

SpeedStream®



SpeedStream® 5940 T1 Business Gateway

The voice and data integrated solution

Built for Business

A steady decline in T1 tariffs has made these services affordable for two new markets: small and medium businesses (SMBs) and enterprise branch offices. With T1 access, SMBs and enterprise branch offices can increase competitiveness by interconnecting sites, deploying productivity-enhancing applications, and taking advantage of applications like Voice over IP (VoIP) and videoconferencing.

Now service providers can cost-effectively provision and manage services for SMBs and enterprise branch offices, with the SpeedStream 5940 T1 Business Gateway. Installed at the customer premises, the SpeedStream 5940 T1 Business Gateway delivers high-speed Internet access and site-to-site communications. It also enables managed services such as firewalls and Virtual Private Networks (VPNs), IP Quality of Service (QoS), and high availability. SMBs need these services but, unlike enterprise customers, typically don't have the necessary IT resources to manage them. By offering managed services, the service provider adds value, strengthens the customer relationship, and positions itself to provide turnkey networking solutions, including equipment as well as services.¹

Incorporating the latest technological advances, the SpeedStream 5940 T1 Business Gateway combines the functions of a T1 channel service unit/data service unit (CSU/DSU), ICSA-compliant firewall, VPN security appliance, full-featured router, integrated dial backup modem, and 8-port 10/100Base-T managed Ethernet switch—all in a single chassis and at a breakthrough price point. The feature-rich operating system enables service providers to provision and manage all value-added services remotely, from a single interface, speeding service activation and eliminating the expense of on-site installation.

Enterprise-grade features for small and medium businesses

With the SpeedStream 5940 T1 Business Gateway, service providers can offer multiple managed services at the time of service introduction. They can start with one or two and add others later, gradually increasing service revenue. Potential managed services include:

- > Security—The service provider can deploy VPNs and firewalls for SMBs that don't have an IT staff, or whose IT staff prefers to outsource this service.
- > IP Quality of Service (QoS)—By differentiating between types of IP traffic and giving priority to the most urgent or time-sensitive, the service provider can offer premium services such as managed VoIP and managed videoconferencing.
- > High availability—The SpeedStream 5940 T1 Business Gateway supports high availability with a redundant configuration option and dial backup functionality. The gateway instantly detects if the T1 line is unavailable and automatically establishes a backup connection with the service provider.

Breakthrough price

Unlike modular solutions designed to support multiple access technologies, the 5940 T1 Business Gateway is optimized for secure, managed T1 access. By focusing only on T1—and eliminating the costs of purchasing, integrating, and managing separate devices for CSU/DSU, firewall, VPN, router, and switch—the SpeedStream 5940 Business Gateway makes T1 services affordable for SMBs and profitable for service providers.

1. A recent Cahners In-Stat survey of telecom decision makers reports that more than half of businesses with fewer than 100 employees would consider buying telecom equipment from a service provider.

deliver

Value-Added Services

The IP Quality of Service (QoS) and security features in the SpeedStream 5940 T1 Business Gateway enable service providers to offer managed data networking services that meet the business requirements of SMB and enterprise branch office customers. For example, consider a prospective customer with three offices across the state, IP PBX systems in two offices, and dial-up Internet access. This company would be motivated to reduce the costs of site-to-site communications, gain high-speed Internet access, and take advantage of productivity-enhancing communications applications such as videoconferencing (figure 1).

Exchange (IKE), Triple Data Encryption Standard (3DES), Layer 2 Tunneling Protocol (L2TP), and L2TP inside of IPSec

- > Premium network access for VoIP traffic
- > VoIP for site-to-site communications
- > Internet videoconferencing

By delivering managed T1 services, the service provider gains new customers, reduces churn, and delivers valuable services for which customers are willing to pay a premium.

Flexible, secure management

Ease of management directly affects service profitability. The SpeedStream 5940 T1 Business Gateway supports role-based management, giving the service provider the flexibility to decide which functions the customer can access and which remain under the service provider's exclusive control (figure 2). The ability to maintain users and roles centrally, in a RADIUS database, reduces the management burden as the service grows. Simple, secure management enables the service provider to introduce T1 services for SMBs and enterprise branch offices more quickly, begin earning revenues sooner, and scale rapidly.

