Convergent Element Management System

Figure 1: Litespan 1540 in communications network

Solution Overview

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As a world leader in the high-speed access and optical transport market, Customer is a major player in the area of telecommunications and the Internet. With its expertise in communications systems, its line of products and services as well as its strong global presence, the Company can anticipate its s' needs, from operators and Internet services providers to businesses and consumers.

Challenge
Customer deploys several Element management systems for its Litespan 1540 communicating over a variety of protocols to manage in narrowband, broadband and SDH backbone networks. Ther client plans to deploy Litespan, but would like to manage the Litespan network elements using an Integrated Element Management System communicating over a variety of protocols namely, SNMP, and CMIP. This Integrated EMS would require multi-protocol interface to interface with three subordinate systems communicating over different protocol interfaces. The client would use Integrated Element Management system for Fault, Provisioning, Configuration and Performance Management functionalities of all the components in the Litespan equipment. Korea Telecom did not want to develop this solution in house, and had strict delivery time and quality requirements for the delivery of the Integrated Element Management System. Vertel is a dedicated solution provider for this market, and was chosen by Customer because of its vast knowledge and experience developing convergent network management solution that support diverse interfaces, its competitive pricing and professional project management methodology (3PM).

Solution
Vertel developed this system using its M*Ware Convergent Manager, a complete product line of pre-built and customizable components for the development and integration of Network Management applications, M*Ware Convergent manager contains components for all FCAPS and system functions and is based on a Model Driven Architecture, mapping all given information models internally on to the DMTF Common Information Model (CIM). Of course for all the processes, powerful multilayer GUI's are available. With the wide range of M*Ware protocol adapters to ensure rapid integration northbound and southbound, M*Ware Convergent Manager offered a high grade of flexibility that was required for an ideal solution in a very short time.
The Convergent Manager also accommodated dynamic mapping and model changes, vital for fast turnaround during product and configuration upgrades.

Benefits
Customer eliminated approximately twelve months of development time that would have been required for their in-house developers to become experts on the different protocol standards and associated implementation tools.
Vertel was able to develop the Integrated Element Management System within both the Customer budget and delivery timeframes.
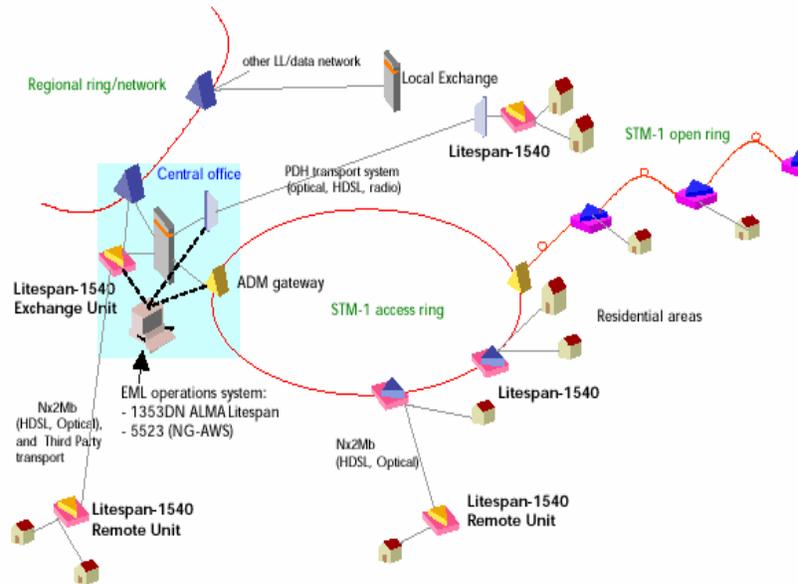
The solution was developed on a Sun Forte 6, Solaris 8 with Orbix E2A and Oracle 8.1.7 platform using Vertel's M*Ware Convergent Manager and the Vertel Netlink OSI stack

M*Ware Convergent Manager includes the following features.

