

ACE-202



ATM Network Termination Unit/Multiservice Access Concentrator



FEATURES

- Allows carriers and service providers to provide LAN, IP, TDM and Frame Relay services over ATM networks
- Creates demarcation point between private and public ATM networks
- Enables SLA (Service Level Agreement) differentiation by mapping Layer 2 VLAN and Layer 3 Class of Service to ATM QoS (Quality of Service)
- Extensive statistics report for SLA monitoring
- Traffic management includes spacing, policing and monitoring
- I.610 OAM (Operation And Maintenance) for QoS assurance and fault localization
- Supports CBR, VBR (rt and nrt), UBR, UBR+ and ABR classes of service
- Supports two plug-in user and network interface modules and two optional built-in user interfaces
- ATM (user or network) interfaces:
 - STM-1/OC3
 - E3/T3
 - 4xE1/T1 IMA
 - E1/T1
 - ATM 25 Mbps
- Interworking (user) interfaces:
 - 10/100BaseT Ethernet
 - E1/T1 CES
 - E3/T3 CES
 - Frame Relay
 - HDLC
- Up to 256 Virtual Connections
- Multi layer statistic collection
- Power supply redundancy
- Compact, 1U suitable for mounting in 19-inch racks

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DESCRIPTION

- ACE-202 is a Customer Located Equipment (CLE) that can be used as a multiservice access device or as an ATM network Termination unit.
- As a CLE, ACE-202 enables carriers and service providers to define the boundary between their ATM public services and the customer's private network. A clear demarcation point at the customer premises increases service reliability, improves network efficiency and ensures end-to-end QoS support.
- ACE-202 can be used as a CLE for native ATM or for legacy services, such as voice, LAN, IP or Frame Relay.
- ACE-202 enables the extension of ATM network facilities up to the customer premises. These facilities include advanced traffic management (spacing, policing) and I.610 OAM flow support. In addition, the wide range of ATM network interfaces further enhance the flexibility of service offerings.
- When used as an interworking device, ACE-202 enables smooth connection of any CPE equipment, such as PBXs and routers, to operate over ATM networks. ACE-202 can be used as a concentrator for medium to large corporations. The unit enables different types of corporate traffic to pass over public networks in the most efficient way.

