

Trends Driving Management System Integration



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Telephony technologies in the enterprise workplace are changing. The development of Voice over IP (VoIP) has brought with it the convergence of voice and data.

Responsibilities for managing telecommunications equipment within organizations have shifted to Information Technology (IT) departments. IT managers have high expectations when it comes to management-system integration of the communications equipment and the applications they deploy over their networks. Integration is fast becoming a necessity.

In the past, a typical management interface consisted of three to ten interfaces that were highly command-line based. There was little or no internal integration between the interfaces within the communications solution itself. The lack of integration required larger IT departments, staffed by specialists familiar with different aspects of the communications system.

Due to the difficulties involved, some organizations chose third-party organizations to manage their communications solutions for them. The costs associated with this third-party management model were substantial and ongoing.

Today, however, the internal components of communications solution are typically much more tightly integrated. In most cases, a single management interface will encompass the configuration and provisioning aspects of the voice system, voice mail system, automated call distribution system, directory, E911, call accounting system, wireless, and other applications and components of the communications solution. This single-point-of-entry approach is not new, but it has been refined and enhanced over the last few years.

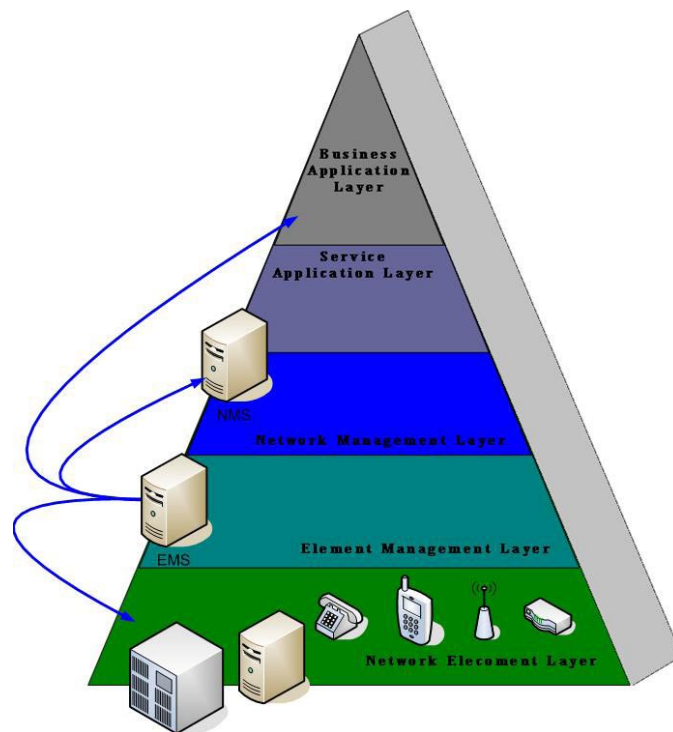
Recently, the need for solutions managed by enterprise IT to integrate with these network management system (NMS) applications has grown significantly. One of the applications requiring integration, most seem to agree, is the communications solution. It is the application near the top of nearly everyone's list.

Research conducted by market-intelligence firm IDC reveals that the IT- consolidation market is expected to grow 6.5 percent between 2004 to 2009 (from \$18.1 billion to \$24.7 billion), outpacing growth of the overall IT market.⁽¹⁾

Integration Standards and the Telecommunications Managed Network Model

The Telecommunications Managed Network (TMN) model is a standards-based integration method for the management of vendor-specific, network-based equipment or network elements (NEs) from vendor-agnostic Network Management Systems (NMS) via a single-vendor specific element management system (EMS). The EMS is the key to making the TMN function smoothly and, depending on the EMS capabilities, can dramatically affect the productivity of the administrative team.

The TMN model was originally developed and adopted by carrier organizations as a way of managing a multi-vendor telecom infrastructure via a single management interface. The integration specification for this technology is very specific to that aspect of the telecom industry and would not directly apply to enterprise IT; however, the concepts and principles of TMN do apply. The protocols and integration points can be adapted to support technologies common to today's enterprise IT organizations.



The point within the TMN model where the communication solution integrates with enterprise IT centers around the Element Management Layer. Next-generation communication solution management applications will serve an EMS function as well as provide a single point-of-entry application. The integration points in the EMS will focus on certain key areas such as centralized fault management, disaster recovery, workflow and provisioning, call and bandwidth accounting and billing, as well as user management, authentication and security.

