ST620

(i,m,s,w,3g)
Business Wireless DSL Gateway

On January 27th 2010, Thomson changed its company name to Technicolor. All product data sheets, including those for products which still carry the Thomson name, now reflect our new Technicolor brand.

CABLE

DATA

Flexible Solution

The Technicolor ST620 is an Ultra BroadBand business gateway, designed for Corporate/SMEs and SOHOs and offers plenty of possibilities through a complete set of business features.

The Technicolor ST620 is a one-box office solution for communicating to the outside world, offering security to the office, allowing to share resources (like printer, hard disks), functioning as a PABX, while being able to be managed by the operator.

Features at a Glance

- Universal Ultra Broadband business gateway (supporting as well ADSL2+, VDSL2+, Fiber networks via Gigabit Ethernet Uplink, 3G via USB dongle)
- Secure communication device, with integrated IPSec client (compatible with 4 major VPN servers), corporate firewall and content filtering.
- Dynamic routing support, including RIP, BGP and OSPF
- 3G back-up
- Extensive operator management capabilities (SNMPv3, TACACS+, Syslog)
- Standard built-in access point based on 802.11n
- Easy install / use, embedded firewall, QoS, TR-69
- Direct connection of printer, hard disk, ... via USB port for office sharing
- SOHO/SME PABX functionality (with integrated SIP server/ Back to Back User Agent)
- Non-Service-Affecting SW upgrades, through dual bank memory configuration

ST620

The flexibility of the Technicolor ST620 Series allows a wide range of network deployment scenarios, including:

Business Internet Access

Our Technicolor ST620 Business DSL router is the only physical equipment your customer needs in his head office.

The embedded stateful firewall and intrusion detection system stop attacks in the router and keep the customer save from any security violations. Content filtering based on a large online database prevents employees from accessing unproductive categories of web sites. With the integrated ISDN back-up of the Technicolor ST620, your customers will always be online: whenever the DSL-line is down, the router automatically redirects all traffic over the ISDN line. Advanced routing protocols like BGP support customers with multiple links to the Internet.

Sales people or other employees might have a Home Office or are regularly on the road, visiting customers and partners. With a combination of the Technicolor ST620 Business DSL Router and the IPSec software Technicolor STVPN Client, you can guarantee access to centralized services and applications for your customer's mobile workforce.

Managed Office Networking

The Technicolor ST620 has a 4-port Managed Ethernet Switch allowing you to connect up to 4 PCs or Servers, and features an integrated Wireless Ethernet access point.

With the Wireless Install Wizard, PCs and laptops can be easily and securely connected, allowing flexibility in the enterprise while providing security against outsiders. You may propose your customer a managed WLAN solution.
The Technicolor ST Business DSL Router at any time shows all wireless devices and their status (connected, failed to authenticate, absent), allowing to quickly troubleshoot any problems.

Any port on the Managed Switch can be configured as DMZ (Demilitarized Zone). This will allow your customer to share central services with its sales people or other employees at a minimum cost. Ports can also be configured as Guest access, allowing visitors in a meeting room to share the Internet access without compromising data confidentiality of the enterprise network.
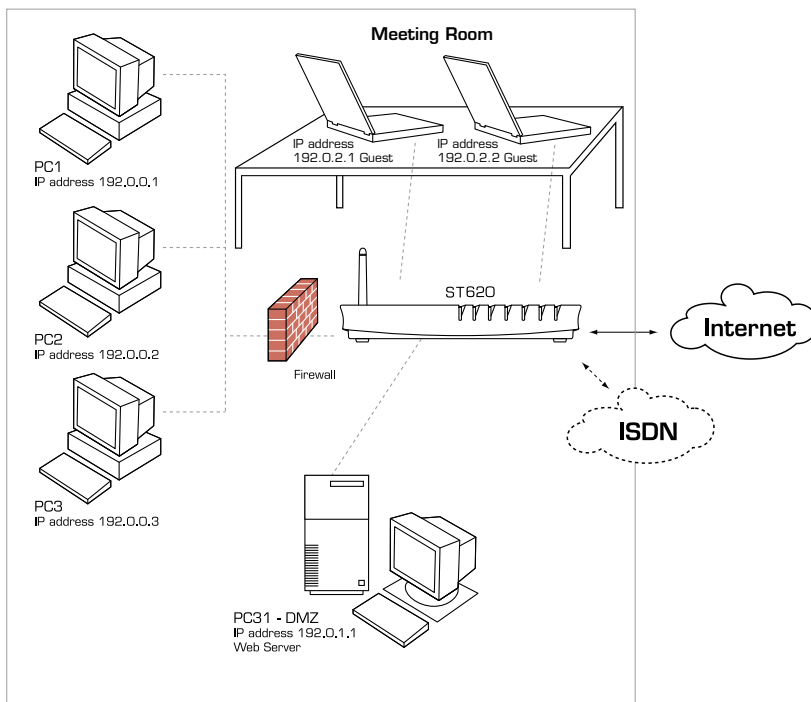
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Network VPN

The Technicolor ST620 Business DSL router optimally supports network-based VPNs based on MPLS / IP and on VPLS / VLAN technology.

In an MPLS based VPN, the BGP and RIP routing protocol allow to automatically distribute routes from the customer to the network. Existing LAN applications can continue

to run over the MPLS VPN thanks to the built-in DHCP

relay and IGMP proxy. In a VPLS / VLAN based VPN, the Technicolor ST620 Business DSL router maps VLAN packets on the correct PVC based on VLAN ID and VLAN priority, and performs port-based VLAN tagging.

Whatever VPN type you roll out, the advanced forwarding engine with support of label policies allows to provide simultaneous access to multiple network based VPNs while keeping the traffic strictly separate between the different VPNs, and to simultaneously offer VPN access and Internet access on the same DSL line. The traffic over the VPN can be encrypted to provide the customer provable privacy and security. The embedded SLA monitoring tool continuously tracks key parameters like availability, delay, jitter, and packet loss and generates summary reports on a daily and monthly basis. With the integrated ISDN back-up, your

customers will always be online: when the DSL-line is down, the router automatically redirects all traffic over

an ISDN line.

