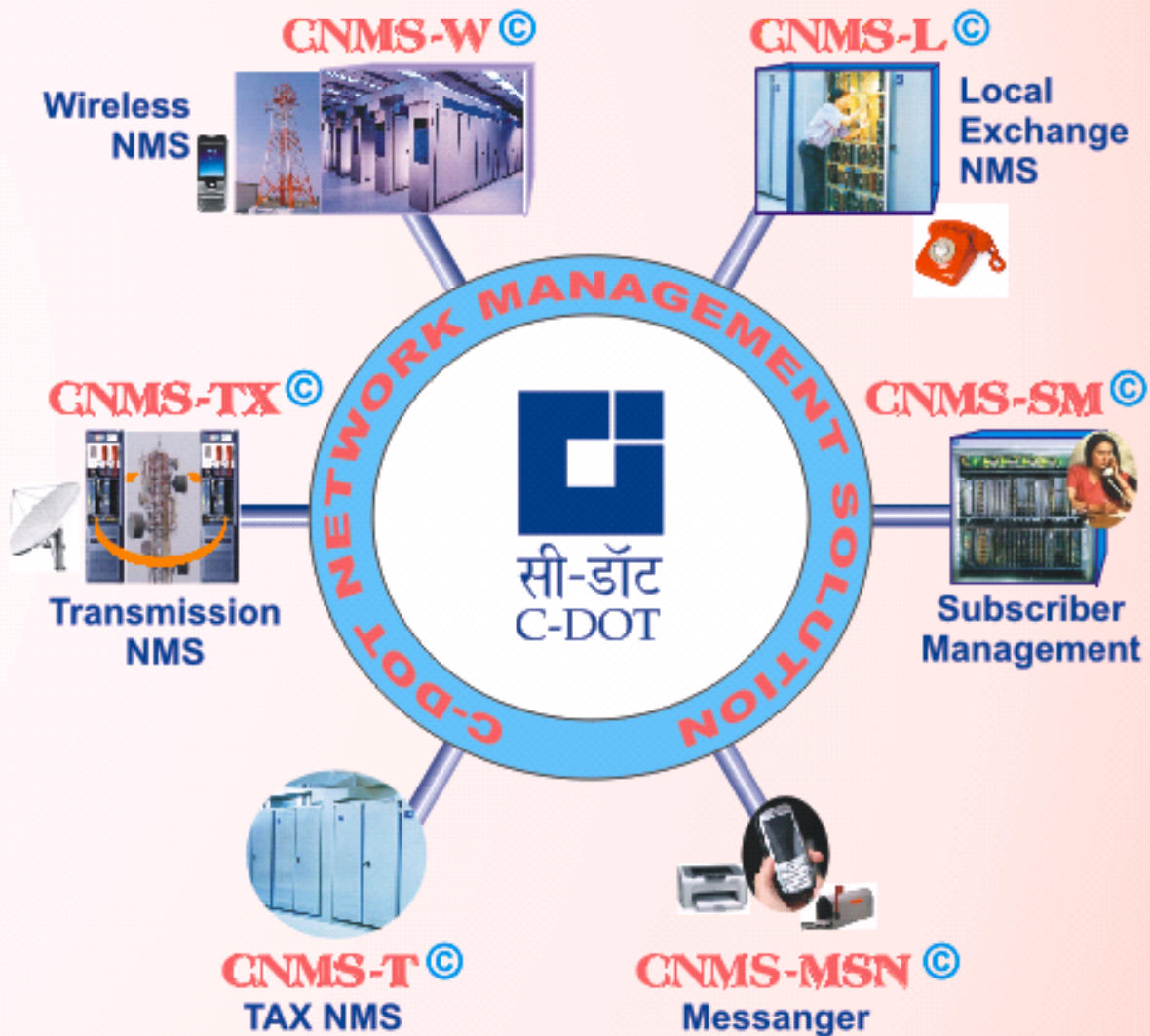


CNMS



C-DOT, the leading provider in the network management solutions arena, offers service providers a comprehensive suite of Network Management Solutions (NMS) which satisfies the service provider's needs for managing and monitoring the networks effectively. C-DOT Network Management Solutions satisfy the industry demand for a full-featured, scalable, reliable, flexible and state-of-the-art NMS solutions which provide the service provider with feature-rich functionalities. C-DOT NMS solutions support the wireline, wireless and optical networks and they are compliant to the industry standards.

Wireline Network Management Solutions

- CNMS-L - C-DOT Local NMS
- CNMS-T - C-DOT NMS for TAX Networks
- CNMS-SM - C-DOT Subscriber Management System

Wireless Networks Management Solutions

- CNMS-W - C-DOT NMS for GSM Network

Transmission Networks Management Solutions

- CNMS-TX - C-DOT Transmission NMS

CNMS-Messenger

- C-DOT Messenger System (for all types of networks)

NMS Products Services and Features

CNMS-L

C-DOT Network Management System for Local Exchanges is a centralized monitoring system for performance and fault management data from Network Elements (NEs) within a Telecom district/ circle in the service provider PSTN network.

