Acterna DA-3400 ATM Analysis

Realtime monitoring and testing

ATM is being deployed increasingly, as both a high-end UNI service and as an interworking technology to provide infrastructure support for DSL, frame relay, 3G wireless and Ethernet services. Operators are striving to add customers, while at the same time minimizing investments in their networks. Problems have ensued as a result of greater traffic loading. Faults in transmission facilities are being mistaken for ATM network problems while end-customers are experiencing problems in performance-sensitive applications such as voice. Again, the ATM network is blamed. Network downtime and open trouble tickets augment operating costs, decrease revenue, and eventually lose customers. However, with the right tools, ATM network problems can easily be identified, network downtime minimized, and customer service greatly improved.

The Acterna DA-3400 is a multipurpose data network analyzer that enables network operations personnel to solve complex data network and service problems more easily during turn-up, troubleshooting, and as-needed base-line testing of network services.

Powerful realtime and historical analysis – from the physical layer through to the applications layer enable both developing and past problems to be seen. The high-speed protocol processing architecture and intuitive GUI of the DA-3400 mean that technicians are no longer solely reliant on complex data capture and decode to solve problems – an approach that is almost impossible for the latest technologies such as OC12c/STM4 ATM, gigabit Ethernet, and VoIP. The DA-3400 is a unified platform that offers simplified, remote visibility for today's most prevalent network technologies.

ATM Analysis Software for the DA-3400 provides realtime PDU assembly, and IP analysis, traffic generation, as well as filter and search capabilities to simplify problem solving. The VoATM analysis option allows understanding and resolution of problems in newly deployed voice networks.

Highlights

- Provides realtime and historical visibility of IP conversations
- Sectionalizes networks with VoATM/AAL2 voice packet timing and loss analysis
- Troubleshoots frame relay and ATM virtual circuits from high-speed ATM access points
- Tests new networks with ATM O.191 turn-up and IP Ping features
- Allows maximum flexibility through its modular mainframe

Gain realtime and historical visibility of IP conversations

Network problems often occur at the application layers, beyond the reach of a traditional EMS. To simplify a cause and effect analysis across all layers, the Acterna DA-3400 provides realtime visibility for any type of problem. To identify problems that occur randomly, historical trending of IP conversations allows tracking of conversations for up to 30 days.

Sectionalize networks with the VoATM analysis option (figure 1)

The deployment of new packet voice technologies makes it necessary to identify call-quality problems. The VoATM analysis option allows packet loss and packet timing issues to be identified quickly so that networks can easily be sectionalized to find the source of the problem.

Troubleshoot frame relay and ATM virtual circuits from high-speed ATM access points

When problems occur, dispatches to the end-user are costly, in terms of both man-hours and downtime. A frame relay FRF.5 DLCI filter allows troubleshooting of frame relay service in the ATM network or from an ATM test access point. The ability to filter on a frame relay DLCI, ATM virtual path or an ATM virtual circuit makes it possible to troubleshoot a customer problem from aggregated links.

Test new networks with ATM O.191 turn-up and IP Ping features (figure 2)

After installation of the physical layer and network elements is complete and tested, the ability to generate and analyze cells and packets is required to verify the circuit was provisioned correctly. ATM O.191 turn-up features verify ATM quality of service, and IP Ping features verify IP connectivity, providing simplified traffic generation to enable verification of error-free circuits.

Allow maximum flexibility through a modular mainframe

A modular hardware mainframe minimizes the interfaces required to support the line rates deployed today in ATM networks. Two multifunction ATM interfaces are available. One supports electrical test access including T1, E1, DS3, and E3. A second supports optical rates of OC-3c, STM-1, OC-12c, and STM-4. An additional interface is available for 10/100/1000 Ethernet network access.
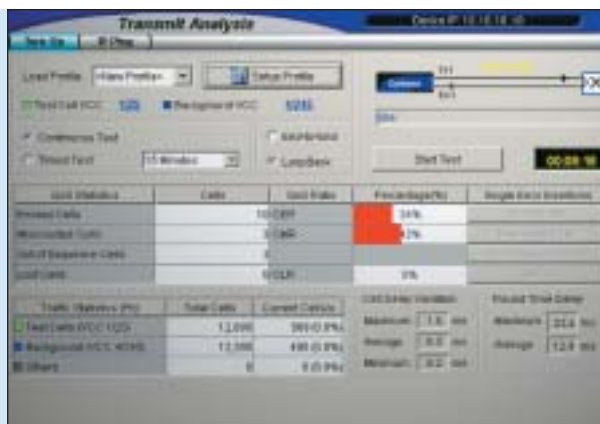

figure 1

figure 2

Applications

Data service troubleshooting (figure 3)

When circuits go down, every minute counts. ATM Analysis Software uses VCC traffic classification and realtime IP conversation analysis to quickly solve the complex higher-layer problems that a traditional EMS cannot. Coupled with an intuitive GUI and native remote support, the ATM Analysis Software allows rapid identification and solution of problems so decreasing mean-time-to-repair (MTTR) and increasing customer satisfaction.

VoATM troubleshooting

VoATM is being deployed to transport voice over broadband technologies such as DSL, cable, and wireless networks. Being able to support this new service requires tools that help to identify the source of problems quickly. Understanding packet loss and packet timing issues are critical to sectionalizing and resolving poor network performance. The VoATM analysis option provides a simple way to identify poor quality calls that will allow any technician to sectionalize the network easily and understand the source of the problem.

