# NetVanta 6310

## Modular IP Business Gateway

## Product Features

- Converged service solutions
- Combines IP Business Gateway and Ethernet access device into one chassis
- Module dual-slot chassis
- Integral SIP gateway, router, and security
- Supports a variety of network and voice interfaces
- Dual 10/100Base-T interfaces for routing, DMZ, or Ethernet-fed WAN
- Integral PRI/PRA T1/E1 for PBX connectivity
- Stateful inspection firewall for network security
- IPSec Virtual Private Network (VPN) for secure corporate connectivity across the Internet
- Compatible with industry-leading softswitches and call agents
- Up to 16 analog POTS interfaces with remote survivability
- Supports IP, analog, and digital phones/phone systems; fax machines, modems, and Wireless Access Points (WAPs)
- Dynamic bandwidth allocation enables more efficient utilization
- Standardized G.729a voice compression requires less bandwidth per voice call
- Voice Quality Monitoring (VQM) and Mean Opinion Score (MOS) prediction
- CompactFlash® slot for IP phone configuration files and firmware
- Recognizable CLI eliminates retraining
- User-friendly Web-based GUI
- Feature-rich ADTRAN Operating System (AOS)
- Industry-leading warranty
- ETSI compliant

**The NetVanta® 6310 and Modular IP Business Gateway is designed for use in integrated IP voice and data service offering to small-to-medium sized businesses, worldwide.** This powerful solution combines the robust routing and voice features of ADTRAN®'s industry-leading Total Access® 900e Series of IP Business Gateways into a modular, multi-function chassis with a variety of network and voice interface modules to enable cost-effective IP-based services over a converged services infrastructure. With this versatile chassis, carriers can offer a variety of services including cost-effective integrated voice and data over an Ethernet-fed Wide Area Network (WAN) or over low overhead bonded e.SHDSL loops and T1 circuits. The dual-slot chassis includes a robust IP router, SIP gateway, integral PRI/PRA T1/E1 for PBX connectivity, and dual 10/100Base-T Ethernet interfaces for routing, DMZ, or Ethernet-fed WAN applications. A variety of modules are supported including Quad e.SHDSL EFM Annex A and B WAN modules and the following analog trunk/station voice modules: Quad FXS, Quad FXO, Octal FXS, Octal FXO, and Octal Analog 4FXS/4FXO.

### Hardware and System Features

The NetVanta 6310 uses the ADTRAN Operating System (AOS) to provide a stateful inspection firewall, Network Address Translation (NAT), DHCP server/client, and feature-rich, standards-based, IP routing functionality supporting BGP, OSPF, and RIP routing protocols. Inherent Quality of Service (QoS) methods ensure appropriate classification and prioritization of Voice over IP (VoIP) traffic. Using AOS simplifies management and administration through a Command Line Interface (CLI) that mimics the industry *de facto* standard.

The NetVanta 6310 contains two integrated 10/100Base-T Ethernet interfaces for data support and Internet access and a PRI interface to support a customer's existing legacy PBX system. In addition to these fixed interfaces, the NetVanta 6310 includes two option slots for WAN connectivity and other local services. The Quad e.SHDSL EFM module will allow the NetVanta 6310 to support WAN speeds up to 20 Mbps. The chassis is ideal for domestic applications and is also ETSI compliant for international deployments.

### SIP Gateway and Voice Functionality

The NetVanta 6310 utilizes Session Initiation Protocol (SIP) and/or Media Gateway Control Protocol (MGCP) for VoIP applications, providing interoperability with industry leading softswitches, feature servers, and gateways. The integrated SIP gateway allows the NetVanta 6310 to deliver voice service to IP phones and traditional telephony equipment simultaneously. In order to support a customer's analog phones, fax machines, alarm systems, and modems, the NetVanta 6310 also offers the option of installing either a four-port or eight-port FXS module.

### Remote Survivability

The NetVanta 6310 includes a SIP Back-to-Back User Agent (B2BUA) as a SIP-transparent proxy to facilitate remote survivability in the event of a service interruption on the WAN. If connection to the feature server is lost, calls may continue between IP and analog phones to an FXO POTS line to the PSTN.

### Standards-based Routing Protocols

Complementing the versatile hardware, the AOS allows for the support of standards-based switching, Virtual LAN (VLAN) tagging, static and default routes, demand routing, NAT, and DHCP client/server/relay. This enables fast, accurate network convergence using routing protocols such as BGP, OSPF, and RIP.

### Quality of Service and Voice Quality Monitoring (VQM)

QoS is also supported for delay-sensitive traffic. To prioritize mission-critical traffic and control network congestion, the NetVanta 6310 uses Low Latency Queuing, Weighted Fair Queuing (WFQ), Class-based WFQ, DiffServ marking, and Frame Relay Fragmentation.

