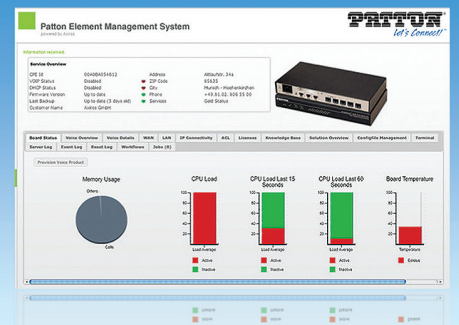# Patton Element Management System (EMS)

The Patton EMS and TR069 proxy server for SmartNode VoIP and third-party CPE empowers service providers to manage VoIP networks efficiently and cost-effectively.

Provisioning and Administration

- *Auto-provisioning capability reduces roll-out costs.*
- *Configuration backup & restore provides data security and failure recovery.*
- *Scheduled mass upgrades for software release and configuration management.*
- *Customizable configuration templates enable streamlined device deployment.*
- *Patton's Redirection Server and factory pre-config enable zero-touch turn-up.*

Monitoring

- *View device status remotely from a centralized or from distributed locations.*
- *Graphical presentation of key indicators provides at-a-glance status of each CPE.*
- *Fault management enhances quality of customer experience.*

Configuration

- *Modify CPE configurations remotely in real time*
- *Reduced complexity of device configuration*

Graphical User Interface (GUI)

- *Convenient browser-based interface.*
- *Intuitive monitoring, provisioning and administration.*
- *Flexible and customizable GUI for each user.*

Data Interfaces

- *Standard SQL interfaces provide northbound access to third-party OSS/BSS.*
- *Northbound TR069 CWMP interface for ACS integration*
- *SSH/Telnet interface provides secure, stable southbound connection to CPE*

A fast-growing subscriber base is every service providers dream! However, a proliferating army of deployed customer-premise devices does present a management challenge. Now, with Patton's Element Management System (EMS), you can deliver remote, real-time support for all of your SmartNode and third-party CPE. Patton's scalable and highly-flexible EMS provides remote configuration, provisioning, troubleshooting, and fault clearing, as well as mass software upgrades.

Designed to integrate smoothly with existing network-management tools, processes, and workflows, the Patton EMS employs carrier-specified Automatic Configuration Server (ACS) functionality. Patton's EMS is a centralized fault, configuration, accounting, performance and security (FCAPS) management tool for telecom network operators that offers touch-less configuration and turn-up.

The resulting key benefits are:

- **Lower Operating Costs**. Remote management combined with SmartNode set-it-forget-it reliability eliminates costly truck rolls for turn-up, troubleshooting or replacement.

- **Touchless Provisioning**. Automatic Configuration Server (ACS) automatically configures and provisions each SmartNode on power-up.

- **Remote Management**. Use the intuitive Patton EMS web interface to turn-up, troubleshoot, reconfigure, and update software for all your SmartNode CPE from any location.

- **Manage Third-Party Devices**. Powered by the Axiros open system platform, provided by Axiros, the Patton EMS can manage any vendor's CPE.

Patton Element Management System (EMS)
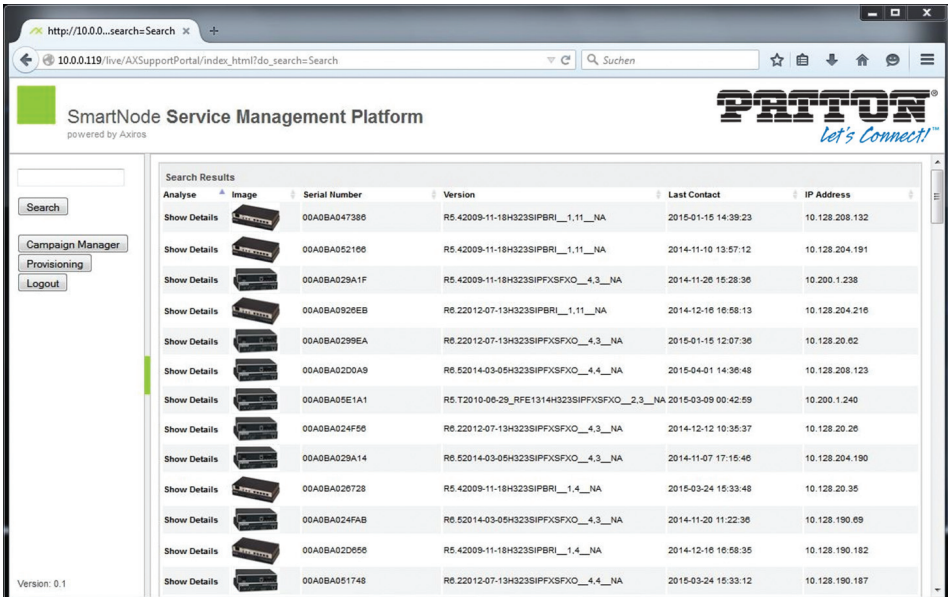
Scaling

- *Manage just a few dozen or up to 100,000 or more devices.*
- *Extensible to manage any third-party device.*
- *Use expandable end-to-end workflows to build a Service Management System.*

Patton TR069 Proxy Server

The Patton TR069 Proxy Server provides a flexible solution for integrating the highly-flexible configurations of SmartNode products into the limited and standardized TR069 management tree structure.

