WAN Solutions

Smart Network Solutions for Enterprise WANs

CABLETRON
SYSTEMS

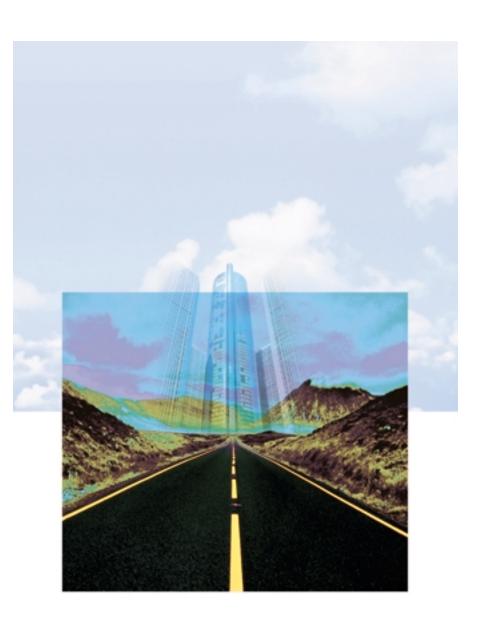# Cabletron Systems

Cabletron Systems—a recognized leader in high-performance networking solutions—has provided reliable LAN, WAN, ATM and remote access communications to millions of people throughout the world. Among its many customers are Fortune 1000 companies; service providers and telcos; federal, state and local government agencies; universities and academic institutions; health care and financial institutions; small businesses and more.

Through its award-winning technology backed by an unrivaled service and support organization, Cabletron is your e-business communications specialist.™

To learn call **603-332-9400** or visit us on the web at **www.cabletron.com**.

Technology has altered the demands placed on enterprise networks. Keeping up with that change, new technologies from Cabletron deliver the speed, functionality, and scalable bandwidth that customers' business-critical networks demand. While they once had to choose between performance and functionality, network managers today can have both—courtesy of Smart Network solutions from Cabletron.

With next-generation SmartSwitch Routers, Cabletron delivers unparalleled Layer 2, 3 and 4 performance, functionality, capacity, scalability and resiliency. You'll discover that with a Smart Network from Cabletron, you'll enjoy the benefits of full-function, wire-speed routing from the desktop to the backbone. You'll have control over application usage, and the capacity to handle enterprise and ISP backbone WAN traffic.

WAN Solutions

Business-Critical Connections

More than ever before, today's enterprise network managers are facing unprecedented challenges when providing mission-critical services for their users. These challenges include:

- Higher bandwidth needs for LAN/WAN
- Convergence of voice, video and data
- New business applications based on Internet technology
- The need for more flexible and cost-effective services for mobile users and telecommuters
- Internet security concerns
- Training and retaining of network staff
- Year 2000 equipment obsolescence

These and other impending issues faced by network managers are not only technology based, but cost based as well. The solutions must meet the ever increasing demands of users while reducing the ever increasing cost of ownership.

Cabletron's Smart Network solutions are designed to work not only in the LAN, but in the enterprise Wide Area Network (WAN) as well. Smart Networking for Enterprise WANs helps to solve the above challenges by providing the lowest cost and best application performance for private networks today, and by supporting the migration to the Virtual Private Networks (VPNs), extranets and multimedia networks of tomorrow. Cabletron achieves this by delivering products that provide end-to-end Quality of Service; include built-in support for VPNs and extranets, incorporate new access technologies, and include comprehensive security services and policy-based management.

Return on Investment

Industry studies have shown that the greatest wide area networking cost by far is that of training and retaining skilled networking staff, followed by bandwidth and equipment costs.

Cabletron's Smart Networking solutions for Enterprise WANs deliver the highest return on your investment by offering the lowest total cost of ownership through reduced staffing, bandwidth and equipment costs. They logically allow new Internet-based business initiatives through the deployment of VPNs and Security technologies, more flexible policy-based management for bandwidth provisioning and Quality of Service. This in turn leads to higher performance, productivity and increased business revenue.

The Demands on Enterprise WANs

Not only have the demands on corporate networks changed, but so too, has their role. Business-critical applications depend increasingly on network operations. For example, on-line connections with suppliers reduce the costs of transacting business, and electronic commerce offers the opportunity to reduce these costs even further. Networks have become business tools that deliver a competitive advantage. These different factors have one important thing in common: they increase the traffic across the network far beyond the capability of traditional routers.

Network equipment, which traditionally delivers either functionality or performance, is no match for the new environment. Software-based routers, while richly featured, are slow and are no longer suitable for today's demanding enterprise backbone environments. Hardware-based Layer 2 switches are fast but lack the functionality for the backbone and sometimes do not scale sufficiently for a large network. For the new landscape, network managers need products that deliver both performance and functionality.

