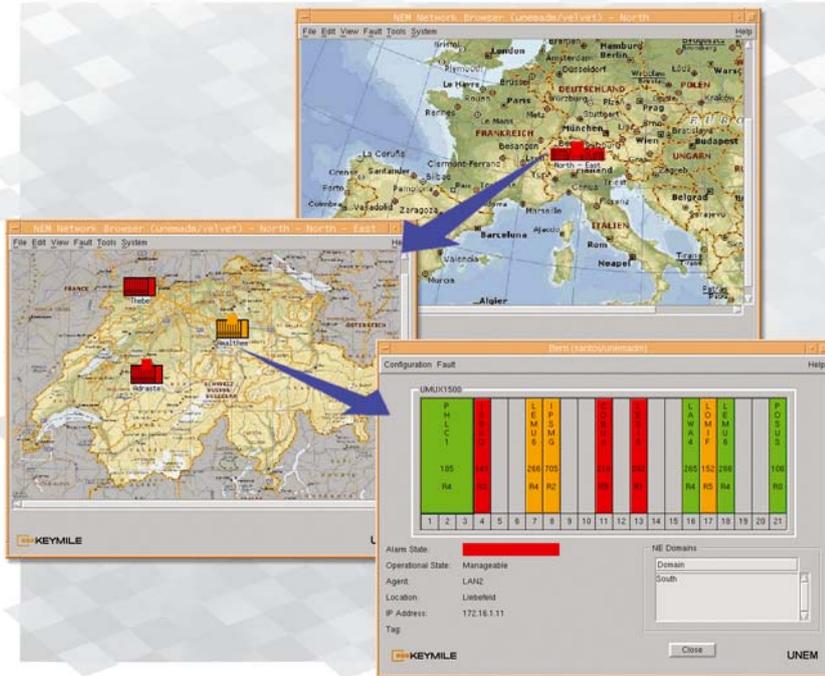


# Network Management System UNEM

Keeping your complete MileGate and UMUX network under control



- Graphical user interface
- Fault, configuration, performance and security management
- Sophisticated inventory reports
- SNMP, CLI & XML interfaces to OSS
- Auto discovery of network elements
- Automatic routing for TDM up to STM-4
- High scalability
- High availability

Scaleable GUI: From network views to a single card

UNEM – the proven and scalable network management solution enabling the cost efficient operation of a MileGate and UMUX multi-service access network.

## ■ Introduction

In today's telecommunication market, service providers need to differentiate in order to gain new customers and to sustain their business. Delivering and maintaining a high quality of service is crucial for their strategy.

Cost efficient and user friendly network management applications reducing operational expenditures (OPEX) play a vital role within the organisation of a service provider.

UNEM, the network management system for the multi-service access platforms MileGate and UMUX provides all the means to manage the access network cost-efficiently and in a convenient manner. The integration into the service provider's existing OSS environment is realised through open northbound interfaces.



Simple configuration, fault management and visualisation of your network topology

**Network view**

UNEM offers a user-friendly and intuitive graphical user interface (GUI) providing immediate access to the variety of applications.

Graphical network representation is offered through topological maps, allowing the operator to create his own, customised hierarchical views of the MileGate and UMUX network.

The automatic discovery of newly deployed network elements combined with the upload of their configuration information reduces setup time.

**Service provisioning**

The configuration of the various network and service parameters in the network elements is performed through the intuitive configuration view, enabling the fast and efficient provisioning of new services.

For the TDM world the end-to-end provisioning of connections is offered by means of the UMUX networking package, allowing the operator to save time during the creation of new services.

The UMUX networking package provides automatic routing capability of circuits and trails, including the creation of protected connections, combined with a powerful and customisable network reporting functionality.

**Service assurance**

The powerful fault management application offers graphical display of alarm states on the network element symbols presented on the map. Alarm lists associated with flexible filtering and sorting capability enabling the operator to take immediate actions to re-establish the service.

The quality of service is permanently monitored in the network elements. In case the quality of a line falls below a defined threshold value, the system creates corresponding threshold crossing alarms.

The performance management application in UNEM offers the capability to collect PM data from selected ports on the UNEM platform. The data is stored in XML format and can easily be exported to any 3<sup>rd</sup> party OSS (Operational Support System).

**Security management**

The powerful security management application offers a flexible user administration – based on customisable user profiles – allowing the administrator to define individual levels of access privileges to managed objects, network resources and EMS applications.

