

E-business Trends Boost Enterprise Interest In SLM

Lynn DeNoia and Jim Metzler

Get ready to match business plans to service levels and performance metrics.

Information technology (IT) departments have long discussed Service Level Management (SLM), and some have even pushed for its adoption. Recently, however, SLM has become as much a business pull as a technology push, thanks to the inexorable trend toward e-business. This is helping not only to remove some of the longstanding barriers between IT and business unit (BU) managers, but also to reposition IT as a strategic component of the business (rather than as a cost to be minimized).

In a recent study of nearly 300 organizations of all sizes in the U.S. (“Transitioning to the E-Network,” May 2000, Sage Research and Ashton, Metzler & Associates), more than half the respondents said they were planning to make significant changes to their WANs, specifically to improve support for intermixing traditional data (from typical enterprise applications) with data from e-business applications. Other important goals were cited, including improvements in scope of

access, reliability, performance and security—a clear indication that IT is bringing the infrastructure up to date to meet business requirements.

This will not be enough by itself, however. To ensure plans and investments are understood and supported by BU managers, IT must reach out with a more formal approach to SLM. The purpose of this article is to offer a framework that you can customize to increase your likelihood of success in deploying SLM.

Business Plans Must Drive IT Plans

Over the next few years, more and more businesses will find that their success depends on the ability of their IT organizations to meet, and anticipate, the needs of BU managers. It is more important than ever for business plans to drive IT plans. One way to achieve this direct linkage is to take a holistic approach to SLM that encompasses at least the following elements:

- Translating business strategies into IT service requirements.
- Identifying a few key performance metrics for each service.
- Identifying one or more cost metrics for each service.

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FIGURE 1 Tiered Model Of Service Delivery

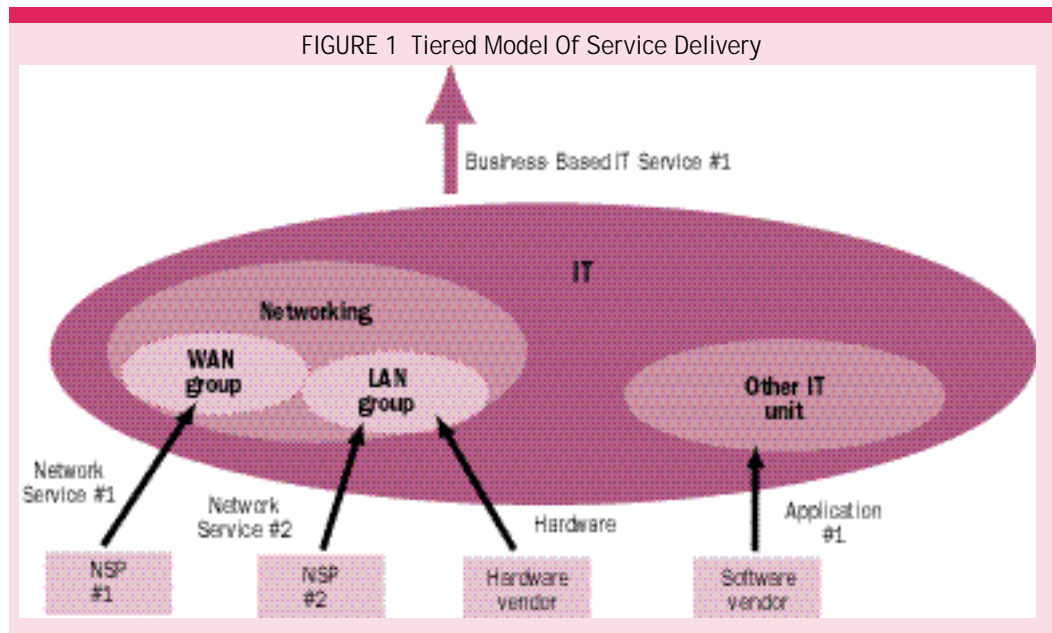


TABLE 1 Service Level Management Functions And Activities

Functional Area	Activities
Service architecture management	<ul style="list-style-type: none"> n Service screening, design and planning n Network design (to insure overall robustness when other entities provide underlying network elements or services) n Service introduction n Service assessment (e.g., evaluation against relevant IT and BU metrics, benchmarking) n Service retirement
Service delivery management	<ul style="list-style-type: none"> n Tactical functions (e.g., change management, problem management, operations/production management, asset management) n Proactive network monitoring (to anticipate, prevent or resolve problems prior to any effects on performance) n Feedback to the service architecture function n Data collection, storage, processing and reporting
Client or customer management	<ul style="list-style-type: none"> n Identifying the customers for each service n Engaging customers in service screening to define appropriate, affordable services n Engaging customers in defining relevant metrics and costs (in Business Unit terms) n Reporting on progress toward service delivery and ongoing performance
Vendor or supplier management	<ul style="list-style-type: none"> n Understanding available options and costs n Ensuring delivered services meet negotiated SLAs (i.e., you get what was promised)

