Allied Telesis

AT-AR410 SERIES

Modular Branch Office Routers

AT-AR410
Modular Branch Office Router

AT-AR410S
Secure Modular Branch Office Router

Wirespeed E1/T1 IPsec VPN Operation

With full Layer 3 multi-protocol routing combined with wirespeed VLAN switching in one compact unit, the AT-AR410 Series re-defines business-class routing. The AT-AR410 Series supports an extensive range of network services using simple modular plug in cards. Offering unprecedented flexibility and performance in such a compact unit, the AT-AR410 Series is particularly suited to T1/E1 applications where even the most data-intensive VPN operation is supported at full E1/T1 speeds. The AT-AR410 Series is designed for the Small to Medium Enterprise (SME) and the branch office where multiple workgroups will benefit from VLAN separation together with high performance VPN tunnel operation for connection to remote offices and teleworkers, across the Internet. Businesses can also enjoy the cost advantages of Frame Relay networking at wirespeed E1/T1 rates.

Unique VLAN Operation With Integral 4 X 10/100MBPS Switch

Unique for a product in this price bracket, the AT-AR410 Series routers support port-based and 802.1q tagged VLAN operations across their 4 x 10/100Mbs switch ports. This capability offers a potent combination of wirespeed L2 switching between VLANs as well as high performance L3 routing between VLANs in one highly cost-effective unit*. By supporting Layer 3 routing between VLANs at a sustained rate of 8,500 PPS for 64 byte packets, the AT-AR410 Series is a price breakthrough for small offices that have previously found the benefits of VLAN routing to be cost prohibitive.

Simple Plug-in Flexibility

A range of different Port Interface Cards (PICs) can be plugged into the external network slot, including high speed E1/T1, V35/V21 sync, BRI/PRI ISDN and Ethernet PICs. This permits simple, affordable connectivity to today's network while allowing you to protect your investment and upgrade to new, speedier services in the future. Interface cards can be swapped in seconds and are automatically detected by the routers. These interface cards are shared with the Allied Telesis AT-AR700 Series of Enterprise routers, as well as the Rapier family of Layer 3 switches. The onboard management/async port can be used for local management or for connection to an external modem.

Stateful Inspection Firewall and DMZ

Allied Telesis' state of the art, stateful inspection firewall provides the highest level of security possible by providing full application-layer awareness without breaking the client/server model. Stateful inspection extracts the state-related information required for security decisions from all application layers and maintains this information in dynamic state tables for evaluating subsequent connection attempts. It also protects against a wide range of Denial of Service (DoS) attacks including Ping of Death, SYN/FIN flooding, Smurf attacks, port scans, fragment attacks and IP spoofing. E-mail alerts are automatically triggered when such attacks are detected. This provides a solution that is highly secure and offers maximum performance, scalability, and extensibility. This feature is part of the optional security bundle on the AT-AR410 and is standard on the AT-AR410S.

** Each AT-AR410 switch port can only be a member of one tagged or untagged VLAN.*

Key Features

- Port Interface Card (PIC) bay supporting a range of LAN/WAN interfaces
- High-performance IPsec DES & 3DES VPN
- Stateful Inspection Firewall
- 10/100Mbps Ethernet LAN/WAN port Integral 4 x 10/100Mbps full duplex Ethernet switch
- Port-based VLAN operation on 4 switch ports
- 8Mb Flash for storage of two software releases
- OSPF
- BGP-4 (Optional)
- CLI & SNMPv3 management
- Web GUI

Software QoS

Allied Telesis' AlliedWare™ software release 2.7.1 provides advanced QoS and shaping features on the AT-AR410 Series. There are five key new QoS features available in this release—Bandwidth Metering, RED Curves, Mixed Scheduling, Virtual Bandwidth, and DAR. This release also supports eight queues per interface. Dynamic Application Recognition (DAR) is used to snoop for session setup exchanges and dynamically create classifiers that match the voice and video packets in the session. For more information about these advanced QoS features, see the Allied Telesis Advanced QoS White Paper available on our website.

