Vanguard
N E T W O R K S

Vanguard 6840 Router Series

Highlights

A high performance, mid-range gateway router series with advanced security, optimized for high speed network services

Enables routing of IP, SNA & other legacy protocols, voice and video in a single device

Investment protection of serial applications Supports IP, VPN, MPLS, Frame Relay, ATM and Leased Line network services

Upgrade path to broadband services such as DSL, cable, and wireless

Perfect low-cost solution for larger branch offices, where high bandwidth requirements, Ethernet support, serial port support, and increased performance are essential Advanced architecture easily supports

CPU intensive applications such as: advanced QoS, high speed multimedia traffic processing, and enhanced security via hardware-accelerated encryption and VPNs

Digital voice support with 60 channels with R2D and ISDN

Vanguard 6840 Multimedia Router Series for Medium to Large Office

The Vanguard 6840 Multimedia Router Series provides a high performance, cost-effective networking solution for medium to large enterprise branches. It is a gateway router that can route: IP traffic, serial protocols, voice and IP-video over either IP, VPN, MPLS, Frame Relay or ATM networks. It features enhanced branch security through an integrated firewall, and offers unique IP-migration functions that enable seamless convergence to an IP-architecture without 'ripping and replacing' non-IP applications, phones or peripheral devices.

As more and more enterprises migrate to IP-architectures and IP-based services, network performance, security, and quality of service (QoS) are areas of major concern. Enterprises are looking for innovative infrastructure solutions that will enable them to grow while protecting their existing investments. The Vanguard 6840 Router Series provides a leading yet pragmatic networking solution both from a Value and Total Cost of Ownership perspective.

The Vanguard 6840 Multimedia Router Series consists of the 6840 model and the 6841 model, which is the **6840** product enhanced with onboard hardware-accelerated encryption. The Vanguard **6840** Series supports:

• Secure Internet, intranet, and extranet access via IP VPNs with integrated Firewall
• An industry leading set of serial protocols such as ibm SNa & bisync, and their seamless integration over secure IP networks and Frame Relay
• Broadband DSL, cable, and wireless connectivity
• Advanced QoS support for nission-critical enterprise applications
• Vonberged voice, video and data

The 6840 and 6841 models are positioned as the newest members of the Vanguard router family:

Vanguard® Product Portfolio
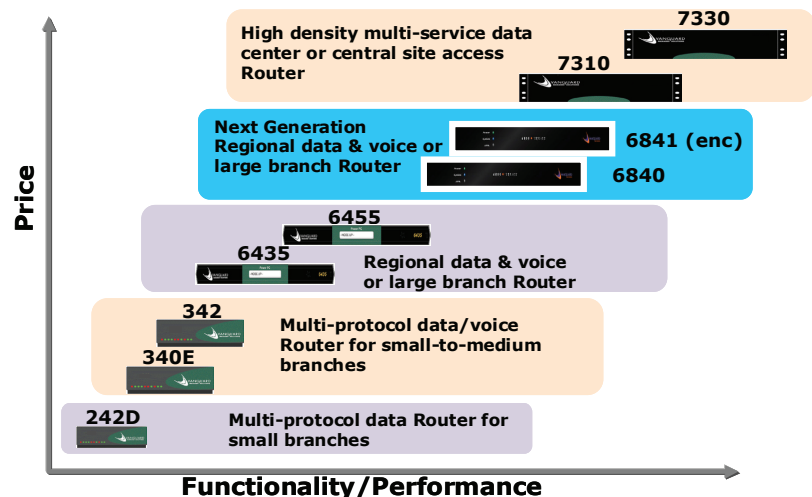
The Vanguard 6840 Series is a desktop or rack mount unit. It includes:

• two auto-sensing 10/100BaseT Fast Ethernet ports

• two software-selectable, high-speed universal serial ports.