Supported Features

- Provides Traffic information of various entities
- Monitors QoS parameters like ASR, GOS etc.
- Provides Statistical analysis of history data for performance improvement
- Collection and analysis of various alarms at switch level and at transmission level.
- Exception map for display of severity of the faults
- Notification of the faults to the pre-configured individuals

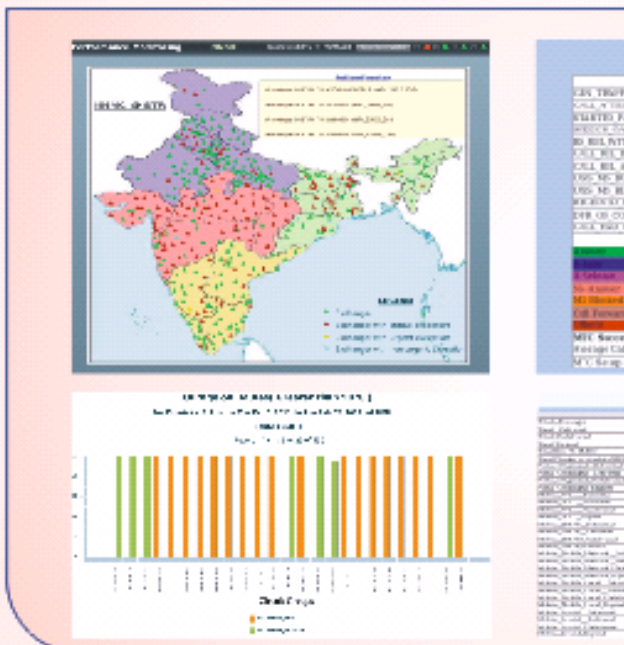
Supported Technologies

- C-DOT
- AXE10
- OCB
- E10B
- 5ESS
- FETEX
- EWSD

CNMS-W

CNMS-W is a Centralized Telecom Network Management System based on the TMN principles, focusing on the functionality of Performance Management and Fault Management at the Network and Element Layers of the TMN.

CNMS-W is a comprehensive Network Management Solution with a wide range of choice in features and capacity.

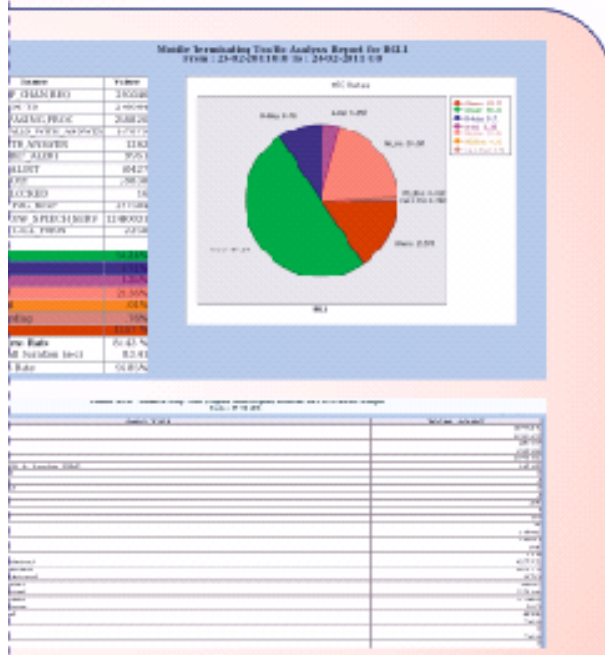


Supported Features

- Real-time Network Monitoring
- Geographical Network Display (Wall Display Supported)
- Traffic Analysis and Display for MSC, Trunk, VLR, HLR, BSS, IN and SMSC.
- Switch Technology Independent
- Application wise security
- Fault Tolerant Client Server Architecture with server redundancy
- Provides unified view of diverse parameters from different vendors.
- Highly reliable and latest performance measurements in terms of CSR, CSSR, SDCCH, TCH, ASR, Switch capacity, Handover, etc.
- Radio Network fault detection and Categorization.
- Threshold crossovers and busy hours reports available across multiple vendors.
- Map based applications allows the end users to replicate the actual nationwide GSM network with reports just a mouse click away.
- Monitors the complete BSNL GSM network.

Supported Technologies

- Siemens
- Nortel
- Motorola
- Alcatel
- Lucent
- Ericsson
- Nokia
- TeleDNA



CNMS-T

CNMS-T monitors the network of Trunk Automatic Exchange's (TAX) deployed by service provider. The TAX network is the backbone network used for extending the telephone service over wide geographical area.