Hardware Accelerator for VPN and IPsec

The AT-AR410 Series optional hardware accelerator cards provide high performance compression and/or DES and 3DES encryption on all PPP and Frame Relay links. By offloading this work from the central routing processor, these hardware accelerators will ensure that DES-based IPsec and VPN operation will run at true wirespeed E1/T1 rates, hence maximising costly WAN links.

Configuration and Management

- Telnet remote management is supported across the LAN and WAN
- The AT-AR410 Series supports Secure Shell (SSH) connections, which provide authenticated and encrypted secure remote management. SSH clients are available from third parties.
- The AT-AR410 Series also supports SNMPv1, SNMPv2, SNMPv3, MIB II and Enterprise MIB

About Allied Telesis

About Allied Telesis

Allied Telesis was founded in 1987 and now has offices around the globe, over 2,800 employees and over $500M of worldwide annual revenue. The attributes which have led Allied Telesis to achieve its leading position in the enterprise, operator and connectivity business segments can be summarised by four key elements: its business focus on networking technology for professional markets, where Allied Telesis has proved to be the only company capable of providing a total end-to-end solution at a high price/performance ratio; the ability to handle every aspect of its own products from design to marketing; the development of components and solutions which accommodate flexible, efficient and reliable network construction; and support from sound warranty terms and quality services. Allied Telesis connects the IP world efficiently thanks to affordable and highly reliable network solutions. For more information see: www.alliedtelesis.com

Service and Support

Allied Telesis provides value-added support services for its customers under its Net.Cover℠ programs. For more information on Net.Cover℠ support programs available in your area, contact your Allied Telesis sales representative or visit our website: www.alliedtelesis.com

Feature Summary

Dial-up Networking (ISDN & analog)

Calling Line ID (CLI)
Dial-on-Demand
CLI Call-back
Multilink PPP (MPP)
Bandwidth Allocation Control Protocol (BAP/BACP)
Always on Dynamic ISDN (AODI)

Leased Line

SYNC up to 2 Mbps
E1/T1/G.703 Unchannelized / Channelized

LAN Protocols

IP
IPX/SPX
IPX/SPX Spoofing
PPPoE

Routing Protocols

Static Routes
RIP & RIP V2
OSPF
BGP-4 (option)

WAN Protocols

Frame Relay
X.25
DecNetIV

Remote Access Dial-in Support

Asynchronous Serial Ports with Routing Support

LAN Bridging

Spanning Tree

Compression

STAC Compression

IP Address Management

IP Multihoming
Dynamic IP address assignment
DHCP

Authentication

CLI, PAP/CHAP Authentication
RADIUS/TACACS Authentication

VPN and Security

NAT (Network Address Translation)
PAT (Port address translation)
IP Packet Filtering
Generic Routing Encapsulation (GRE)
L2TP Access Concentrator / Network Server
ICSA-certified Stateful Inspection Firewall
Hardware 56-bit DES Encryption (option)
Triple DES Encryption (option)
ICSA-certified IPsec
IKE
Secure Shell Remote Management (SSH)
Secure Socket Layer (SSL) for secure GUI, or in conjunction with the load balancer

VLANs

Port-based VLAN operation on 4 switch ports
Up to 4 VLANs
Wirespeed switching between VLANs
Tagging supported in 'upstream' direction only

Traffic Shaping and QoS

IP Packet Prioritisation
RSVP
DiffServ
Upstream bandwidth limiting
Rapid Spanning Tree Protocol (RSTP)

Redundancy

Virtual Router Redundancy Protocol (VRRP)

Configuration and Management

Console Port
Command Line Interface
Telnet
Web Browser
SNMP / SNMPv2c / SNMPv3

Power Characteristics

Input Voltage: 100-240vAC, 50-60Hz, 10W
Max Power Consumption: 17.6W (+3V3@2A, +5V@1A, +12V@0.5A)
Integral universal power supply
Security clip to retain IEC power cord

Physical Characteristics

1U Rack mount
Depth: 190mm
Width: 305mm
Weight: 1.75kg (3.75lbs)

