



- *Comprehensive monitoring and control for flexible management*
- *Real-time data collection*
- *Choice of platforms — Windows 2000, Windows XP, UNIX and LINUX*
- *RADIUS (Remote Authentication Dial-In Service) enables authentication, authorization and accounting of multiple users*

### Management for Mixed-Media Elements

NetBeacon® Element Management Software (EMS) supports complete monitoring and control for all of Metrobility's Radiance chassis-based line cards. NetBeacon utilizes an R502-M management card which is connected through the backplane to the line cards in the chassis.

NetBeacon can be used as an alternative to the command line interface (CLI) typically used to configure and operate network devices.

Using NetBeacon, network managers can access each device remotely, adjust operating parameters quickly and even switch hardware settings. All platform configuration updates, maintenance, and diagnostics can be performed from a central management station. NetBeacon can be used to:

- Display device information
- Configure a device
- Monitor the chassis
- Ping a device
- Open a telnet session
- Download software to a device
- Configure the database
- Send email notifications

NetBeacon supports SNMP v1, v2c, and v3 as well as the emerging standards for operations, administration and maintenance (OAM) as defined by the IEEE 802.3ah Ethernet in the First Mile Task Force.

### RADIUS Client

NetBeacon implements the widely used Internet Engineering Task Force (IETF) standard RADIUS (Remote Authentication Dial-In Service) which enables authentication, authorization and accounting of multiple users.

### Remote Site Monitoring

NetBeacon provides intuitive, graphical management of up to 109 remote sites using a single IP address creating a robust and secure management scheme which improves performance through IP and managed object aggregation. NetBeacon also provides the ability to reach across the network to manage devices such as the R231 Access Line Card, RA21 Optical Network Unit, and R851 Services Line Card at the remote site. Remote site management can include non-intrusive remote loopback, "point-and-click" bandwidth provisioning in 1Mbps increments, optical power monitoring, quality of line information (RMON Group 1 statistics), and quality of equipment (power supply, temperature and voltage).

The database option allows for historical tracking of analog statistics, RMON statistics and bandwidth usage for up to 28 days. Data can be archived to data files for use by other applications.

### SNMP Management Flexibility

An SNMP agent embedded in the management card communicates with the NetBeacon software to provide management statistics, control functions, and alert network administrators to alarm conditions. Extensive real-time information on MIB-II and Metrobility-specific MIB statistics – plus alarm thresholds and notification procedures – enable early problem identification, fast fault isolation and proactive management.

NetBeacon can be integrated with and launched from HP OpenView Professional Suite and HP Network Node Manager.

### The Metrobility® Difference

Status reporting, troubleshooting and configuration management for both local and remote network devices

Analog statistics for chassis and line card voltage and temperature

Optical power monitoring

Historical tracking up to 28 days

### Product Highlights

Open architecture supports integration with industry-standard SNMP v1, v2c, and v3

PING client

Java-based graphical user interface simulates the appearance and functions of each platform

