

RollingStream™ Network Management System

SOFTWARE TOOLKIT FOR THE IPTV SYSTEM ADMINISTRATOR
COMPREHENSIVE MANAGEMENT TOOLKIT ENSURES SMOOTH OPERATION OF THE ROLLINGSTREAM™ IPTV SYSTEM

KEY FEATURES:

- **MANAGES IPTV INFRASTRUCTURE AND STB**
- **FAULT MANAGEMENT**
- **CONFIGURATION MANAGEMENT**
- **PERFORMANCE MANAGEMENT**
- **SECURITY MANAGEMENT**
- **MANAGEMENT DOMAINS**
- **FRIENDLY WEB-BASED GUI**
- **CARRIER-CLASS PLATFORM SCALABILITY/RELIABILITY**

UTStarcom RollingStream™ NMS provides a comprehensive set of management functions for effective administration of the RollingStream IPTV system. RollingStream NMS is based on UTStarcom's commercially proven mSwitch platform NMS, with carrier grade high availability & scalability. As a result, RollingStream NMS is designed to enable the IPTV system to track subscriber behavior, content segment location, and content access in an extremely granular fashion comparable to an effective voice processing system.

RollingStream NMS is designed for system administrator ease of use. It presents an intuitive to use, web-based graphical interface for operation, and its functions are structured in accordance with the industry-standard FCAPS (Fault, Configuration, Accounting, Performance, and Security) model.

KEY BENEFITS

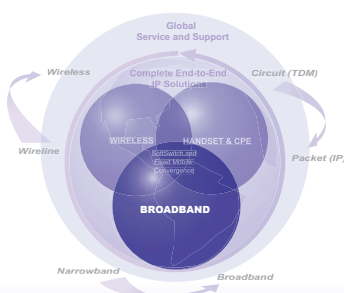
Reduced Time to Market. Complete integrated package enables operator to focus on revenue-generating operations to deliver products in the shortest time to market.

End-to-end management capability. To ensure smooth operation, RollingStream NMS To ensure smooth operation, RollingStream NMS End-to-end management capability enables administration and monitoring for all elements in the IPTV system, which include head-end-equipment, back office servers, streaming platforms, and the customer premise set top boxes. Faults in the system are promptly detected and reported via alarm notification dispatch.

Reliable & Scalable Solution. Based on the commercially proven mSwitch platform, RollingStream NMS enables non-stop operation by minimizing down time risk. RollingStream NMS provides linear scalability commensurate with operator business growth, using industry standard hardware.

Hierarchical Management Structure. RollingStream system elements may be assigned to different management domains, beholden to designated system administrators. Additionally, different classes of administrators may be created, each with clearly designated administrative rights.

Complete Management Solution. Different type of network elements can be managed by different UTStarcom network management systems. OMC-M is the network management system for UTStarcom RollingStream system. OMC-T manages STBs through Agent-Ts that are embedded in RollingStream system (Agent-T can run on either a MD blade or a separate blade). The 3rd-party network elements, e.g., Cisco router, SUN servers, and etc., are managed by OMC-I.



NMS SYSTEMS

- OMC-M to manage the RollingStream System
- OMC-T and Agent-T to manage the STBs
- OMC-I to manage 3rd-party elements including Cisco router/switch, SUN servers, Oracle DB, and etc.

NMS SERVER PLATFORM

- SUN Netra Series Servers
- SUN Solaris 10 Operating System
- Oracle 9i Database

NMS CLIENT PLATFORM

- Windows XP
- Java Runtime Environment (JRE)

FAULT MANAGEMENT

- Real-time alarm/event surveillance
- Historical alarm management
- Fault diagnosis & localization
- Alarm event suppression, correlation & root cause analysis
- Alarm filtering and severity definitions
- Threshold crossing alarm
- Alarm notification service
- Alarm/event statistics and reporting

CONFIGURATION MANAGEMENT

- Auto discovery of RollingStream devices and inventory management
- Device control operations (power on/off/reset/fail-over)
- Manages both content distribution/streaming platform & back office servers
- Software upgrade & patch management
- Configuration data import & export
- Friendly GUI with graphical view of network/racks/chassis/blades

PERFORMANCE MANAGEMENT

- Real-time performance monitoring of all RollingStream devices
- Performance threshold management
- RollingStream system and network element statistics
- Performance trend analysis
- Performance presentation using tables/line charts/bar charts
- Performance statistics data export in CSV & XLS formats
- Real-time stream information summary

OA&M

- End to end stream tracing, trouble tracing and testing
- System log & user operation log maintenance
- Operator authentication & operation certification

SECURITY MANAGEMENT

- Manages operation staff access to management function
- Supports user authentication and operation authorization
- Supports different operator classes with different authorizations
- Supports management domains; each with assigned sets of network elements
- Provides audit history of management actions

REDUNDANCY

- All RollingStream network elements support redundancy. When a network element fails, the system automatically switches to the redundant standby device. RollingStream NMS will immediately notify the operator via alarm-notification and initiate failure analysis and recovery

EASE OF USE

- Friendly GUI
- Navigation via either graphical map view or hierarchical tree view

OPEN INTERFACE

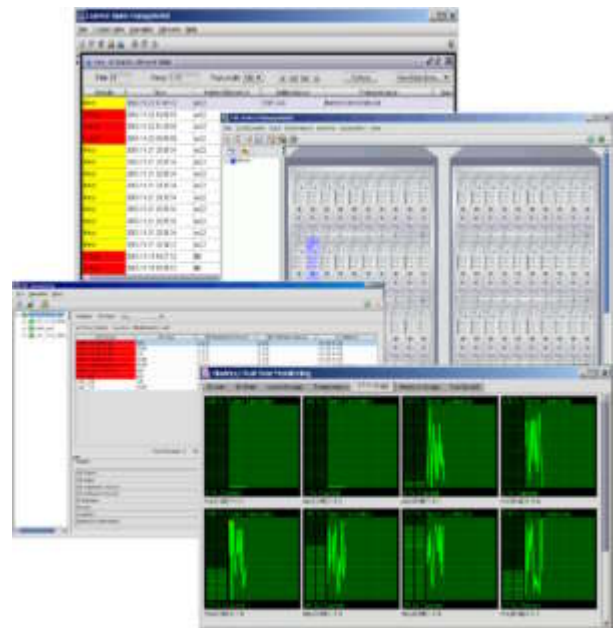
- CORBA & XML based Northbound Interface

OMC-T AND AGENT-T: STB MANAGEMENT

- STB alarm/event management and status monitoring
- Software & configuration data management
- Software upgrade policy selection
- Performance & status data collection
- Supports STB self-test/reboot/trace log
- Query STB hardware and software version and STB service type

OMC-I: 3RD-PARTY ELEMENT MANAGEMENT (SUN SERVER, CISCO ROUTER/SWITCH, ORACLE DB)

- Topology management and some configuration management
- Performance & status data collection
- Alarm monitoring
- Security management
- Log management authorizations



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UTStarcom is a global leader in IP-based, end-to-end networking solutions and international service and support. The company sells its broadband, wireless, and handset solutions to operators in both emerging and established telecommunications markets around the world. UTStarcom enables its customers to rapidly deploy revenue-generating access services using their existing infrastructure, while providing a migration path to cost-efficient, end-to-end IP networks. Founded in 1991 and headquartered in Alameda, California, the company has research and design operations in the United States, China, Korea and India. UTStarcom is a FORTUNE 1000 company. For more information about UTStarcom, visit the company's Web site at www.utstar.com

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