

NetVanta 4660

Integrated Layer 2 and Layer 3 Carrier Ethernet Services Router

Product Features

- Universal edge device supporting modular Layer 2/3 Carrier Ethernet services with four Gigabit combo interfaces (copper or small formfactor SFP)
- All Ethernet interfaces include carrier Ethernet functionality
- Multiple WAN interface options:
 - Dual and quad bonded VDSL2
 - Quad and octal SHDSL (EoCu)
- Hardware-based SLA monitoring with automated data exporting
- MEF 9/14 certified supporting standard Ethernet OAM
- Layer 2 OAM (Y.1731 CFM, Y.1731.PM) and Layer 3 OAM (TWAMP) support
- Full-featured IP router for data support and Internet access
- Auto-failover and recovery for improved service robustness
- Plug-and-play auto line detection for easy installation
- *RapidRoute* technology for increased performance
- Stateful inspection firewall for network security
- Quality of Service (QoS) for delay sensitive traffic like VoIP
- Supports 802.1q Virtual LAN (VLAN) trunking
- Utilize recognisable Command Line Interface (CLI)
- Network Address Translation (NAT) for IP address concealment
- Supports terminal and facility MAC-swap loopback to validate service turn up and trouble-shooting
- SyncE for reliable timing

ADTRAN's NetVanta® 4660 is an integrated Layer 2/3 carrier Ethernet services providing a universal edge device supporting any mix of Layer 3 IP VPN, Layer 2 VPN (E-LINE/E-LAN), and internet access services.

Many carriers are facing the customer demand for receiving carrier Ethernet services and supporting Layer 3 services, which often times requires multiple hardware platforms. ADTRAN's NetVanta 4660 is designed to alleviate this burden providing the functionality of both in a single platform.

Modular Hardware

The NetVanta 4660 is a modular platform for global deployments with WAN interface options for dual and quad bonded VDSL2, quad and octal SHDSL (EoCu). There are 4 Gigabit combination (copper or SFP) LAN interfaces—all with carrier Ethernet functionality—and one fiber interface.

Hardware-based SLA

The NetVanta 4660 supports SLA-based services such as small cell backhaul and hosted enterprise services though hardware-based SLA monitoring with automated data export offering the flexibility to fit your service delivery model.

Converging Layer 2 and 3 Services

The NetVanta 4660 eases the transition from Layer 3 IP VPN services delivered over TDM-based PPP/FR circuits to Ethernet-based services deliver over broadband access networks (EoX, VDSL2, GPON, point-to-point Ethernet). Key carrier Ethernet features:

- MAC-swap loopbacks
- Y.1731 carrier Ethernet OAM
- MEF-compliant traffic management

Redundancy

In the event that a single EFM loop fails, the NetVanta 4660 will continue to operate on the remaining loop, providing additional resiliency. Once the failed loop is operational again, the NetVanta 4660 will automatically detect its availability and will auto-recover to the original configuration.

Quality of Service Flexibility

The NetVanta 4660 offers QoS support for delay-sensitive traffic like VoIP or video, and enhanced QoS support for Ethernet WAN connections providing the ability to prioritize traffic by VLAN. This solution also delivers packet flow capabilities certified compliant per the Metro Ethernet Forum. These packet flow capabilities offer the traffic classification and bandwidth profiling functionality required to offer customers a flexible, tiered service offering with up to eight class of service queues.



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Product Specifications

Physical Interfaces

Modular WAN Options

- Dual and Quad Bonded VDSL2
- Quad and Octal SHDSL (EoCu)

LAN

- Four 10/100/1000 Dual Copper or SFP (One Fiber Interface)
 - All Ports Included in Chassis
 - All Ethernet Interfaces Include Carrier Ethernet Functionality
- Full Duplex
- RJ-45
- May also be used as the WAN Interface
- Supports 802.1q VLAN Trunking

Timing Interfaces

- T4 Output
- 1 PPS Output

Processor and Memory

- **RAM:** 512 MB RAM
- **Flash:** 128 MB Flash

Protocols

- eBGP/iBGP
- OSPF
- RIP (v1 and v2)
- Demand Routing
- GRE
- IGMP v2
- ATM (ADSL)
- Frame Relay
- Multilink Frame Relay
- Layer 3 Backup
- Multi-VRF CE
- PPP
- PPPoE
- PPPoA
- RFC 1483
- Multilink PPP
- HDLC
- PPP Dial Backup
- PAP and CHAP
- Multihoming
- VRRP

Management and Utilities

- Familiar Command Line Interface (CLI)
- n-Command MSP Support
- SNMP v3
- SYSLOG Logging
- Telnet, Craft/Console Port, SSH, Ping, Trace Route,

NTP

- TCL Scripting
- Policy Statistics
- Email Alerts (SMTP)

LEDs

- Status
- Fan
- Gig 0/1 – 0/5

Quality of Service (QoS)

- Low Latency and Weighted Fair Queuing (WFQ)
- DiffServ Packet Marking and Recognition
- Frame Relay Fragmentation
- Traffic Monitoring (NetFlow 9)
- Weighted Random Early Detection (WRED)

Security

Firewall

- Stateful Inspection Firewall
- Denial of Service (DoS) Protection
- Access Control Lists
- Application Level Gateways (ALGs)

Network Address Translation

- Basic NAT (1:1), NAPT (Many:1), and 1:1 Port Translation
- NAT-compatible SIP ALG

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Secure Management

- Multi-level Access Control
- TACACS+
- RADIUS AAA
- SSH CLI and SSL GUI
- Port Authentication (802.1x)