SLM can remove old barriers between IT and the rest of the business

- n Implementing a service architecture function to create and evolve services over time.
- n Implementing a service delivery function to ensure daily operations are effective.
- n Building and managing the appropriate relationships with customers and vendors.

From an IT perspective, SLM is generally a multitiered effort (Figure 1). The topmost tier consists of business-based services provided by the IT organization as a whole to its various constituencies. Below this are the specific services provided by each IT unit, including the network organization. These are bundled into the services offered to the business units.

Note that the specific services provided by groups within an IT unit often depend on outside vendors' services or products. This article will explore mostly the middle tier, using the network organization as our context (the "Networking" oval within the bigger IT oval in Figure 1).

So What Is Service Level Management?

Think of Service Level Management as creating a *solution*, rather than just deploying a *tool*. The framework for a complete solution includes:

- n **Policies**—The mapping from business to IT plans, or the linkage to business unit managers.
- n **Functions**—Management of service architecture, service delivery, clients, vendors.
- n **Processes**—The who, what, where/when and interfaces required to make it happen.
- n **Tools and technologies**—Data collection, storage and processing (applications).
- n **Metrics and reports**—The communication mechanisms that tie back to the business units.

While no single approach to deploying SLM is likely to meet the needs of all organizations, this framework is comprehensive and flexible enough

to assist most. In particular, it provides wide latitude in how extensively Service Level Management is implemented—for example, starting with only one or two key services, then adding others over time. The "right" number of services (few vs. many) and extent of processes (simple vs. sophisticated) will depend on various organizational factors, such as how critical networking is to running the business, or how formal a management culture is in place. SLM can be successful in many combinations by developing each element of the framework above.

There are four key steps to linking IT with the business, creating policies and defining services that make sense to business unit managers:

1. Develop a business plan for the enterprise or a specific BU. Without a formal plan, it is very difficult to demonstrate that IT services actually support business objectives.
2. Use the business plan to drive development of the IT strategy and direction.
3. Create an IT operational plan, using the IT strategy and direction as major input.
4. Create the SLM plan, largely based on the IT operational plan.

For example, the survey mentioned above also found that respondents plan to deploy several e-business applications by the end of 2001, including on-line sales, service and training and internal business functions (Figure 2). To support these applications and build better linkages between IT and BU managers, the network organization might consider deploying such services as:

- n **Remote access:** Provides connections with customers and other businesses.
- n **Conferencing:** Could include a variety of options from audioconferencing and room-based videoconferencing to desktop videoconferencing.



IT must decide what to monitor, measure and report to users

n Converged applications: Simultaneous user access to voice, data or video information.

It may be obvious to the IT department that these services would prove useful, but rushing off to implement them is not the next step that you should undertake. Instead, involve the business unit stakeholders in jointly developing process definitions for Service Level Management. Process owners, process performers and process customers must all contribute to build the understanding and commitment necessary to make the processes work effectively.