Customer Equipment VPN

Your customer is a growing Small or Medium Enterprise, having increasing needs of sharing information or

applications among different operational sites. With the IPSec LAN-to-LAN interconnect features, there is no need anymore for expensive leased lines: a standard DSL

connection and a Technicolor ST600 Business DSL Router provides you a secure connection over the Internet between the different sites.
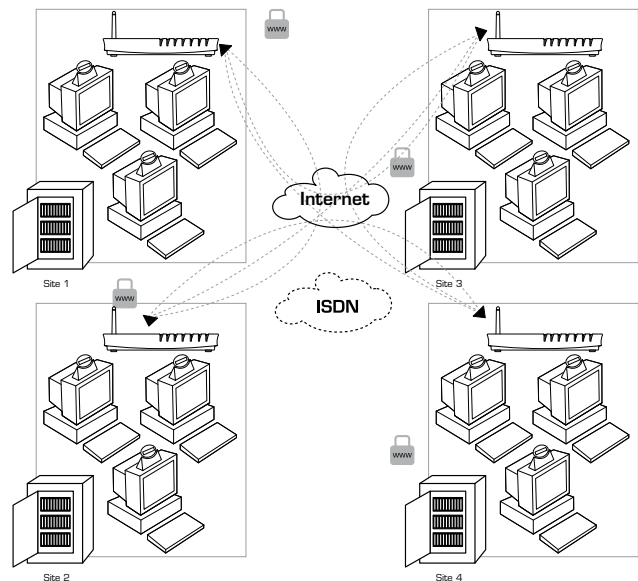
ST620

Technical Specifications

The Technicolor ST620 Series proposes a full family of high performance DSL Routers, in several DSL flavors: ADSL, SHDSL, annex m and other access technologies like 3G connectivity.

ATM Features

- Up to 16 simultaneous PVCs, allowing multiple simultaneous destinations
- ATM QoS per PVC: CBR, VBR-rt, VBR-nrt, UBR
- Service monitoring through ITU-T I.620 F4/F5 loopback, alarms (AIS / RDI) and continuity checks
- ATM PING command (loopback cells) and continuity check generator mode
- RFC 1483 / 2684 multiprotocol encapsulation over AAL5 / ATM: both LLC / SNAP and VC-based multiplexing supported

Bridging Features

- Multiport self-learning transparent bridge per IEEE 802.1D for LAN interconnect
- Remote bridge ports are isolated from each other
- Pre-defined bridge filters to WAN (no filter, no CPE-to-WAN broadcast, PPPoE only)
- and to LAN (no filter, multicast filter)

Integrated Managed Ethernet Switch Features

- FlexiPort: DHCP-based assignment of LAN devices to bridge groups (via MAC address or DHCP vendor class)

  Hybrid bridge/router scenarios on single PVC
- Port configuration: port speed, full/half-duplex
- Port mirroring – allows network debugging through non-intrusive sniffing
- SNMP support (Medium Attachment Unit, Ethernet, RMON, interface and bridge MIBs)

VLAN

- Full VLAN-aware bridging, port-based VLAN tagging
- Logical Ethernet concept: Any physical Ethernet port can be configured as an isolated IP interface (e.g. LAN, WAN, DMZ, Guest, ..) and/or as PPPoE client

  Support of multiple IP interfaces (with different IEEE 802.1q VLAN IDs) on Ethernet ports and ATM PVCs

Dial-up Networking Features (PPP Relay)

- RFC 2364 point-to-point protocol over ATM via PPPoA-to-PPTP relaying
- Multiple RFC2673 PPTP tunnels per end user allowing simultaneous VPN connections
- between multiple hosts and destinations

Routed Encapsulations

- IP over ATM (IPoA): RFC 1483 / 2684 routed encapsulation

  Support for IP unnumbered and for multiple IP addresses
- IP over Ethernet (IPoE): RFC 1483 / 2684 MAC encapsulated routing encapsulation (RFC 1483 / 2684 bridged)

  Support for IP unnumbered and for multiple IP addresses

- Embedded PPP clients: RFC 2364 PPP over ATM, RFC 2516 PPP over Ethernet

  Terminates multiple PPP sessions per RFC 1661

  Multiple PPPoE sessions on a single PVC

  PPPoE pass-through: support of pass-through PPPoE sessions (directly between PC and

  BAS) together with embedded PPPoE sessions on the same PVC

  Multiple embedded PPPoE sessions, multiple pass-through PPPoE sessions and up to one

  IPoE session can be combined on the same PVC.

  PPPoE to the LAN – allows to use Ethernet ports as WAN interface

  Both PPPoE client and server mode

  Dial-up networking user GUI allowing PPP session setup with service provider

  PAP (RFC 1334), CHAP (RFC 1994 / 2484) and MS-CHAP (RFC 2433) authentication

  Auto configuration IPCP (RFC 1331 / 1548 / 1661 / 1877)

  Dial-in, dial-on-demand and always-on PPP modes

  Support for IP unnumbered and for multiple IP addresses

  DHCP-to-PPP spoofing

  IPCP subnet mask option: Internet access for multiple PCs on a single PPP session without

  NAT / PAT (using multiple IP addresses)

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Technical Specifications

IP Routing

- Multi-port (up to 16 PVCs) router
- Static routing, automatic routes (PPP, LAN)
- IP address multi-homing
- Label-based routing: Label classification of packet streams based on source and destination IP address, source

  and destination port, type of service / diffserv bits, protocol, source interface

  Forwarding of packet streams based on the label classification

  Type of service (RFC 1349) / DSCP (RFC 2474) marking based on the label classification
- IGMPv1/v2/v3 proxy: multiple upstream interfaces, fast leave, multi-cast routing (with replication)
- IP (RFC 791), TCP (RFC 793), UDP (RFC 768), ICMP (RFC 792), IPv4 router (RFC 1812)
- ISDN Back-Up (DSL + ISDN, using integrated ISDN S0 interface):*

  PPP over ISDN (RFC 1618), Multi-link PPP (RFC 1990), PPP Dial-on-demand.