- *Advanced multi layer GUI's for all processes*
- *Terminal and browser based Client architecture*
- *Integrated with a wide range of databases*
- *Add any type of network protocol adapters ensuring easy integration over a wide range of network devices and with other upstream OSS's*
- *A fully distributed architecture, that addresses scalability and performance requirements*
- *Mapping of protocol specific information to DMTF Common Information Model*
- *Automated import of GDMO and UML information models*
- *Off-the shelf standards based management services for*
  - *Topology discovery and management*
  - *Configuration and Provisioning*
  - *Software Administration*
  - *Fault Monitoring and Management*
  - *Performance Monitoring and Management*
- *Interfaces that can be changed, added and deleted without any system down time, enabled by metadata driven adapters and syntactical logic in rules or scripts*
- *Off-the-shelf system services for*
  - *Distribution*
  - *Security*
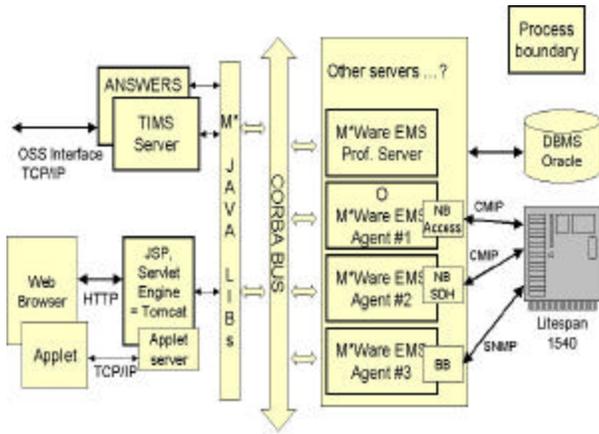 - *Database integration and database persistence*

Figure 2: M*Ware convergent Manager High Level architecture.

Vertel delivered all the servers including web server, tomcat server, EMS agent servers, TIMS server & ANSWERS server in one machine.
One hardware server supports up to 700 Network Elements, which equals a maximum of 2100 embedded agents, 1Million PSTN subscribers, 500,000 ADSL subscribers and 20 operators.

M*Ware is built according to NG-OSS architectural guidelines, thus making the integration with NG-OSS applications easy.

Figure 3: Inventory view of the Managed Element

The system was built to maximize the use of the different M*Ware management services like performance management service, fault management service, profile service, activity service, house-keeping service, inventory service, discovery service on the highest convergence level.

Theset advanced functions further ensure database consistency, and proactive management control, such as threshold based proactive re-routing and multiple request support
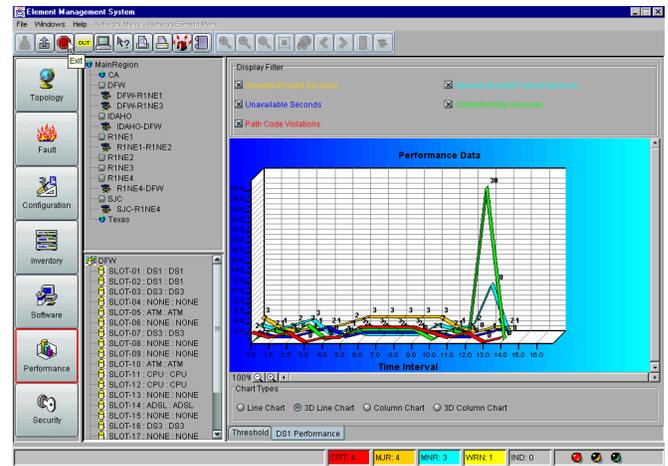

Figure 4: Performance Management Service and GUI

About Vertel

Vertel is a leading provider of convergent service management mediation solutions. Since 1995 Vertel provides network management, mediation and integration solutions to telecom vendors like Customer, Nokia, Motorola, Lucent, Nortel, NTT and Samsung, and lservice providers like AT&T, BT, Deutsche Telekom, Cingular and Williams Communications.

Vertel's in-depth knowledge and support of standards, combined with the experience of working with many different equipment types creates high performance solutions that enable s to quickly overcome technological barriers. Vertel's mission is to make its s successful, enable them to reduce operational costs and efficiently converge their infrastructures or introduce new services, networks and OSSs while leveraging existing investments.

Vertel is based in Woodland Hills and has sales offices throughout the world.

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