By deploying the 5940 T1 Business Gateway at the customer premises and managing it from a central location, the service provider could offer:

- > T1 access
- > Firewall management—either a basic business firewall or ICSA-compliant stateful inspection firewall for enterprise-grade security
- > VPNs with support for Internet Protocol Security (IPSec) with Internet Key

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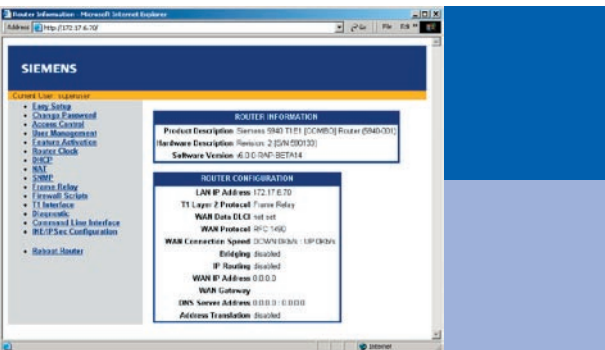


Figure 2: SpeedStream 5940 T1 Business Gateway user interface.

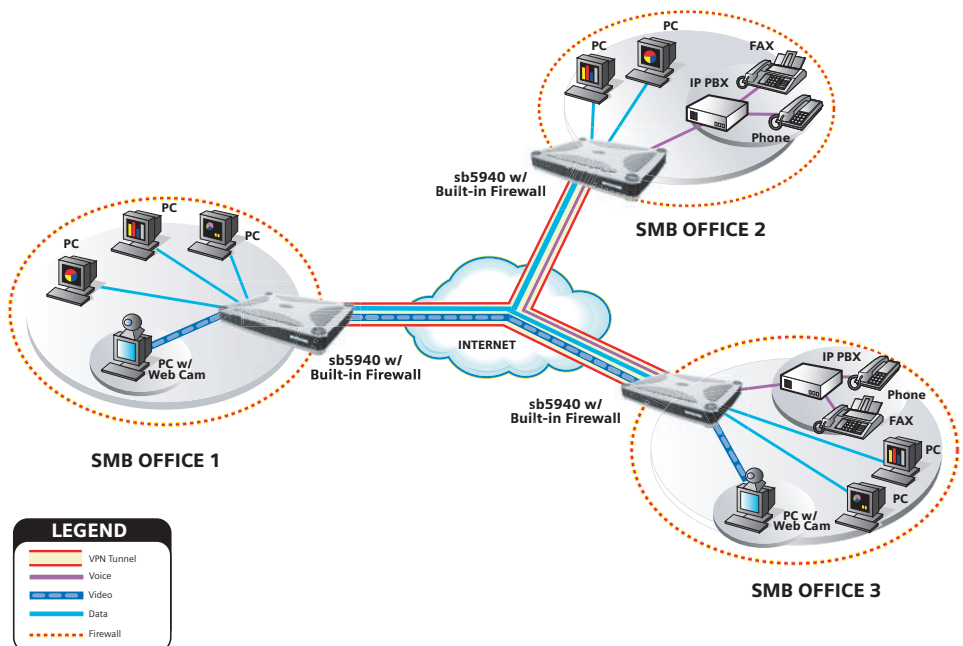


Figure 1: Multi-location SMB using the SpeedStream 5940 for T1 access, firewall, VPN, and advanced applications.