VQM supports Service Level Agreement (SLA) commitments with real time monitoring of your customer's voice quality. A variety of ease-of-use features and graphical information are available for troubleshooting, rapid firmware updates or configuration upgrades.

### Security

The NetVanta 6310 provides a powerful, high performance, stateful inspection firewall that can identify and protect against common Denial of Service (DoS) attacks.

### Management

The NetVanta 6310 offers a standard CLI that mimics the widely adopted, industry *de facto* standard, virtually eliminating training costs associated with relearning a new operating system. The CLI also allows for configuration scripts to be used, saved, and downloaded as a quick and easy recovery mechanism. In addition, an intuitive Web-based Graphic User Interface (GUI) provides step-by-step configuration wizards, management capability, and the ability to upload firmware updates. The ability to automatically discover devices, make mass configuration changes or firmware upgrades, backup and restore device configurations, push mass configuration changes, upgrade firmware to groups of devices, and generate inventory reports for asset management is available using ADTRAN's n-Command®MSP.

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## Modular IP Business Gateway

### Physical Interfaces

**Integrated Ports**

- PRI/PRA T1/E1 for PBX connectivity
- Two 10/100Base-T Ethernet
- CompactFlash® Slot
- DB-9 Craft Port

**Network Interface 2 Modules (NIM2s)**

- Quad SHDSL EFM, Annex A
  - ITU-T G.991.2
  - Two-wire e.SHDSL
  - Auto Rates up to 22.8 Mbps
- Quad SHDSL EFM, Annex B
  - Two-wire e.SHDSL
  - Auto Rates up to 22.8 Mbps

**Voice Interface 2 Modules (VIM2s)**

- Four-port Analog Trunk (FXO)
- Four-port Analog Station (FXS)
- Eight-port Analog Trunk (FXO)
- Eight-port Analog Station (FXS)
- Quad-port Analog Trunk/Quad-port Analog Station (FXO/FXS)

**Fast Ethernet Ports**

- Dual 10/100 Base-T Interfaces
- Auto-Duplex
- Auto-Rate
- Auto-MDI/MDI-X

### Status LEDs

- Slot 1, 2
- Status
- **Ethernet Port Status:** Link, Activity

### Analog VIM2 Phone Features

- Analog Trunks (FXO)
  - Loop Start/Ground Start
  - FSK Capture of Caller ID Name/Number
- Analog Stations (FXS)
  - Loop Start DTMF
  - 1500 Feet over 26 AWG
- Caller ID Name/Number Override (Internal and External)
- Codec Support Includes G.711 and G.729ab
- T.38 Fax Support
- Configurable Dial Plan
- Least-Cost Call Routing
- Outgoing Number Substitution
- Ring Groups (Ring All, Circular Hunt Group, UCD, Executive)

### Calling Feature Support

*(Varies with feature server/gateway)*

- Caller ID
  - Name and Number
  - Name
  - Number
  - Call Waiting ID
- Voice Mail
  - Stutter dialtone
  - Visual Message Waiting Indicator (VMWI)
- Call Hold
- Call Forward
  - Busy Line
  - No Answer
- Call Transfer
  - Blind, Attended
- Call Waiting
- Distinctive Ring
- Do Not Disturb
- Three-way Calling
- Call Return
- Speed Dial
- Music On-hold from the Feature Server

### Packet-based Voice Resources

- CODECs
  - G.711-64k PCM
  - G.729ab
- G.168 Echo Cancellation
- 64ms Echo-tail Length
- Supports up to 30 Simultaneous Channels
- G.168 Echo Cancellation
- Adaptive and Static Jitter Fuffers
- VAD and CNG

### Call Control

- SIP

### Media Stream

- RTP/UDP/IP (RFS 3550)
- RTP Payload for DTMF Digits (RFC 2833)
- Supports Port-to-port Hairpin Call
- SDP (RFC 2327)

### Network Survivability

- B2BUA
- SIP Registrar for IP Phones
- SIP Transparent Proxy with Survivability
- Outbound Proxy

## VLAN Support

- Port-based VLANs
- 802.1Q Tagged Trunked VLANS
- Support for up to 255 Active VLANs
- Inter-VLAN Routing

## Quality of Service

- Low Latency Queuing
- Weighted Fair Queuing
- Class-based Weighted Fair Queuing
- DiffServ Aware/Marking
- Frame Relay Fragmentation (FRF.12)
- Traffic Monitoring (NetFlow 9)
- Top Talkers
- Most Visited Websites

## Voice Quality Monitoring (VQM)

- Mean Opinion Score (MOS) Prediction
- Jitter, Delay, and Packet Loss
- Past and Active Calls
- Media Loopback Support

## Class of Service

- Enforces 802.1p Priorities DiffServ
- Four Output Queues per Egress Port
- Weighted Round Robin
- Strict Priority Queuing