Transform CWMP remote procedure calls and parameters into Patton's CLI command flows, and run them on connected devices in a highly-scalable fashion.

Patton TR069 Proxy Server operates as a proxy that can be plugged into existing ACS infrastructures, delivering access to the features and states of non-TR069 devices.

Patton Element Management System (EMS)

Applications overview

The on-premise Patton EMS is available in the following options:

Standalone—The Patton EMS manages all installed SmartNode CPE devices. The management system provides a web GUI with a provisioning module, support portal and campaign manager.

SSH native command line session ←——————→ **Web session**

Management Network

SmartNode CPE

Primary, active Patton EMS Server

Secondary, standby Patton EMS Server

Administration and Support GUI
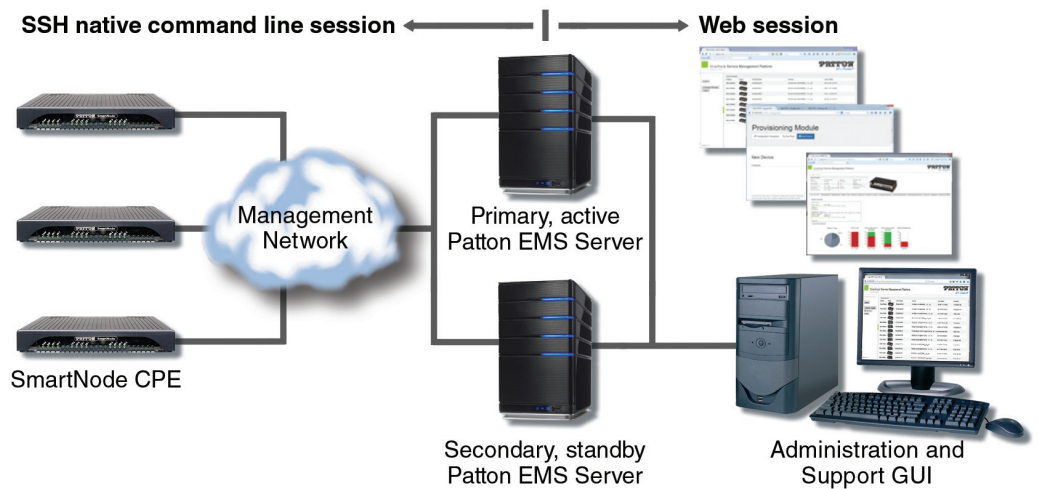
Integrated OSS/BSS—The Patton EMS can be migrated into an available third-party operations support systems/business support systems (OSS/BSS).

SSH native command line session ←——————→ **Open Northbound System API**

Management Network

SmartNode CPE

Primary, active Patton EMS Server

Secondary, standby Patton EMS Server

Third-party OSS/BSS
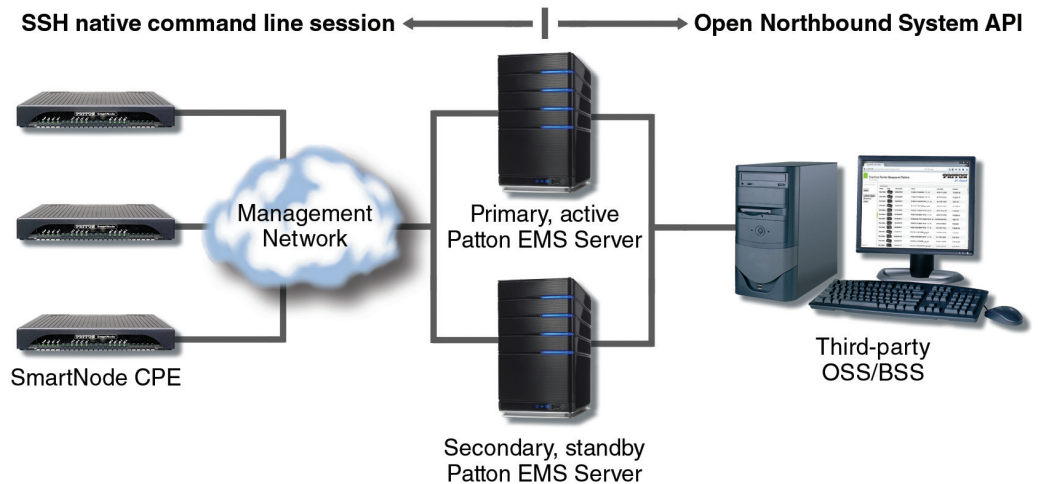
Patton TR069 Proxy Server Mode—The Patton TR069 Proxy Server operates as a proxy that can be plugged into existing ACS infrastructures, delivering access to the features and states of non-TR069 devices.