Content Filtering

- Inherent URL Filter
- Top Website Reports
- Integration with Websense

DSL Features

- Variable Rate Bonding for the SHDSL Loops
- Auto-failover and Recovery
- Plug-and-play Auto-line Detection
- ITU-G.991.2-2003, Annex A&B-SHDSL

Ethernet Features

- IEEE 802.1p Priority Marking
- IEEE 802.1d Dynamic/Transparent Bridging
- IEEE 802.1Q VLAN Tagging
- IEEE 802.3u Ethernet
- MEF 9/14
- Network Synchronization (SyncE)

Ethernet Services Support

- **Priority Queuing of Traffic Based on VLAN Priority**
 - Supports Eight Class of Service Queues
 - Per UNI Port, CE VLAN ID (C-Tag) and/or CE VLAN P-bits, DSCP Fields
- **Single/Double Stack VLAN/s (Q-in-Q)**
 - Manipulation Based on 802.1p and DSCP Fields
 - STAG TPID Provisioning Supports 802.1ad and 802.1Q Standards
 - Port-based Service Support
- **Services Scale and Flexibility**
 - MEF 9, 14 compliant EPL, EVPL
 - Configurable EtherType and TPID for Service Flexibility
 - VLAN IDs 0–4095; EVC Configurable in the Range of 1–4,094
 - Configurable MTU Mini Jumbo Frame Support (2,000 Bytes)
 - 16 kbps Active MAC Address; Ability to Disable MAC Learning (32 kbps Support Future Software)
 - Ingress Policers (tr3CM), CIR and EIR Settings to 64 kbps Granularity, Configurable Burst Through EBS, CBS Settings
 - Egress Shaping Per Port (Per Port Per Queue)
 - Up to 8 Shapers Per Interface

Fault and Performance Management

- IEEE 802.3ah Link OAM
- ITU-T Y.1731 CFM, PM
- Supports OAM Management Status and Loopback Messaging
- Network Monitoring Enhancements



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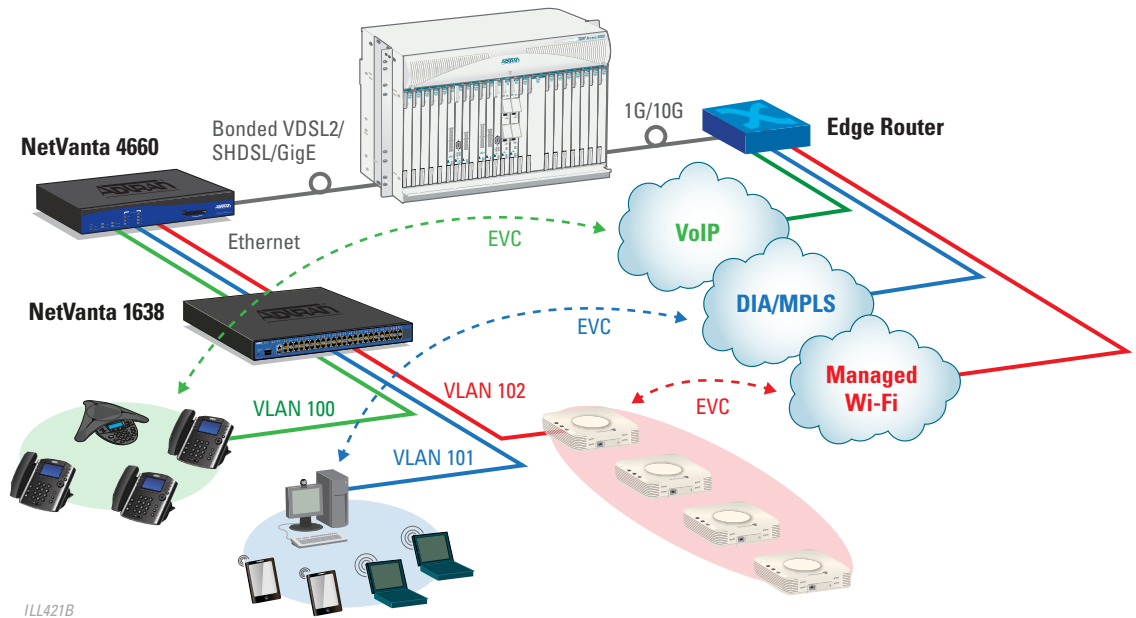
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ILL421B

Product Specifications

Environment

- **Operating Temperature:**
-13° to 158 °F (-25° to 70 °C)
- **Storage Temperature:**
-40° to 194 °F (-40° to 90 °C)
- **Relative Humidity:**
Up to 95%, Non-condensing
- **Maximum Altitude:**
10,000 Feet (3.05m)

Physical and Power

Chassis

- 1U, 19 in. (48.26 cm)
Rackmountable Metal Enclosure

Dimensions

- 1.72 in. x 17.22 in. x 11.5 in. (H x W x D)
(4.37 cm x 43.74 cm x 29.21 cm)

Weight

- 7 lbs. (3.2 kg)

Power

- 48V DC, External Transformer for AC Powering
- 40W Max Power Consumption

Agency Approvals

- FCC Part 15, Class A
- FCC Part 68
- UL 60950-1
- EN 50950
- AS/N25 60950
- ACA 5016
- CSA C22.2 No 950-95
- CE Mark
 - Industry Canada CS03
 - ETSI 300
 - RoHS

Ordering Information

Equipment	Part No.
NetVanta 4660 Chassis	17004660F1
NetVanta 4660 48V Power Supply (Spare)	17004661F1
NetVanta 1000BaseSX SFP Transceiver	1200480E1
NetVanta 1000BaseLX SFP Transceiver	1200481E1

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