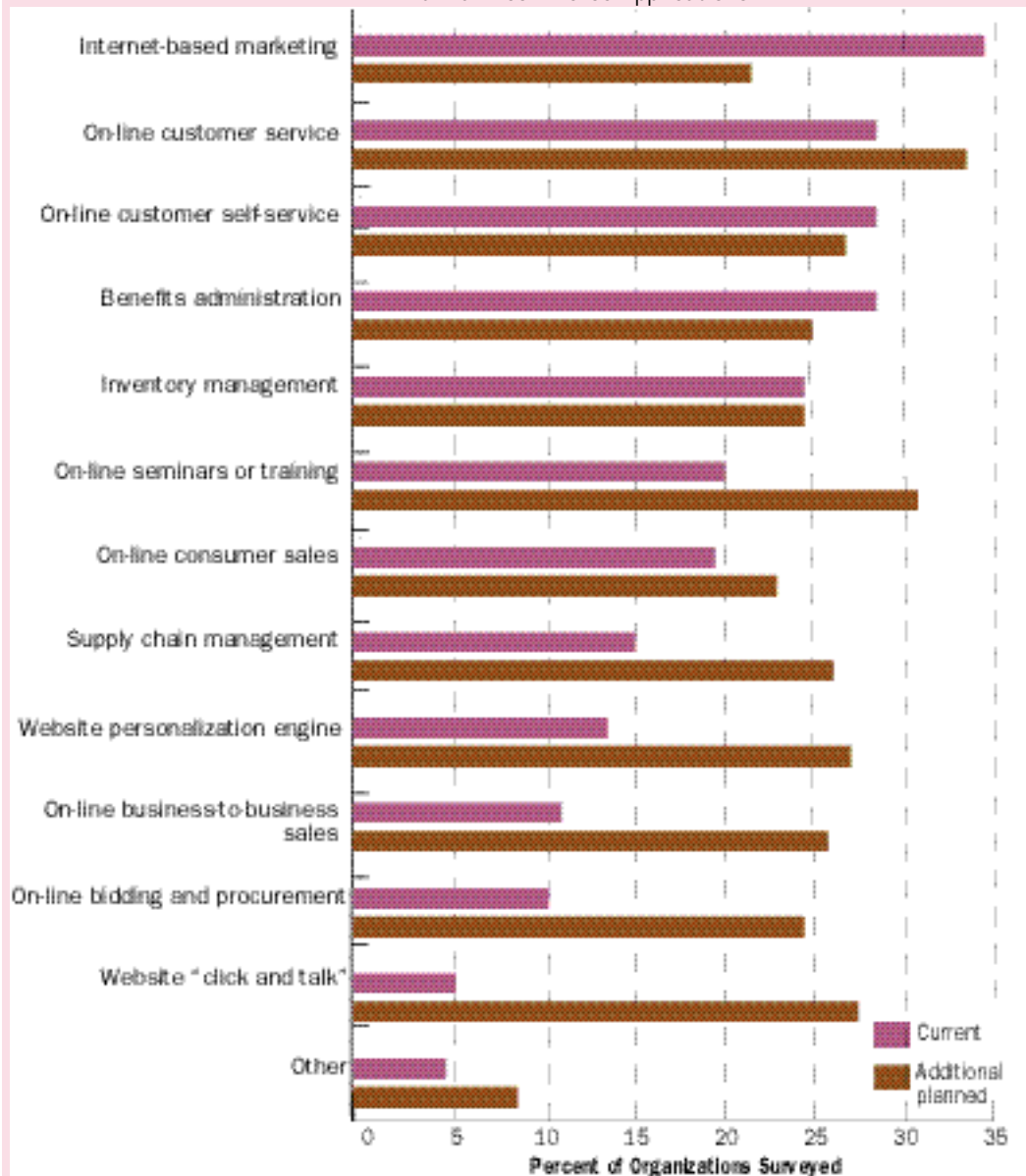
The functions and activities that make up the SLM processes are shown in Table 1. These really are the heart of what it takes to define and deliver appropriate, consistent services that support the

business objectives of any organization. They define who is involved in which activities, under what conditions, where and when, and with what communication or interface requirements. All processes should be documented thoroughly (e.g., in process flow diagrams or “operations” manuals) and periodically reviewed, for update or revision as necessary.

