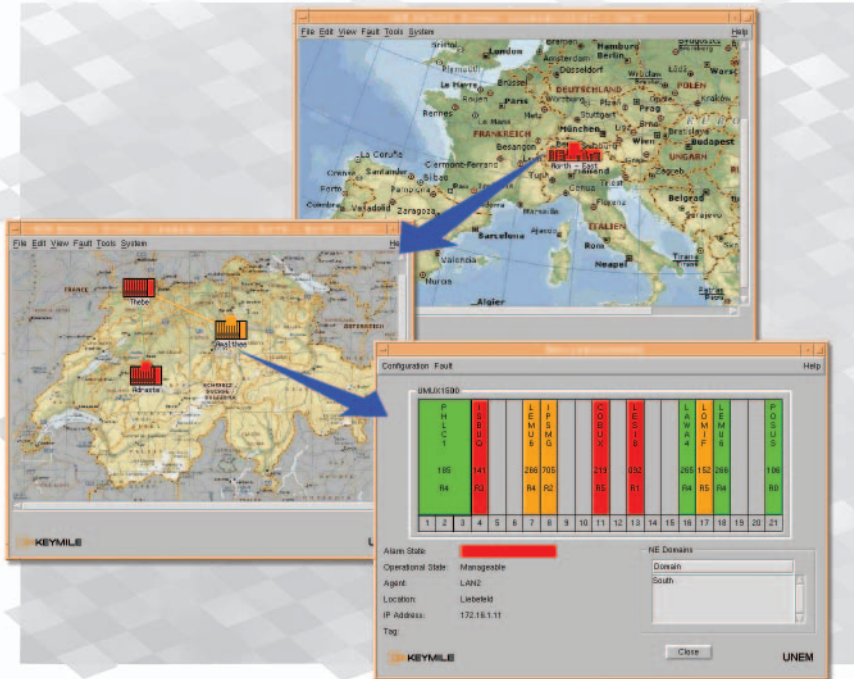


# Network Management System UNEM

Keeping your complete MileGate and UMUX network under control



Scaleable GUI: From network views to a single card

- 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 and high availability
- Management support of selected 3rd party devices

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 (Operational Support System) 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.

This application provides automatic routing capability of SDH circuits and trails, including the creation of protected connections, combined with a powerful and customisable network reporting functionality.

A comfortable tool for network wide software downloads allows updating embedded software in the units. New functions and services can be provided in the network elements either by immediate or by scheduled download and activation. In addition, MileGate configuration profiles can be managed and downloaded network wide.

■ **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 enable the operator to take immediate actions to re-establish the service. Alarms can be forwarded using e-mail service.

The quality of a 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 alarms.

The Performance Management application in UNEM offers the capability to collect performance data from selected ports on the UNEM platform. The data is stored in XML format and can easily be exported to any 3rd party OSS. The network element backup and restore function allows returning to a previous configuration in case of a failure.

### ■ 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 management applications. Password changes in network elements can be performed as bulk operations.

### ■ 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, UMUX network elements and selected 3rd party devices.

For the MileGate product family configuration reports are available showing service parameters such as service ID, service type, port address, port profiles and VLAN IDs.

### ■ 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 system 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 thousands of network elements.

The flexible concept provides a wide range of deployment scenarios, including redundancy concepts and high availability cluster solutions.

UNEM operates on standard computer hardware running Red Hat Enterprise Linux. HP UNIX is supported for existing installations. 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. Alternatively, X-emulation software can be used to access the UNEM graphical user interface from their desktop PC.

### ■ Management of Third Party Devices via SNMP

UNEM offers a SNMP interface southbound to manage selected third party devices (CPE and others). Management includes basic discovery, inventory and alarm handling. Alarms based on SNMP-alarm traps are displayed in the UNEM alarm list and – if required - forwarded through the UNEM northbound interface to upper layer OSS. Cross-launch of selected third party applications allows accessing devices for further management tasks.

### ■ 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 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 high level management system offering a SNMP interface.

Various CLI-based APIs support inventory data retrieval, line testing capabilities (POTS, SELT/DELT) and service provisioning. The built-in CLI-multiplexer (CLIMUX) allows implementing service provisioning concepts in connection with high level OSS. For inventory and performance data retrieval xml-file based interfaces are available.

UNEM has been successfully integrated into the IBM Tivoli Netcool® suite, enabling umbrella alarm monitoring of MileGate and UMUX networks.

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

Contact us to find out more about UNEM.

## Technical Specifications (valid for UNEM release 8C)

<b>General Recommendations Server Platform</b>	
For up to 500 network elements	Dell PowerEdge SC1435, PowerEdge 1900 or 1950 III
For up to 1000 network elements	Dell PowerEdge 2900 or 2950 III
For more than 1000 network elements	For larger networks a distributed architecture must be deployed For high availability deployments a cluster solution is available
Operation system	Red Hat Enterprise Linux RHEL 4.7 or 5.3. Further Red Hat certified computer hardware can be found under <a href="http://www.redhat.com/rhel/compatibility/hardware">http://www.redhat.com/rhel/compatibility/hardware</a> . HP-UX is recommended for existing installations only.
<b>Hardware Recommendations Server Platform</b>	
CPU	Quad-Core
RAM	8 GB (minimum 4 GB)
LAN	1 x 10/100BaseT interface for network, additional interface for office LAN
Monitor	19 inch or larger, resolution 1280 x 1024
Peripherals (optional)	DVD-ROM drive, optional tape drive for backup
<b>Recommendations Client Platform</b>	
Option 1	Dedicated UNEM client software running on standard PC with Windows® XP Professional with 2 GB RAM recommended (minimum 1 GB) available hard disk space 350 MB network interface card for accessing UNEM server using TCP/IP colour monitor with 1280 x 1024 resolution
Option 2	Standard PC running X-emulation software
<b>Management Communication</b>	
Management channel	In-band and out-of-band, TCP/IP-based



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