Smart Networking for Enterprise WANs

Technology has changed the demands on enterprise networks. Older, traditional equipment is unable to keep up while new technologies from Cabletron offer scalable speed, functionality and bandwidth for customers' business-critical networks. Whereas in the past network managers

Cabletron's SmartSwitch Router family

provides solutions for the enterprise,

spanning from central or corporate offices

to branch and SOHO sites—covering the

most demanding requirements for both

routing and remote access.

were forced to choose between performance and functionality, today with Cabletron's new Smart Network solutions they can have both.

With its next-generation SmartSwitch Routers, Cabletron delivers Layer 2, 3 and 4 performance, functionality, capacity, scalability and resilience. Unlike most vendors, this means full-function wire-speed routing from desktop to backbone, with fine control over application usage, and the capacity to handle enterprise WAN traffic over both private networks and the Internet.

What Customers Receive with a Smart Network WAN Solution...

Performance—Because of the unpredictable nature of traffic patterns, performance must include wire-speed routing on all ports, even when backbone services such as security and Quality of Service are turned on. In addition, routing performance in the core of the network may need to be maintained at tens of millions of packets per second.

Functionality—New functionality must extend control to the application level without compromising performance. Simply measuring raw bandwidth usage or the amount of Layer 3 traffic provides insufficient information to optimize network infrastructure and performance. Monitoring, policing, and accounting for traffic at the application level enables network managers to identify application hot spots, balance application loads, troubleshoot accurately, and prioritize application access during times of congestion.

Capacity—In addition to performance and functionality, enterprise and ISP backbones require massive table capacity and the resilience to handle peak loads. As the number of users grows, so too does the amount of traffic across the backbone. Thus a backbone device must scale seamlessly to accommodate the traffic.

Features and Benefits	Enterprise WAN

A Smart Network for the Enterprise WAN prepares customers for tomorrow's networked economy by providing:

- Longer life expectancy with new technologies that provide a migration path to VPNs, extranets, and converged multimedia networks.

- Greater bandwidth utilization with the award-winning SmartSwitch Router which delivers wire-speed routing across LANs and WANs with end-to-end, application-aware QoS and flow shaping.

- An application-aware network that manages and switches sessions based on flows and the content of packets–not just on source and destination address, port number, etc.

- Lowest cost of ownership with award-winning dial, ISDN and DSL small office/home office (SOHO) solutions, and competitively priced and functionally rich branch office and central site solutions specifically designed to reduce WAN costs.

- Reduced cost of management with industry-leading SPECTRUM network management applications and Cabletron's highly rated worldwide customer service and support.

Backbone

Backbone Solutions

Cabletron's SmartSwitch Router 2000, 8000 and 8600 offer wire-speed Layer 2, 3 and 4 switching for demanding enterprise applications such as SAP, distance learning, as well as Internet access and communication.

Implementing routing functionality in high-speed ASICs, these enterprise SmartSwitch Routers deliver more than 100 times the performance of traditional routers at just a fraction of the cost. No other networking company can match the price, performance, functionality, capacity and manageability that this solution brings to Cabletron's family of WAN networking products.

With proven performance, and more than 50% savings, they provide growing businesses a smart move to a better network backbone. Independently verified to consistently deliver aggregate switching and IP routing through-put in excess of 30 million packets per second, the SmartSwitch Router 8600 delivers wire-speed performance with no degradation when important value-added functionality like Access Control Lists (ACLs), RMON, and RMON2 are enabled. No other product from any vendor offers that kind of performance.

High-Speed Routing Performance

By implementing routing functionality in high-speed ASICs, Cabletron is able to deliver previously unimaginable routing performance. The dynamic, non-blocking, multipoint switching fabric ensures reliable data transmission for WANs and offers multigigabit performance for LANs.

Wire-speed IP and IPX routing means that the SmartSwitch Router is never the bottleneck and can deliver high-performance routing on all LAN and WAN ports—even when all the features are turned on. Full function, wire-speed multicast routing means the SmartSwitch Router can provide the infra-structure for large-scale distribution of video, voice, or other rich data types. This unprecedented level of routing performance enables the SmartSwitch Router to scale seamlessly as the network grows.

Layer 4 Switching

Cabletron's enterprise SmartSwitch Routers extend beyond traditional Layer 2 and Layer 3 functionality by switching Layer 4 application flows at wire-speed—even across the WAN. SmartSwitch Routers enable application-level control of network traffic through maximum security, port-level accounting, and application-level QoS, with no performance penalty.

Backbone

High-Speed WAN Interfaces and Quality of Service

Cabletron's enterprise SmartSwitch Router supports high-speed WAN interfaces including multiple T1s and T3s. The T1 interfaces support hardware compression and encryption for higher data throughput and more efficient use of bandwidth while maintaining data security and integrity.

