Connections

NEWS AND INFORMATION FROM ASCEND COMMUNICATIONS, INC. SEPTEMBER 1997

The New Corporate Enterprise: Converging Public and Private Networks

Companies all over the world are harnessing the power of the Internet to survive in today's competitive business arena. They rely on this resource for instant and easy access to the type of information that helps employees to be more efficient, productive and effective in performing their jobs.

More and more companies use the Internet for creating intranets and extranets as well as other applications that leverage IP-based technologies. The reality is that the line between the public network and a company's enterprise network is becoming almost indiscernible. As the public and private network begin to converge, companies will have to evaluate their network infrastructure to not only choose the right products, but also the right solutions.

Ascend Communications, the marketshare leader in developing solutions for the public data network, recognizes this trend and has put together all the necessary ingredients for secure and cost-effective networking.

"Our WAN access and switching solutions are put to test every day in the most demanding networking environment in the world," said Mory Ejabat, President and CEO of Ascend Communications. "By leveraging this field-proven technology, we are able to design the solutions that meet specific enterprise requirements while allowing network managers to integrate seamlessly into the public network."

LAN Meets WAN

Linking a corporate network to the rest of the world provides network managers with quite a few challenges. Among these are concerns involving network management, security and compatibility issues between equipment and protocols. Ascend addresses these issues by providing scalable solutions that easily adapt to a particular networking environment while providing room to grow.

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PRESIDENT'S LETTER



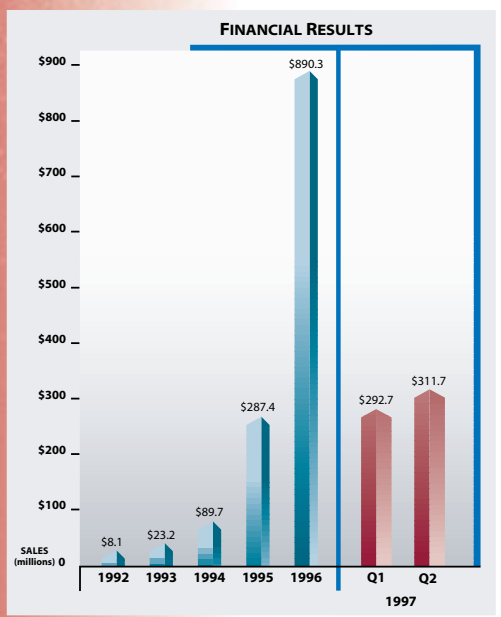
The face of networking is changing and so has Ascend. As of June 30, 1997, Ascend completed its merger with Cascade Communications. From this combination emerges a single company with the experience, best-in-class products and market knowledge needed to overcome the challenges of a changing networking infrastructure.

In this issue as well as future issues of Connections, we will keep you informed of the changes going on at Ascend and in the networking industry.

The New Ascend

The integration of the two companies is well underway. By leveraging off the synergies and strengths of both organizations, we have created sales, marketing and customer support teams even more equipped to cater to the unique networking needs of our corporate, carrier and ISP partner teams. By the end of the year, we will have completed this integration—adding to this list unified Finance and Manufacturing teams.

This new company is more fully equipped to manage our customer's networking needs—from the end user's home through the service provider's network all the way to the corporate enterprise. We believe that the success of the Internet is bringing an end to the era of private data networking. As the public and private networks converge, it will become more crucial for companies to choose not only the right products, but also, the right solutions.



Ascend's solutions span the whole spectrum—from the edge of the network through the core, covering all the key areas: remote access, access switching and concentration, IP switching and backbone switching. In the remote access area, an Ascend solution begins with Pipeline® products for mobile and remote users as well as telecommuters, branch offices and your business partners' remote offices. In the access switching and concentration areas, Ascend delivers carrier-class solutions with the MAX™ product line. And in the backbone and IP switching areas, we produce ATM and IP solutions that offer more scalability, Quality of Service and port density than any other vendor to date. We combine these products with the most comprehensive security and network management in the industry to help you design a network that meets all of your objectives.With Ascend, you get more than a box—you get a business solution.