Environmental Characteristics

Operating temperature range:
0°C - 40°C (32°F - 104°F)
Storage temperature range:
-25°C - 70°C (-13°F - 158°F)
Relative humidity range:
5 - 95% non-condensing

Approvals

EMC
Emissions: EN55022 class A, FCC class A, VCCI class I, AS/NZS3548 class A
Immunity: EN55024
Safety: UL60950, CAN/CSA-C22.2 NO. 60950-00, EN60950, AS/NZS3260
Listing: UL, cUL

Network Interface (where applicable to PIC)

ISDN Limited Network Protocol Analysis, FCC Part 68, Subpart D, IC CS-03 Issue 8 Part I and VI, CTR2, CTR3/A1, CTR4, ACA TS031

Hardware Features

* *An MDI/MDI-X selection switch is provided for port 4. Ports 1 to 3 are hard-wired in MDI-X mode*

** *used for high performance Encryption and Compression*

	Fixed Ports/Base Unit Optional PIC Module	Optional PIC Module
10/100Mbps F/D Ethernet LAN/WAN	1	4
10/100Mbps F/D Ethernet Switched ports*	4	-
Port Interface Card Slots	1	-
Internal Mini Accelerator Card Slot**	1	-
Asynchronous RS232 Interface to 115kbps	1	4
Synchronous Interface to 2Mbps	-	1
ISDN BRI (U & S/T)	-	1
ISDN PRI	-	1
T1/E1/G.703 to 2Mbps	-	1

Memory

DRAM: 16Mb
Flash: 8Mb (can store two images)

Reliability

MTBF: 50,000 hours min
MTTR: 0.5 hours max
Warranty: 2 years

Country of Origin

China

Standards and Protocols

Software Release 2.7.1

BGP-4

RFC 1771 Border Gateway Protocol 4
RFC 3065 Autonomous System Confederations for BGP
RFC 1997 BGP Communities Attribute
RFC 1998 Multi-home Routing
RFC 2842 Capabilities Advertisement with BGP-4
RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2918 Route Refresh Capability for BGP-4
RFC 2385 Protection of BGP Sessions via the TCP MD5 Signature Option

Encryption

FIPS 46-3 DES
FIPS 46-3 3DES
FIPS 180 SHA-1
FIPS 186 RSA
RFC 2104 HMAC

Ethernet

IEEE 802.1D MAC Bridges
IEEE 802.1G Remote MAC Bridging
IEEE 802.2 Logical Link Control
IEEE 802.3u 100BASE-T
IEEE 802.3x Full Duplex Operation
IEEE 802.3ac VLAN TAG
IEEE 802.3ad (static) Link Aggregation
IEEE 802.1Q Virtual LANs
IEEE 802.1v VLAN Classification by Protocol and Port
RFC 894 Ethernet II Encapsulation

General Routing

RFC 1918 IP Addressing
RFC 791 IP
RFC 950 Subnetting, ICMP
RFC 1812 Router Requirements
RFC 1055 SLIP
RFC 1122 Internet Host Requirements
RFC 1582 RIP on Demand Circuits
"IPX Router Specification", v1.2, Novell, Inc., Part Number 107-000029-001 IPX Router Specification
RFC 792 ICMP
RFC 1288 Finger
RFC 1701 GRE
RFC 1702 GRE over IPv4
RFC 2131 DHCP
RFC 1542 BootP
RFC 826 ARP
RFC 925 Multi-LAN ARP
RFC 3232 Assigned Numbers
RFC 2661 L2TP
RFC 2822 Internet Message Format
RFC 903 Reverse ARP
RFC 1027 Proxy ARP
RFC 793 TCP
RFC 768 UDP
RFC 1144 Van Jacobson's Compression
AppleTalk
ISO 9542 End System to Intermediate System Protocol
RFC 2390 Inverse Address Resolution Protocol
RFC 1142 OSI IS-IS Intra-domain Routing Protocol
ISO 10589, ISO 10589 Technical Corrigendums 1, 2, 3, ISO Intermediate System-to-Intermediate System
ISO 8473, relevant parts of ISO 8348(X.213), ISO 8343/