The SmartSwitch Router delivers true Quality of Service by integrating Layer 4 application awareness with policy-based traffic classification and prioritization.

Custom ASICs read into the packet to Layer 4, so that traffic can be identified, classified, and prioritized at the application level on a per-flow basis according to several different prioritization schemes.

Prioritization policies can encompass the entire network, groups of users, or specific host-to-host application flows, allowing real-time network accounting.

Prioritization policies can also be linked to WAN congestion avoidance schemes such as those for Frame Relay. This ensures that only high-priority data is transmitted over limited bandwidth WAN links to help limit network congestion.

Traffic control is given the highest priority to ensure that stability of the network is maintained at all times. This is especially important in WAN networks where network congestion can lead to routing instability. Cabletron's enterprise SmartSwitch Router provides true QoS and delivers optimal performance for all WAN traffic.

WAN Capacity

The SmartSwitch Router has large packet buffers to absorb traffic peaks and support large routing and bridging tables for even the largest networks. Thousands of ACLs can be supported to enable security in large networks without impacting performance.

Features and Benefits	SmartSwitch Router	

- High–performance, wire–speed routing, with full functionality enabled

- Scalable backbone solution is ideal for ISP and enterprise backbone environments

- High-speed WAN interfaces offer multiple T1, T3, and Frame Relay links

- Compression and encryption for more efficient bandwidth use and greater data security

- Intelligent hardware through ASIC-based design offers Layer 2, 3 and 4 connectivity

- Bandwidth management offers application-level Quality of Service (QoS)

- Multimedia enhanced architecture supports end-to-end video and voice-enabled networks

Branch Office

Branch Office Solutions

In successful businesses today, an increasing amount of work takes place at remote locations such as branch offices. Users at these sites need instant and reliable access to the information and services provided by the enterprise network.

Cabletron's SmartSwitch Router 500, 600 and 700 families allow you to connect your branch office sites to your backbone network—easily and affordably using cost-effective WAN services such as Virtual Private Networks over the Internet, or private WAN services such as leased lines, Frame Relay, ISDN and X.25.

Flexible WAN Access

The SmartSwitch Router 500 family are low cost products designed for small branch sites, while the SmartSwitch Router 600 is designed for large branch and central sites. The SmartSwitch Router 600 also offers additional options such as redundant power supplies, flexible WAN interface modules, and a hardware encryption and compression module for high-performance VPNs.

The SmartSwitch Router 700 family is designed for central sites and provides high-density WAN connections to multiple remote sites. The SmartSwitch Router 700 offers multiple serial interfaces and ISDN PRI connections, as well as hardware encryption and compression. The SmartSwitch Router 500, 600 and 700 families provide comprehensive WAN access, including Frame Relay over ISDN and Frame Relay SVCs, as well as Virtual Private Network support.

WAN re-route and restore features ensure that connectivity is maintained by using VPN, ISDN, dial or Frame Relay SVCs as backup connections should the primary connection fail. VPN, ISDN and Frame Relay SVCs also provide a cost-effective way to top-up leased line or Frame Relay PVC connections. Bandwidth reservation features provide Quality of Service to allow critical data to be sent over primary connections while less critical data can be sent over low-cost connections.

VPN Support

Virtual Private Network (VPN) support allows the SmartSwitch Router 500, 600 and 700 to provide secure encrypted links across public and private networks. VPNs reduce costs and allow intranet, Internet and extranet connections over a single physical connection, enabling e-commerce with partners, suppliers and customers.

VPN support allows secure site-to-site connections across the Internet, either as primary connections or as backup connections when a primary connection fails. The products support comprehensive VPN capabilities including L2TP tunneling, IPSec with DES and 3DES encryption, and Internet Key Exchange (IKE).

Telesaving

The SmartSwitch Router 500, 600 and 700 families support telesaving features that are designed to maximize the use of available bandwidth and minimize cost. A web-based monitoring tool charts bandwidth usage against budget.

Branch Office

- VPN support for flexible, secure and cost-effective intranet connections over the Internet

- IPSec, IKE and DES/3Des encryption ensures data security over public or private networks

- Bandwidth reservation provides Quality of Service over switched WAN links

- Compression offers higher data throughput over low-bandwidth links

- Telesaving features maximize use of bandwidth and minimize line costs

- Frame Relay SVCs establish a circuit only when there is data to send, saving on the cost of PVCs

- Powerful GUI tools allow simple configuration and set up of all features, including VPNs

- Comprehensive MIB support ensures full management via SPECTRUM

Remote Access

Remote Access Solutions

The SmartSwitch Access 700 family is a new series of Remote Access Concentrators that provide several unique and powerful capabilities for enterprise customers. These capabilities translate into lower total cost of ownership, improved visibility and better control over how remote access resources are being used, and improved security emphasizing user-based policies rather than address or device-based filters.