CNMS-T enables the service providers to collect the performance and fault management data from the TAX network and allows the operator to manage and monitor the network effectively.

Supported Features

- Spontaneous alarm collection.
- Support for auto alert display of important events.
- Support for Current/History fault data.
- Messenger Support for alarm notification via SMS, Email, FAX.
- Support for custom alarm reports
- Support for Expansive/Protective Controls.
- Getting/setting of threshold values for performance parameter.
- Constantly monitor the entire network and auto compute the network usage, overflows, routes affected provides the operator the network usage, overflow details which are used to measure the network performance.
- Performance data collection.
- Support for custom performance reports based on parameters like answer-to-seizure ratio, bids, occupancy, MHTS, overflows...
- Support for hourly / daily / monthly reports
- Support for Current/History performance data.
- Performance Analysis Graphs.
- Map based applications to give immediate access to Fault and Performance details.
- Disaster Recovery throughout the product

Supported Technologies

- AXE (Ericsson)
- OCB (Alcatel)
- EWSD (Siemens)

CNMS-SM

CNMS-SM solution from C-DOT is a centralized system for managing subscriber facilities. This solution gives a unified view of the subscriber facilities by hiding the technology specific details of the underlying switch.

This solution can be used to create/delete, connect/disconnect any subscriber number and also to provide or revoke any subscriber facilities like STD, ISD, Call Transfer and others.

Supported Features

- Number Creation, Number Deletion and Number Conversion
- Only Outgoing calls, Only Incoming calls
- Call Waiting, Call Transfer
- Telephone reconnection, Telephone disconnection
- CLI, Hotline, Teleconference, STD\ISD
- Abbreviated Dialing, Dynamic Lock
- Malicious Call, Interrogation, Safe Custody, SRC Code reset
- Meter Reading

Supported Technologies

- C-DOT
- E10B
- SESS
- AXE10
- Fetex
- OCB
- EWSD

CNMS-MSN

CNMS-MSN Messenger collects the reports/alarms from C-DOT Network Management System and sends information to specified people configured by the administrator via media like mail, SMS and FAX.

Supported Features

- All configuration can be made by messenger administration
- NMS configured report and/or user customized reports can be configured as per concerned person and media (FAX/EMail/ SMS)
- Reports can be sent periodically
- Provision for input text to send as report via FAX and E-Mail
- Any specific file can be attached with FAX/E-mail service
- Any html/ps/txt files content can be send via Fax
- Alarm/Alert configuration as per operator requirements.

CNMS-TX

CNMS-TX provides the total Network

Management Solutions for the transmission network and provides the non-proprietary solution which will interface with EMSs of different transmission technologies (SDH, WDM, PDH etc.) of different vendors. It provides a full fledged FCAPS features that enable the network administrators/operators to manage and monitor the transmission network from a central location.

CNMS-TX solution is compliant to the TMF standards. CNMS-TX POC (Proof-of-Concept) has been completed at customer premises for the FCAPS services, features (provisioning, RCA etc.).

Supported Features

- TMF Compliant solutions.
- Support for TMF and non-TMF mediation.
- Multi-Vendor Support for all types of networks.
- Multi-Protocol Support like CORBA, SNMP, FTP, TCP, XML and Serial.

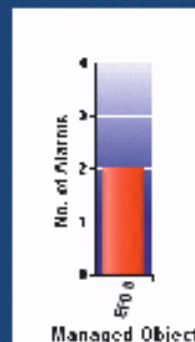
TTBCOM Alarm Analysis Graphical Report

Periodicity: 2007-03-01 To 2008-03-28

Ring Name: SR36

Network Element: SR36_MZR_ADM[4]

[For a detailed report, click here](#)



- Compliance to standards (ITU-T, TMF, NGOSS, OSS)
- Support for full featured FCAPS.
- Support for both TMF specific service model and vendor specific service model.
- Support for automatic end-to-end provisioning.
- Support for distributed architecture.
- Support for advanced features like RCA, correlation and filtering.
- Scalable to support many EMSs of different vendors.
- Flexible integration with any EMS.
- Platform Independent, implemented in Java. Runs on java enabled platforms.

Supported Technologies

- Marconi
- Tejas
- TMF compliant EMSs

CNMS-IP

CNMS-IP provides the network management solutions for monitoring and managing the IP data networks elements (routers, switches, servers etc.) and IP telecom equipments.

