RADview

Carrier-Class Network Management System

- Integrated network management system, including service management (SM) and performance monitoring (PM)
- Wizard-based end-to-end E-Line service design, provisioning, testing and monitoring
- Highly scalable solution for growing networks, with smart configuration and provisioning tools for easy network expansion
- Fully featured performance monitoring system enabling SLA assurance for both service providers and their end customers

RADview NMS can manage advanced networks. It includes the following optional modules:

- Service Manager (SM) – End-to-end intuitive, error-free and easy service management over Ethernet
- Service Center (SC) – Service management for AXCESS+ products over Ethernet, PDH and SDH/SONET networks
- Performance Monitor (PM) – Service SLA assurance (OAM and throughput) for services provided by carriers.

Built on FCAPS (Fault, Configuration, Administration, Performance and Security) principles, RADview features an intuitive graphical user interface for discovery, topology, management and monitoring of the network elements. In addition, RADview includes the following utilities:

- Inventory and resource management, for displaying devices, ports and logical resources
- Jobs, for performing a variety of tasks on a large number of devices from one central location
- Zero Touch, for automatically discovering and configuring a large number of devices
- Fault management, displaying current and history alarm records and forwarding to upper OSS systems.

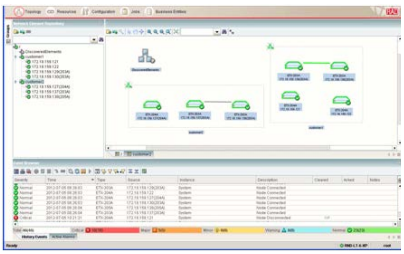

Figure 1. RADview Network Manager

Service Manager. The Service Manager module is designed to minimize the effort of setting up a multi-service Carrier Ethernet network. RADview-Service Manager enables easy wizard-based E-Line Ethernet service creation, testing (Y.1564), monitoring and SLA assurance for networks based on the RAD EtherAccess product family.

RADview-Service Manager allows users to quickly set up E-Line services using the unique RADview template (catalog) concept, which only requires entering a few service-specific parameters during service creation.

Note: *Service Manager supports ETX-1, ETX-2, ETX-5 at present.*

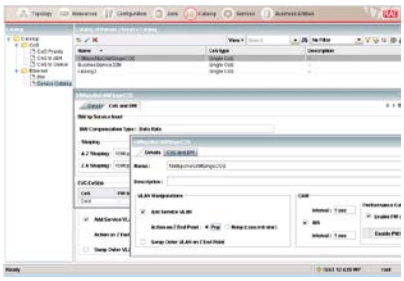

Figure 2. RADview Service Manager

Service Center. As part of the Service Manager module, RADview-Service Center extends Service Manager capabilities to the AXCESS+ product family and to PDH and SDH/SONET networks for providing TDM-based services in addition to E-Line Ethernet services.

Note: *Service Center supports Megaplex-2100 and Megaplex-4 with ASMi-52/53/54 and OP-108, as well as the FCD family.*

Figure 3. RADview Service Manager

Performance Monitor. The Performance Monitor is an SLA assurance system, enabling long term monitoring of Ethernet service performance by collecting, analyzing and presenting KPI (key performance indicators) data from RAD devices. Service providers use the system to prove the SLA and monitor traffic of customers who utilize their service, and propose bandwidth upgrades.

Measured metrics are based on ITU-T Y.1731. These metrics include Frame Delay, Delay Variation, Frame Loss, and Availability. Latency and jitter results are based on round-trip measurements. This data allows service providers to easily evaluate actual performance over time and compare it to their committed SLA agreements.

The Performance Monitor calculates the utilization based on configured CIR and EIR values.

In addition, it immediately detects service degradation, so that action can be taken to quickly restore committed performance levels at the end customer.

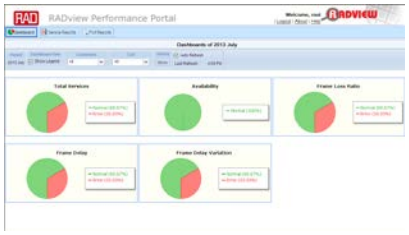

Figure 4. RADview Performance Monitor

The Performance Monitor system also presents end-to-end throughput of Ethernet services in the network.