APPLICATIONS

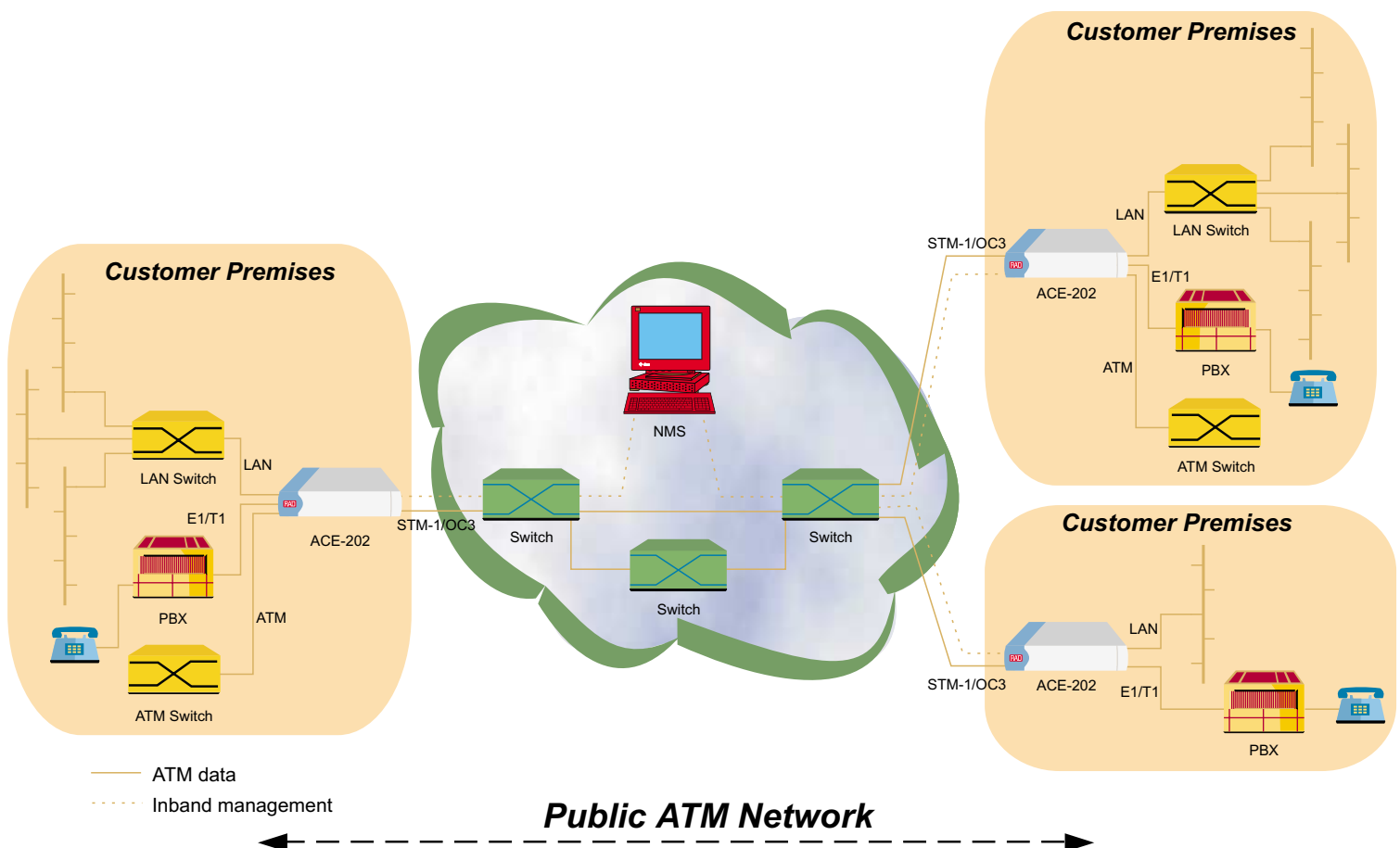


Figure 1. ACE-202 as a Multiservice Access Concentrator



ATM Network Termination Unit/Multiservice Access Concentrator

ATM CAPABILITIES

- ACE-202 supports both UNI and NNI cell headers with full bit range of VPI/VCI fields. ACE-202 can support up to 256 connections, VPC and/or VCC. This capability enables using ACE-202 as a concentrator for large corporate networks.
- To increase QoS versatility, ACE-202 includes VP tunneling. This enables bundling multiple VCCs into a single VPC, while maintaining all the VCC QoS characteristics and OAM capabilities at F4 and F5 layers.
- ACE-202 provides up to 30 VP tunnels. Each tunnel is spaced as a CBR connection. It can be defined with end-to-end OAM flow and act as a regular VP in the public network.
- ACE-202 supports Call Admission Control (CAC), which prevents network congestion, by checking the network resources when a request to open a new connection is received. In case the network resources are insufficient, the request for a new connection is rejected.

TRAFFIC MANAGEMENT

- Traffic management in ACE-202 is performed in several levels: VC, VP, VP tunnel or per user interface.
- ACE-202 enables the following traffic management options:
 - Monitoring: The unit monitors and gathers statistical information on the violations of the traffic contract.
 - Policing: The unit compares the user traffic with the SLA parameters. In case the user traffic exceeds the SLA parameters, violating cells can be tagged or discarded.
 - Spacing: Both user and network operator benefit from spacing bursty traffic. For the user, more traffic can pass through the link at no additional cost. For the operator, spacing enables better statistical efficiency while keeping the same backbone equipment and QoS.

ENHANCED RELIABILITY

- ACE-202 can optionally provide two redundant network interface modules with physical link protection. Switch over between the modules is based on G.783 Annex A and Annex B.
- All ACE-202 modules can be hot swapped. In case of hot swapping the same module type, all module configurations are saved and service is easily and quickly resumed.
- ACE-202 can optionally be ordered with two redundant power supplies.