L4 Flow Awareness

Layer 4 IP application awareness, the ability to distinguish TCP/UDP application sessions (flows) between two endpoints, is a key capability of Cabletron's SmartSwitch Access products that no other remote access vendor can claim. Traditional dial access environments typically track usage only at Layer 2—the PPP (Point-to-Point Protocol) layer.

SmartSwitch Access provides visibility into actual network application drivers by tracking Layer 4 flows between a remote device or person and the central site, and allows Layer 4 policies to be invoked to control those flows.

This Layer 4 intelligence enables new security and accounting flexibility at the remote access edge: enterprise customers can now confidently deploy secure and accountable telecommuter or extranet access while controlling utilization of dialup resources more proactively and effectively. For the first time, administrators can leverage remote application usage data to better plan for future infrastructure deployment.

Enhanced Connection Management

SPECTRUM Connection Services Manager (CSM), the companion management tool to the SmartSwitch Access 700 family, provides real-time control over remote user authentication, policy definitions and accounting. SPECTRUM CSM is also designed to allow back-end integration with existing security databases such as NT Domains, ACE/Server, and RADIUS. This allows customers to gain the advantages of the SmartSwitch Access feature set while preserving investments in existing authentication environments.

- Supports up to 2 T1/E1/PRI ISDN and up to 48/60 V.90 56K modem or ISDN connections per device

- First (and only) remote access product supporting IP application-aware security policies and flow accounting

- First (and only) product supporting true user-based Access Control Policies—not simply device-based Access Control Lists

- Advanced NT SQL Server-based connection management for real-time authentication, authorization, flow accounting, and user base administration (bundled free)

- V.90 port pricing 20-50% below competing solutions

- Available as low-profile, rack mountable standalone or as HSIMs for the SmartSwitch 2000/6000/9000

Remote Access

Small Office/Home Office Solutions

Cabletron's SOHO solutions offer enterprise customers products that are the fastest, simplest-to-use, most feature-rich and most affordable of their kind. They are designed for the remote access needs of today's telecommuters, home and small office workers, and support traditional access methods such as ISDN as well as new "last mile" services such as DSL, cable and wireless. These SOHO solutions also support VPN capabilities to allow flexible, secure and cost-effective intranet connections over the Internet and other public network services.

Low Cost, Premium Performance

The SmartSwitch Router 100 and 200 are low-cost multiprotocol routers that offer high-speed connections to new and emerging low-cost access technologies. All models include rich functionality and are available with VPN and firewall software options.

Support for all "Last-Mile" Technologies

The SmartSwitch Router 100 is designed for ISDN access and is also available with a built-in 4-port Ethernet hub, or with 2 analog POTS. The SmartSwitch Router 200 is designed to access Digital Subscriber Line (DSL) and broadband cable services. It is also available with a built-in 4-port Ethernet hub, and an Ethernet-to-Ethernet version to connect to other "last mile" services such as broadband wireless using a suitable modem. All models are available with VPN and firewall software options.

Digital Subscriber Line

DSL provides reliable high-speed connections over the public telephone network. DSL offers a low-cost solution and is ideally suited to SOHO users who need high-speed, cost-effective data connections to the corporate intranet or to the Internet. Cabletron's Smartswitch Router 250 ADSL/DMT/G.lite product delivers proven leadership technology that works with industry standard DSLAM equipment— including Cabletron's SmartSwitch Access Multiplexor.

Broadband Cable Access

Broadband cable services offer telecommuters and home workers secure access to the corporate network and the Internet using braodband cableservice at connection speeds of up to 10 Mbps. Using Cabletron's SmartSwitch Router 265 with integral DOC-SIS-compliant cable modem users can benefit from the performance advantages that this exciting new technology offers.

SOHO

- Next-generation WAN access with DSL and cable capability as well as traditional ISDN

- "Plug and play" provides easy setup so users can connect in minutes

- Network Address Translation allows multiple users on the LAN to share a single IP address assigned by the ISP

- Built-in DHCP server automatically assigns IP addresses to PCs and workstations on the LAN

- VPN support offers flexible, cost-effective and secure intranet connections over the internet

- Integrated firewall provides secure connection to the Internet

Smart Networking

This is Your Invitation...

So now you know both how and why Cabletron can provide you a better enterprise WAN—and a better business—through the power of Smart Networking. Why wait for your current solutions to continue eating away at your budgets, profits and productivity? Make a note today to check out all the available benefits a Smart Network enterprise WAN solution can bring you.

Call us toll free at **877-606-5975** for more information or to find out the name of your nearest Cabletron Synergy Plus reseller. You can also visit us on the web to review and evaluate any of our Smart Network solutions—**www.cabletron.com.**

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