  Switch-over triggerable by PPP link failure, RIP / BGP / OSPF, F4/F5 AIS/ RDI and/or DSL

  physical layer failure

  Bandwidth on Demand: PPP Bandwidth Allocation/Control Protocol (BAP/BACP; RFC 2125)

  ISDN DSS1 (ETS 300 125, ETS 300 102-1, EN 300 403-1)

  Supplementary services: CLID, CLIP, CLIR, CBCP

  L1/L2/L3 tracing

  Remote outband configuration possibility (support of incoming calls)
- Redundancy (DSL + DSL, using two SpeedTouch 620 routers)   Switch-over triggerable by PPP link failure, RIP, F4/F5 AIS/ RDI and/or DSL physical layer failure
- Classless inter-domain routing (CIDR - RFC 1518 / 1519): subnetting, supernetting (RFC 1338),
- variable length subnet masks (VLSM - RFC 1009); support for 31-bit prefixes (RFC 3021)
- IP over LAN (RFC 894), Address Resolution Protocol (RFC 826); proxy ARP (RFC 1027) using configurable ARP table
- PING, extended PING, trace route and extended trace route
- HTTP Probe: measures DNS resolution time, TCP connect time, HTTP download time and bandwidth
- CLI tracing of the packet contents of routed or dropped packets, with configurable filters
- IP accounting: reporting of current and previous IP routing connections through the CPE
- Wirespeed routing performance

* Available as option (under SW key)

NAT/PAT

- Traditional NAT (network address translation) support for both Basic NAT / multi-NAT and
- NAPT (network address and port translation) (RFC 1631, 2663, 3022, 3027)
- Static NAPT entries and static NAT (multi-NAT, basic NAT) entries
- Transparent NAT – allows use of public IP addresses on the LAN even in case of a NAT'ed interface
- Support for NAPT default server, configurable per Public IP address
- Simultaneous support of Basic NAT / multi-NAT, NAPT, transparent NAT and default server on a single interface
- UPnP NAT Traversal, with safe NAT mode and logging of UPnP commands
- Zero-config support for VPN tunnel pass-through for IPSec / IKE, L2TP and PPTP / GRE,
- including support for multiple simultaneous tunnels, to different servers or even to the same server
- Zero-config NetMeeting / H.323 support via ILS snooping
- Zero-config SIP support, supporting simultaneously multiple SIP clients and multiple
- Microsoft Messenger clients
- Zero-config support for FTP (including passive FTP), IRC, Jabber, RealAudio and RTSP
- Zero-config IPv6 6to4 pass-through support
- Loose UDP ALG: Allows temporary inbound UDP to specific LAN host
- Game ALG: Aggregates many inbound UDP connections in a single connection
- Cone ALG: STUN NAT helper
- Hair-pin NAT (a.k.a. NAT loopback / NAT inside-to-inside)
- Configurable time-out periods for outbound sessions

ST620

Technical Specifications

The Technicolor Business Class Routers 620 benefit from the same setup tools than the residential Technicolor Products.

They can be setup locally by the embedded wizard, the CD-based wizard or by serial port. The Technicolor ST620 can be remotely visualized in any network map: graphical display of network topology and of network devices, including alarm status, logs,

counters and graphs, like the Technicolor ST Network Manager (SNM) or any 3rd party SNMP manager. In addition, software and configuration upgrade and back-up can be done trough any Network Management Platform such as HP OpenView Network Node Manager, IBM Tivoli, Computer Associates UniCenter, Alcatel/ Motive HDM and SupportSoft by using TR-69, SNMP MIBs, SNMP Traps, Syslog, SNTP, FTP/FTPS or Telnet/SSH.

UPnP

Technical Specifications

Main Features

- Language selection for CD ROM programs and web GUI supporting 8 languages
- Fail-proof setup wizard on CD ROM, customizable using operator-defined templates
- DSL-Forum TR-064 LAN Management
- Fully configurable via user-friendly web-based GUI (HTTP / HTTPS)
- Support of TLS (RFC 2246, 2817, 2818, 3268)
- Embedded multi-language setup wizard on the web, customizable using operator-defined templates
- Embedded hierarchical diagnostics tool on the web
- Extensive embedded on-line help pages on the web
- HTTP intercept: URL blocking with manual rules, URL intercept when not connected to WAN / not configured / not authenticated
- Multi-Level Password protection for web, CLI and FTP
  - Default roles include Super User, Remote Admin, LAN Admin, User, Guest
  - Allowed CLI commands and web pages per role are completely configurable
  - End-user access to the CPE can be completely disabled
- Support for HTTP digest authentication
- Command line interface over serial port (DIN), over Telnet (RFC 854) / SSH, on the web (HTTP / HTTPS - SSL) and over FTP / FTPS
- CLI fully available both in menu-mode and in text-mode
- Configurable log-in banner after telnet log-in; configurable prompt for the telnet commands
- Possibility to run operator-configurable CLI scripts stored on the CPE
- Telnet relay / telnet client: Opens a telnet session from within another telnet session.
- SNMPv1 (RFC 1155 /1157), SNMPv2/v2c (RFC 1901/1909/1910), SNMPv3 (RFC 3410-3418):
  - MIB II (RFC 1213): groups system (1), interfaces (2) (RFC 1229 / 1573 / 2233 / 2863), ICMP (5), EGP (8), Transmission (10), SNMP (11), IP (48) (RFC 2011), TCP (49) (RFC 2012), UDP (50) (RFC 2013)
  - SNMPv2/v3 MIBs: SNMPv2/v3 Framework MIB (RFC 3411), Community MIB (RFC 3411), Message Processing and Dispatching MIB (RFC 3412), Target MIB (RFC 3413), Notification MIB (RFC 3413), User-based Security Model MIB (RFC 3414), View-based Access Control MIB (RFC 3415), Transport Mappings MIB (RFC 3417), SNMPv2 MIB (RFC 3418)
  - RMON MIB (RFC 1757 / 2819): groups statistics (1), history (2), alarm (3), event (9): Allows custom traps, custom historic tables and extensive Ethernet statistics
  - ATM TC MIB (RFC 2514), ATM MIB (RFC 1695 / 2515), ADSL MIB (RFC 2662) / SHDSL / SHDSL.bis MIB (RFC 3276 / 4319)
  - Bridge MIB (RFC 1286 / 1493), Ethernet MIB (RFC 1398 / 1623 / 1643 / 1650 / 2358 / 2665 / 3635), Medium Attachment Units MIB (RFC 1515 / 2239 / 2668 / 3636) Traps MIB (RFC 1215), IP Tunnel MIB (RFC 2667), IPSec Flow Monitor MIB, PING & Traceroute MIB (RFC 2925)
  - Host Resources MIB (RFC 2790): Shows SW builds, date and time-of-day of CPE, total / free amount of RAM and Flash, processor load...