SSH native command line session ←——————→ **TR069 CWMP Interface**

Management Network

SmartNode CPE

Primary, active TR069 Proxy Server

Secondary, standby TR069 Proxy Server

Third-party ACS
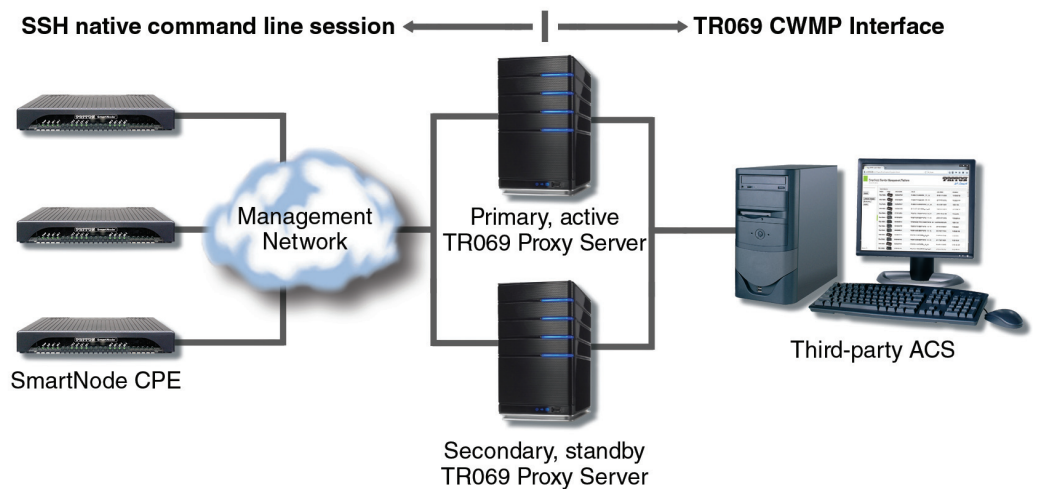
Patton Element Management System (EMS)

Specifications*

System
- Remote device management
- Workflow engine, supporting inter-device management tasks
- Embedded permissions for Add, View, Change, Delete
- Administrative front ends, optionally fully customizable including language adaption with support of >100 languages
- Application Server including Object Database and optimized primary SQL storage
- Secondary SQL for consolidated custom data: Oracle 10/11, MySQL, PostgreSQL
- Optional XML-RPC, XML and SOAP back end interfaces, server and client, synchronous and asynchronous
- Optional embedded email, syslog, XML-RPC, SOAP, JMS clients
- Redundant system architecture for system reliability and system backup

Supported devices
- All SmartNode 1k series models running SmartWare release SWR5.X and higher.
- Optional integration of further Patton and third party devices

Protocols
- SSH, Telnet, HTTP, TR069 compliant northbound interface.
- Optional multiple NBI protocols.

Provisioning
- Zero-touch provisioning
- Add new device form
- Configuration file delivery with http

Administration
- Intelligent firmware management
- Campaign manager for mass software and configuration upgrade
- Device search engine with serial number, account information, software and hardware version,

- Configuration backup and restore, single box software upgrade, license administration

Monitoring
- Short-time monitoring—troubleshooting device monitoring
- Account information, gateway type and status
- Ethernet, analogue telephony and ISDN port configuration and status
- IP LAN and WAN interface configuration and status
- IP routing configuration
- PPP and PPPoE configuration and status
- DHCP server, ACL, NAPT and Service Policy configuration and status
- SIP gateway configuration and registration status

Configuration
- Account information
- Ethernet, analogue telephony and ISDN port
- IP LAN and WAN interface configuration

- IP routing table
- PPP subscriber settings
- ACL Layer 3 and 4 rules
- DHCP server settings
- SIP account data

Performance
- Small size Patton EMS up to 1000 devices.
- Medium size Patton EMS from 1000 to 5000 devices
- Large size Patton EMS from 5000 devices

Hardware and Operating System requirements
Hardware:
- Intel Core i7-920 Quad-Core Haswell 32 GB DDR3 RAM 2 x 2 TB SATA 6 Gb/s 7200 rpm HDD (Software-RAID 1)
- Operating system: Linux Debian

Virtual Machine:
- Operating system: Linux Debian stable version.
- Hard disk: 500GB
- RAM: 24GB RAM

Network: 200 Mbps, minimum

Ordering Info

PEMS-100L: Additional 100 device licenses for Element Management System, including installation

PEMS-100LMF: Annual Maintenance Fee for additional 100 device licenses for Element Management System, including installation, Software updates, Level 1–3 business hour support

PEMS-L: Patton Element Management System software large size, standard feature set, including: 1000 device licenses, 5 days installation, training and customization, no server HW included.

PEMS-M: Patton Element Management System software medium size, standard feature set, including: 1000 device licenses, 5 days installation, training and customization, no server HW included.

PEMS-MMF: Annual Maintenance Fee for medium size Element Management System (1000–5000 licenses) including: Software updates, Level 1–3 business hour support

PEMS-S: Patton Element Management System software small size, standard feature set, including: 100 device licenses, 5 days installation, training and customization, no server HW included.

PEMS-SMF: Annual Maintenance Fee for medium size Element Management System (100–1000 licenses) including: Software updates, Level 1–3 business hour support

SVC-NETENG-HOUR: Network and solution engineering hour rate

* Specifications subject to change without notice.