Supported Features

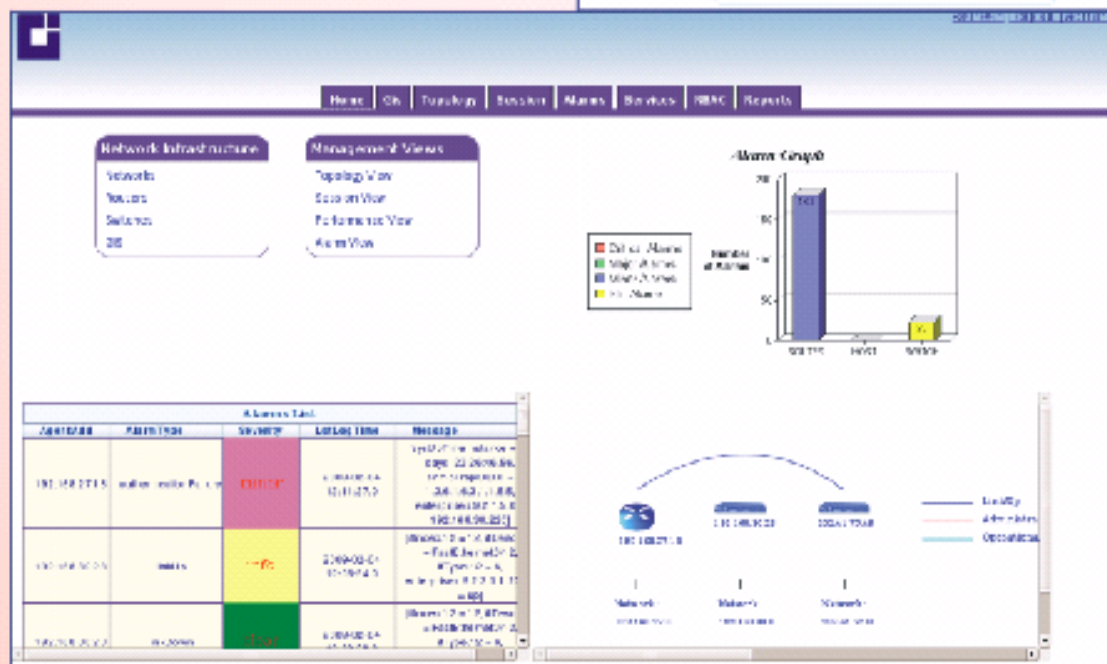
- SNMP V1/V2/V3 mediation for multi-vendor NEs
- Full fledged FCAPS features, RCA, Trouble Ticketing

- Auto Inventory and Resynchronization.
- Advanced GUI: Alarm, Performance, Session, Topology views & Network Infrastructure views.
- Graphical Information Systems (GIS)
- Support for Central NMS
- Highly scalable, Multi-OS, Multi-protocol support (CORBA, SNMP, TCP, FTP etc.)
- Proven solution at DRDO (CAIR) IP network

NMS Products: Management Features

Fault Management

- Capable of monitoring the alarms and events that occur across the entire network.
- Detection of network faults for all types of networks.
- Collection of alarm information from the



Network Elements.

- Alarms categorization by severity - Critical, Urgent, Normal, etc.
- Alarm data collection using interrogation and spontaneous data collection mechanisms.
- Fault diagnosis & isolation.
- Fault notification via Messenger.
- Fault Management Features like RCA, Correlation, Aggregation
- Threshold crossover detections.

Performance Management

- Performance data is collected at every operator specified periodicity say every 24hours or every 15 minutes.
- Performance monitoring of all Network Elements.
- Performance reports on traffic, handovers, busy hour performance, TRAI reports, etc
- Threshold configurations.
- On demand logging .
- Generation of performance statistical reports .
- Periodic data collection

Inventory Management

- Auto discovery of network elements and their attributes.
- Resynchronization of network elements.
- Support for inventory notifications.

Accounting Management

- User measurements in support of billing
- Configuration Management
- Inventory discovery and management
- Automatic Provisioning .
- Status and Control.

Security Management

- Authorization.
- Authentication.

Subscriber Management

Supports facilities like number creation/ deletion/ conversion, call transfer, CLI, call waiting.

- Exchange-name and exchange-code level facility provisioning.
- Integrated with external CRMs.
- User-wise exchange code-level security.

Messenger Management

- Supports media like mail, FAX, SMS etc.
- Configuration of user,media and reports collection interval.
- Alarm/Reports messaging features
 - Support for single user and group
 - Support for more than one media to the same user/ group.
- Automatic collection of reports from the C-DOT Network Management System.
- Provides user customized reports.
- Support for filtration of alarms.
- Operator can instantly sends message to appropriate people via any media.
- Provides the summary of messenger activities for a specific period of time selected by the operator.

Key Benefits

- Cost effective solutions.
- Provides a standalone management system which centralizes all configuration, performance monitoring, fault management and troubleshooting functions for different technologies that are supported by the Service Provider.
- Designed to simplify deployment and minimize network operational costs.
- Maximize and improve network performance, efficiency and effectiveness.
- Compliance to standards
- Ease of Integration
- Best Customer Support with Continuous Improvements and feature upgradations.
- Proven Deployments at customer sites



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