MAX connects at speeds ranging from 56 Kbps to 4 Mbps, over ISDN, T1, FT1, E1, and G.703 lines. The Multiband MAX 1800 has eight BRI U channels or eight BRI S/T channels. The Multiband MAX 2000, 4000*, 4002 and 4004 offer one to four T1 interfaces, each with an integrated CSU. ✹

*Available outside North America only.



Get 768 Kbps Throughput – Today!



Ascend is shipping today what many are promising for tomorrow—complete, fully integrated, service-ready Digital Subscriber Line (DSL) solutions that squeeze up to 768 Kbps of bandwidth over the existing local loop. With the addition of the SDSL Line Card and DSLPipe™-S, service providers can now offer symmetric data rates to users who want to send and receive bandwidth-intensive files. SDSL is part of Ascend's multiservice strategy supporting xDSL technologies—as well as analog, Frame Relay, and ISDN connections.

Each SDSL card adds 16 SDSL ports to a MAX TNT™—the only carrier-class WAN access switch that supports multiple DSL technologies. One eight-foot rack with five shelves can accommodate 1,200 SDSL ports, an unprecedented port density.

When remote users with the new Ascend DSLPipe-S dial into a MAX TNT equipped with an SDSL Line Card, they get high-speed transmission in both directions. The DSLPipe-S supports Frame Relay PVC service, which enables your ISP to provide you with simultaneous connections to multiple destinations.

IP Switch Sets Speed Record

With Ascend's new GRF™ 1600 IP switch, network service providers have performance and capacity to spare. The GRF 1600 boosts network performance to an unprecedented 10 million packets per second and gives you true linear scalability.

The GRF 1600 overcomes the limitations of traditional routers and switches. While most routers waste time looking first in local cache for addresses that aren't there, the GRF 1600's Quick Branch Routing Technology performs a full route table lookup in hardware. This technology enables the GRF to achieve line-speed packet forwarding, or up to a 20-fold performance increase over conventional routers.

By combining crosspoint switching fabric with multiported IP Forwarding Media Cards, the GRF eliminates problems associated with bus-based architectures. So, performance no longer degrades as ports are added.

The GRF 1600 dedicates 1 Gb/s of switch bandwidth to each media card, giving you an aggregate bandwidth of 16 Gb/s when fully configured.



ASCEND TO ACQUIRE CASCADE COMMUNICATIONS

On Mar. 30, Ascend announced plans to acquire broadband pioneer Cascade Communications Corp. of Westford, Mass. The merger is scheduled for completion in the third quarter of 1997.

The new entity will offer best-of-breed technology in access switching and concentration, IP switching, backbone switching, and remote networking. Once integrated, the Ascend and Cascade products will enhance carrier-class solutions from the edge of the network to the core, enabling carriers and ISPs to provide true quality of service to customers.

"The combination of the products, technologies and sales channels of both companies, with the leadership each company has in the different market segments, will position the new Ascend as one of the networking industry's premier providers of end-to-end remote networking solutions," said Mory Ejabat, president and CEO of Ascend.

When the merger is completed, Cascade president and CEO Dan Smith will join Ascend as head of a newly formed Core Switching Systems unit.

NETRAIL SELECTS ASCEND'S NEW GRF 1600 IP SWITCHES FOR INTERNET BACKBONE

On Feb. 19, Ascend announced that NetRail, one of the nation's largest providers of Internet backbone services, has selected the new GRF™ 1600 IP Switches to enhance its network.

The GRF 1600's 16 Gb/s of aggregate bandwidth enables Virginia-based NetRail to increase its backbone speed to OC-3c levels (155 Mbps) and reduce Internet congestion problems. The company's network can support an increasing number of routes without running the risk of route flap or network meltdown.

The GRF 1600 is the newest and fastest member of Ascend's family of high-performance IP switches, handling up to 10 million packets per second.



