COMPAQ

Software Product Description

PRODUCT: Compaq TeMIP Access Module for Nortel NRM Resource Manager

DESCRIPTION

The Compaq TeMIP Nortel NRM Access Module (AM) provides an interface to the Nortel NRM Resource Manager. The Nortel NRM Access Module supports fault management capabilities with a basic Information Model (flat model), receiving and processing unsolicited messages (Basic Fault Management).

TeMIP for Tru64 UNIX® is a family of software products for the management of telecommunications and corporate networks, including fixed wire and mobile/cellular voice and data, multi-vendor, multi-technology networks. TeMIP V4.0 provides comprehensive off-the-shelf fault and trouble management functions such as Alarm Handling, Event Logging and Trouble Ticketing for telecommunications network management.

TeMIP supports the International Standards Organization (ISO) management standards ISO 10164-x and ISO 10165-x, the OMNIpoint 1 standards as defined by NMF and T1M1. TeMIP and its features are applicable in the context of the International Telecommunication Union-Telecom Standard Sector (ITU-T) X.73x and Telecommunications Management Network (TMN) M.3010 and M.3100 Recommendations. TeMIP gives network operators a global view of their networks, and enables them to activate management functions and operations from single or multiple workstations.

TeMIP is built on top of the TeMIP Framework and fully benefits from the object oriented and truly distributed software architecture.
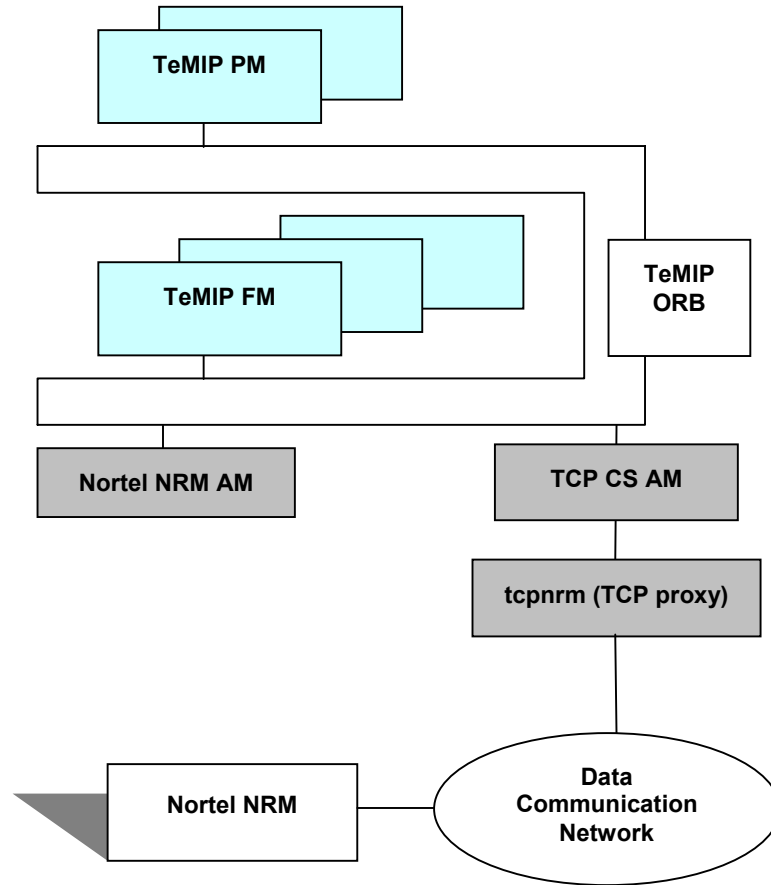
Solution Components

The Nortel NRM is directly interfaced to TeMIP by means of a combination of Management Modules and Applications:

- The Communications Server Front-End Application whose purpose is to moderate the byte-stream before the Communications Server processing,

- The TCP Communications Server Access Module, responsible for establishing and maintaining the physical connection to the Front-End (as an alternative to the TCP Communications Server, either the X.25 (SVC), RS232 or Telnet Communications Servers could also be envisioned, along with modifications of the Front-End process),

- The NRM AM, responsible for the Information Model representing the management capabilities of the equipment as well as all associated semantic translations between its ASCII-based messaging interface and TeMIP data models.

