

# Fibcom F6300 NMS

## Network Management System

**Fibcom 6300 Network Management System offer carrier-class network management and element management functions for managing Ethernet, SDH and DWDM networks.**

FIBCOM 6300 NMS architecture has been modeled in line with the TMN standards. It has an open architecture with an Element Management Function combined with a number of higher level Network Management Functions. It is a field-proven system for integrated management of advanced SDH, WDM and Data networks. Tools for the creation of open interfaces for interconnection to other TMN architectures are available. Since architecture of the F6300 NMS is highly scalable, it supports both monolithic and distributed deployment options with high availability. The management system can be set up as a scalable, distributed system with several hosts, where each host is responsible for managing a specific group of network elements.

Deployment scenarios range from a single workstation for element management functions of small networks to large, comprehensive, disaster-tolerant network management scenarios for country-wide networks comprising thousands of individual elements, multiple management centers, and numerous concurrent users. The network can be organized in a hierarchy of domains, with each domain showing a specific part or level of the network. A domain browser shows the domain hierarchy as a tree structure. This makes easy to navigation between the domains.

#### **F6300 NMS offers:**

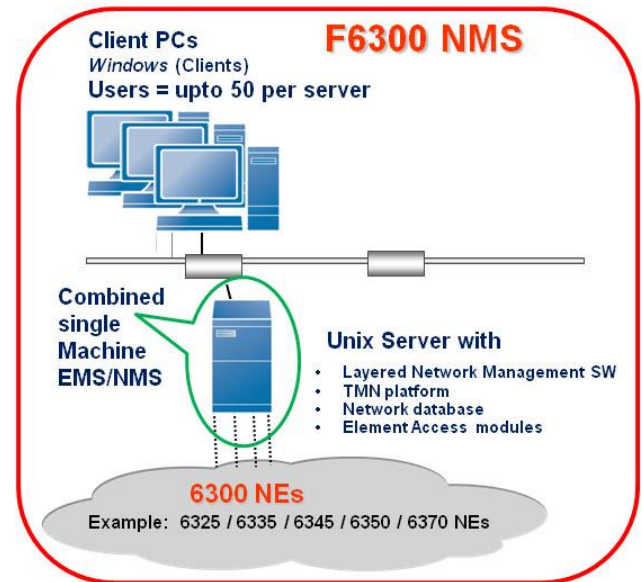
- Integrated Element and Network Management functions
- Configuration on industry standard server machines :  
Monolithic and distributed architecture
- Standardized software platform
- Support of multiple Windows based clients
- High availability
- Security

#### **Seamless Integration in Multi-Vendor Networks**

The F6300 NMS is ideal for multi-vendor networks in which the 6300 systems and the Network Manager must coexist with other vendors' network elements and management systems to form a coherent solution. The Network Manager takes full advantage of the standard based architecture platform, which can handle an extensive suite of network protocols/standards. This facilitates the development of interfaces allowing the Network Manager to be implemented as part of a multi-vendor transmission network. For even greater convenience and flexibility, the F6300 NMS also features an XML- based northbound interface to facilitate the integration of the Network Manager into an Umbrella Management System.

#### **Integrated Ethernet, SDH and DWDM Network Management**

Enables seamless management of Ethernet, SDH and DWDM networks using a single manager. The element management and network management functions are hosted on the same hardware and software platform leading to high degree of integration.



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#### **Trail Set-Up and Reconfiguration**

Complete trail management, including the set-up of trails and any subsequent changes of routes and sub-routes of a trail, protection and un-protection of trails, plus changes to the signal structure.

#### **Layered Network Database and View**

Provides an information repository for all functions related to network and a means for registration of trails, links, matrices, etc. It holds the structural relations between different layers in the Ethernet/MPLS, SDH and DWDM architectures.

The user can view the layer relevant for the task at hand.

#### **Network Editor**

Features tools for fast and straightforward creation of new network elements in the network traffic model, with automatic upload of all relevant lower network level representations. A bulk upload of a user specified set of network elements can also be made available.

#### **Domains**

Enables the user to organize work responsibilities by dividing the network model into a hierarchy of domains and sub-domains, according to traffic type, geography or topology. As the organization evolves, the contents of domains can be rearranged using simple cut-and-paste operations.