Q2 Financials

The combined strengths of the two companies has resulted in a positive quarter for Ascend. Second quarter net sales were $311.7 million, a 51.6% increase over net sales of the $205.6 that was recorded in the second quarter of 1996. Net income for the second quarter of 1997 was $62.4 million or $.31 per share before taking into account merger costs for both WhiteTree and Cascade. The merger costs reduced net income by $111.3 million or $.57 per share.

Moving Forward

We invite you to stay tuned because we promise even more exciting developments from the new Ascend in 1997. We believe we have formed the right combination for serving and supporting our customers as they move forward with this new infrastructure.

Your comments, suggestions and ideas are welcomed on ways to make Connections even more useful for you. Simply contact us at info@ascend.com.



Mory Ejabat
President and Chief Executive Officer

This issue of Connections is dedicated to the memory of Doug Kelly

Securedial Makes it Easier to Hit the Road

Cable & Wireless Reduces Cost, Complexity and Security Burdens

Dial-up access to the central office keeps jetsetting end-users on top of their game. But for network managers charged with keeping the playing field in world-class condition, all those frequent flyer miles add up to frequent hassles. Maintaining modem banks, reconfiguring remote routers, and reconciling global phone bills are just the beginning. Security concerns add more management challenges.

Cable & Wireless (headquartered in London, England) introduced its Securedial remote LAN access service to help corporations reduce the cost, complexity and security burdens of dial-in access to network resources. Securedial works with Ascend's MAX platform, and it allows companies to outsource the majority of their remote-access infrastructure to Cable & Wireless' international network. Remote users can call a local point-of-presence (POP) to access their corporate central site.

CABLE & WIRELESS

"Securedial runs on Cable & Wireless' international Frame Relay backbone and is based on Ascend MAX remote access servers," says Henry Kay, Cable & Wireless product manager for Frame Relay and access services in Europe. "It is the first remote LAN access service that combines ISDN dial-up and the ability to handle multiple LAN protocols with comprehensive remote user authentication."

On the road, users dial into an Ascend MAX at Cable & Wireless' POPs in any of 13 European countries. After supplying IDs and passwords, their log-in is verified by a regional RADIUS server. If everything checks out, the RADIUS server sends back clearance for connection to the IP address that has been accepted.

The local Ascend MAX then sets up an IP tunnel over the carrier's Frame Relay network to the customer site. Security breaches are minimized because all dial-up traffic enters the corporate network at a single location. Here there is another security check and the final connection is made—with the user experiencing no perceptible delay.

"With Securedial, companies can be assured that only authorized users have access to corporate resources," explains Kay. "And we remove all the administrative complexity. Network administrators can update a single table of user IDs, passwords, and authorized hosts. When a user dials into a network from anywhere, the user authentication is proxied back to the home RADIUS server. This provides true global roaming capability for all of Cable & Wireless' Securedial users."

With the ISDN dial-up, set up times are quick so users don't have wait for modems to make connections. Other perks include 24-hour support and simplified billing. Securedial is currently available in Cable & Wireless' European locations. Plans are in the works to launch it in the U.S. and worldwide.



Ascend Completes Cascade Acquisition

Ascend Communications has announced the completion of its acquisition of Cascade Communications Corp. Cascade will operate as a wholly-owned subsidiary of Ascend.

Ascend is now organized into four business units. The Multimedia Access Products business unit includes the Ascend Multiband™ product family; the Remote Products business unit includes the Ascend Pipeline product family; the Core Switching Systems business unit includes the ATM, Frame Relay and IP switching products, including Ascend's family of GRF™ IP switches; and the Access and Concentrator Products business unit includes the Ascend MAX product family. Cascade's AX product family will not be continued.

ISPs Rapidly Ramp Up for K56flex

Ascend's new Series56™ Digital Modems are enjoying wide acceptance by Internet Service Providers nationwide. More than one million of the modems, which support K56flex technology, will be deployed by the end of the summer as part of Ascend's GET FLEX upgrade program for ISPs. For a complete listing of the more than 2600 ISP points-of-presence supporting K56flex technology, visit Ascend's Web site at http://www.ascend.com.