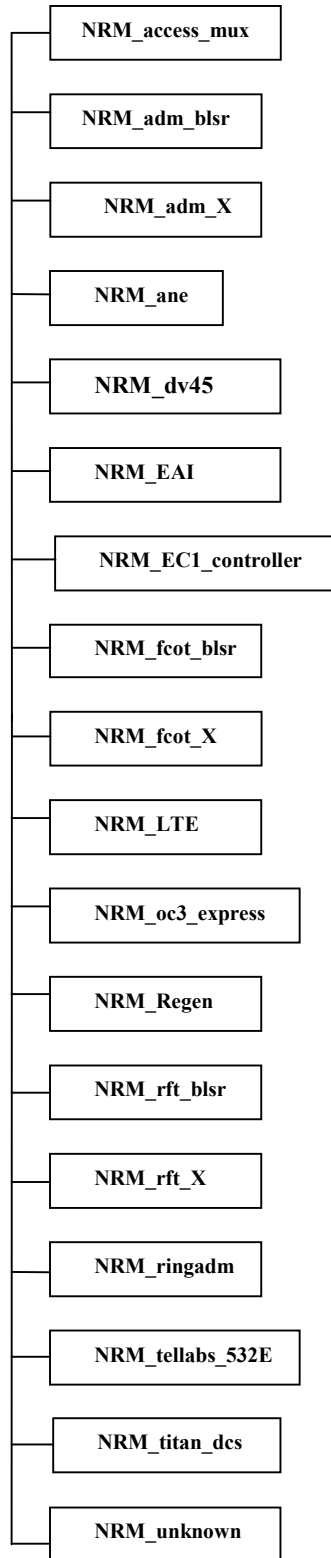The solution components are shown in Figure 1.