Add2, ISO 8648, ISO TR 9577 Open System Interconnection
RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)
RFC 1334 PPP Authentication Protocols
RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)
RFC 1378 The PPP AppleTalk Control Protocol (ATCP)
RFC 1552 PPP internetworking packet exchange protocol IPXCP
RFC 1570 PPP LCP Extensions
RFC 1598 PPP in X.25
RFC 1618 PPP over ISDN
RFC 1661 The Point-to-Point Protocol (PPP)
RFC 1762 The PPP DECnet Phase IV Control Protocol (DNCP)
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses
RFC 1962 The PPP Compression Control Protocol (CCP)
RFC 1968 The PPP Encryption Control Protocol (ECP)
RFC 1974 PPP Stac LZS Compression Protocol
RFC 1978 PPP Predictor Compression Protocol
RFC 1989 PPP Link Quality Monitoring
RFC 1990 The PPP Multilink Protocol (MP)
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
RFC 2125 The PPP Bandwidth Allocation Protocol (BAP) / The PPP Bandwidth Allocation Control Protocol (BACP)
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)
RFC 2878 PPP Bridging Control Protocol (BCP)
RFC 3022 Traditional NAT
RFC 1256 ICMP Router Discovery Messages

IP Multicasting

RFC 2236 IGMPv2
RFC 1075 DVMRP
draft-ietf-idmr-dvmrp-v3-9 DVMRP
RFC 1112 Host Extensions
RFC 1812 Router Requirements
RFC 2715 Interoperability Rules for Multicast Routing Protocols
RFC 2362 PIM-SM
draft-ietf-pim-dm-new-v2-04 PIM-DM
draft-ietf-pim-sm-v2-new-09 PIM-SM

IPsec

RFC 2395 IPsec Compression - LZS
RFC 2401 Security Architecture for IP
RFC 2402 AH - IP Authentication Header
RFC 2403 IPsec Authentication - MD5
RFC 2404 IPsec Authentication - SHA-1
RFC 2405 IPsec Encryption - DES
RFC 2406 ESP - IPsec encryption
RFC 2407 IPsec DOI
RFC 2408 ISAKMP
RFC 2409 IKE
RFC 2410 IPsec encryption - NULL
RFC 2411 IP Security Document Roadmap
RFC 2412 OAKLEY
RFC 1829 IPsec algorithm
RFC 2451 The ESP CBC-Mode Cipher Algorithms
RFC 3173 IPComp
RFC 1828 IP Authentication using Keyed MD5

IPv6

draft-ietf-ngtrans-hometun-01 IPv6 over IPv4 tunnels for home to Internet access
RFC 1981 Path MTU Discovery for IPv6
RFC 2375 IPv6 Multicast Address Assignments
RFC 2460 IPv6
RFC 2080 RIPng for IPv6
RFC 2461 Neighbour Discovery for IPv6
RFC 2462 IPv6 Stateless Address Autoconfiguration
RFC 2463 ICMPv6
RFC 2464 Transmission of IPv6 Packets over Ethernet Networks
RFC 2472 IPv6 over PPP
RFC draft-vida-mld-v2 Multicast Listener Discovery (MLD) for IPv6
draft-ietf-ngtrans-introduction-to-ipv6-transition-06 An overview of the introduction of IPv6 in the Internet
RFC 2526 Reserved IPv6 Subnet Anycast Addresses
RFC 2711 IPv6 Router Alert Option
RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 3315 DHCPv6
RFC 3633 IPv6 Prefix Options for Dynamic Host Configuration Protocol
RFC 3596 DNS Extensions to support IP version 6
RFC 3513 Internet Protocol Version 6 (IPv6) Addressing Architecture
RFC 3484 Default Address Selection for Internet Protocol version 6
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
draft-vida-mld-v2-08 Multicast Listener Discovery (MLD) for IPv6, Version 2
RFC 2766 NAT-PT
RFC 2529 Transmission of IPv6 over IPv4 Domains without Explicit Tunnels
RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 3646 DNS Configuration options for Dynamic Host Configuration Protocol for IPv6 (DHCPv6)
RFC 3587 IPv6 Global Unicast Address Format
RFC 2365 Administratively Scoped IP Multicast
RFC 3306 Supported IPv6 standards
RFC 3307 Allocation Guidelines for IPv6 Multicast Addresses