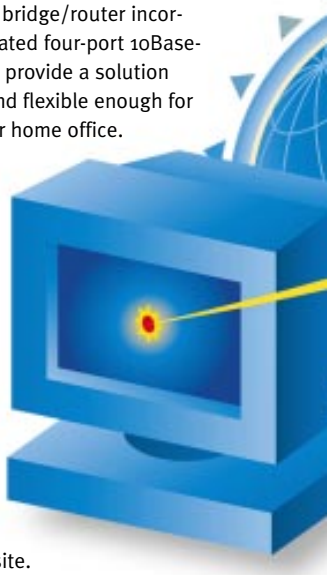
Erol's Chooses MAX and MAX TNT for Massive K56flex Deployment

The wide acceptance of K56flex technology continues as Erol's Internet, Inc. has selected Ascend's MAX and MAX TNT WAN access switches with Series56 Digital Modem Modules to support the technology throughout the U.S. One of the country's largest, most reliable, and fastest-growing ISPs in the country, Erol's supports more than 185,000 subscribers through its 83 points of presence.

> "We chose Ascend's solution because Ascend is the market leader...any PC or modem that bears the K56flex logo will be compatible with our Ascend equipment,"
>
> Orhan Onaran, founder and president of Erol's

Pipeline 85 Provides Seamless Connections

Remote offices and telecommuters can enjoy seamless connections to the corporate network or the Internet with Ascend's new Pipeline 85. This advanced Ethernet-to-ISDN bridge/router incorporates an integrated four-port 10Base-T Ethernet hub to provide a solution that's powerful and flexible enough for the small office or home office.



Its Bandwidth on Demand capability dynamically manages connections to provide users with maximum throughput, while built-in remote management features let administrators troubleshoot problems from the central site. Setup is quick and easy with its Java-based GUI configurator, and dual analog ports combine phones, modems and fax machines onto a single ISDN line.

Prodigy Supports K56flex Through Ascend and MAX TNT

Prodigy Services Corporation has announced that it is offering K56flex access as an enrollment option to its subscribers. Prodigy is deploying the technology through a nationwide access number supported by Ascend

Tech Briefs



Q: What is K56flex?
A: K56flex is a 56 Kbps modem protocol developed by Rockwell and Lucent, supported by most major modem manufacturers, developers and implementors. It allows for 56 Kbps transfer rate on the downstream portion of a call and 33.6 Kbps upstream.

Q: What is the difference between the MAX 4048/4060 and the other MAX 400x products?
A: The MAX 4048 and 4060 are designed to handle modem access at very high rates and are fixed configuration products. In contrast, the MAX 4000, 4002 and 4004 offer modular scalability using various types of slot cards for expansion.

Q: Are there any monitoring features in the Ascend Secure Access Firewall?
A: Yes. Ascend Secure Access™ Firewall continuously monitors activities and logs them remotely at the central site. The network administrator can customize the configuration of the Secure Access Firewall to report specific types of activities rather than all activities.

Q: How do I register my product for Advantage Pak Support?
A: You can register in two ways:
1) Complete and mail the Advantage Pak registration card included in the Advantage Pak™. Upon receipt by Ascend, your product will be registered and you will be eligible for service.
2) Register via the Internet at http://www.ascend.com/service/advpak/product/reg/.



MAX and MAX TNT™ WAN access switches. Ascend's team of K56flex Joint Marketing Partners is working to promote Prodigy in nationwide campaigns and is facilitating Prodigy's effort to offer its customers bundled K56flex solutions.

Selectools Empowers You to Get Online Fast

Few tasks can be more frustrating than setting up and configuring your new ISP client connection. Fortunately, help is at hand. Ascend's new Selectools™ software solution package gives you everything you need to get online quickly and easily. Selectools walks you step-by-step through the client configuration process, and includes key communications software such as Microsoft Internet Explorer and Eudora Lite. The solution is compatible with Windows and Macintosh operating systems and works with your ISP's Ascend MAX family of high-performance WAN access switches.