- DSL-Forum TR-069 WAN management protocol:
  - Multiple configurable remote SNMP managers, each with a configurable view up to the granularity of individual MIB elements; 5 default groups: Super User, ISP Remote Admin, ASP Remote Admin, LAN Admin, Guest
  - Multiple configurable trap destinations, with configurable maximum alarm rate SNMP manageable from the "SpeedTouch Network Manager (SNM)" (available separately) or any 3rd party SNMP manager
  - SSL support
  - Data model Use cases support: Auto Provisioning; Integrated service activation; Wireless LAN; Diagnostics
  - File Transfer: firmware, configuration file, script file
  - DNS name resolution for the Auto-Configuration Server (ACS)
- Logging of events (alarms, warnings, operator sessions,...) on web page and to standard syslog-server (RFC 3164)
- Time synchronization SNTPv1 (RFC 868), SNTPv2 (RFC 1119), SNTPv3 (RFC 1305) and SNTPv4 (RFC 2030)
- Real-Time Clock (for non-volatile time-of-day)
- Microsoft Windows UPnP: presentation, discovery and Internet Gateway Device model
- Remote and host software download capability using web / HTTP / HTTPS and FTP (RFC 959) / FTPS
- Configuration and software back-up and restore
- Storage of two software images, for fail-safe remote software upgrade and easy software
- roll-back
- Digitally signed system software, guaranteed tamper-free
- Storage of multiple configurations, with easy switch-over between configurations
- ADSL diagnostic info, including current modem state; CO and CPE vendor info and performance; actual bandwidth and maximum achievable bandwidth (in case of no DSLAM restrictions); alarm statistics and performance monitoring info
- Memory and processor load counters
- Reset to ISP-specific defaults and to generic factory defaults
- DHCP server (RFC 1541 / 2131 / 2132): Auto-sensing DHCP server start/ stop mechanism,
- DHCP-to-PPP and DHCP-to-IPSec spoofing, per-WAN-interface DHCP pool configuration and selection, Conditional Serving (based on options), DHCP Classless Static Route Option (RFC 3442), Vendor Class Identifier Option (60) & User Class Identifier Option (77) (RFC 3004), Serving of arbitrary options, IPCP subnet mask DHCP pool propagation support for Routed PPPoA and Routed PPPoE
- DHCP client (RFC 1541 / 2131 / 2132): DHCP Classless Static Route Option (RFC 3442), Vendor Class Identifier Option (60) & User Class Identifier Option (77) (RFC 3004), DHCP client over PPP (DHCP INFORM) and over IPoA, BOOTP client (RFC 951 / 1542)
- DHCP relay (RFC 1541 / 2131 / 2132): Redundant DHCP servers, DHCP relay agent information option (RFC 3046)
- Network-aware auto-IP (auto-configuration of link-local IP addresses, RFC 3330)
- DNS server and forwarding; support of multiple DNS servers; integrated Dynamic DNS client (dyndns.org, no-ip.com, dtdns.com, GnuDIP)

Technical Specifications

SLA Monitoring

A powerful embedded Service Level Agreement (SLA) monitoring engine enables Carriers, ISPs, ASPs, Integrators and Managed Services Providers to monitor and deliver reports to their customers and be pro-actively aware of network problems that impact application performance, and solve the problems even before the customer complains.

The Technicolor ST620 automatically generates Web reports showing compliancy to the agreed SLA's (availability, delay, jitter,..) by using PING/Traceroute SNMP MIB (RFC2925), MIB-II, RMON MIB. The Technicolor ST620 can easily be integrated with Network Management Systems such as Viola Networks NetAlly, InfoVista VistaView, Visual Networks IPInsight, Quallaby Proviso, Concord, NetIQ AppManager/ Chariot/ Vivinet,..

ATM QoS Features

- 16 simultaneous VC's
- Supported ATM QoS categories: UBR, VBR-nrt, VBR-rt, CBR
- Upstream PCR (UBR, CBR) and PCR/SCR/MBS (VBR-nrt & VBR-rt) shaping per VC
- Connection Admission Control (CAC) using statistical multiplexing to prevent overbooking of guaranteed bandwidth
- Per VC queueing on frame level (for SAR)
- Fixed priority ATM QoS category queue scheduling
- Selective Discard enabled by default on all ATM QoS category queues
- Explicit Congestion Notification Indication in case of ATM queue congestion
- ILMI 4.0 auto-configuration - allows automatic coordination of ATM PVC and QoS parameters between DSLAM and CPE, auto configuration of upstream shaping on existing terminated VCs, auto configuration of Bridged Ethernet on new PVCs and auto configuration of PPPoE Relay on new PVCs

IP QoS Features

- VLAN 802.1p User Priority Mapping
- IP, TCP, UDP, ICMP header based packet classification, prioritization and forwarding
- Application Level Gateway tracking of parent-to-child streams as basis for packet QoS classification
- IP rate limiting, using policing on IP packet level based on a two-rate token bucket meter with configurable mark, drop and count actions and configurable token bucket parameters (rate, burst size)
- Metering of classified data and metering on egress interfaces
- IP header TOS byte / DSCP field marking, ECN marking (RFC 3168)
- IP QoS queues instantiated per upstream interface (ATM VP/VC)
- IP QoS Scheduling: Queueing between 6 classes:
  - Real-time queue with strict priority over all other queues
  - 4 WFQ queues with strict priority over the best effort queue
  - Best Effort queue. This class will use any bandwidth that is not used by the other classes, but does not have any bandwidth guarantees.