NEW LEVEL OF SECURITY ADDED TO MAX PLATFORM

On Feb. 24, Ascend announced a new security option for the MAX™ and MAX TNT™ WAN access switches and the Ascend Access Control security solution. They are now compatible with Security Dynamics Technologies' ACE/Server® security software for client/server networks. The partnership with Security Dynamics brings together the best remote access technology and the best token-based authentication. Customers get the highest level of security available today, without encountering any barriers to convenient remote access.

The MAX and MAX TNT transmit user authentication requests to the ACE/Server either directly or through Access Control, Ascend's enhanced implementation of RADIUS. Direct access the ACE/Server through Ascend Access Control provides simple, cost-effective security and more flexibility in managing the customer database.

ASCEND ACQUIRES KEY HIGH-SPEED TECHNOLOGIES

On Feb.18, Ascend announced an agreement to acquire Whitetree, Inc., a privately held developer of high-speed switching products.

Based in Mountain View, Calif., Whitetree specializes in gigabit-speed switching. The company was the first to develop "adaptable switching," an innovative technology that combines the benefits of switched Ethernet with next-generation ATM technology. Whitetree's expertise in ATM cell switching and ASIC development brings key technology capabilities to Ascend's product development and enhancement.

Maureen Lawrence, CEO of Whitetree, has joined the Ascend management team as vice president of marketing.

Ascend also announced the completion of the acquisition of InterCon Systems Corp., formerly a subsidiary of PSINet, Inc. InterCon is a leading developer of client software products for both the corporate and ISP markets.

PICTURETEL BECOMES ASCEND PREMIER VIDEO VAR

On Feb. 24, Ascend announced a Premier Video VAR Agreement that makes videoconferencing pioneer

PictureTel a reseller and integrator of Ascend's Multiband™ family of products.

This partnership between worldwide leaders in videoconferencing and video access technology will provide corporate accounts with technologically advanced videoconferencing solutions.

Since 1992, the Multiband family of bandwidth controllers have captured the majority of the worldwide market share for inverse multiplexing with bandwidth on demand. Their cost/performance ratios, remote manageability, scalable architecture, and approval by international carriers in 30 countries make them an ideal platform for PictureTel's customers.

!NTERPRISE DEPLOYS MAX SWITCHES FOR FRAME RELAY ACCESS

On Mar. 3, !NTERPRISE Networking Services announced that the Ascend MAX TNT™ would be used to deliver dialed access to its extensive Frame Relay network. The data integration arm of US WEST, !NTERPRISE has the third largest Frame Relay network in the nation and is the first Regional Bell Operating Company (RBOC) to offer dialed access to Frame Relay services. The Ascend MAX™ platform enables !NTERPRISE to offer secure remote dial-up access, disaster recovery, and managed POPs to their customers. The range of services that can be offered from the MAX platform-secure dial access to Frame Relay, Frame Relay concentration, switching, and xDSL-make the MAX the ideal multiservice access platform. The MAX TNT is the first system that provides the ability to support 2,000 concurrent modem users or 4,000 ISDN or 56/64 Kbps Frame Relay connections in a single eight-foot rack.

Visit Ascend's Web site at www.ascend.com

Q: What is the difference between the new GRF 1600 and the GRF 400?

A: The GRF™ 1600 extends the capabilities of the GRF 400 with a fourfold increase in both performance and the number of media cards that are supported. The GRF 1600 offers an aggregate switch throughput of 16 Gb/s, while the GRF 400 throughput is 4 Gb/s. The GRF 1600 has a packet-forwarding rate of 10 million pps and can be configured with up to 16 line cards; the GRF 400 has a packet-forwarding rate of 2.8 million pps and can be configured with up to 4 line cards. Both dedicate 1 Gb/s to each line card, allowing the switch to scale to its fullest capacity even when using high-performance media such as SONET and ATM.

Q: What is Digital Subscriber Line (DSL) service?

A: Local Exchange carriers currently use a single unshielded twisted pair of wire for transmitting voice, which requires 300-3,400 Hz of bandwidth on the local loop between the Central Office and the Customer Premises Equipment. The wires are capable of carrying information at much higher rates when digital processing techniques are deployed. The same pair of wires are used to provide ISDN services at speeds of up to 128 Kbps. DSL technologies take things a step further, using a bandwidth of up to 1.2 MHz on the local loop to produce data speeds of up to 6.144 Mbps.