IDSL Supports Voice and Data

Competitive access providers, alternative carriers, and phone companies can now enhance their Internet access services customers. Ascend has announced its second-generation ISDN DSL (IDSL) technology, the first to support analog voice and fax over single pair copper wire at a speed of 128 Kbps. This software upgrade is available free of charge for Ascend's IDSL line cards for selected MAX and Pipeline products. Ascend is also shipping its Rate Adaptive Asymmetric Digital Subscriber Line (RADSL) card for the MAX TNT central office equipment, plus a corresponding DSLPipe™-C for customer premises. Both products let phone companies and ISPs offer customers a high-speed turnkey solution for apps that require high bandwidth.

Accommodating Growth with the Pipeline 220

The new Pipeline 220 provides a robust, flexible solution for expanding organizations that require remote access, LAN connectivity or Internet connectivity. This IP router sports a single WAN interface (high-speed serial V.35 or unchannelized T1). On the LAN side, the Pipeline 220 provides dual independent 10Base-T Ethernet ports, making it ideal for business with two distinct networks. The Pipeline 220 is fully manageable and compatible with Ascend's new SecureConnect encryption solution. An integrated DRAM slot and PC card slot allow for easy expansion and memory upgrades.

MAX Solutions Extend WAN Access Capabilities

Organizations in search of a WAN access switch that accommodates high-speed modem access need look no further than Ascend's new MAX products. The MAX 4048 and 4060 offer the scalability, software features and high-performance Series56 Digital Modems needed to build high-density remote networks. The MAX 4048 is a two-T1 chassis with 48 K56flex-compatible digital modems. The MAX 4060 is a two-E1 system with 60 digital modems. Both offer a low-entry cost solution and are ideal for small to mid-sized NSPs as well as companies with remote networking requirements. The optional dynamic firewall adds robust security for Internet connectivity.



Awards for Ascend Products



Kudos for MAX Family

In its May 1 issue, Network Computing magazine chose the MAX family of WAN access switches as recipient of its "Well Connected" award for best enterprise WAN platform. The Ascend MAX Family of WAN access switches concentrates access circuit traffic from a variety of sources, reducing the ongoing cost of access for analog modems, leased line, ISDN and Frame Relay networks. Editors were impressed by the MAX family's versatility, pointing out that "users of the MAX 2000 and 4000 series units cost-effectively manage traffic that originates from remote access, PBX or videoconferencing equipment."

Pipeline 75 is Network Computing Editor's Choice

Ascend's Pipeline 75 ISDN router was selected as best all-around SOHO remote access router in Network Computing's June 1 issue. Test administrators applauded the Pipeline's enterprise management capabilities and reliability: "We connected the Pipeline 75 to Ascend's MAX 4004, which supports 72 digital modems and four incoming PRI spans. Using these devices together, we experienced not only seamless management but also seamless connectivity." The Pipeline's comprehensive security management system also received recognition, as editors were "quite impressed by Ascend's Secure Access Manager enterprise management utility."

The Doctor Is In

Midwest Rural Telemedicine Consortium Brings Doctors to Patients via Videoconferencing



It was a harsh winter in Iowa. In Algona, high school students were competing in a wrestling meet when one of the star wrestler's separated his shoulder. The icy roads made it impossible to rush the young athlete to a specialist in Mason for a consultation. But there was a way for the specialist to see the student, because the Kossuth Regional Hospital in Algona is part of a statewide telemedicine videoconferencing network powered by Ascend solutions.

Kossuth Regional Hospital is one of over 32 remote healthcare facilities that have signed up for this network—a program created and run by the Midwest Rural Telemedicine Consortium (MRTC). When they built the network, the MRTC team required a solution that would support a variety of applications and specialties and be accessible very quickly.

