

# SpeedStream®



## SpeedStream® 5954 SHDSL Business Gateway

Choose between 2-wire or 4-wire SHDSL

### Built for Business

For cost-conscious business customers who need high performance, the new Symmetric High-Density Digital Subscriber Line (SHDSL) standard is becoming a more widely accepted technology that can be used in multiple applications such as symmetrical Internet access and campus networking. Compared to SDSL, SHDSL offers increased reach and bandwidth plus a big bonus: ITU standardization. Primary markets include small and medium businesses (SMB), enterprise branch offices, and businesses in a campus environment.

Now, businesses can quickly and cost-effectively deploy SHDSL services, with the SpeedStream 5954 SHDSL Business Gateway. What's more, SMBs can take advantage of built-in capabilities such as firewalls, Virtual Private Networks (VPNs), and differentiated classes of service.

### Easy Migration from 2-wire to 4-wire SHDSL

The reasons for using SHDSL are compelling. Compared to SDSL, SHDSL has 30% more reach, which translates to at least a 60% larger coverage area. With up to 2.3Mbps symmetric bandwidth on a single copper pair (2-wire) and 4.6 Mbps using two copper pairs (4-wire), SHDSL supports higher-bandwidth services, such as Voice over IP.

The SpeedStream 5954 SHDSL Business Gateway can operate in either 2-wire or 4-wire SHDSL mode. The ability to autosense the two modes enable both modes to be offered through a single device. This facilitates the transition from 2-wire to 4-wire SHDSL, which translates to higher throughput.

### Enterprise-grade features for small and medium businesses

Incorporating the latest technological advances, the SpeedStream 5954 SHDSL Business Gateway combines the functions of a SHDSL modem, managed 8-port 10/100Base-T Ethernet switch, ICSA-compliant firewall, VPN security appliance, integrated dial backup modem, and full-featured router—all in a single chassis.

Multiple capabilities along with a single point of management enables SMBs and enterprise branch offices to easily deploy value-added services at the time of initial installation or add these services over time, depending on their business needs. Potential services include:

> **Security**—Secure VPN and ICSA-compliant firewall protects sites from unwanted intrusions. The easy-to-use interface allows the IT staff to easily setup and manage these capabilities with little to no training.

> **IP Quality of Service (QoS)**—By differentiating between types of IP traffic and giving priority to the most urgent or time-sensitive, SMBs can take advantage of upcoming capabilities such as Voice over IP (VoIP) and videoconferencing.

> **High availability**—The SpeedStream 5954 Business Gateway supports high availability with a redundant router configuration or integrated dial backup functionality. The gateway automatically establishes a backup connection if it detects a DSL link failure, ensuring users always have connectivity.

The feature-rich operating system enables IT staff to provision and manage all value-added services remotely, from a single interface, speeding installation. And, an intuitive, browser-based interface allows business customers to install the gateway without assistance.

With extended reach, simplified provisioning and management, and support for value-added services, the SpeedStream 5954 SHDSL Business Gateway enables SMBs to take advantage of cost-effective, symmetrical services—with an assurance of interoperability with other standards-compliant equipment.

1 International Telecommunications Union (ITU) standard G.shdsl, also known as ITU G.991.2

# Value-Added Services

## Campus Networking Application

For organizations that have multiple buildings in a campus-like environment that are already be connected through telephony wire bundles, the SpeedStream 5954 Business Gateway provides a cost-effective alternative to Ethernet networking. One SpeedStream 5954 can be located at each of the remote buildings while a group of SpeedStream 5954 Business Gateways can be installed at the main headquarter building, to create a hub and spoke topology. The Business Gateways can be connected using the existing telephony wire bundles running between the buildings (see figure 1).

This creates a symmetrical 4.6 Mbps building-to-building network enabling high-speed Intranet access to headquarter applications and sharing of resources. By leveraging the built-in firewall and Secure VPN capabilities of the SpeedStream 5954, the campus ensures a highly secure network. And, by utilizing the IP QoS capabilities the campus can take advantage of voice and video applications. This application requires no new infrastructure, and results in a low-cost, easy-to-install solution with low management overhead.

## Managed Data Networking Services

The IP Quality of Service (QoS) and security features in the SpeedStream 5954 SHDSL

Business Gateway enable enterprise-grade, symmetrical data networking services that meet the business requirements of SMBs.