Management

RFC 1155 MIB
RFC 1157 SNMP
RFC 1213 MIB-II
RFC 1643 Ethernet MIB
RFC 1493 Bridge MIB
RFC 2790 Host MIB
RFC 1573 Evolution of the Interfaces Group of MIB-II
RFC 2338 VRRP
RFC 1757 RMON (groups 1,2,3 and 9)
RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions (VLAN)
RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types
RFC 2580 Conformance Statements for SMIv2
RFC 2578 Structure of Management Information Version 2 (SMIv2)
RFC 2096 IP Forwarding Table MIB
RFC 2012 SNMPv2 MIB for TCP using SMIv2
RFC 2011 SNMPv2 MIB for IP using SMIv2
RFC 1657 Definitions of Managed Objects for BGP-4 using SMIv2
RFC 1515 Definitions of Managed Objects for IEEE 802.3 MAUs
RFC 2856 Textual Conventions for Additional High Capacity Data Types
RFC 2579 Textual Conventions for SMIv2
RFC 1212 Concise MIB definitions
RFC 2576 Coexistence of SNMPv1, v2 and v3 of the Internet-standard Network Management
RFC 3410 Introduction and Applicability Statements for Internet-Standard Management Framework
RFC 3411 An Architecture for Describing SNMP Management Frameworks.
RFC 3412 Message Processing and Dispatching for the SNMP.
RFC 3413 SNMP Applications.
RFC 3414 User-based Security Model (USM) for SNMPv3
RFC 3415 View-based Access Control Model (VACM) for the SNMP
RFC 3416 Version 2 of the Protocol Operations for SNMP
RFC 3417 Transport Mappings for the SNMP
RFC 3418 MIB for SNMP
RFC 3164 Syslog Protocol
draft-ietf-bridge-8021x-00.txt Port Access Control MIB

OSPF

RFC 1245 OSPF protocol analysis
RFC 1246 Experience with the OSPF protocol
RFC 1583 OSPFv2
RFC 1793 Extending OSPF to Support Demand Circuits
RFC 1586 OSPF over Frame Relay
RFC 2328 OSPF v2
RFC 1587 The OSPF NSSA Option

QoS

RFC 1349 Type of Service in the IP Suite
RFC 2205 Reservation Protocol
RFC 2211 Controlled-Load
RFC 2475 An Architecture for Differentiated Services
IEEE 802.1p Priority Tagging
RFC 2697 A Single Rate Three Color Marker
RFC 2698 A Two Rate Three Color Marker
RFC 2597 Assured Forwarding PHB Group
RFC 3246 An Expedited Forwarding PHB (Per-Hop Behavior)

RIP

RFC 1058 RIPv1
RFC 1723 RIPv2

Security

IEEE 802.1x Port Based Network Access Control
draft-ylonen-ssh-protocol-00.txt SSH Remote Login Protocol
RFC 1779 X.500 String Representation of Distinguished Names
RFC 2459 X.509 Certificate and CRL profile
RFC 2511 X.509 Certificate Request Message Format
RFC 2559 PKI X.509 LDAPv2
RFC 2587 PKI X.509 LDAPv2 Schema
RFC 2510 PKI X.509 Certificate Management Protocols
RFC 2585 PKI X.509 Operational Protocols
PKCS #10 Certificate Request Syntax Standard
Draft-IETF-PKIX-CMP-Transport-Protocols-01 Transport Protocols for CMP
RFC 2865 RADIUS
RFC 2866 RADIUS Accounting
RFC 1492 TACACS
draft-grant-tacacs-02.txt TACACS+
RFC 1413 IDP
RFC 1858 Fragmentation

Services

RFC 959 FTP
RFC 2821 SMTP
RFC 2049 MIME
RFC 1985 SMTP Service Extension
RFC 1305 NTPv3
RFC 1510 Network Authentication
RFC 2156 MIXER
RFC 854 Telnet Protocol Specification