Quality Of Service

The Technicolor ST620 Series offers quality-of-service (QoS) features to optimise the traffic priority and deliver IP packets according this priority (e.g.: voice with high priority, data with low priority).

Four levels are possible:

- ATM QoS
- IP QoS
- Ethernet QoS
- Wireless QoS

- Queue scheduling algorithms:
  - Strict priority scheduling
  - Weighted Fair Queuing (WFQ) with configurable queue weights
- Packet Discard Strategies:
  - Tail Drop
  - Early Packet Discard active queue management and congestion avoidance (RFC 2309) using the BLUE algorithm
- Configurable queue propagation to enqueue in lower priority queue in case of congestion
- Rate-Limiting of the strict priority real-time queue data to a percentage of the interface bandwidth
- Performance Improvements for Asymmetric Links (RFC 3449): 5.2.1 ACK Filtering (coagulation of ACKs of the same TCP connection); 5.4.1 Per-Flow queuing at the Upstream Bottleneck Link (with classification per flow and/or per class); 5.4.2 ACKs-first Scheduling (Prioritization of upstream TCP ACK segments); Dynamic MTU lowering during EF timer window
- Differentiated Services Architecture (RFC 2475 / 3260)
- Per-Hop Behavior: Best Effort (BE) and Class Selector (RFC 2474), Assured Forwarding (AF) (RFC 2597), Expedited Forwarding (EF) (RFC 3246)
- IP QoS TOS / DiffServ handling on Tunnels (RFC 2983)
- SLA monitoring using (extended) PING, (extended) trace route and HTTP Probe, both in one-shot mode and on continuous scheduled basis

Ethernet QoS Features

- Upstream priority queuing per PVC taking into account VLAN priority; also supports mixed bridging and routing on a single PVC with full QoS handling
- PVC mux/de-mux: One bridge port can be multiplexed / de-multiplexed over multiple ATM
- PVCs, using a configurable policy based on VLAN p-bit (IEEE 802.1p) and/or IP TOS/DSCP: Allows to map Ethernet packets to PVCs based on VLAN or IP priority
- Configurable VLAN priority re-mapping (IEEE 802.1p): Allows to re-configure VLAN priority
- Add a title "WiFi QoS features" with as features:
- Wi-Fi® Certification for WMM (Wireless Multi-Media)

Technical Specifications

ICSA Certified VPN

Technicolor's IP VPNs enable Flexible, Fast, Secure and Scaleable solutions. The SpeedTouch IP VPN uses the 'state-of-the-art" technology for VPNs (IPSec with PKI for simple deployment). Remote sites, Teleworkers or Call Center Agents can be securely connected at low cost with IPSec, scalable through Public Key Infrastructure (PKI). The Technicolor IP VPN is incredibly easy to install and use.

- Flexible
  - Easily extend network to remote users
  - Ability to set up networks or change networks architecture quickly
- Scalability
  - Leverages and extends classic WAN to more remote and external users
  - Improved geographic coverage
  - Simplified WAN operations
- TCO
  - Dial up cost savings (Teleworkers)
  - Delivers cost effective bandwidth for remote sites (branch-offices, partners ...)
  - Reduced dial infrastructure expenses and costs of the WAN.

The Technicolor products combine features to deliver voice, video and data IP networks through VPN solutions.

ICSA Certified Firewall

Everyone knows about crackers and the dangers they can pose to business. The Technicolor ST620 Series has a built-in statefull firewall that denies all unauthorized access.

End-users, equipment retailers or ISPs can configure this powerful firewall for a broad range of security policies and requirements. Attacks are stopped in the router and a log of attempted breaches of security is kept for audit purposes. The Technicolor ST620 keeps you safe from security violations.

IP VPN Features*

- IPSec (RFC 2401 / 2407): ICSA VPN certified - guaranteeing a solid security implementation and complete multi-vendor interoperability
- Key distribution
  - Public key infrastructure (RFC 2459, ITU-T Q.817) with X.509 digital certificates; support for cross-certification and chain of trust
  - On-line PKI enrollment: CEP (certificate enrollment protocol) interoperable with Entrust, VeriSign, Netscape and Microsoft CAs
  - Off-line PKI enrollment: PKCS#10 "Certification Request Syntax Standard" (RFC 2314 / 2986) and PKCS#7 (RFC 2315) "Cryptographic Message Syntax Standard", compatible with Entrust, VeriSign, Netscape, RSA Keon and Microsoft
  - Shared secrets
- Tunnel set-up
  - ISAKMP, IKE / Oakley (RFC 2408 / 2409 / 2412), Main Mode and Aggressive Mode
  - Diffie-Hellman 768-, 1024- and 1536-bit Modular Exponentiation (MODP) groups (number 1, 2 and 5)
  - IKE IDs: IP addresses, FQDN's; email addresses; keyid / groupname; ASN.1 distinguished name; masking of remote ID's"
  - Certificate Revocation List (CRL) – ITU-T X.509v2; offline import; online import via LDAP (RFC 1777) and HTTP interface
  - Xauth authentication: PAP and CHAP
  - Support of redundant gateways, with Dead Peer Detection (RFC 3706) and configurable idleness monitoring
- IPSec as server:
  - IKE Mode Config: automatic push of configuration information to an IPSec client
- IPSec as client:
  - IKE Mode Config: dynamic retrieval of IP address, policy for split tunneling, DNS and
  - WINS server IP address, DNS domain name
  - NAPT at the head of the tunnel; DHCP spoofing with the red IP address assigned by IKE Mode Config
  - Single and multiple client replacement scenarios