Alarm notification by email

Management profiles can be saved for different users

Configuration settings can be printed to facilitate viewing of all settings

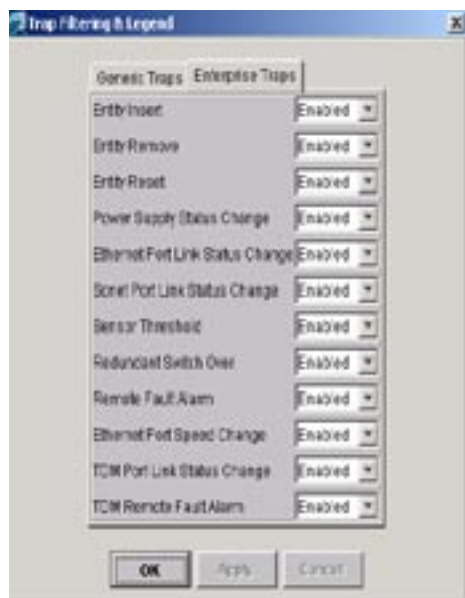
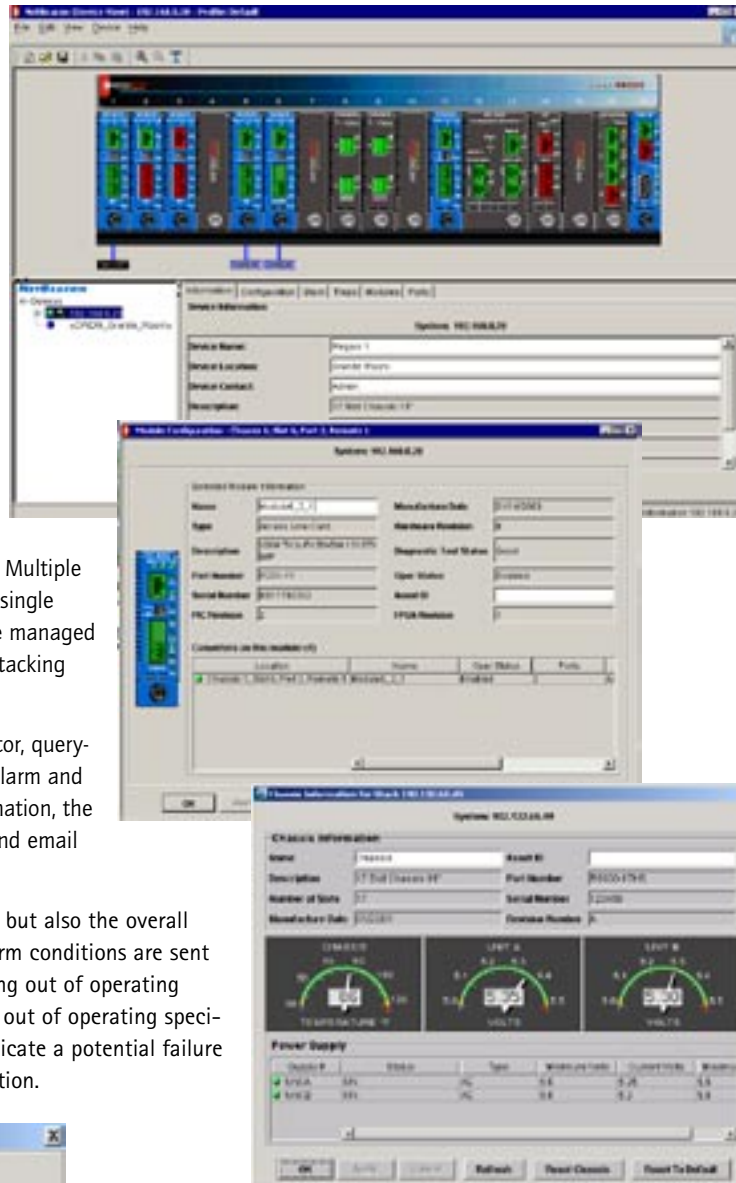
# Graphical User Interface

Metrobility's NetBeacon Element Manager manages the interface between fiber and other network media. Utilizing sophisticated management software to monitor Metrobility network elements, network managers can remotely troubleshoot point-to-point transmission failures, ensuring end-to-end quality control. This capability allows information technology personnel to build more complex and more robust network architectures with higher levels of availability.

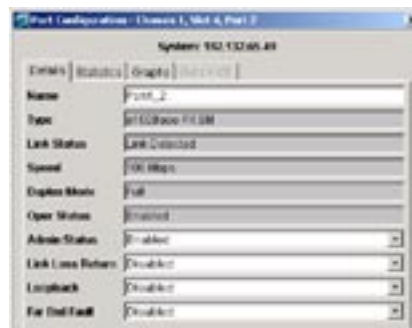
Network status is viewed easily through a Java-based graphical user interface that emulates the appearance and functions of each device and provides managers with an "at-a-glance" look at network element status. Multiple chassis can be monitored and managed at a single management station. Up to 7 chassis can be managed under a single IP address using the Chassis Stacking Line Card.