For example, consider a small business with three offices across the state that needs an inexpensive solution for data backup, videoconferencing, and centralized applications. By deploying the SpeedStream 5954 SHDSL Business Gateway at each of the customer premises and managing it from the main office, the small business could deploy the following capabilities (see figure 2):

- > SHDSL access
- > Firewall—either a basic business firewall or ICSA-compliant stateful inspection firewall for enterprise-grade security
- Secure VPNs with support for Internet Protocol Security (IPSec) with Internet Key Exchange (IKE), Triple Data Encryption Standard (3DES), Layer 2 Tunneling Protocol (L2TP), and L2TP inside of IPSec
- > Internet videoconferencing
- > Centralized applications from the main site

By having all the capabilities built into the Business Gateway, the SMB reduces the number of devices and support costs needed to manage these services.

## SpeedStream 5954 SHDSL Business Gateway

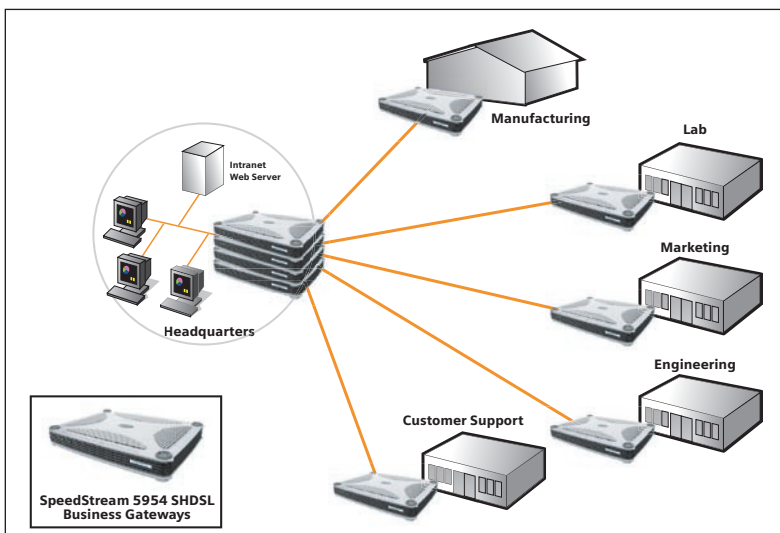


Figure 1: Using the SpeedStream 5954 SHDSL Business Gateway in a campus environment provides high-speed Intranet access.

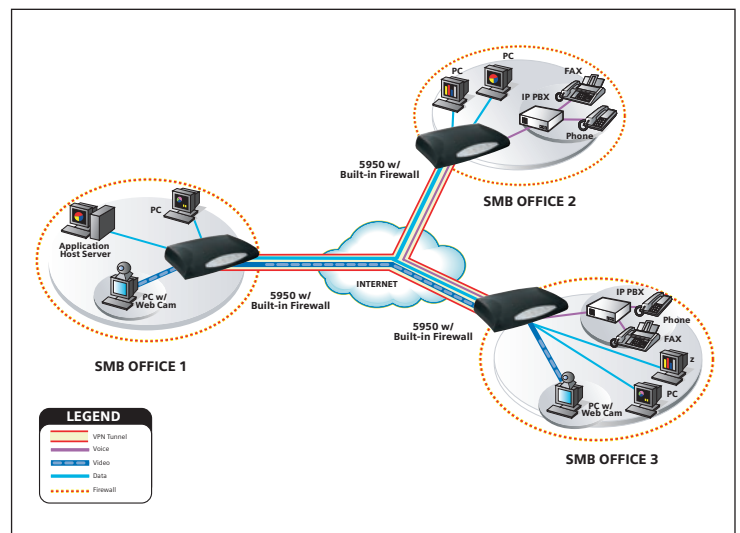


Figure 2: Multi-location SMB using the SpeedStream 5954 SHDSL Business Gateway for SHDSL access, firewall, VPN, and advanced applications.

# 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 (VPN) with IPSec, IKE, DES, 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

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## ***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

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## ***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

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## ***High Availability***

Internal V.90 modem for dial backup

Maximizes uptime by automatically using an external modem to connect to the Internet if the WAN link 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

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## ***Simplified Deployment***

Self-installation

Enables users to self-install services with no additional software and minimal knowledge of service and networking settings through any Web browser

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

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## ***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

- 2-wire and 4-wire SHDSL: Compliant with SHDSL ITU G.991.2 Annex A or B; G.hs ITU G.994.1 / autodetects the mode
- Supports symmetric line rates 192Kbps to 4,624Kbps downstream and upstream
- Embedded Operations Channel (EOC) 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 5954 back panel view

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