



ADTRAN

NetVanta 8044M

Carrier Ethernet Network Termination



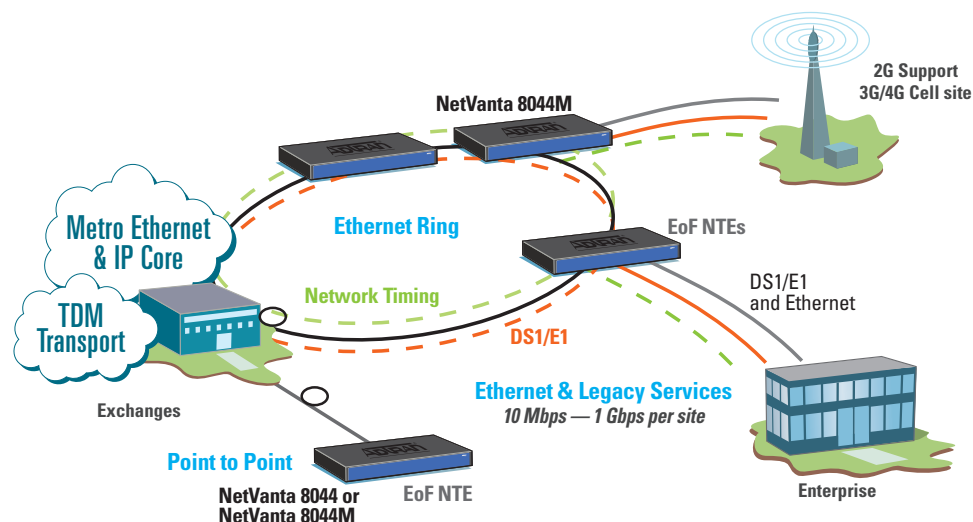
Benefits

- Unique modular architecture provides service and network flexibility
- Low cost/scalable bandwidth using 64 kbps increments
- Scalable 4G/LTE bandwidth up to 2.5 Gbps of Ethernet service
- Time to market for Universal Service Ubiquity with support for virtually any customer access medium
- A single, common operational model regardless of customer access method
- Transition path to all-packet architecture
- SLA management via Ethernet OAM-based troubleshooting and performance monitoring tool sets
- Resilient access support via Link Protection and Ethernet Ring and Protection Switching (ERPS)
- Hardened for cell-site deployment; both extreme temperature and metallic interface isolation

Overview

ADTRAN introduces a versatile Ethernet network termination device that brings together the value of several ADTRAN solutions. The core Ethernet access features of this product include a powerful Ethernet processor, four flexible SFP interfaces, and four 10/100/1000 Mbps electrical interfaces. Flexible bandwidth management; Ethernet flow mapping, prioritisation and tagging; as well as versatile management options make the NetVanta 8044M an excellent choice as an Ethernet services termination device.

The eight-port circuit emulation expansion module allows service providers and enterprise customers to leverage ADTRAN's experience in developing and deploying pseudowire networks. This can be used in providing a transition path for DS1/E1 legacy services to all-IP services migration. The NetVanta 8044M allows an operator to recover network clocking at the customer site using only packet transport via a variety of methods. ADTRAN employs both differential clock and adaptive timing distribution over packet methods.



The NetVanta 8044M supports two variations of fibre access topology: Point to Point and Ethernet ring to deliver both legacy ATM/TDM and next generation IP/Ethernet services.

NetVanta 8044M

Product Specifications

Front Panel Interfaces

- Four 10/100/1000 Base-T Ethernet interfaces via RJ-45
- Four Gigabit Ethernet interfaces via SFP cages, angled to reduce overall product depth and improve cable management
- All Ethernet ports may be used for either network WAN or customer-side LAN connections
- 100BaseX SFP also supported to allow Fast Ethernet fibre lease
- Ethernet faceplate ports support either 1 Gbps or 2.5 Gbps ITU-T G.8032 Ethernet Ring Protection Switching (ERPS)
- DB9 local craft port for support of RS-232 interface for local management
- Two expansion access/service module slots (see next sub-sections for options)
- Field replaceable fan module (may be required to support future expansion modules)

Physical Dimensions

- Desk, rack and wall mountable
- Rack mountable solution in 19 inch or 23 inch wide telecom racks
- 1.7 in. x 17.2 in. x 10.7 in. (H x W x D) (44 mm x 437 mm x 273 mm) or 1.7 in. x 19 in. x 10.7 in. (44 mm x 483 mm x 273 mm)

Power Supply, Power Consumption, Heat Dissipation

- Redundant, Dual A and B fed +/- 24/-48 VDC version (P/N 1174801G1)
- Ground/Earth provided via Post and Lug type connector
- Typical power consumption is 31 W maximum without additional modules nor fan tray installed
- Maximum power consumption is 37 W without additional modules nor fan tray installed

Operations and Maintenance

Environmental Hardening

- Operating Temperature: -40°F to 149°F (-40°C to 65°C)
- Storage Temperature: -40°F to 185°F (-40°C to 85°C)
- Relative Humidity: GR-63-CORE 5% to 95%, non-condensing
- Operating Altitude Range
 - ◆ At 86°F (30°C): -197 to 13,000 feet (-60 to 4,000 meters)
 - ◆ At 104°F (40°C): -197 to 6,000 feet (-60 to 1,800 meters)
- Metallic interface voltage surge protection and isolation

Ethernet Services Support

- Classification of Traffic based on:
 - ◆ Per UNI port, CE VLAN ID (C-Tag) and/or CE VLAN P-bits, Source and/or destination MAC address, DSCP fields
- Single stack VLAN and double stack VLANs (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, ELAN, ETREE
 - ◆ 8 Queues, Strict Priority and/or Weighted Fair Schedulers
 - ◆ Configurable EtherType and TPID for service flexibility
 - ◆ VLAN IDs 0 – 4095; EVC configurable in the range of 2–4094
 - ◆ Configurable MTU from 1,500 to 10k Jumbo frame in four byte increments
 - ◆ 16k active MAC address; Ability to disable MAC learning (32k 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 and per up to 16 VLAN groups in future)