The base unit can be expanded by any four daughter card combinations, including FXS/FXO, ISDN BRI, T1/E1 and Serial, which can be configured in any fashion or quantity desired by the customer. Vanguard customers are assured of investment protection with respect to their existing serial requirements as well as the use of existing hardware daughter cards currently supported on the 3xx/64xx router family.

Target Applications

The Vanguard 6840 Series is ideal for a wide variety of applications. The diagram illustrates the many multimedia connections and WAN transports supported by this versatile router series.

The major applications envisioned for the 6840 Series are the following scenarios:
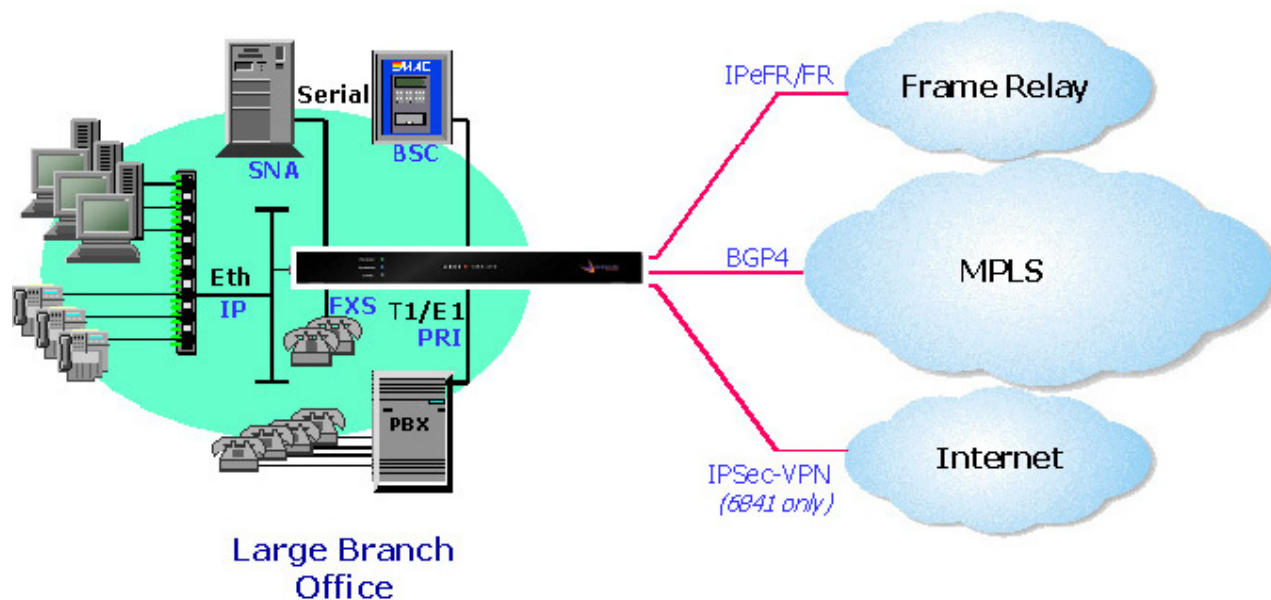
1. Branch Offices with Site-to-site VPN tunnels, Encryption requirements & QoS demands for IP traffic.

2. Large Branch Offices with VPN tunnels, Encryption requirements, & QoS demands for IP traffic & multiprotocol voice, as well as legacy data

3. Central site VPN concentrator for smaller size networks (20-50 sites) and voice concentrator.

4. Bank Private Network Serial Applications

True Multiservice/Multiprotocol Support

Any Protocol
Any Device
Any Applicant

— To →

Any Service

Serial
SNA
BSC
Eth
IP
FXS   T1/E1
PRI
PBX

Large Branch Office

IPeFR/FR
Frame Relay

BGP4
MPLS

IPSec-VPN
(6841 only)
Internet

Product Specifications - *Vanguard Application Ware*

Vanguard Applications Ware offers modular software solutions that extend across nearly all models of the Vanguard family of products. The following software features are offered on the Vanguard 6840 Series Multimedia routers:

IP Routing & Protocols

IPv4, RIP1/RIP2, OSPF, BGP4, DVMRP, PIM-SM (IP Multicast)
BGP Communities (RFC 1997 & 1998)
Policy Based Routing
BGP Multipath
Inter-VLAN routing (802.1Q)
Classless Inter-Domain Routing (CIDR)
Network Address Translation (NAT)
Port Address Translation
Real-Time Transport Protocol (RTP)
Header Compression (RFC 2508)
Virtual Router Redundancy Protocol (VRRP)
OnNet Proxy (Router Standby Protocol)
Multiple IP Addresses per Physical Interface
ICMP Router Discovery (RFC 1256)
DHCP Client
Multi-Link PPP
PPPoE (RFC 2516)
PPPoA (RFC 1483)

User Authentication

RADIUS
PAP/CHAP

Packet Voice

Digital Voice (T1/E1/PRI)
VoIP and Voice over Frame Relay
Voice compression using G.711, G.723.1, G.729a, G.729b
Analog PBX and PSTN connections
H.323 v2 Voice over IP gateway
Up to 16 analog voice channels
Fax over IP (T.38) and Frame Relay
Premium Voice Features (Caller ID, Xfer, Hold, Waiting, Forwarding, Voice Mail)
Automatic fax/modem detection
Voice Activity Detection (VAD)
Silence Suppression

QoS for Optimization of Data, Voice and Video

Bandwidth on Demand (BOD)
Dial on Demand (DOD)
Link Backup (V.25bis and ISDN)
Data Connection Protection (DCP) (X.25, SDLC, LLC2)
IP Type of Service (IP TOS)
Priority Queuing
Class Based Queuing (CBQ)
Weighted Fair Queuing (WFQ)
Weighted Random Early Discard (WRED)
Differentiated Services (DiffServ)
Packet Classification
Policy Based Routing
Fast Path Switching for Voice
Multi-Link PPP (MLPPP)
Generic Traffic Shaping (GTS)
Compressed Real-Time Protocol (cRTP)
MLPP Link Fragmentation and inter-leaving Segmentation (RFC 1990 $ 2686)
Support 802 1P for VLANs

Virtual LAN (VLAN)

Support 802 1Q & 802.1P

IP Virtual Private Networks (VPN)

VPN Tunneling: IPSec (IP traffic), GRE (non-IP traffic)
IPSec Authentication Header (AH) and IPSec Encapsulating Security Payload (ESP)
IPSec Encryption: IPSec DES (56 bit), 3DES (128 bit) and 3DES (168 bit)
Advanced Encryption Standard (AES): 128, 192, and 256 bit key length
Device Authentication and Key Management: Public Key Infrastructure (PKI) and X.509v3 Digital Certificates
Dead Peer Detection
Message Authentication through Complex Hashing Algorithms (MD5/SHA-1)
Dynamic IP Address (Dynamic VPN Tunnels)

Firewall

Firewall Stateful Packet Filter

Other Bridging/Routing Protocols

IPX/Novell IPX WAN,Appletalk
Transparent Bridging (Spanning Tree IEEE 802.1d)
SLIP
SoTCP
Async and Sync PPP Network Interface

Frame Relay

Frame Relay DTE with Traffic Fairness
Frame Relay Switching (DCE)
Frame Relay Annex G (AN SI T1.617)
Frame Relay Annex A (ITU-T Q.933)
Frame Relay RFC 1490 (IP/IPX/Appletalk)
Local Management Interface (LMI)
End-to-End Delay
Frame Relay Auto Learn
Frame Relay Traffic Shaping (FRTS)
FRF 8 & FRF 12

ATM (future)

CBR, VBR-rt, VBR-nt, UBR, AAL-5

ISDN

U interface: ANSI T1.601 1992 (2B1Q)
S/T: ITU I.430
LAPD: ITU Q.921 Compliant
Integral X.31 Support
Q.931 Dial Support
Switches (NI1, 5ESS, DMS-100, ETSI, NTT, Euro Numeris)
Permanent B for German Monopol Support
Permanent B for Japan High Speed Digital
D Channel Packet