The NetBeacon server acts as the data collector, querying the management module and receiving alarm and status notifications. Based upon alarm information, the management system can be configured to send email notifications.

NetBeacon monitors not only the line cards, but also the overall health of the chassis itself. For example, alarm conditions are sent for loss of AC or DC power, temperature rising out of operating specification, and DC power rising or falling out of operating specification. These notifications can actually indicate a potential failure before it has any effect on data communication.



**Trap filters:** Enable or disable alarms based on event.



**Receive Path Failure Indicators:** Remote loopback, Link Loss Carry Forward, Link Loss Return and Far End Fault

# Remote Site Management

Metrobility's patented\* real-time remote monitoring technology that provides management information without adding to the network traffic. These management features deliver remotely controlled loopback testing, quality of line monitoring, quality of equipment monitoring, optical amplitude measurements, and "on-the-fly" bandwidth management.



**Quality of Equipment Monitoring:** Measures temperature and logic voltage level at both ends of optical link



**Quality of Optical Amplitude:** Real-time measurement of the receive and transmit levels of the optical transceivers. Acts as integral power meter.

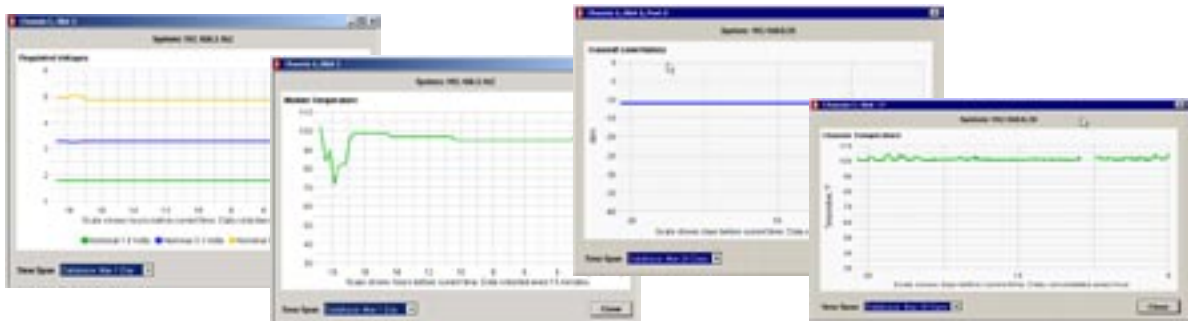


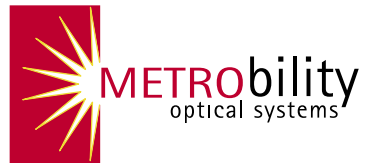
**Quality of Line Monitoring** enables RMON data to be transmitted from a remote site in real-time through a dedicated management channel on the Ethernet link. Radiance technology also requires no IP address or SNMP stack and it has no impact on user bandwidth. The gathering of RMON statistics from the remote site in this manner does not cause increased network congestion found in SNMP polling. Yet, all statistics are available through the management card using SNMP.



**Bandwidth Management:** Because Ethernet scales in bandwidth so easily, remote and instantaneous bandwidth management can be accomplished a simple point-and-click. Both transmit and receive bandwidth can be adjusted independently in 1Mbps increments to accommodate customers' changing requirements.

Database provides a history of up to 28 days for power, temperature, voltage, optical power, and RMON Group 1 statistics.