#### **Advanced Alarm Handling**

Special functions detect, collect, present and log alarms from the equipment in the network. Advanced workflow and analysis functions help users analyze problems and initiate repair actions, including filtering, correlation, domain-based alarm contexts, alarm escalation and optionally trouble-ticketing

**Trail Surveillance**

Monitors the network alarms, locates the trails that are affected and generates alarms for them, including higher-layer client trails. The alarms generated by trail surveillance contain information about who the customer of the trail is, so users can quickly initiate repairs according to SLAs.

**Performance Data**

Automatically collects performance counters in the network elements and stores them in a database so reports can be activated or data exported. The system supports nonintrusive monitoring.

**Protection**

Support of various protection schemes such as SNCP, MS Spring, MSP, 1:1 LSP etc.

**Synchronization**

Graphically illustrates the clock distribution and synchronization, including the timing flow in the network and the timing qualities of the individual network elements.

**Scalability**

There are virtually no limits to the number of individual network elements that can be managed when deploying the F6300 NMS in a distributed architecture. More than 5,000 network elements with 50 concurrent users can be configured in a single monolithic deployment

**Element & Network Management**

The Element Management function shows the structure of the network element as icons such as lines, boxes or circles.

**NE Back-up:** Scheduled NE Backup & Restoration

**Event Logging:** The event records placed in event logs. Complies to ITU-T X.734/5

**Alarm Handling:** Detailed information for each new alarm

**EM Alarm Coloration:** Alarm Coloration provides a graphical display of alarm status with colors for the physical network, e.g. nodes and links in NWM GUI. The NE icons will always reflect the most severe active Network Element (NE) alarm and the links

will reflect the most severe active alarm of their server trail. A link at the physical layer reflects the physical trail alarms.

**Topology View:** The graphical user interface provides:

- A graphical representation of the network, with icons representing network elements and other objects.
- The use of a hierarchical map structure to represent the network as logical “groupings” called domains and sub-domains.

**Point & click:** To navigate in the network, to manipulate the displayed objects, to perform operations on the different objects, etc.

**Performance Data Collection:** Displays performance data from the network elements. Presentation of performance data and attribute values of the termination points. The performance data collection is divided into “OAM” and “Statistics” data:

**SDH OAM data:**

- 15-minute and 24-hour counters.
- Gauges (for example, laser temperature, Optical Power).

**Ethernet statistics data:** The statistics provide information about how many packets have been sent and received and how they have been distributed.

**EoSdh Link:** Ethernet point-to-point services provisioning Ethernet Private Line (EPL).

**MPLS Link:** MPLS L2 EPL Provisioning and VLAN encapsulation, QoS etc.

**Statistical multiplexing:** Configuration of statistical multiplexing - L2 EPL.

**MPLS OAM:** The MPLS OAM support.

**LSP 1:1 Protection:** MPLS packet links can be protected end-to-end using LSP 1:1 protection.

**Bandwidth class:** Provisioning of label with an associated bandwidth and burst size.

**Queue scheduling:** Defines class of service of each queue supported in the system.

**Priority bit mapping:** Configuration of the mapping of IP DSCP priority.

**AFC Profiles:** Configuring AFC profile priority mapping table.

**Bandwidth Profiles:** Provisioning the bandwidth classes used by individual AFC profile.

**Traffic management:** Modeled to represent the end-to-end connections (trails).

**External NE support:** “Foreign” equipment support through a trail may be set-up.

**Layered model:** Physical layer and other layers for example, to support routing of working and protecting routes in physically separated resources. The optical channel (OCH) and the optical multiplexer section (OMS) layers are used to model dense wavelength division multiplexing.

**Advanced Upload functions,** Upload the equipment configuration and traffic patterns.

**Network Editor:** Provides a powerful way to update the network database.

**Network Management aspects:**

- In-traffic update of NWLMS to reflect changes in the physical network
- Handle upgrades to higher capacity
- Combining operations to establish the SDH/WDM/Data layers into one, on GUI
- Rename operation on Trail, Matrix, and Link
- Calculation of the optimal route and, optionally, an associated protection route
- Automatic and manual setup of trails in meshed networks • Connection in the network
- Disconnection of a reserved/connected trail
- Testing/validation of trails (path trace)
- Trail protection
- Changing the configuration of a trail
- Viewing the detailed routing of a trail
- Trail Trace Handling
- Trail View
- Reconfigure the route(s) of the trail
- Protect / unprotect trails
- Trail Based SNCP Management.
- Trail Upload

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