Not every integration point between the EMS and the upper layers of the TMN will be directly implemented through the NMS, however, protocol standards and integration methods are currently evolving to address and formalize each of these different aspects of the integration solution.

Centralized Fault Management

One of the key responsibilities of the NMS is its capability of centralizing alarms and faults from the equipment that it oversees. Network Operations Centers (NOCs) have become commonplace within enterprises. In those cases, it is imperative that organizations have a single interface which NOC personnel can continually monitor, also one that immediately provides notice of new faults in a timely fashion.

A typical communications solution comprises a number of components working together. It is the responsibility of the management system within that communications solution, acting as the EMS, to collect, compile, translate and forward those fault messages up the NMS. A feature-rich management system will also include some native functionality to perform the fault notification and escalation on its own in the absence of an NMS application.

Disaster Recovery

Many enterprise-IT organizations currently have feature-rich disaster recovery solutions designed to protect the data within the applications and equipment they are responsible for managing. Without question, corporate data such as corporate financials or personnel information are mission critical. However, the data contained within the different elements of the communications solution is also very important.

Communications solution-management applications must coordinate the collection of this critical data and consolidate those as archives in a centralized location on the corporate network. From there, the data can be easily included as part of the enterprise IT disaster-recovery policies and either saved to a safe storage medium or sent to a secure off-site facility for storage.

The management application must be able to collect this data without compromising the security of the various components of the communications solution. The ability to do so is key to its overall value. Protocols such as FTP or TFTP can pose security threats to sensitive equipment, such as voice systems, if made to be continuously available. Thus, care must be taken.

Workflow and Provisioning

Redundancy in workflow and provisioning has made a mockery of technological efficiency among Enterprise IT for years; managers have little patience for it. IT administrators must enter the same data in multiple applications when creating accounts for new employees within the application environment. This inefficient method of provisioning drives up operational costs due to lack of productivity within the IT department. New workflow automation tools are being developed that can help decrease the workload associated with managing telephony changes within an organization.

As it relates to the communications solution, workflow automation can be especially valuable due to the pervasive nature of communications needs. Whenever an organization changes, be it a single individual changing his workplace or many people changing their place in the enterprise, the communications solution must keep pace with those changes. Operating cost increases may be contained by automating these processes based on integration with existing, well known IT administration interfaces.

Key to this integration is an IT standard called Lightweight Directory Access Protocol (LDAP). The LDAP standard has done more to help the overall efficiency and productivity of IT departments than nearly any other. Thanks to LDAP, the day to day task of manual data entry no longer has to be repeated by multiple people within an organization. Key to taking advantage of the full benefit of LDAP is the integration of applications to the LDAP directory. Now, many communications solution management systems offer LDAP integration methods for use with automatic provisioning of the communications solution itself. This is a first in the industry. Response to this development has been overwhelmingly positive.

IT managers should consider many items before commencing an LDAP integration program. Proper planning is critical, and should take into account everything from the customer's LDAP-database readiness to the methods used in implementing LDAP into the management system itself.

Call and Bandwidth Accounting and Billing

Recurring costs, such as bandwidth, long distance and trunking, as well as depreciation costs associated with communications solutions, must be accounted for and apportioned within the organization. Best accounting practices would spread these costs over the various departments based on relative usage by each department within the organization.

Within the telecommunications industry, the call accounting system traditionally bore responsibility for collecting and disseminating this information. Today's telecommunications expense management (TEM) systems can compile empirical accounting data on some of the next-generation communications devices such as cellular telephones, bandwidth utilization, quality-of-service usage and workflow charges.

TEM systems must be able to integrate with enterprise back-office accounting and CRM applications to perform general-ledger transfers so that the data can be automatically accounted for. Sarbanes-Oxley compliance within the enterprise has helped drive the need for this level of accounting detail and automation. Without this integration, the process would be manual, extremely costly and error prone.

Conclusion: Management System Integration Is Key

Today's communications solutions are expected to integrate with many different aspects of the enterprise information infrastructure. The management systems for these solutions must likewise display the same level of integration. Integration between the different aspects of the communications solution itself is critically important, but does not go far enough. To truly generate value as a business solution, the management system must integrate into the enterprise IT organization and become virtually transparent. Every aspect of the management platform should be designed to fit into the way that the IT department conducts business today and tomorrow, and should be geared towards ultimate management efficiency. In this way, the communications solution can help reduce its total cost of ownership.

⁽¹⁾ IDC, "IT Consolidation: Understanding the Market Opportunity," May 2006.

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