As-needed baseline testing

Understanding how a network is used today is the first step before adding new applications requiring additional bandwidth. This can prevent circuit overload, which degenerates the performance of all applications sharing the bandwidth. Placed at key points in the network for long-term monitoring, the DA-3400 uses historical trends, coupled with event correlation to permit understanding of current network optimization and the ability of a specific circuit to handle additional traffic. As a result potential problems can be identified before they occur.

ATM circuit turn-up

After physical layer and network element installations are complete and tested, the ability to generate and analyze cells and packets is required to verify the circuit was provisioned correctly. The ATM O.191 turn-up feature allows verification of provisioning parameters, and an IP Ping feature allows verification of IP connectivity. The DA-3400 ATM Analysis Software provides simplified traffic generation features for verifying error-free circuits.
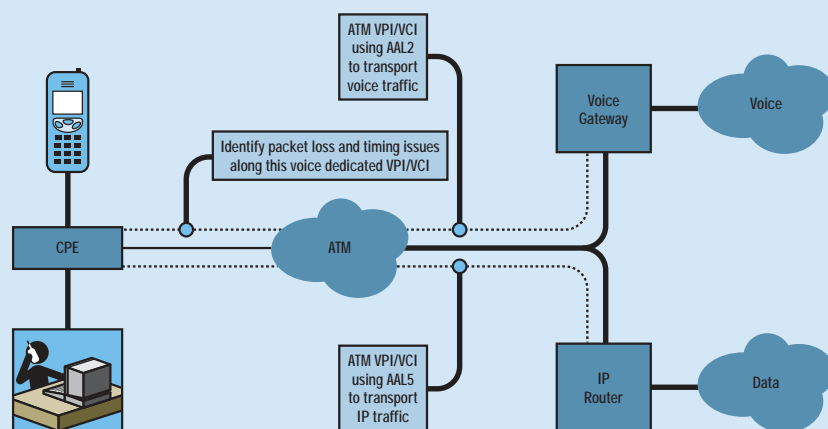

figure 3

Technical specifications

Acterna DA-3400

Physical characteristics

Overall dimensions (w x l x d)	10.5 x 12.6 x 2.6 in
	26.7 x 32 x 6.6 cm
Weight	7 lb/3.2 kg
Rack mount height	2U

Environment

Ambient temperature range	+5°C to +40°C
Storage and transport	–10°C to +60°C

Electrical

Power supply	100 – 240 VAC, 50/60 Hz
Power consumption	50 W

Safety

UL 3111-1, CAN/CSA, C.22.2 No. 1010.1,
IEC-61010-1, EN61010-1, NEBS compliant

Panels

Front panel connectors	RJ-45 10/100 Ethernet
Front panel indicators	Physical, link, error
Front panel LCD	Test device configuration
Front panel controls	Setup keypad,
	Ethernet crossover switch
Rear panel slots	Interface module slot,
	dual cardbus slot
Side panel	On/off rocker switch, 12 VDC inlet
Capture buffer	Dual receivers, 64 M per receiver

System requirements

Windows 98SE, Windows 2000, Windows NT 4.0
(SP6a), Windows XP
333 MHz processor (minimum)
128 MB RAM – 256MB recommended
200 MB disk space

Single Mode Interface Module

155 Interface module supports OC-3c and STM-1
622 Interface module supports OC-3c, STM-1,
OC-12c and STM-4
Dual SC full duplex connectors

Optical power out	maximum –8 dBm,
	minimum –15 dBm
Optical receive sensitivity	maximum –8 dBm,
	minimum –28 dBm

Multimode Interface Module

155 Interface module supports OC-3c and STM-1
622 Interface module supports OC-3c,
STM-1, OC-12c and STM-4
Dual SC full duplex connectors

Optical power out	maximum –14 dBm,
	minimum –20 dBm
Optical receive sensitivity	maximum –14 dBm,
	minimum –26 dBm

DS/E Interface Module

Line rate	Connectors
T1/E1	Dual RJ connectors
DS3/E3	BNC connectors

Order information

Description	Part number
Acterna DA-3400 Data Network Analyzer	DA3400
ATM Analysis Software	DA3400S-ATM
VoATM Analysis Option	DA3400T-VoATM
DS/E Interface Module	DA3000M-DS/E
155 SM Interface Module	DA3000M-155-SM
155 MM Interface Module	DA3000M-155-MM
622 SM Interface Module	DA3000M-622-SM
622 MM Interface Module	DA3000M-622-MM
622 Interface Option	DA3000T-622
1-Year Software Agreement	DA3400-ATM-SWS-1
DA-3400 ATM T1/DS3/ OC SM Package	DA3400-P3
DA-3400 ATM E1/E3/ STM SM Package	DA3400-P4
DA-3400 ATM T1/DS3 SM Package	DA3400-P5
DA-3400 ATM OC/STM SM Package	DA3400-P6
DA-3400 ATM OC/STM MM Package	DA3400-P7

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Acterna is the world's largest provider of test and management solutions for optical transport, access and cable networks, and the second largest communications test company overall. Focused entirely on providing equipment, software, systems and services, Acterna helps customers develop, install, manufacture and maintain optical transport, access, cable, data/IP and wireless networks.

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