X.25

X.25 DTE
X.25 Switching (DCE)
RFC 877/1356 (IP)
X.25 Translation, CUG, NUI Support
X.25 on "D " Channel Support

IBM Networking

SNA/SDLC for Serial Connections
BSC 2780, 3780, 3270 (HPAD, TPAD)
QLLC X.25 (IBM NPSI) Point-to-Point or Multi-drop (up to 64 PUs)
Conversion SDLC to RFC 1490
Conversion SDLC to LLC2
Conversion LLC2 to RFC 1490
Conversion BSC 3780 to SNA
Conversion BSC 3270 to SNA
AS/400 5494 Communications Server
TN3270 Remote Server

Serial

Transparent COP (TCOP)
Transparent BOP (TBOP)
ATPAD (Port 3 and 4 only)
Transparent Polled Async (TPA)
SLIP
x.42 Lottery Protocol

System Management

SNMP management
Configuration Management
OS Image Management
Telnet
TFTP
CLI
Embedded Web HTTPD
SSH2 Server

Hardware Specification - Vanguard 6840 Series

Specifications - Hardware (Base Unit)

Desktop or rack-mount (optional 19" rack-mount kit)
1 RS-232 management port (up to 115.2 kbps)
1 RS-232 Auxiliary port (up to 115.2 kbps)
2 x 10/100 BaseT auto-sensing
2 High Speed Serial Ports (up to 2.048 Mbps software selectable support for V.24, V.35, V.36, V.11)
MPC8270 PowerPC Processor
1 SDRAM Module (up to 1024 MB)
8MB of non-volatile flash
Compact Flash (32 MB with expansion capabilities)
Integrated H/W accelerated Encryption (6841 only)

Interfaces - Daughter Card Modules

Serial (V.24, V.35, V.36, V.11, X.21)
56K DSU
ISDN BRI Data – (2B+D) U interface
ISDN BRI Data – (2B+D) S/T interface
ISDN BRI Digital Voice – S/T interface
Dual E&M Analog Voice
Quad FXO Analog Voice
Quad FXS Analog Voice
Dual FXS Analog Voice
Single FXS/FXO Analog Voice
V.90 Modem
FT1/FE1/T1/E1/PRI

Port Capacities

2 Ethernet (10/100BaseT auto-sensing)
8 High Speed Serial
2 RS-232 Serial
4 56K DSU
4 ISDN BRI
8 E&M Voice
16 FXS Voice
16 FXO Voice
4 V.90 Modem
4 T1 / 4 E1

Physical Dimensions

Height: 1.75in
Width: 17.5in
Depth: 14.125in
Weight: 10.80 lbs unloaded, 12.05lbs, fully loaded

Power Requirements

90 to 264 Vac
47 to 63 Hz

Environmental

Operating Temperature: 32 °to 104 °F (0 °to 40 °C)
Storage Temperature: -40 to 158 °F (-40 °to 70 °C)
Relative Humidity: 5% to 90%, non-condensing

Regulatory Compliance

Safety Certifications: UL1950 3rd Edition, CAN/CSA C22.2 No. 950-95 3rd Edition, IEC 950 2nd Edition Amendment 1, 2, 3 & 4 (CB Scheme), EN60950

EMC Certifications: FCC Part 15 Class A, Canadian IC Class A, CISPR 22 Class A, EN55022: 1997 Class A, EN50082-1 (EN55024)

Telecom Certifications: FCC Part 68, Industry Canada CS-03, CTR-2, CTR-4, CTR-12, CTR-13, Country Specific (contact your local sales representative).

Need more info?

Vanguard Networks offers a full range of network lifecycle services. Services may differ from country to country. Contact your local Vanguard Networks representative for details or access our web site at: www. vanguardnetworks.com.

Vanguard 6840 Series Rear Panel