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**Metrobility Optical Systems is an innovative next generation optical networking company whose focus is on delivering optical access platforms and to harness the power of Ethernet and fiber optics to deliver superior network edge access, connectivity and wavelength multiplexing solutions.**

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\*U. S. Patent No. 6.741,566 B1

**Platform Information**

Part Number  
 Serial Number  
 Date of Manufacture  
 Revision  
 Description

**Platform Status**

Power Status  
 Power Output Voltage  
 Platform Temperature  
 Platform Reset

**Port Information**

Name  
 Type  
 Speed  
 Slot Occupied  
 Port Number

**Port Status**

In Bytes  
 Out Bytes  
 In Errors  
 Out Errors  
 In Discards  
 Out Discards

**Mgmt. Port Statistics**

Type  
 Slot Occupied  
 Part Number  
 Serial Number  
 Configuration  
 Date of Manufacture  
 Revision  
 Ports

**Radiance Access Line Card**

**RMON Statistics**

Packet Types  
 Packet Sizes  
 Blocked Packets & Octets  
 Error Packets  
 Unicast Packet  
 Multicast Packet  
 Broadcast Packet

**Radiance Access Line Card**

**Remote Functions**

Dynamic Bandwidth Provisioning  
 Loopback  
 Link Loss Return  
 Far End Fault  
 Admin Status  
 Optical Tx-Rx Power

**Line Card Status**

Power  
 Link Status  
 Activity  
 Diagnostic Status  
 Management  
 Image/Memory Information  
 Redundancy  
 Auto Restore  
 Link Pulse  
 Transmission  
 Mode Control  
 Secondary Switchover  
 Active Port

**Histograms**

Packet Type History  
 Packet Size History  
 Error History  
 Bandwidth Provisioning

**Database (28 days)**

Bandwidth Provisioning  
 Temperature  
 Voltage  
 Optical Rx and Tx

**Active Control**

Select A/B  
 DRM Mode Select  
 Link Loss Carry Forward  
 Link Loss Return  
 Auto Revert to Primary, Transmit on Both, Link on Both  
 Redundant line card  
 Port Name  
 Line Card Name  
 Platform Name, Location and Contact Information  
 IP Address  
 Disable Management Port  
 Download Software via FTP  
 Reset Platform  
 Subnet Mask  
 Default Gateway  
 Telnet to Device

**Alarms**

Cold Start  
 Warm Start  
 Link Up  
 Link Down  
 Authentication Failure  
 Configuration Change  
 Temp Out-of-Range  
 Power Supply Out-of-Range  
 Power Supply On/Off  
 Power Supply Inserted  
 Power Supply Removed  
 Platform Reset  
 Line Card Reset  
 Port Link State Change  
 Redundant Switchover

**Minimum Hardware Requirements**

**Workstation:**

CD-ROM, Ethernet interface card, SVGA monitor, mouse

**Metrobility Platforms:**

Radiance R5000, R1000, R400 and RD-20 with R502-M management line card

**Management hardware must meet these minimum requirements:**

Platform	CPU	Memory	Disk Space	JRE
Windows	750 MHz	256 MB	20 MB for NetBeacon; 17 MB for JRE	Sun JRE 1.4.1 or higher
Red Hat Linux	750 MHz	256 MB	20 MB for NetBeacon; 40 MB for JRE	Sun JRE 1.4.1 or higher
Sun Solaris	200 MHz	64 MB	20 MB for NetBeacon; 41 MB for JRE	Sun JRE 1.4.1 or higher
HP-UX 11.00	200 MHz	64 MB	20 MB for NetBeacon; 56 MB for JRE	HP-UX JRE 1.4.1 or higher

**Order #**

NETBEACON  
  
 R502-M  
 R104-11

**Description**

NetBeacon Element Manager, single-user license Windows and UNIX (CD with Management Software for Windows and UNIX Versions, and Database option)  
 Management Card (One DB-9 and two RJ-45 connectors)  
 10/100 TX 4-Port Chassis Stacking Line Card (four RJ-45 connectors)



A6285

ISO 9001

Metrobility Optical Systems, Inc.