Feature

Benefit

Enterprise-Grade Security

Basic Business Firewall

Secures users' networks from suspicious packets and denial of service attacks with four preset, easy-to-implement configurations, customization capabilities, and detailed event logs

ICSA-Compliant Stateful Inspection Firewall

Provides enterprise-grade security to users who need further assurance for business sensitive data and applications

Secure Virtual Private Network with IPSec, IKE, DES, AND 3DES encryption

Secures the datapath from interception, examination, alteration or corruption by authenticating and encrypting data for all authorized network clients

VPN Accelerator

Maximizes IPSec 3DES VPN performance

Powerful, Secure Management

Remote and local management

Maximizes opportunities for managed services by providing tools to allow management over SNMP, Telnet, HTTP, or the console port. On-board scripting engine simplifies development of standard configuration scripts for mass-deployment

Secure management

Protects administrative access and communications with IPSec and SSH for authentication and encryption

Role-based management

Enables multi-level managed services by restricting the ability to view or change the configuration with up to 4 different predefined roles (up to 15 user names in the local database)

RADIUS management authentication

Reduces the cost of management by authenticating administrators in a single database

IP Quality of Service

Weighted Fair Queuing (WFQ)

Enables value-added services by optimizing router throughput based on real-time or other latency sensitive traffic types

DiffServ

Enables differentiated services and SLAs by optimizing end-to-end throughput based on traffic types

High Availability

Integrated dial backup modem

Simplifies contingency management and maximizes uptime by allowing users to automatically connect to the Internet if the T1 connection or IP datapath fails

Virtual Router Redundancy Protocol (VRRP)

Maximizes uptime by automatically rerouting traffic to an alternate router if the WAN link or IP datapath fails

Simplified Deployment

Easy diagnostics

Simplifies self-installation by allowing users to access critical information to troubleshoot and correct issues without on-site technical help

Network address translation (NAT/NAPT)

Simplifies IP address assignment by hiding the address information of the end-user's local network

8-port 10/100BASE-T Ethernet switch

Provides optimal LAN connectivity and performance

Reliable Investment

Single, integrated solution

Provides a single point of management which minimizes deployment, support costs, and space required

Platform and operating system independent

Reduces the cost of operations, due to interoperability with the IEEE 802.3 standards

technical

Software Features

Security

Secure Management

- User authentication (PAP/CHAP) with PPP (RFC 1334, RFC 1994)
- Password control for configuration manager
- SNMP community name reassignment
- Telnet/SNMP port reassignment/Access Control List
- Role-based management
 - Four pre-configured templates
 - Up to 15 user names stored in the local database
- RADIUS management authentication support
- SSH and IPSec secure management channels

Basic Business Firewall

- Filter on source and/or destination IP address/port value
- Filter on SYN, ACK flags and ICMP
- Apply input, output, transmit, and receive filters on each interface
- Stateful inspection when NAT is enabled
- Logging and scripting

ICSA-Compliant Stateful Inspection Firewall

- Provides enterprise-grade firewall protection from
 - Common Denial of Service (DoS) attacks and exploits including Killwin, Land, Ping of Death, Smurf, Teardrop, Tiny Fragments, and WinNuke
 - Distributed Denial of Service (DDoS) attacks including ICMP, SYN and UDP floods
 - Other hacking attacks including IP address sweeping, IP spoofing, port scanning
- Opens ports to serve legitimate requests and automatically closes them when the request or session ends
- Full-time Stateful Packet Inspection with built-in support for most popular applications
- No pre-defined limit on the number of rules that can be created and applied
- All firewall messages can be logged to the router console and to syslog servers
- Maintains a log of the most recently dropped packets in the browser-based user interface

Secure Virtual Private Networking

- L2TP, IPSec, and L2TP inside of IPSec
- No pre-defined limit on VPN tunnels
- IPSec Tunnel and Transport modes with AH and ESP
- Internet Key Exchange (IKE) including Aggressive Mode
- DES (56-bit) and 3DES (168-bit) encryption
- Supports Perfect Forward Secrecy (DH Groups 1 and 2)
- Provides protection from replay attacks
- Implements RFCs 1321, 1828, 1829, 2085, 2104, 2401-2410, 2412, 2420, 2437, 2451, and 2631 (Groups 1 and 2)

Configuration, Management and Monitoring

- Easy setup through a browser-based user interface
- Configuration and management using HTTP, serial console, SNMP, SSH, or Telnet
- Out-of-band configuration and management using serial console port
- Supports dedicated routed management PVC in bridged and routed mode
- TFTP download/upload of new software, configuration files, and scripts