RFC 855 Telnet Option Specifications
RFC 856 Telnet Binary Transmission
RFC 857 Telnet Echo Option
RFC 858 Telnet Suppress Go Ahead Option
RFC 1091 Telnet terminal-type option
RFC 1350 TFTP
RFC 1179 Line printer daemon protocol
RFC 932 Subnetwork addressing scheme
RFC 1945 HTTP/1.0
RFC 2217 Telnet Com Port Control Option

SSL
RFC 2246 The TLS Protocol Version 1.0
draft-freier-ssl-version3-02.txt SSLv3

STP / RSTP
IEEE 802.1w - 2001 RSTP
IEEE 802.1t - 2001 802.1D maintenance

X.25
RFC 1356 Multiprotocol Interconnect on X.25 and ISDN in the Packet Mode
ITU-T Recommendations X.25 (1988), X.121 (1988), X.25

ISDN
ANSI T1.231-1997
ANSI T1.403-1995
ANSI T1.408-1990
AT&T TR 54016-1989
Austel TS 013.1:1990
Bellcore SR-3887 1997
TS 013.2:1990
TS 014.1:1990
TS 014.2:1990
ITU G.703
ITU G.704
ITU G.706
ITU-T Recommendations G.703 (1972)
ITU-T Recommendation Q.922
G.794 (1988)
G.706 (1988)
I.120 (1988)
I.121 (1988)
I.411 (1988)
I.430 (1988)
I.431 (1988)
Q.920 (1988)
Q.921 (1988)
Q.930 (1988)
Q.931 (1988)
ETSI Specifications ETS 300 011:1991
ETS 300 012:1992
ETS 300 102-1:1990
ETS 300 1022:1990
ETS 300 125:1991
ETS 300 153:1992
ETS 300 156:1992
New Zealand Telecom TNA 134
German Monopol (BAPT 221)
Japan NTT I.430-a
Rockwell Bt8370 Fully Integrated T1/E1 Framer and Line Interface data sheet
Technical Reference of Frame Relay Interface, Ver. 1, November 1993, Nippon Telegraph and Telephone Corporation

Frame Relay
ANSI T1S1 Frame relay
RFC 1490, 2427 Multiprotocol Interconnect over Frame Relay

VoIP
RFC 2543 SIP
G.711 A/µ law
G.723.1
G.729 A/B (Optional)
H.323 v2

Ordering Information

AT-AR410-xx
Modular Branch Office Router

AT-AR410S-xx
Secure Modular Branch Office Router

Where xx =
10 for U.S. power cord
20 for no power cord
30 for U.K. power cord
40 for Australia power cord
50 for Europe power cord

Hardware upgrade options

Port Interface Cards
AT-AR020
Single configurable E1/T1 interface that supports channelized/unchannelized Primary Rate ISDN/Frame Relay
Order Number: 990-001304-00

AT-AR021S (V2)
Single Basic Rate ISDN (S/T) interface
Order Number: 990-001103-00

AT-AR023
Single Synchronous port up to 2Mbps to an external CSU/DSU (AT-V.35-DTE-00 or AT-V.21-DTE-00 cable required)
Order number: 990-001104-00

AT-AR024
Four Asynchronous RS232 interfaces to 115Kbps
Order number: 990-001105-00

AT-AR027
Two VoIP FXS ports
Order number: 990-001356-00

Encryption/Compression
AT-AR011i ECMAC
Provides hardware-based DES and 3DES* encryption, hardware-based compression
Order number: 990-12278-00 (Not RoHS Compliant)

Software upgrade options

AT-AR400SSECPK
(AT-AR410 only as these features are included in the Standard AlliedWare of the AT-AR410S)
Provides Firewall, SMTP proxy, HTTP proxy
Order number: 980-10027-00

AT-AR400 – ADVL3UPGRD
AR400 Series Advanced Layer 3 Upgrade
- IPv6
- BGP-4
- Server Load Balancing

Order number: 980-10021-00

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