Technical Specifications

Supported Intrusion Detection Signatures

Fragment signatures	Scan signatures	Denial-of-Service signatures	Protocol signatures	Rate signatures
Fragment sweep	IP protocol scan	TCP SYN flood	TCP null port	TCP rate limitin
Zero-length	TCP port scan	UDP flood	TCP data on SYN segment	UDP rate limiting
fragment size	TCP SYN scan	Ping flood	TCP invalid urgent offset	ICMP rate limiting
Small fragment size	Stealth TCP null scan	ICMP unreachable storm	UDP null port	IP rate limiting
Fragment size overrun	Stealth TCP FIN scan	Smurf broadcast attack	ICMP type unknown	
Fragment overlap	Stealth TCP xmas scan	Smurf storm attack	ICMP code unknown	
Fragment out-of-order	Stealth TCP full xmas scan	Fraggle broadcast attack	IP zero payload	
	Stealth TCP vecna scan	Fraggle storm attack		
	Stealth TCP SYN-FIN scan	Land attack		
	UDP port scan	Spoofed packet		
	Ping sweep scan			

- **Tunnel mode and transport mode**: -ncapsulating security payload header (ESP - RFC 2406)

- **Transport mode**:
  - Differentiated Services handling on IPSec tunnels (RFC 2983)
  - NAT-Traversal (NAT-T version 0,3 and 6; RFC 3947 / 3948): IPSec ESP on top of UDP
  - GRE (RFC 1701 / 2784, with key option RFC 1702 / 2890 and CRC extensions) and IP-in-IP (RFC 2003) tunnels
  - Bridge Emulation Mode (BEM) using proxy ARP
  - Automatic and manual policy rules
  - Windows Networking / NetBIOS over IPSec

- **Encryption**: AES Rijndael – 128 / 192 / 256 bits (RFC 3602), DES – 56 (64) bits (RFC 2405, FIPS-46-2, FIPS-74, FIPS-81), 3DES – 168 (192) bits, null encryption (RFC 2410), perfect forward secrecy (PFS), ESP CBC-mode cipher algorithms (RFC 2451)

- Hashing : Keyed MD5 (RFC 1825 / 1828), Keyed SHA1 (RFC 1852), HMAC-MD5 (RFC 2403),

- HMAC-SHA-1 (FIPS-180-1, RFC 2404 / 3174)

- Optional SpeedTouch IPSec SW client for tele-workers

Statefull Embedded Firewall

- Statefull inspection, supporting bi-directional TCP streams (with windows size and sequence number tracking), bi-directional UDP streams (with loose and strict UDP tracking), and the associated ICMP streams (with sequence number tracking), portless protocols (ESP, GRE, 6to4, ..), application streams (integrated with NAPT Application Level gateways) and UPnP NAT Traversal

- Pre-defined firewall rules for LAN, WAN, DMZ and GUEST interfaces

- Intrusion detection and Denial-of-Service attack detection and prevention; limitation of the amount of half-open TCP connections; detection of TCP SYN scans; limitation of the amount of connected TCP, UDP, ICMP and IP streams; prevention against spoofing; resistant against fragment attacks and withstands all attacks from well-known hacker tools (e.g. Nessus). Support of counters and logging.

- ICSA certified as corporate class firewall. Built-in hardware non-volatile real-time clock

- keeps the time even when the CPE restarts or is powered down. Extensive logging capabilities.

- Powerful firewall GUI, allows to create firewall rules on the web interface with full flexibility

- Easy-to-use slider firewall GUI, allows quick changes between firewall security levels

- Content filtering: URL classification and filtering according to 59 categories, based on look-up in a database accessible on the Internet.

- Packet filtering for all information available in the IP packet header:
  - Source and destination interface, IP address and port
  - TCP incoming / outgoing connections
  - PINGs, ICMP type and code number, type of service, protocol
  - Logging of intrusions to webpage and to syslog

Technicolor VPN Client (available separately)

ST620
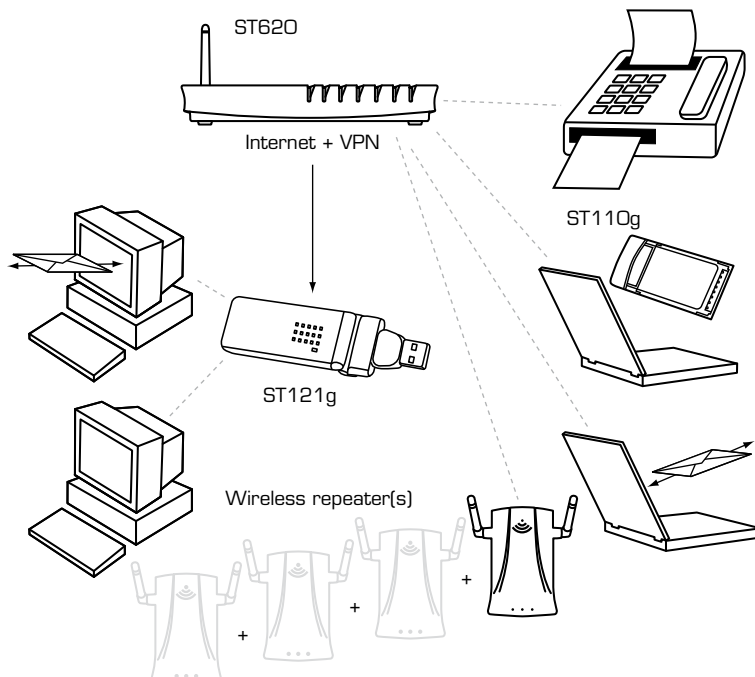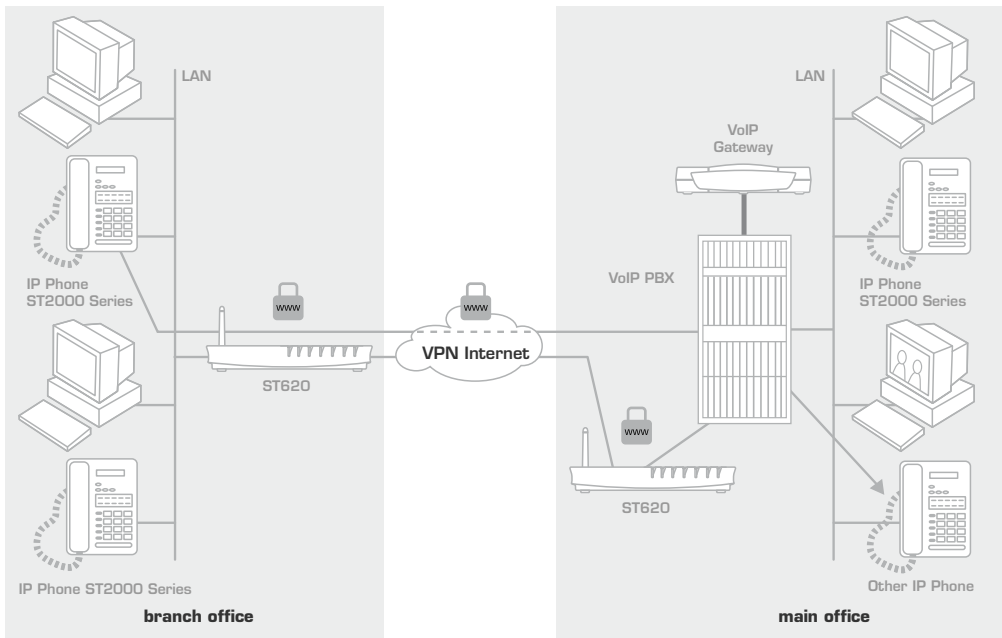
(i,m,s,w,3g)
Business Wireless DSL Gateway