Q: What is the advantage of having a built-in CSU/DSU in my access device?

A: Having a built-in CSU/DSU lowers equipment costs, makes installation easier, and eliminates the need for external cabling. It also avoids possible compatibility issues between access devices. External T1 CSU/DSUs can be very expensive and require additional power and cables.

Q: What is ISDN Digital Subscriber Line (IDSL) service?

A: IDSL is a technical innovation from Ascend that enables carriers and network service providers to offer dedicated 128 Kbps data service over existing unshielded twisted pair voice lines. Data calls are clogging up the public voice networks at an increasing rate and creating a problem that carriers have to address. IDSL service lets carriers offload data traffic from their voice switches without making any changes to Local Loop wiring or Customer Premises Equipment. IDSL uses the ISDN BRI 2B1Q line coding, so it supports ISDN BRI terminal adapters, routers, and bridges.

Q: What is the benefit of having both ISDN and Frame Relay in the same Pipeline device?

A: A Pipeline® equipped with both ISDN and Frame Relay can provide backup and redundancy and offer a migration path from dial-up to Frame Relay access as network usage and bandwidth increases. Also, ISDN and Frame Relay can also lower user connection costs. ISDN is a pay-as-you-go switched service, and Frame Relay costs 30 percent less, on average, than a dedicated leased line of the same speed.

Q: What is the difference between a Call Filter and a Data Filter?

A: Generally, Data Filters are used to prevent unwanted packets from being forwarded to other interfaces, while Call Filters are used to prevent a line from staying active with unnecessary traffic.

Ascend Unveils Next-Generation Web Site

If you haven't visited Ascend's Web site lately, you haven't visited it at all. The site has been rebuilt around a highly intelligent and dynamic engine that provides visitors with a more personal and productive experience.

"We're using the latest technology to create a Web site that improves communication with customers and offers them more customized service," said Jana Branisa, Ascend's Webmaster.

The changes you actually see are just the tip of the iceberg. Database technology combined with a custom-developed page-building mechanism and a new authentication system lets the Web site establish one-on-one communications with visitors and create customized user views for them, based on their specific interests and level of authentication.

"Because the back-end technology stores the user profile individuals provide us with on their first visit, we automatically know on subsequent visits why they are coming to the



Web site." Branisa said. "Consequently, we can build views designed specifically for their needs."

Customers who own Ascend products and/or have purchased an Ascend service contract will be the first to experience the effects of this new Web site. Configuration guides, technical tips, user manuals or software downloads relevant to a particular customer's products or services will be available whenever that individual logs on.

This same technology for delivering unique user views will be used to establish a global Web presence by building localized Ascend Web sites in countries around the world.

Awards

PIPELINE 50 WINS NETGUIDE MAGAZINE EDITORS' CHOICE AWARD

The January 1997 issue of NetGuide Magazine bestowed an Editor's Choice Award on Ascend's Pipeline® 50, which provides ISDN BRI access to remote PCs and LANs. In laboratory testing, the NetGuide editors compared the Pipeline 50 to competitive products with native ISDN support and designated it the best dial-on-demand router available.

PC MAGAZINE EDITORS' CHOICE™
February 4, 1997
Pipeline 75

GRF 400 GETS ENTERPRISE PRODUCT-OF-THE-YEAR HONORS FROM NETWORK MAGAZINE

The May 1997 edition of Network Magazine features Ascend's GRF™ 400 IP switch as Product of the Year in the Enterprise Router category. Network Magazine editor-in-Chief Mark Zeichick said the GRF 400 "ratchets the Internet up to the next notch and offers room to grow."

Network PRODUCTS OF THE YEAR 1997

PIPELINE 75 GETS TOP HONORS FROM PC MAGAZINE

The Feb. 4, 1997 edition of PC Magazine reports the results of a product comparison that earned Ascend's Pipeline® 75 an Editors' Choice Award. When contrasted with seven other small-office ISDN routers, the Pipeline 75 got top honors because of its "easy installation and trouble-free operation." Few products, however, have features that make life easier for the average small- or home-office user.