OAM

- The OAM functionality, intrinsic to the ATM technology, provides end-to-end manageability, allows fault localization and helps reduce operational costs. ACE-202 supports segment and end-to-end OAM functionality complying with I.610. OAM functionality is provided on both the SONET/SDH (F1 and F3) and the ATM (F4 and F5) levels and includes:
 - AIS/RDI – System indicators for faulty conditions in the network. In case these indicators are detected in the user or network modules, ACE-202 alerts the network management system.
 - Continuity Check (CC) – Used to check service availability. ACE-202 sends a CC cell periodically over a predefined VP or VC and verifies that the VP or VC is intact.
 - Loopback – Using the loopback option, ACE-202 can measure minimum, maximum and average delay and delay variation. The loopback function can also be used for fault isolation. The loopback cells can be sent with source and destination address and may be looped at any network element that was pre-assigned with a loopback point address.

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SLA AND STATISTICS COLLECTION

- The possibility to offer SLA contracts to their users, provide the carriers and service providers the ability to define service differentiation and thus have the means to generate revenues from their existing network infrastructure. The SLA is then translated to QoS parameters within the ATM network therefore, it is important that the provider of the service has the ability to provide and monitor the QoS end-to-end. Collecting traffic statistics provides the carriers and the service providers with three important capabilities:
 - Ensure that the SLA agreements are adhered to by the users
 - Provides, if they wish to, information on their service performance and thus get optional competitive edge.
 - Be proactively ready to changes that need to be done on the network before services already run into problems.

- ACE-202 collects information on the various parameters mentioned in the SLA. It also processes the data in real time and converts it into statistical information. All detected events are logged and time stamped. The information is collected by management systems in the network. It can be used later for billing accounts.

INTERWORKING

- To send long frames (mainly IP traffic) over ATM networks efficiently, ACE-202 supports Early Packet Discard (EPD) and Partial Packet Discard (PPD) mechanisms. In case cells are lost or discarded, and are part of a long frame, ACE-202 can drop the rest of the cells that belong to the same frame. This prevents overload of the network resources by non-valid cells.

MANAGEMENT

- ACE-202 can be managed either locally or remotely using different ports and applications:
 - ACE-202 can be managed locally, by connecting an ASCII terminal to the RS-232 port on the front panel. The same port can be used to connect a dial-up modem so ACE-202 can be remotely managed. ACE-202 supports PPP protocol for SNMP management over RS-232.
 - A management workstation located anywhere in the ATM public network can be connected to a remote customer device and perform configuration, monitoring and diagnostics using a dedicated VC.
 - ACE-202 can be managed by and report to up to 8 different managers simultaneously. This enables viewing the network status from different locations.