Technical Specifications

The Technicolor ST620 Series features an integrated Wireless Ethernet access point. For the business customers, it allows flexibility in the enterprise while providing security against outsiders. With the Wireless Install Wizard, PCs and

laptops can be easily and securely connected. For the

Carrier, Integrator or ISP, it permits to offer a managed WLAN solution. The Technicolor Business DSL Router at any time shows all wireless devices and their status

(connected, failed to authenticate, absent), allowing to quickly troubleshoot any problems.

ST620

## (i,m,s,w,3g)
Business Wireless DSL Gateway

Technical Specifications

Wireless Capabilities

- Wi-Fi® Certification for IEEE 802.11b & IEEE 802.11g

- Wi-Fi® Certification for WMM (Wireless Multi-Media): Wireless QoS

- Wi-Fi® Certification for WPA-Personal (TKIP), WPA-Enterprise (802.1x + RADIUS – TKIP), WPA2-Personal (AES), WPA2-Enterprise (802.1x + RADIUS – AES); EAP Types: EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM

- WEP 40 & 128 compliance, MAC address based access control, registration push button

- Wireless Distribution System (WDS)

- Wireless Network Install Wizard

- WLAN usage and performance statistics

Remote CAPI

- Allows to send and receive faxes and SMSs from any LAN PC

- Missed calls are answered by an Answering Machine and the message is logged as a voice mail; remote play-back of messages over phone

- Outlook integration: Dial ISDN calls and send faxes from the Outlook address book, receive faxes/SMSs/answerphone emssages in the Outlook Inbox, receive Outlook reminders via SMS

- Remote CAPI is the interface protocol between the ISDN interface of the CPE and the PCs

- on the LAN.

- CAPI.DLL on SpeedTouch CD ROM: implements the interface to the CPE, just as if there would be an ISDN card in every PC of the office
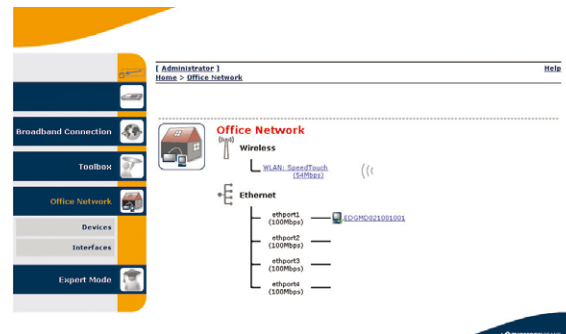
Technical Specifications

Network VPN

The SpeedTouch 620 Business DSL router optimally supports network-based VPNs based on MPLS / IP and on VPLS / VLAN technology, thanks to support for high-end routing protocols (BGP, OSPF, RIP), extensive VLAN features (both in bridging and routing mode), the embedded SLA monitoring tool and the integrated ISDN back-up. These network-based VPNs offer a maximum of manageability from an operator-point of view, equalling and even exceeding the user experience as offered by traditional leased lines or frame relay private line connections in terms of security and service level agreements.

BGPv4

■ RFC compliancy:	Standard BGP (RFC 1654 / 1771 and draft-ietf-idr-bgp4-26.txt)
	Route Refresh Capability (RFC 2918)
	Capability Advertisement (RFC 2842 / 3392)
	Dynamic Capabilities (draft-ietf-idr-dynamic-cap-07.txt)
	Graceful Restart Mechanism (draft-ietf-idr-restart-10.txt): Responder
	Multi-Protocol Extensions for BGP4 (RFC 2283 / 2858 and draft-ietf-idr-rfc2858bis-07.txt): IPv4 Address Family
	RFC BGP Route Selection compliant, with extensions
	Guidelines for creation, selection and registration of an Autonomous System (RFC 1930)
	Using a dedicated AS for Sites Homed to a Single Provider (RFC 2270)
■ Route Manipulation:	Default Network (max 4 statements; router scope)
	Network Statement (max 32 statements; BGP global scope)
	Redistribute Connected Routes (LIS, p-t-p IP, Layer 2 tunnels: IPinIP / GRE)
	Redistribute Static Routes (Standard, Interface, Extended)
	Redistribute RIP / OSPF routes

■ Route Filtering: Route Filters based on Access Lists, Implements Martian Address filters by default