1996 Winner MVP PCComputing

Seminar Series Goes International

Since it's inception, over 20,000 people worldwide have attended Ascend's Telecommuting and Internet Access Seminar series. It's popularity can probably best be attributed to the compelling discussion on today's leading edge technology and the latest trends in the remote-access market. Ascend's seminar has sparked so much interest that it is now touring Europe, making stops in Munich, Frankfurt, Paris, Lyon, Amsterdam, Brussels, London, Madrid, Stockholm, and Rome.



The half-day seminar delivers a broad overview of remote-access networking. Specific topics include costs, benefits, how to pay for bandwidth only when you need it, Internet/intranet access, security issues, and technology developments such as new xDSL services.



In addition to a spring tour, the seminar series returns to Europe for at least two repeat performances this year, in the summer and fall.

To register, or for more information visit Ascend's Web site at www.ascend.com.

CONTINUED FROM COVER

provider building a MegaPOP,™ a corporation setting up a telecommuting program or a home user connecting to the Internet, Ascend has a solution that works.

Ascend's Pipeline® or DSLPipe™ remote access products offer secure, high-speed access to the corporate office or the Internet. These easy-to-use products connect to all networks and provide users with the option to use all of the popular carrier services.

"Ascend's remote access products are designed to work with services offered around the world," said Ejabat. "So no matter where employees are located, they can tie into the enterprise network or the Internet in a matter of seconds."

At the central site, organizations need the right WAN access solution to handle all these services. Network service providers and network managers who deploy one of Ascend's MAX™ products are guaranteed multiservice support along with reliability and scalability.

"Ascend's multiservice strategy is all about choice," continued Ejabat. "In a world with evolving standards and requirements, businesses and service providers can't afford to be locked into a dead end solution."

Corporations and service providers can install a MAX into their current network and add support for users and services as their business needs evolve.

"Ascend's MAX products fit into any network architecture because they aren't based on any proprietary standards," said Mike Baccala, product manager at Ascend. "And with the MAX, you can start out with a small analog network and add support for ISDN, Frame Relay or xDSL as your business environment changes."

All of these services come integrated into a MAX or MAX TNT™ platform along with other added values such as integrated dynamic firewall security, extended RADIUS capabilities and K56flex-compatible digital modems (see story, page 3).

Ascend's strategy also includes managing backbone needs with the first true IP switching architecture. The GRF™ family of IP switches provides customers with a choice among all the popular media types including HSSI, FDDI, 10/100Base-T, IP/SONET, ATM OC-3c and ATM OC-12c.

The GRF combines Layer-3 switching with high-speed IP Forwarding Media cards to deliver an unparalleled packet forwarding rate.

Whereas conventional routing solutions are choking on today's high-volume network traffic, the GRF offers capacity and performance to spare.

> "With Ascend, corporations, carriers and service providers aren't held back by a particular technology"

"In the past, network managers and network service providers were struggling to keep up with demand," said Muthu Logan, senior manager of business development. "With the GRF they can build an infrastructure that enables them to stay ahead of the curve."

According to Ejabat, Ascend will continue to stay ahead of the curve by satisfying the unique and comprehensive needs of all their customers.

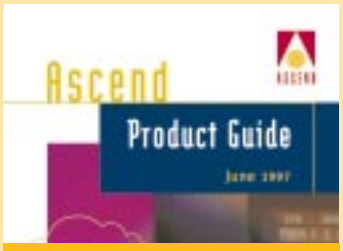
"From any way you look at it, Ascend is the only vendor to offer a total solution for complete, remote networking," said Ejabat.

"We have done whatever it takes—through continual product evolution, successful acquisitions and strategic partnerships—to put the right strategy together for our customers."

EVENTS CALENDAR

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July 8	Montreal, Canada
July 10	Richmond, Virginia
July 15	Baltimore, Maryland

Connections

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