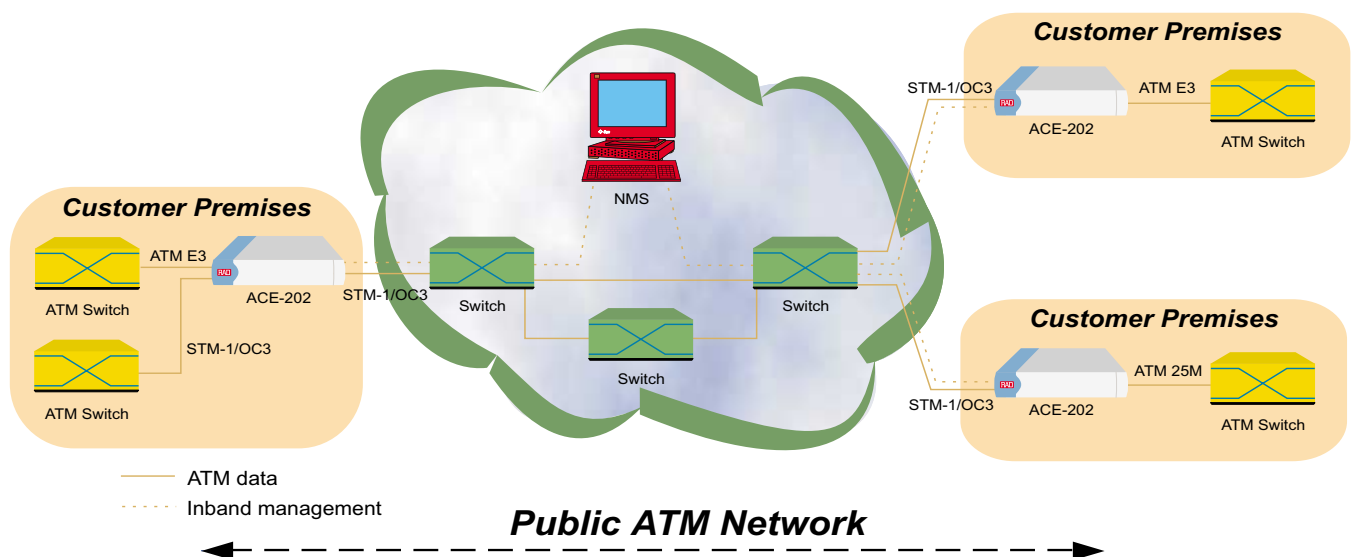


Figure 2. ATM NTU Application

ACE-202

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- ACE-202 supports plug & play management, which allows installation of the device with no on-site configuration required.
- The RADview-HPOV network management application provides the capability to monitor, configure, fault isolate and present network statistics using a graphical, user-friendly display. This UNIX-based application alerts in real time on service availability and faulty network conditions. The real time clock of the management application is synchronized with all the managed units. This enables determining the real time of events and provides the ability to sort events chronologically. Also, the statistical collection of events can be synchronized so that the 15-minute intervals of statistical information can be sorted in a realistic sequence. The system events and the statistical information are registered in a log file.

The RADview application can store a complete pre-defined configuration of ACE-202 to shorten and simplify its field installation. After ACE-202 is installed, it is possible to remotely download the complete configuration from anywhere in the network.

SPECIFICATIONS

- **Interface Modules**
 - Up to two modular interfaces (see *Table 1* and *Table 2* in the *Supported ACE-2002/202 modules* data sheet) in slots 1 and 2
 - Up to two built-in interfaces in slots 3 and 4 where slot 3 is intended for LAN modules only and slot 4 is intended for LAN, LAN+CES or 25 Mbps modules.
- **ATM Connections**
256 connections, 8/12 VPI bits, 16 VCI bits

- **Rate Conversion Buffer**
Buffer size is 64,000 cells in each direction
- **Standards**
 - **ATM Forum**
UNI 4.0, circuit emulation service 2.0 (at-vtoa-0078), TM 4.0, IMA 1.0 & 1.1
 - **ITU-T**
I.610, I.371, I.372, I.432, I.363.1 G.703, G.704, G.706, G.732, G.823, G.957
 - **ANSI**
ANSI T1.403, AT&T TR-62411
 - **IETF**
IETF RFC 1483
 - **Frame Relay Forum**
FRF.5, FRF.8
- **Control Interface**
RS-232/V.24 (DTE)
Baud rate: 9600, 19,200, 38,400, 57,600, 115,200 bps
Connector: DB-9
- **Power**
60W, 100–230 VAC, 47–63 Hz or -41 VDC to -60 VDC
Supports power supply redundancy
- **Physical**
Height: 4.4 cm / 1.70 in
Width: 43.2 cm / 17.00 in
Depth: 35.0 cm / 13.80 in
Weight: 7.0 kg / 15.50 lb
- **Environment**
Temperature:
Operating 0–50°C/32–122°F
Storage -20–70°C/-4–158°F
Humidity: up to 90%, non-condensing

ORDERING

ACE-202/#/@/%/*
Dedicated Multiservice Access Concentrator

- # Specify power supply type
AC for 100–230 VAC
DC for -48 VDC
- @ Specify **R** for redundant power supply (same as the first)

- % Specify optional fixed interface (slot 3)
ETH for Ethernet/Fast Ethernet port (RJ-45)
- * Specify optional fixed interface (slot 4)
ETH for Ethernet/Fast Ethernet port (RJ-45)
UTP-25 for ATM 25 Mbps
ETH\CES\E1 for combined Ethernet/Fast Ethernet port (RJ-45) and one balanced E1 CES port (RJ-45)
ETH\CES\E1\CX for combined Ethernet/Fast Ethernet port (RJ-45) and one unbalanced E1 CES port (BNC 75Ω)
ETH\CES\T1 for combined Ethernet/Fast Ethernet port (RJ-45) and one balanced T1 CES port (RJ-45)

RM-11

Hardware for mounting units in a 19-inch rack

For Sales and Technical:

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www.pulsewan.com
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Tel: 888-785-7393

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Tel: 1-561-279-7700