■ Dimensioning: 8 BGP sessions (= peers), BGP-RIB size: 1024 entries

■ Use cases:	Simple IBGP
	Simple EBGP including support for RFC1930
	Use of BGP in Layer 2 VPNs (ATM based, VLAN based)
	EBGP in the context of BGP/MPLS VPNs (except for CE Extended Community Route Targets)
	EBGP & Floating static
	EBGP & Default Network / Generated Routes
	Multi-homing situations (IP Based Load Balancing, IP Based Redundancy, including support for RFC 2270)

■ Traffic Engineering: Attributes per peer: Preference, Preference 2, Local Preference In, Local Preference Out, AS-Path (Prepending), Multi-Exit-Discriminator In, Multi-Exit-Discriminator Out

■ BGP combined with loopback interfaces: BGP Multi-Hop, BGP Next-Hop Self

■ Configuration: Two-level CLI: BGP & BGP Peer, Well chosen defaults, Minima and Maxima on configurable items

■ Troubleshooting: Show and List commands, Syslog messages, CLI tracing

■ Interop testing in own lab: Cisco IOS, Juniper JunOS and JunOSE, Riverstone Rapid OS,

■ Tasman and OpenBGP	OSPFv1 (RFC 2178) and OSPFv2 (RFC 2328)
	RIPv1 (RFC 1058) and RIPv2 (RFC 1723 / 2453)
	Support for MPLS networks: Dedicated support for provider-provisioned PE-based MPLS networks:

OSPFv1, RIPv1

■ OSPFv1 (RFC 2178) and OSPFv2 (RFC 2328)
■ RIPv1 (RFC 1058) and RIPv2 (RFC 1723 / 2453)

Support for MPLS Networks

■ Dedicated support for provider-provisioned PE-based MPLS networks:	Announcing of CPE IP address to a BGP-MPLS VPN using RIP or BGP
	Advanced RIP / BGP route filtering capabilities to support simultaneously Internet access and MPLS VPN access using RIP / BGP
	Encryption over MPLS using IPSec
	Monitoring from CPE to an MPLS VPN using PING & Traceroute MIB
	Support of DHCP over MPLS VPNs using DHCP Relay
	Support of multi-cast traffic over MPLS VPNs using IGMP Proxy

Support for VPLS Networks

■ Dedicated support for VLAN-based Metropolitan Area Networks:	VLAN aware bridging (IEEE 802.1q), with isolated or shared self-learning bridged table per VLAN: Allows to map Ethernet packets to PVCs based on VLAN ID in bridging modes
	VLAN tagging: Allows to tag Ethernet packets based on Ethernet port
	Extensive VLAN quality-of-service (IEEE 802.1p) implementation, with PVC mux/de-mux,
	VLAN QoS-aware queuing per PVC and VLAN priority re-mapping
	Support of single- and double-VLAN-tagged IP interfaces: Allows the use of all routing features (like encryption, authentication, stateful firewall, NAT, IDS/IPS, content filtering, ISDN back-up, IP QOS, SIP PBX, ..) also for VLAN traffic
	Support of a separate management VLAN
	Support of SLA Monitoring (PING & Traceroute SNMP MIB) over a customer VLAN

ST620

(i,m,s,w,3g)
Business Wireless DSL Gateway

Technical Specifications

Hardware Specifications

WAN Interfaces

- DSL line RJ11
- ADSL, ADSL2, Re-ADSL (annex L), ADSL2+ and enhanced upstream ADSL2+ (annex M) for the SpeedTouch 620(i)
- SHDSL and SHDSL.bis 2-wire and 4-wire for the SpeedTouch 620s: support of wetting current; auto-detect of 2-wire / 4-wire SHDSL mode; auto-detect of ATM / EFM mode; Transmission Quality Monitoring. The 4-wire SHDSL can be configured as:

  - one 2/4-wire interface: either in CPE mode (connecting to a DSLAM) or in CO mode (to connect to another CPE, for offering inexpensive symmetric bandwidth over blank cupper)

  - two separate 2-wire interfaces: either both in CPE mode (can even connect to two different DSLAMs, for back-up purposes and load balancing), both in CO mode (to connect to two remote CPEs) or one in CO and one in CPE mode (for add/drop purposes in linear networks and as repeater with traffic insertion functionality)

  - VDSL2 2-wire and 4-wire for the SpeedTouch 620v

  - For all DSL variants: Complete embedded operations channel (EOC) implementation;

  - Support of dying gasp (allows to distinguish cable cut and CPE power outage)

  - Fast Ethernet and Gigabit Ethernet Copper and Fibre SX/LX for SpeedTouch 620f

  - Integrated ISDN So interface (for ISDN back-up)*

LAN Interfaces

- 4-port 10 / 100BaseT auto-detect Ethernet switch IEEE 802.3 (RJ45), half- / full-duplex with
- auto-MDI / MDI-X

Serial Interface

- DIN type

Wireless Interface

- 802.11b/g

Other

- PCMCIA / CardBus plug-in slot for future extension: GPRS, UMTS, WiMAX, V.90 back-up, .. (not available on SpeedTouch 620s)

Physical Specifications

- Height: 35 mm (1.38 in.)
- Width: 238 mm (9.30 in.)
- Depth: 185 mm (7.29 in.)
- Color-coded cabling
- Optional wall-mount support

Operating Environment

- Temperature: 0° to 40° C (32° to 105° F)
- Humidity: 20% to 80%

Power Requirements

- AC voltage: 100 to 120 V AC, 220 to 240 V AC; optional 48V DC power supply
- Frequency: 50 / 60 Hz
- Power Cord Lock system to avoid accidental power plug-out
- Power consumption: 12 W maximum

* Available as option (under SW key)

Name	Downstream Bandwidth	Upstream Bandwidth
ISDN	128k	128k
ADSL	8M / 12M	0.8M
ADSL2+	27M	1.2M
ADSL2+ annex M	26M	2.7M
S		

ST620 Back panel

Technicolor Professional Services are available to address your demands for qualified technical support & warranty, product maintenance, access to training courses and tailor-made solutions to specific product evolution. For more information, please ask your usual contact person.

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