Going Where the Action Is

"We wanted to make it easy for clinicians to access the conferencing network," explains Ken Hatch, Network Services Coordinator in the Project Office. "This meant putting conferencing drops in several locations in a hospital." After much searching, Hatch finally found the one system that would give him the flexibility to set up the network this way. The Ascend Multiband family of inverse multiplexers empowers him to support up to 11 videoconferencing drops in a hospital.

Medicine a la Cart

The other key to accessibility was the videoconferencing equipment itself. The project team custom-built a small, mobile cart that could move easily in and out of tight spaces, which they dubbed "Dr. SMITH" (for Simple, Mobile, Integrated, Telemedicine Hardware).

Dr. SMITH supports a variety of medical peripherals, and is versatile enough to handle both interactive video and teleradiology. "It was important to be able to do teleradiology over the network. Most of the rural hospitals and clinics don't have dedicated radiologists—a specialist may only come around to read X-rays once a week in some areas," explains Hatch.

To support both X-rays and interactive videoconferencing simultaneously, Hatch had to be able to separate out the channels on the inverse multiplexer and dedicate them to the two applications. Ascend's solution provided that flexibility, allowing them to use one of the V.35 ports to dedicate 18 channels of ISDN PRI multirate service to support interactive videoconferencing, while using the second V.35 port to dedicate five channels to teleradiology.

Of course, any solution with this much potential quickly becomes indispensable. "Once physicians begin to use the videoconferencing or teleradiology facilities, they come to rely on them," Hatch says, "the Ascend equipment has performed reliably from the day it was installed."

Flexibility and Investment Protection

The MRTC, designed to study and promote telemedicine in rural Iowa, is the fastest growing telemedicine network in the country.

"The Ascend product line gives us complete flexibility to give each facility exactly what it needs today, but with room to grow," says Ken Hatch, Network Services Coordinator in the Project Office. "That level of investment protection is extremely important in a project like this where you really can't predict the level of participation and things change very rapidly."

continued from front cover

"With Ascend, you get much more than a box," said Ejabat. "You get a total solution that offers everything—hardware, software, application software security and network management integrated directly into the product."

Ascend's MAX product family offers a range of solutions that support everything from a small home office to a major corporation. The MAX delivers the high-density, multiservice support and manageability network managers need to support a myriad of end user requirements. And because it fits any network topology, network managers can install a MAX and expect it to interoperate with their existing equipment and protocols. They can in turn use this same platform to support future growth.

"When companies invest in a MAX, they are investing in a platform that will be with them for a long time to come," said Brian Jenkins, Product Manager at Ascend. "Because the MAX scales easily, network managers install additional MAX units or simply plug in a card to support higher bandwidth applications or additional users."

> **"With Ascend, you get much more than a box, You get a total solution that offers everything—hardware, software, application software security and network management integrated directly into the product."**
>
> Mory Ejabat, President and Chief Executive Officer, Ascend Communications

Securing The Enterprise

For every size company, security becomes a major concern. Once a company transmits information over the public network, it is fair game for hackers and corporate spies. The MAX protects this information with a comprehensive security solution that includes dynamic firewall security, encryption as well as authentication and authorization.

"The combination of firewalls and authentication/encryption in one package offers rock solid protection of the LAN behind the firewall in addition to providing data integrity, privacy and data origin authentication on every packet." said Jenkins.

The iron-clad security on the MAX makes it possible for companies to perform all types of data sensitive operations—from transferring sensitive data between locations to allowing customer partners to access a secured extranet. The MAX security features along with support for tunneling protocols makes it possible to establish a secured path over the IP-based public network.

Management Across the Miles

Managing a corporate enterprise can be complicated enough but when companies begin to deploy their enterprise across the public network, a whole new set of issues arise. How does a network manager monitor a myriad of multi-vendor equipment as well as connections from remote offices, customer sites, mobile workers and telecommuters?

The answer is simple—with Ascend's network management offerings.

"A good network management solution is the cornerstone for any business application," said Ejabat. "A network manager must be able to monitor ingoing and outgoing traffic, gauge performance, maintain bandwidth levels and troubleshoot network glitches."

