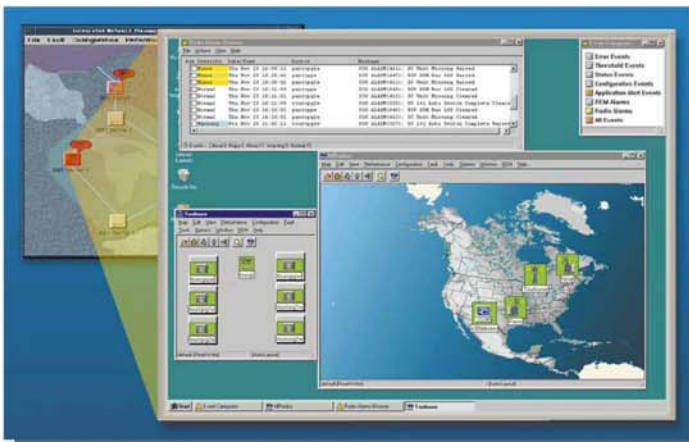


# A Unified Networks Solution

# Radio Network

# Element Manager

**Sophisticated, intuitive and economical network management tools for SONET, SDH and PDH point-to-point microwave radio networks**



The Radio Network Element Manager (REM) is a distributed TMN-compliant network management system that allows service providers to operate, administer, maintain and provision all radio elements in a transport or access network from a single location.

REM lowers the cost of network operations by giving service providers total view and total control of the radio network. With REM, service providers can perform all functions available locally at each radio node from a remote, central location.

Based on the HP OpenView Network Node Manager, REM employs a management information database (MIB) to interface with SNMP agents located throughout the radio network. REM interacts with these agents to retrieve performance, alarm and management information and to issue commands to the equipment.

REM behaves like an open-radio WAN, meaning it can access the radio network from anywhere a TCP/IP connection is available.

## Features

- Graphical user interface for simple, point-and-click navigation
- Graphical representation of network map and managed equipment
- PC-based, open-system architecture for seamless interface with other SNMP solutions and higher-level network management systems like Nortel Networks Preside and INM
- Performance monitoring compliant with ITU-T and Bellcore standards
- Four-level security hierarchy
- Automatic paging notification to alert maintenance personnel of a standing alarm
- Support for a backup REM system, operating in hot-standby mode

## Functions

- Global view of radio network
- Real-time alarm reporting
- Performance monitoring
- Management of switch controls
- Network configuration including provisioning and maintenance tools
- Inventory management
- Software download
- Event logging and browser
- Date and time synchronization
- Export of statistics to external analysis tools



## Performance Monitoring (PM)

The PM feature reports statistics that describe the quality of the radio channels transporting the traffic and the status of the various equipment. By analyzing the statistics over time, maintenance personnel can spot trends that may lead to failures and can take preventive action immediately.

The PM feature supports two user-defined alert thresholds for each statistic. If either threshold is reached, an alert flag is raised.

The type and format of the stored statistics comply with ITU-T G.826 and Bellcore GR-253-CORE specifications. Statistics are kept for ninety-seven 15-minute, eight 1-day and one untimed intervals.

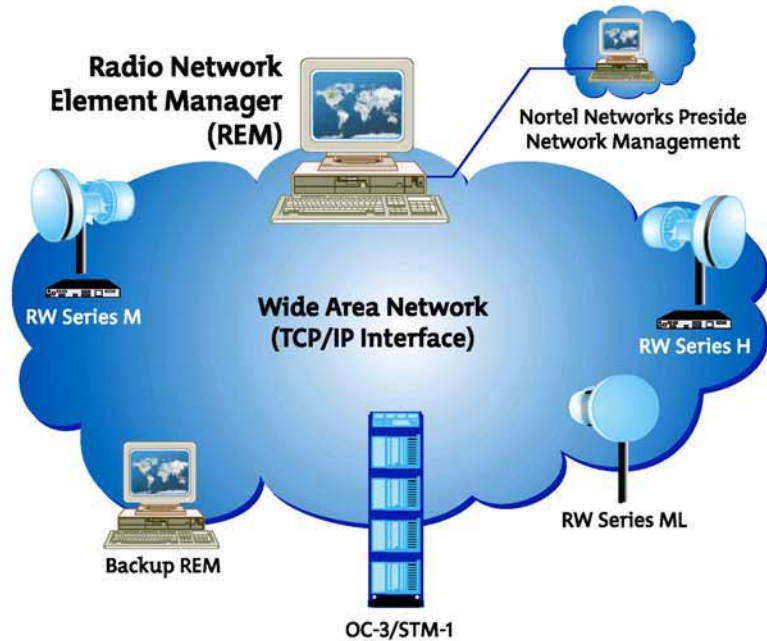
## Alarm Reporting

Alarms are reported to REM in real-time and in one of two ways: either via a trap issued by the equipment affected or via the reply to the regularly-scheduled polling routine.

Every report discloses vital information about the alarm to assist maintenance personnel in quickly identifying the root cause of the alarm:

- Alarm number
- Alarm problem ID
- Related object
- Object instance
- Severity
- Trouble type
- Text description
- Location
- Location text
- Real-time stamp

Maintenance personnel have access to the latest 500 alarm reports, which are stored in a circular history buffer. Once this buffer has filled, the next report overwrites the oldest report in the buffer.



## Inventory Management

To assist service providers in keeping track of deployed equipment and in managing their inventory of spare parts, REM automatically collects and stores the following information about each network element:

- Unit type
- Unit version
- Part number
- Serial number
- Physical location

## System Line-up & Diagnostic Utilities

With REM, service providers can commission the system for operation, as well as perform a battery of tests should they suspect a trouble spot. Some of the utilities available are:

- RF output power setting
- Link provisioning
- Fade margin test
- Full power test
- Channel loopback controls

## Event Logging

REM keeps a log of all critical events, be they automatically or manually initiated. Each event is given a number, a real-time stamp and is then stored in a history buffer for retrieval and analysis.

## Four-Level Security Hierarchy

- The View level grants personnel view-only privileges to certain network elements.
- The Maintenance level grants personnel view and change privileges to certain network elements.
- The Radio Administrator level grants personnel view and change privileges to the entire network.
- The System Administrator level grants personnel total access to all services, including user identification and privilege definition.

For more information, contact your Northern Radio and Wireless Corporation representative, or call 1-514-685-9847 from anywhere in North America.

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