

ELEMENT MANAGEMENT SYSTEM FRAMEWORK



INTRODUCTION

A Network Management System is used to manage and monitor one or more network devices. The function of an Element Management System is to manage Network elements.

EMS solutions today have to be flexible and to rapid changes in technology as well as evolving customer needs.

EMS SOLUTION HIGHLIGHTS

ALTEN Calsoft Labs' engineering team designed and implemented a Web-based Element Management System (EMS) using the latest technologies for centrally administering and monitoring clients' devices.

The solution has an extensible architecture using industry standard interfaces and seamlessly supports evolving networking, telecom and wireless products for OEM manufacturers as well as service providers.

The framework helps to build a full-featured management functionality covering functional areas such as Fault, Configuration, Accounting, Performance, and Security Management (FCAPS).

Some of the key features of the solution are as below:

EMS/NMS System Key Engineering Requirements

- » Quick and cost-effective Ready framework
- » EMS Development
- » Rich GUI, Customizable Screens, Features
- » Scalable Architecture, Std Interfaces Capability
- » Periodically monitors with monitored and non-statistical device parameters
- » Deployment Management with ability to schedule
firmware/configuration upgrades to individual or group of devices
- » Secure Role and View-based access
- » Firmware and Configuration Upgrade Capabilities





EMS/NMS System Capabilities

- » Complete FCAPS Functionality Support: Fault, Configuration, Accounting, Performance
- » Security Management
- » Ability to Support Complete CLIENT's Product Family with device specific Customizations.
- » Independent Stand-alone as well as a Scalable Web-based EMS Solution.
- » Completely Customizable User Interface
- » Ability to integrate with third party Network Management Solution using Standard Northbound Interfaces: SNMP v1/v2/v3, XML based, Adaptable to other proprietary interfaces.