### ■ Inventory management

The maintenance and the resource capacity planning tasks are supported with the inventory management application, providing detailed network inventory data of the MileGate and UMUX network.

The delivery and the installation of new or updated software providing new applications on the network element is supported through the software management application, enabling both immediate and scheduled activation of the new software.

### ■ System management

System administration tasks – like database backup and restore, the modification of the licence key etc. – are supported by an administration tool offering a graphical user interface.

With the implemented features UNEM is a self-monitoring element management system, requiring almost no maintenance effort from the UNIX administrator.

### ■ Scalable & flexible solution

Built on a modern architecture using CORBA technology and an object oriented database, UNEM offers the required modularity to scale with the size of the network.

The different software components can either be installed on a single platform, to manage small to medium size networks or in a distributed client/server environment allowing the management of 1000+ network elements (one

network element is one management unit with all connected devices).

This flexible concept provides a wide range of deployment scenarios, including redundancy concepts. It is also possible to deploy UNEM on a high availability cluster build with UNIX servers and the corresponding software, provided by the OS vendor.

UNEM operates on standard PCs running Red Hat Enterprise Linux. HP UNIX is supported as well for selected customers. UNEM offers all advantages of a workstation based computing environment, like multi-tasking and multi-user capability.

The UNEM client software runs on standard personal computers. Operators can use as well a X-Emulation software (e.g. ReflectionX) to access the UNEM graphical user interface from their desktop PC.

### ■ OSS integration

The integration of UNEM into Operations Support Systems (OSS) is realised through various interfaces.

The SNMP based northbound interface, offers a trap-based fault management and the the export of basic inventory information together with notifications on modifications in the network elements (e.g. the provisioning of a new unit).

This allows the integration of UNEM in virtually any higher level management system offering a SNMP interface.

For inventory and performance data a XML file based interface is offered

An interface for POTS line tests and SELT/DELT are offered via CLI based interfaces accessible via a UNIX socket

A Command Line Interface (CLI) with scripting capability for easy mass provisioning of subscribers is moreover available for MileGate.

The interfaces will be developed further towards TMF conformity (TeleManagement Forum) and will adopt the Multi-Technology Operations Systems Interface(MTOSI) standards issued by the TeleManagement-Forum (TMF 513, 608 & 814).

### ■ OSS integration examples

UNEM has been successfully integrated into the Netcool® suite from Micromuse, enabling the monitoring (fault management) of a MileGate and UMUX network in the Netcool application.

The integration of UNEM into the Preside Application Platform (AP), Nortel Networks NMS solution for their optical (SDH) product portfolio, has been realised through a dedicated northbound interface offering fault management and GUI reachthrough capability.

Contact us to find out more about UNEM.

## Technical specifications (valid for UNEM release 8)

General system requirements	
Hardware platform	Dell PowerEdge platform (e.g. SC1420, SC1430, SC2950) operating with Red Hat Enterprise Linux HP workstations (e.g C8000) or servers (rp34xx, rp44xx, rp54xx) operating with HP-UX 11i (HP-UX available for selected customers only)
Management communication channel	In-band and out-of-band, TCP/IP based
Minimum system requirements for a Linux based platform (span of control: 100 network elements, max. 4 concurrent user sessions)	
Dell PowerEdge SC1420	CPU: Intel® Xeon® with 3.6 GHz, 2 GB RAM, 80 GB Hard disk, DVD-ROM drive, 2 x 10/100BaseT LAN interface Operating System: Red Hat Enterprise Linux WS Release 3.x
UNEM clients	Option 1: Dedicated client application running Standard PCs Option 2: Standard PCs with X-Emulation SW, Microsoft Windows® 2000, NT or XP (version is depending on deployed X-Emulation SW) Recommended X-Emulation Software: ReflectionX® from WRQ Inc. Option 3: Dell PowerEdge platform operating with Red Hat Enterprise Linux WS Release 4.x
Minimum system requirements for a HP-UX workstation (span of control: 300 network elements, max. 6 concurrent user sessions)	
HP workstation B2600	CPU: PA-RISC PA-8600 with 500 MHz, 3 GB RAM, 36 GB Hard disk, DVD-ROM drive, 2 x 10/100BaseT LAN interface, Operating System: HP-UX 11i
UNEM clients	Standard PCs, Microsoft Windows® 2000, NT or XP (version is depending on deployed X-Emulation SW) Recommended X-Emulation Software: ReflectionX® from WRQ Inc.



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