- Stores backup copy of firmware on dual bank flash memory for system recovery
- Performance monitoring data available using SNMP
- Dynamic event and history logging
- Network boot using a BootP server (RFC 2131, RFC 2132)
- Syslog server support

IP Quality of Service (IP QoS)

- DiffServ traffic prioritization through ToS byte marking
- Weighted Fair Queuing traffic prioritization
- Configurable queue weighting
- Configurable traffic prioritization policies by
 - Date, day of week, and time
 - Source and destination addresses
 - Port, protocol, and application

High Availability

- Dial backup support – Integrated v.90 modem
- Virtual Router Redundancy Protocol (VRRP) (RFC 2338) for failover support to other VRRP-capable routers

Protocols

ATM

- Encapsulation (IP, Bridging, and Bridge Encapsulated Routing) (RFC 2684/1483)
- PPP over ATM (LLC and VC multiplexing) (RFC 2364)
- Classical IP over ATM (RFC 2225)
- Classical IP (RFC 1577)
- AAL5
- Virtual Circuit (VC) traffic shaping (CBR, PCR, UBR, VBR)
- No pre-defined limit on VCs
- I.610 OAM F5 end-to-end and segment LoopBack
- Initiates and responds to LoopBack signaling

Frame Relay

- Support of frame relay ANSI T1.618 and CCITT Q.922 formats
- DLCI support
- Inverse ARP support
- LMI support including LMI protocol discovery
- LLC auto-update
- CIR & EIR rate enforcement
- Network congestion management

PPP (RFC 1661, RFC 2364)

- PPP over Ethernet (RFC 2516)
- PPP over ATM (RFC 2364)
- Bridging (RFC 1638)
- IP Routing (RFC 1331)
- IPX Routing (RFC 1552)
- Multiclass extensions to MLPPP (RFC 2686)
- MLPPP (RFC 1990)
- Data compression of up to 4:1 (STAC™ LZS) (RFC 1974)
- Van Jacobson header compression (RFC 1144)
- Spoofing and filtering (IP-RIP, IPX-RIP, SAP, Watchdog serialization)
- Automatic IP and DNS assignment (RFC 1877)

Routing

- TCP/IP with RIP1 (RFC 1058), RIP1-compatible and RIP2 (RFC 1389), or static routing on the LAN and/or WAN
- Novell® IPX with RIP/SAP (RFC 1552)
- DHCP server (RFC 2131, RFC 2132), relay agent (RFC 1542), and client (RFC 2132)
 - Automatically defers to other DHCP servers on the network

- Automatically adjusts to changes in LAN IP addressing
- No pre-defined limit on DHCP clients
- DNS relay
- Multiple subnets on the LAN support NAT, RIP1, RIP2, ARP and IP filters
- Virtual routes can be defined based on user IP addresses or ranges

IP Address Translation

- Network renumbering (RFC 1631)
- Network Address Translation (NAT/PAT/NAPT)
- NAT passthrough support for numerous applications including IPSec, PPTP, H.323, SIP and NetMeeting
- Supports public Web and e-mail servers with NAT

Hardware Features

WAN Interface

- ANSI T1.403 compliant
- Software-selectable support for all major T1 deployments
 - ATM
 - Frame Relay
 - PPP
 - Frame Relay PPP
- Supports data rates from 64Kbps to 1,544Kbps
- ESF framing formats
- B8ZS coding formats
- Local and remote loopback
- Facility Data Link (FDL) support
- BERT (bit error rate testing) support

LAN Interface

- Built-in 8-port 10/100Base-T Ethernet switch with link status LED for each port
- Auto detects full or half duplex operation
- Auto detects regular or crossover cable for easy connection to a switch or hub
- Ports can be configured individually and manually for:
 - Enabling/disabling
 - Speed and duplex
 - Port mirroring

Serial Interface

One asynchronous serial console port

VPN Accelerator

Dedicated encryption processor maximizes IPSec 3DES VPN throughput

Product Enclosure

- Front panel LED status for Power, Test, WAN, LAN, and backup
- Rear panel LED status for Power, Test, WAN and each Ethernet port link
- Installation options: Desktop, wall mount, or 19" rack mount



SpeedStream 5940 back panel view

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