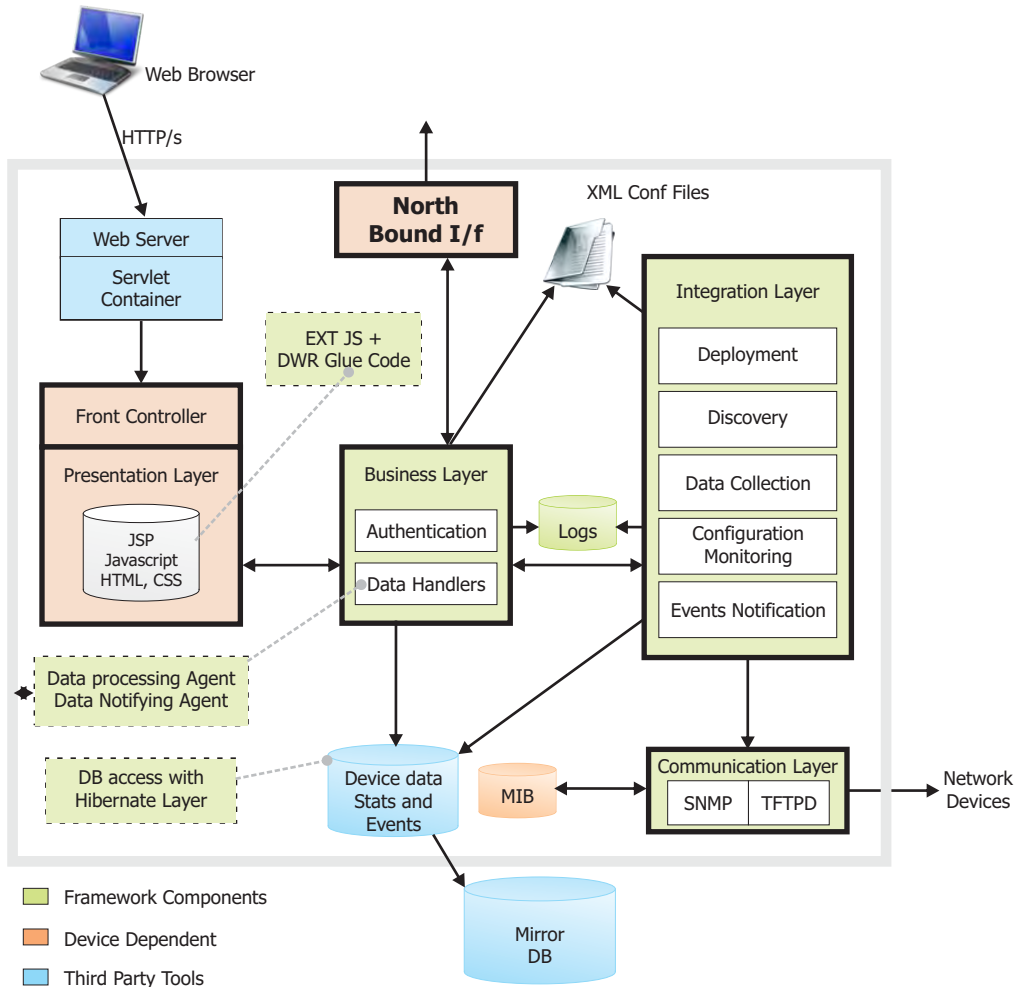
EMS Framework Key Features

- » Automatic/Manual Discovery of Network Devices
- » Configuration of parameters using user friendly forms and template UI panels.
- » Graphical Map based network/equipment view or Logical network Topology View with Color coded status.
- » Integration with Google Maps: Network Topology & Grouping of the devices based on specific device characteristics, connectivity or geographical location.
- » Alarms as well as Statistical Data Gathering/Reporting/ Storing capability:
 - Customizable Templates for Reporting and Monitoring Views.
 - Monitoring with real-time Charts.
 - Trap Syslog viewers

EMS ARCHITECTURE

Web-based EMS Architecture

ALTEN Calsoft Labs' EMS solution is a web-based, management application framework built using Java Servlet(J2EE) and Ajax technology. The use of Java and Ajax technology enables the EMS solution to run on many platforms such as Windows, Linux and UNIX variants. The overall architecture is a typical web-based client server design with multi front controller, presentation, business and integration layers.



Benefits of our Framework

ALTEN Calsoft Labs' offers production-ready EMS/NMS application development services based on our proprietary EMS/NMS framework. ALTEN Calsoft Labs' EMS/NMS framework provides leading edge EMS technology solution which includes ready to use framework architecture, design templates leveraging the latest GUI technologies, toolkits and standard management and web technology interfaces.

ALTEN Calsoft Labs' EMS solution serves as a flexible, secure, scalable framework around which any level of customization can be ordered for integration with existing network systems.

EMS FRAMEWORK

- » Customization and integration of solutions include
 - Custom development of adapters/clients to help rapidly integrate a vendor's existing technology into new EMS/NMS system.
 - Integration/Adaptation with existing FCAPS functionality
- » Custom development of graphical user interfaces (GUIs), features and tools for particular client requirements.
- » Customization of output format of generated reports on alarms, user credentials, Configurations, Network inventory profile, etc.
- » Custom development of application interfaces for northbound systems (e.g., features and/or tools to deal with particular needs of a customer or partner).

ALTEN Calsoft Labs' EMS/NMS solution together with its competent product engineering/customization service will fulfil a large spectrum of networking devices and equipments.

EMS FEATURES OVERVIEW

| Fault | Configuration | Accounting | Performance | Security |
|---|--|--|---|--|
| <ul style="list-style-type: none"> ☑ Alarm and Event Collection. ☑ Fault Management support on the agents ☑ Alarm/Event report /Filtering ☑ Fault diagnostics, Correlation analysis ☑ Integration with open network management systems. ☑ HP- openview Advent net webNMS ☑ Integration with trouble ticketing systems. ☑ Alarm display on application and web based GUIs. | <ul style="list-style-type: none"> ☑ Configuration Mgmt of multiple types of devices. ☑ Auto discovery. ☑ Firmware change management. ☑ Network/User/ End-to-End service provisioning. ☑ Equipment Views ☑ Network views with drag and drop function. ☑ Auto software distribution ☑ Remote config ☑ Backup/Restore | <ul style="list-style-type: none"> ☑ Billing subsystem implementation in agent & manager ☑ Resource usage, cost, limits. ☑ Integration with 3rd party billing mediation. ☑ Integration of billing and CRM modules. | <ul style="list-style-type: none"> ☑ Performance parameters retrieval from network elements ☑ Statistics collection ☑ Thresholds, Alerts ☑ Performance analysis, statistics & reporting ☑ Capacity planning & control ☑ Real time monitoring charts | <ul style="list-style-type: none"> ☑ Authentication, Authorization mechanisms ☑ User access control with various levels ☑ Used based views ☑ Secure devices interface SSL etc. ☑ Security audit trail logs ☑ Secure northbound interface, LDAP support |

ABOUT ALTEN CALSOFT LABS

ALTEN Calsoft Labs is a next gen digital transformation, enterprise IT and product engineering services provider. The company enables clients innovate, integrate, and transform their business by leveraging disruptive technologies like mobility, big data, analytics, cloud, IoT and software-defined networking (SDN/NFV). ALTEN Calsoft Labs provides concept to market offerings for industry verticals like education, healthcare, networking & telecom, hi- tech, ISV and retail. Headquartered in Bangalore, India, the company has offices in US, Europe and Singapore. ALTEN Calsoft Labs is a part of ALTEN group, a leader in technology consulting and engineering services.

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