## Security/Firewall

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

## Virtual Private Network (VPN)

- **Encryption:** DES-CBC 56-bit Encryption, 3DES-CBC 168-bit Encryption
- **Number of IPSEC Tunnels:** 10 Tunnels

## Network Address Translation

- Basic NAT (1:1), NAPT (Many:1)
- NAT Compatible SIP ALG

## Secure Management

- Multilevel Access Control
- RADIUS AAA
- TACACS+
- SSH CLI and SSL GUI

## Network Access Control

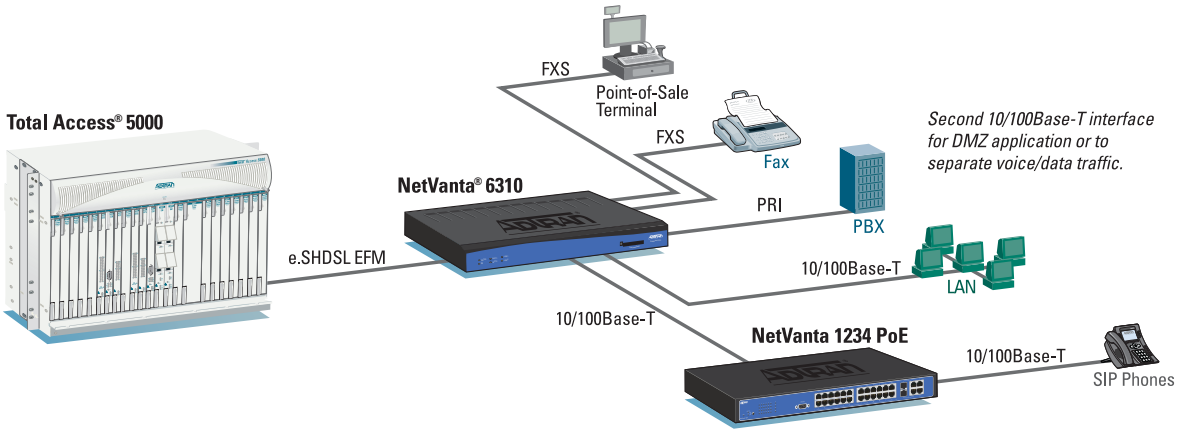
- Port Authentication (802.1x)
- MAC-based Port Security

## Processor and Memory

- **RAM:** 128 MB RAM
- **Flash:** 64 MB Flash
- CompactFlash® Slot

## Protocols

- eBGP/iBGP
- OSPF
- RIP (v1 and v2)
- IGMP v2
- RFC 1483
- HDLC
- PAP and CHAP
- Multihoming
- Multi-VRF CE
- PPPoE
- GRE
- Demand Routing
- Policy-based Routing
- Static



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## Modular IP Business Gateway

### DHCP
- Client, Server, and Relay

### Administration, Management, and Utilities
- Familiar Command Line Interface (CLI)
- Web-based Graphical User Interface (GUI)
- n-Command® and n-Command MSP Support
- SNMP v2 and v3
- SYSLOG Logging
- Email Alerts (SMTP)
- Policy Statistics
- TCL Scripting

### Environment
- **Operating Temperature:** 0° to 50 °C (32° to 122 °F)
- **Storage Temperature:** -20° to 70 °C (-4° to 158 °F)
- **Relative Humidity:** Up to 95%, Non-condensing

### Physical
- **Chassis:** 1U, 19" Rackmountable Metal Enclosure
- **Dimensions:** 1.72" H, 17.22" W, 11.50" D
- **Weight:** 7 lbs.
- **Power:** 100–240 VAC, 50/60 Hz

### Agency Approvals
- FCC Part 15 Class A
- FCC Part 68
- Industry Canada
- UL 60950
- EN 60950
- AS/N25 60950
- IEC 60950
- ACA 5016
- CE Mark
- ETSI 300

### Warranty
- 10-year (North American)

## Ordering Information

| Equipment | Part # |
|---|---|
| NetVanta 6310 Chassis – PRI/T1 | 1700100G1 |
| **Voice Interface 2 Modules (VIM2s)*** | |
| 4-Port Analog Station (FXS) VIM2* | 1700102G1 |
| 4-Port Analog Trunk (FXO) VIM2* | 1700105G1 |
| 8-port FXS* | 1700108G1 |
| 8-port FXO* | 1700109G1 |
| Quad Analog Trunk/Station (four each)* | 1700106G1 |
| **Network Interface 2 Modules (NIM2s)** | |
| Quad SHDSL EFM NIM2 Annex A* | 1700103G1 |
| Quad SHDSL EFM NIM2 Annex B* | 1700103G2 |
| **Compact Flash Modules** | |
| 256 MB | 1200817E1 |
| 512 MB | 1200818E1 |
| 1Gb | 1200819E1 |

* Available Q2 2009

ADTRAN is an ISO 9001, ISO 14001, and a TL 9000 certified supplier.

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