TECHNOLOGY

RADview is a Java-based, carrier-class network management system for deployment in Windows, Linux and Unix environments. The system features an embedded Oracle database and open standard interfaces for integration with OSS and BSS systems. It manages both Ethernet Access and AXCESS+ portfolios and provides third-party device monitoring to assure network reliability.

RADview conforms to the ITU-T Telecommunication Management Network (TMN) model with end-to-end visibility and standard-based interoperability. The system is scalable, providing solutions for small installations as well as growing networks.

RESILIENCY

RADview provides the following scalable solutions for disaster recovery to assure high system availability:

- Cold standby – This solution is the most simple and cost-effective. Data is periodically backed up by the active station via the RADview Backup/Restore utility without affecting service.
- High Availability – This solution provides local data protection with two servers as clusters sharing external storage. In case of a software or hardware failure, the system immediately switches to the backup server.
- Disaster Recovery wide-area clustering – This solution provides geo data protection with two servers in two separate locations in replication mode. In case of an operating outage at the primary site, all services can be moved to the backup site by a semi-automatic switchover. This solution is mainly used by customers wishing to backup their data to a remote site.

MANAGEMENT AND SECURITY

Zero-Touch Provisioning

RADview offers the Zero-Touch utility for automatic discovery of network elements and performing the tasks listed below according to user-defined rules:

- Uploading initial software and configurations
- Executing CLI scripts
- Handling the replacement of units in case of failure.

Secure Access

Advanced Secure Access functions include tracking of user activities in the network and designating complex security a ccess rights up to the parameter level. An unlimited number of security profiles and groups can be created, using the security management console.

Secure communication link is established, using the following protocols:

- SSH (secure shell)
- SNMPv3.

ARCHITECTURE

RADview is based on distributed client-server architecture, which optimizes the use of network resources.

As a modular management system, RADview is equipped with a number of standard northbound interfaces for easy integration with OSS and umbrella systems.

In addition to featuring a plug-in for connecting to IBM Tivoli's Netcool®/OMNIbus™ fault management program, the system allows seamless communication with network-wide platforms for inventory (resource) management, performance monitoring, and service provisioning, as well as with carriers' proprietary OSS.

Supporting various APIs, such as CORBA, MTOSI and SNMP, RADview smoothly interacts with higher management levels to communicate essential network information to service, operations and business management functions.

By serving as a mediation layer between the various network elements (NEs) and the umbrella system, RADview minimizes the integration costs associated with new NE additions.

OPERATION AND MAINTENANCE

New software, configurations and licenses can be distributed and uploaded to devices across the network. The system tracks version changes and keeps a software configuration history for backup and recovery. Easy management and provisioning is provided by a user-friendly point-and-click GUI (shelf-view).

The system manages individual and group user accounts and passwords, generating network usage reports to monitor user activities.

MONITORING AND DIAGNOSTICS

RADview supports advanced fault detection, displaying a clear analysis of the probable causes of faults and suggested corrective measures. It allows the distribution of alarm messages to other managers in the network. In addition, users can configure sounds for specific alarms/events when triggered.

Specifications

WINDOWS AND LINUX-BASED SERVER

Hardware Requirements - ≤ 500 NEs
CPU: Core-i7-2xxx 2.1 GHz or higher (x=0–9), or newer architecture

RAM: 4 GB or 8 GB if SM/PM are used

Hard drive with NTFS-formatted partition and at least 40 GB free disk space

***Note**: Additional disk space may be required to collect statistics for the RADview Performance Portal, according to the amount of data collected and saved in the system*

DVD drive

***Note:** For requirements to operate larger networks, please consult your RAD partner.*

Software Requirements
Microsoft Windows 7 (64-bit) Professional Edition, or Microsoft Windows Server 2008 R2 (64-bit) Standard Edition or Linux Red Hat v6.5 or CentOS v6.5.