Fault and Performance Management

- IEEE 802.3ah Link OAM
- IEEE 802.1ag Connectivity Fault Management (CFM)
- IETF TWAMP Layer 3 Performance Monitoring (PM) (reflector)
- ITU-T Y.1731 Layer 2 Performance Monitoring (sender and responder PM measurements are accurate to sub millisecond levels)
- Supports customer viewable PM/SLA statistics via Web portal

Carrier Ethernet Network Termination

Security

- TACACS+ Authentication, Authorisation
- RADIUS Authentication, Authorisation
- SSHv1/v2 and SFTP
- SNMPv2c

Clock Synchronisation/Recovery

- ADTRAN Differential and Adaptive timing methods

Facilities Protection

- Ethernet Ring Protection Switching (ERPS)
ITU-T G.8032
 - ◆ 50 ms failover
 - ◆ 1 or 2.5 Gbps unblocked ring capacity
- Link Protection Group

Regulatory Agency Approvals

- FCC Part 15 Class A
- FCC Part 68
- UL 60950, CAN/CSA C22.2 No. 60950
- EN 60950, IEC 60950, AS 3260/ AS NZS60950
- NEBS Level 3
- RoHS 2002/95/EC
- ITU-T K21 :2000 Basic

Device Management

- Common operational model (i.e. FCAPS) used for every Ethernet access method
- Local management via DB-9 RS232 or via a 10/100/1000 copper port
- Integrated OMCI management for GPON connectivity compliant with G.984.4 and BBF WT-167
- Telnet via an IP-based connection
 - ◆ Inband management on any VLAN from 2 to 4094
- ADTRAN Advanced Operational Environment (AOE) service management system
 - ◆ SNMPv2c
 - ◆ TL1 or XML (future) gateway
- The unit can be managed by and report to up to 16 different users simultaneously
 - ◆ Accounts of existing and new users can be defined/changed remotely, using a dedicated RADIUS or TACACS+ server
 - ◆ The current date and time can be retrieved from a centralised location by synchronising with an NTP (Network Timing Protocol) server
 - ◆ Software upgrades and configuration files can be downloaded/uploaded to/from NTE via SFTP, FTP, X-modem, and Y-modem

Expansion Modules Supported

Along with its robust Ethernet services support this network device can simultaneously support the delivery of up to 16 DS1/E1 services drops to the customer using Circuit Emulation Services Expansion Module (CES EM).

8-port DS1/E1 Circuit Emulation Service Expansion Module

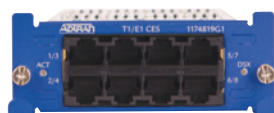
- SAToP per ITU Y.1453, RFC 4553
- 8 W maximum power consumption
- ITU-T K21:2000 basic

DSX-1 Interfaces

- ◆ Connectors: 8x RJ-48
- ◆ Line Rate: 1.544 Mbps
- ◆ Line Build Out: 0 to 655 ft
- ◆ Line Code: AMI, B8ZS
- ◆ Framing: ESF, D4, Unframed
- ◆ Compliance: ITU G.703, G.704

E1 Interfaces

- ◆ Connectors: 8xRJ-48 (120 Balanced)
 - ◆ Line Rate: 2.048 Mbps
 - ◆ Line Build Out: 0 to 655 feet
 - ◆ Line Code: HDB3 or AMI
 - ◆ Framing: CAS, CCS, Unframed
 - ◆ Compliance: ITU G.703, G.704
- Jitter Buffer: Programmable up to 20 ms
 - Automatic Jitter Buffer Adjustment: Optimises jitter buffer settings based on observed packet jitter in delivery network



The NetVanta 8044M T1/E1 Circuit Emulation Service Expansion Module can be used to deliver clock sync services via adaptive clock recovery methods as well as delivers legacy TDM or ATM service traffic.

NetVanta 8044M

Ordering Information

| Equipment | Part No. |
|---|-----------|
| Bundles | |
| NetVanta 8044M DC Power (with empty expansion module slots with blank panels) | 1174801G1 |
| NetVanta 8044M DC Power (with single 8-port DS1/E1 PW Service Module installed) | 4174819G1 |
| NetVanta 8044M DC Power (with both 8-port DS1/E1 PW Service Module installed) | 4174819G2 |
| Expansion Modules | |
| 8-port DS1/E1 PW Service | 1174819G1 |

Supported Small Form Factor Pluggables (SFPs) for this product may be found at www.adtran.com/sfp



NetVanta 8044M with two expansion module slots to allow a graceful transition path from both TDM/ATM services and copper access to IP/Ethernet services and fibre access.



ADTRAN, Inc.
901 Explorer Boulevard
Huntsville, AL 35806

General Information
+1 256 963 8000
www.adtran.com/contactus

Headquarters—EMEA
ADTRAN GmbH
Erika-Mann-Str. 25
80636 Munich-Germany
+49 89 411097 111
sales.europe@adtran.com

Central-/East and West Europe
+49 89 411097 111
sales.cewe@adtran.com

South Europe
+49 89 411097 111
sales.southeurope@adtran.com

North Europe and CIS
+49 89 411097 111
sales.ne@adtran.com

Middle East and Africa
+49 89 411097 111
sales.mea@adtran.com

Asia
+61 3 9658 0500
sales.asia@adtran.com

Australia/New Zealand
+61 3 9658 0500
sales.australia@adtran.com

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