Using Ascend's solution, network managers have a point-and-click interface, end-to-end control and a window into every device, interface and service on the network.

As the corporate enterprise grows and extends, network managers have a solution that keeps everything under control and offers flexibility and security.

"Ascend eliminates the barriers that have prevented companies from leveraging Internet technology to more effectively perform their mission-critical tasks," continued Ejabat. "With a solution based on Ascend equipment—networking across the WAN is made transparent."

This Just In



MAX 2012 Does Video and More

Organizations looking for a corporate videoconferencing solution should take a close look at Ascend's MAX 2012. The multiprotocol WAN access switch can accept IMUX, BRI-T, and V.110 slot cards in its open expansion slot, making it ideal for videoconferencing applications, backup and overflow applications, or networks with GSM-based cellular service. The IMUX and BRI cards allow integration with a variety of popular videoconferencing systems, such as Intel ProShare and PictureTel.

Maximize Your Investment with MAX Stack

Network managers can better leverage their investment in Ascend's MAX family with MAX Stack software. MAX Stack aggregates multiple MAX systems by allowing them to act as a single, more powerful WAN access solution. This frees up managers to fully utilize their existing resources to better manage the bandwidth on their network. MAX Stack is also perfect if a network service provider has assigned a single hunt group to all the T1/E1/PRI lines on the stack. It allows calls to be routed to several destinations from one phone number without the need for duplicating equipment or services.

Full RADIUS Security for Windows NT

Windows NT network managers can now leverage the flexibility and security of Ascend Access Control. Ascend's implementation of RADIUS (Remote Authentication Dial-In User Service) provides highly reliable user authentication for dial-up networks. Ascend Access Control for Windows NT includes full support for NT domains, when installed with a MAX WAN access device.

EVENTS CALENDAR

Be sure to visit us at the following exhibitions and trade shows—learn about our latest product releases, see our products in action and watch live demonstrations.

DATE	EXHIBITION	LOCATION
Sept. 8-11	DVC East	Washington, DC
Sept. 17-19	Government Tech. Conf.	Albany, NY
Oct. 8-10	Networld + Interop	Atlanta, GA
Oct. 16-17	Telecommuting & Home Office Expo	San Francisco, CA
Nov. 3-5	ALTS	Atlanta, GA
Nov. 5-7	Telecon	Anaheim, CA
Nov. 17-21	Comdex	Las Vegas, NV
Dec. 10-12	Internet World	New York, NY

Ascend

Product Guide

September 1997

Return the enclosed card for a **FREE Product Guide.**

Telecommuting and Internet Access Seminars



Learn the basics of effective telecommuting. In only three hours, you can learn about analog, ISDN and Frame Relay connections; the types of digital access lines available; equipment necessary at your remote and central sites; how to provide your telecommuters with digital Internet access; how to secure your network; how to manage your telecommuting environment; and how to create a telecommuting solution that fully supports both your modem and digital telecommuters.

Reserve your space now. Seating is limited!

For more information, call 1-800-366-4058.

DATE	*LOCATION*
Sept. 16	Chicago, IL
Sept. 18	Detroit (Dearborn), MI
Sept. 23	Phoenix, AZ
Sept. 25	Denver, CO
Sept. 30	Stamford, CT
Oct. 2	St. Louis, MO
Oct. 14	Minneapolis, MN
Oct. 16	Miami (Fort Lauderdale), FL
Oct. 21	Milwaukee, WI
Oct. 23	Cleveland, OH
Oct. 28	Los Angeles, CA
Oct. 30	Sacramento, CA
Nov. 4	Irvine, CA
Nov. 6	Houston, TX
Nov. 12	Vancouver, Canada
Nov. 13	Calgary, Canada
Nov. 18	San Francisco, CA
Nov. 20	Seattle, WA
Dec. 2	San Diego, CA
Dec. 4	San Jose, CA
Dec. 9	Dallas, TX
Dec. 11	New Orleans, LA

Connections

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