Windows default input language set to English

Mozilla Firefox installed as default web browser (required for Web-based access to devices)

TFTP/SFTP Server, TFTP Server required for collecting OAM statistics

TFTP/SFTP (enterprise), TFTP Server required for the Jobs and Zero Touch utilities

UNIX-BASED SERVER

Hardware Requirements - ≤ 1000 NEs
Oracle SPARC T4-1 Server with 1×8-core 2.85 GHz CPU

Two SAS hard drives (mirrored), with the following minimum requirements:

- 4 GB free disk space in the **/opt** partition
- 40 GB free disk space for Oracle in **/opt/oracle**

***Note**: Additional disk space may be required to collect statistics for the RADview Performance Portal, according to the amount of data collected and saved in the system*

16 GB RAM or more

Swap file at least twice the RAM size

For each additional simultaneous user via X-session, add 512 MB RAM and 1 CPU core

For each additional simultaneous open shelf view application via X-session, add 128 MB RAM

DVD drive

Color monitor (17-inch minimum) supporting 1152 × 900 resolution or higher with depth of 24 bit (for use in a Unix client-server configuration).

***Note:** For requirements to operate larger networks, please consult your RAD partner.*

Software Requirements
SUN Solaris Ver. 10, Nov 2006 or later, with CDE

***Note**: The option to include Solaris 64-bit support should be selected during the Solaris installation.*

Mozilla browser for working with the RADview Performance Portal (for use in a Unix client-server configuration).

WINDOWS CLIENT

Hardware Requirements
Intel Core-2 CPU 4300 1.79 GHz or higher

Memory: 2 GB or more

Color monitor (17-inch minimum), supporting 1280 × 1024 resolution or higher

DVD drive

Software Requirements
Microsoft Windows 7 (32-bit) or higher

Windows default input language set to English

Adobe Reader, latest version

Google Chrome web browser for working with the RADview Performance Portal.

RADview

Carrier-Class Network Management System

Ordering

RECOMMENDED CONFIGURATIONS

RADview
Includes a license for five simultaneous users, as well as complimentary (Windows/Linux/Unix) ENW license points

RADview-PC
RADview system for installation on a Windows-based server, with 300 ENW license points (for Windows)

RADview-PC/SM
RADview system for installation on a Windows-based server, with Service Manager, 450 ENW license points

RADview-PC/PM
RADview system for installation on a Windows-based server, with Performance Manager, 450 ENW license points

RADview-PC/PMSM
RADview system for installation on a Windows-based server, with Service Manager and Performance Monitor, 600 ENW license points

RADview-LINUX
RADview system for installation on a Linux-based server, with 400 ENW license points (for Linux)

RADview-LINUX/SM
RADview system for installation on a Linux-based server, with Service Manager, 600 ENW license points, includes RADview-Service Center

RADview-LINUX/PM
RADview system for installation on a Linux-based server, with Performance Monitor, 600 ENW license points

RADview-LINUX/PMSM
RADview system for installation on a Linux-based server, with Service Manager and Performance Monitor, 800 ENW license points

RADview-UNIX
RADview system for installation on a Unix-based server, with 400 ENW license points (for Unix)

RADview-UNIX/SM
RADview system for installation on a Unix-based server, with Service Manager, 600 ENW license points, includes RADview-Service Center.

RADview-UNIX/PM
RADview system for installation on a Unix-based server, with Performance Monitor, 600 ENW license points

RADview-UNIX/PMSM
RADview system for installation on a Unix-based server, with Service Manager and Performance Monitor, 800 ENW license points

RADview Licenses

RV-LIC/ENW
Additional 1 ENW

RV-LIC/ENW/R
Additional 1 ENW in Redundancy mode

RV-LIC/1-CLIENT
Additional 1 Client

RV-LIC/1-CLIENT/R
Additional 1 Client in Redundancy mode

RV-LIC/NETCOOL
Integration module for IBM Netcool/OMNIbus

Notes:

For additional information on license points for specific devices (network elements), contact your RAD partner.

RADview-Service Center is part of RADview-Unix/SM. RADview-Service Center does not support the Windows option RADview-PC/SM.

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