Figure 1: Solution Components

Information Model Outline

The NRM is represented by the information Model shown in Figure 2

Figure 2: Information Model

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┌─────────────────────┐
│   NRM_access_mux     │
├─────────────────────┤
│   NRM_adm_blsr       │
├─────────────────────┤
│   NRM_adm_X          │
├─────────────────────┤
│   NRM_ane            │
├─────────────────────┤
│   NRM_dv45           │
├─────────────────────┤
│   NRM_EAI            │
├─────────────────────┤
│   NRM_EC1_controller │
├─────────────────────┤
│   NRM_fcot_blsr      │
├─────────────────────┤
│   NRM_fcot_X         │
├─────────────────────┤
│   NRM_LTE            │
├─────────────────────┤
│   NRM_oc3_express    │
├─────────────────────┤
│   NRM_Regen          │
├─────────────────────┤
│   NRM_rft_blsr       │
├─────────────────────┤
│   NRM_rft_X          │
├─────────────────────┤
│   NRM_ringadm        │
├─────────────────────┤
│   NRM_tellabs_532E   │
├─────────────────────┤
│   NRM_titan_dcs      │
├─────────────────────┤
│   NRM_unknown        │
└─────────────────────┘
```

The meaning of each class is described in Table 1.

Table 1: Nortel NRM Hierarchy Description

Class	Description	Cardinality
NRM_access_mux	Digital Video Access Multiplexer (DV-Access Mux) for video transport	N
NRM_adm_blsr	Bi-Directional Line Switched Ring of Add-Drop Multiplexing.	N
NRM_adm_x	Add-Drop Multiplexing (Cross Connect)	N
NRM_ane	BayStack® Access Node (AN®) Ethernet–Based	N
NRM_dv45	Digital Video Codec	N
NRM_EAI	External Alarm Interface	N
NRM_EC1_controller	Electrical Carrier, Level1	N
NRM_fcot_blsr	Bi-Directional Line Switched Ring of AccessNode Fiber Central Office Terminal	N
NRM_fcot_x	AccessNode Fiber Central Office Terminal (Cross Connect)	N
NRM_LTE	Line Trunk Equipment Frame	N
NRM_oc3_express	Express line Optical Carrier	N
NRM_Regen		N
NRM_rft_x	Remote Fiber Terminal (Cross Connect)	N
NRM_ringadm	SDH equipment deployed in ring network	N
NRM_rtf_blsr	Bi-Directional Line Switched Ring of Remote Fiber Terminal	N
NRM_tellabs_532E	Product 532E 1/0 Cross Connect	N
NRM_titan_dcs	Tellabs TITAN Digital Cross Connects	N
NRM_unknown	Unknown equipment	N

MANAGEMENT CAPABILITIES SUMMARY

Unsolicited Messages Support

The Nortel NRM AM handles the following unsolicited messages (refer to *[Network Resource Manager Broadband External Alarm Interface, Northern Telecom, release 6 Standard February 1998]* document for further details):

- enroll_ne: Enroll NE message,

- deenroll_ne: De-enroll NE from span of control,

- ne_up: Re-establish communication with NE and EC,

- ne_down: Loss of communication with NE and EC,

- ne_name: Change of NE name,

- ne_type: Change NE type,

- raise_alarm: Raise alarm on NE,

- clear_alarm: Clear alarm on NE,

- alarm_ack: Acknowledge alarm on an NE,

- keep_alive: Keep alive message.

Alarm Clearance

Some alarm messages have a corresponding alarm clear message. The Nortel NRM EAI NE provides a specific alarm identifier to allow the correlation of the alarm with its clear message. In order to clear a previous alarm, the NRM sends a specific message with the same alarm number in the message body.

According to ITU-T standards, the clearance of an alarm is therefore done based on the following rule:

- An alarm is cleared when another one with severity clear and with same event arguments for **Managed Object** and **Notification Id** is received.

MISCELLANEOUS MANAGEMENT CAPABILITIES

The NRM AM also implements the features listed below:

- Automatic detection and reporting of communication failure,

- Automatic alarm state re-synchronization after communication failure,

- Duplicate alarms filtering (Alarm mask used).

HARDWARE REQUIREMENTS

Supported Alpha AXP Processors:

DIGITAL Personal Workstation au series
DIGITAL Ultimate Workstation
AlphaStation 600
AlphaServer 800, 1000A, 1200
Compaq AlphaServer DS10, DS20

AlphaServer 2000, 2100, 4000, 4100
Compaq AlphaServer ES40

AlphaServer 8200, 8400
Compaq AlphaServer GS60, GS140

Disk Space Requirements:

Disk space required for installation:
Subset copy: 20 Mbytes
Installation: /usr 60 Mbytes

Disk Space Required for Use (Permanent):
No specific requirement

Memory Requirements:

The minimum memory supported, due to a TeMIP Framework prerequisite, is 128 Mbytes.

However, the use of this software in conjunction with increased memory capability improves performance.

SOFTWARE REQUIREMENTS

Compaq Tru64 UNIX® Operating System V4.0F

TeMIP Framework V4.0

OPTIONAL SOFTWARE

TeMIP Graphical ASCII Toolkit V4.0

GROWTH CONSIDERATIONS

The minimum hardware/software requirements for any future version of this product may be different from the current version requirements.

YEAR 2000 READY

This product is Year 2000 Ready.

"Year 2000 Ready" products are defined by Compaq as products capable of accurately processing, providing, and/or receiving date data from, into and between the twentieth and the twenty-first centuries, and the years 1999 and 2000, including leap year calculations, when used in accordance with the associated Compaq product documentation and provided that all hardware, firmware and software used in combination with such Compaq products properly exchange accurate date data with the Compaq products.

For additional information visit Compaq's Year 2000 Product Readiness web site located at http://www.compaq.com/year2000

To ensure that this product is Year 2000 Ready, code assessment and system tests to verify the transition between December 31st 1999 and January 1st 2000 were utilized.

To ensure that this product interoperates properly with other hardware and software, the system tests involving Compaq's TeMIP V4.0 are applicable, as this product was verified as being Year 2000 Ready.

DISTRIBUTION MEDIA

This software is available by electronic means, distributed directly by Compaq TeMIP Engineering Team in Sophia Antipolis, France. The team can be contacted through your local Compaq office, which sends an internal e-mail to vbetemipsupp@compaq.com (containing customer identification and proof of license purchase).

ORDERING INFORMATION

Compaq TeMIP Access Module for Nortel NRM Resource Manager (Basic Fault Management)

Software License:

- QM-6F0AA-AA

Software Product Services:

- QT-6F0**-** or QR-SP6F0-A9

Notes:

1. * denotes variable fields. For additional information on available services, or hardware platform tiers, refer to the appropriate price book.

2. The QM number corresponding to the TeMIP Graphical ASCII Toolkit V4.0 (Run-Time) must also be purchased (QM-5SMAA-AA).

SOFTWARE LICENSING

This software is furnished under the licensing provisions of Compaq Computer Corporation's Shrink-wrap Terms and Conditions. The license is a Corporate wide license, i.e. can be copied as many times as necessary on systems using the same TeMIP Namespace. However, one Graphical ASCII Toolkit runtime license per copy of the Access Module is required.

For more information about Compaq's licensing terms and policies, contact your local Compaq office.

COMPAQ TRU64 UNIX LICENSE MANAGEMENT

This product uses the FLEXlm Software License Key system.

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The above information is valid at the time of release. Please contact your local Compaq office for the most up-to-date information.

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