Processes For Proving Performance

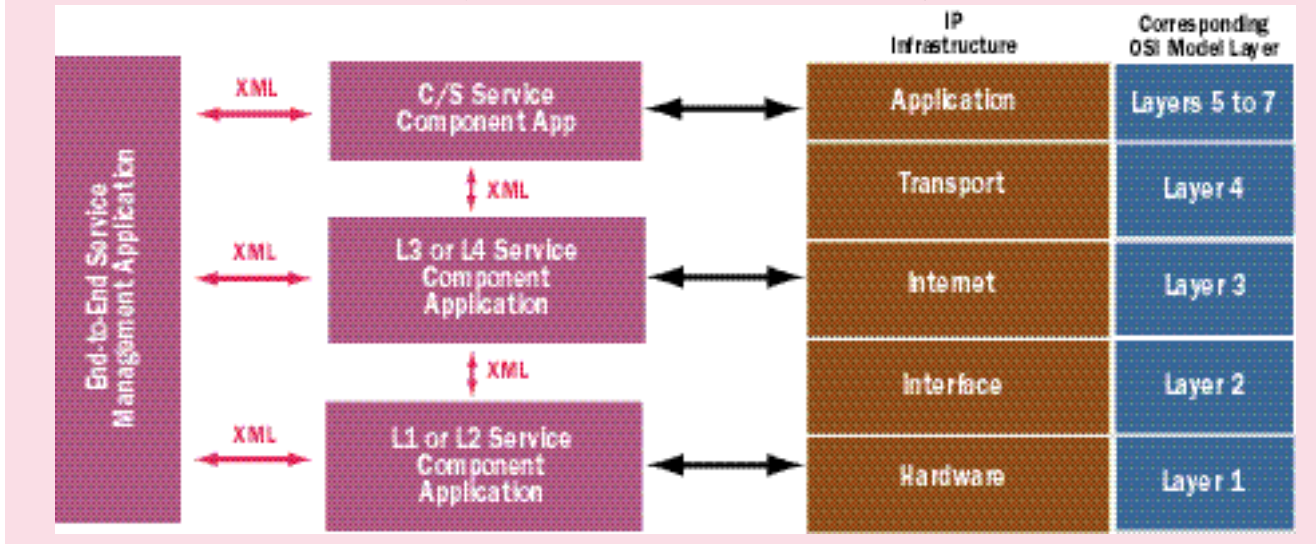
It is all too easy (and it happens far too often) for IT organizations to neglect or skimp on process work and focus their energies on technologies and tools. In networking, this is a special danger because we work with a wide variety of system and infrastructure vendors, LAN technologies and

FIGURE 2 Enterprise Customers Who Have Deployed And Plan Ecommerce Applications



Source: Sage Research Inc. and Ashton, Metzler and Associates

FIGURE 3 Layered Architecture For Service Level Management



WAN services (leased lines, frame relay, ATM, VPNs, etc.).

In large, complex networks, for example, we must decide what to monitor, how measurements should be taken, how to collect the data and then how to process and integrate the resulting metrics to provide a full view of the end-to-end service. It is tempting to collect lots of data—but because we can—but the key to effective SLM is to cull out the data that is needed to determine performance and report back to the business unit managers who consume the service.

Typically this means creating a Layer 7 view of the end-to-end application performance, and then basing that view on the internal detail needed by IT to manage the component parts (e.g., applications, servers, databases, LAN, WAN links, routers, etc.). Integrating these data can be a formidable process, but managers who settle for only a partial service view risk greater difficulties in defining cogent services, troubleshooting service shortcomings and reporting on service effectiveness.

Service-management application vendors, such as Concord Communications and Visual Networks, typically started out on Layer 1 and 2 WAN service components, developing well-integrated solutions for data collection, integration and reporting specific to these components. More recently, they have been moving up the OSI layers, although none can yet provide a complete service view into *all* the relevant elements of a complex network. Part of the problem is that mechanisms embedded in the infrastructure for capturing and exchanging network management information (such as SNMP MIBs) have been primarily focused on device status and aggregated historical traffic information at Layers 1 and 2. These mechanisms provide a less-than-adequate view at Layers 3 and 4.

Even if Layer 3 and 4 data were more readily available, integration is still hindered by the lack of a simple, flexible linkage between the service-management suites and the metric-collection mechanisms embedded within the serving infrastructure. Without these linkages to unify the metrics across the layers of the protocol stack, correlating network-level service metrics with application-level and client/server service quality metrics is severely hampered.

Fortunately, an alternative is on the horizon. The eXtensible Markup Language (XML) affords an opportunity to develop a common format for data interchange among SLM applications at all layers. Vendors could use XML to share information about service definitions and service-level agreements, along with specifications for collection of relevant service-metric data, as shown in Figure 3.

This layered architecture could integrate data from the entire set of layers to produce a coherent end-to-end service view. Customers could also select best-in-class management applications for each particular service component in their enterprise infrastructure (e.g., applications, servers, switches and routers), relying on XML and the common data exchange format to achieve metric integration. Cisco takes this approach with its SLM Ecosystem partners (including Concord, HP, Visual Networks and others), using XML to exchange management information.

Making Metrics Meaningful

Appropriate and well-correlated performance data not only demonstrate that SLAs are being met, but are continuously valuable as communication mechanisms that tie IT together with the business units. Thus it is critical to present performance information in terms that are relevant to BU managers. IT managers need to know the

details of server uptime and network response time, for example, but the BU manager is likely to be interested only in his/her own application's availability and response times.

Let's briefly consider a business requirement for geographically dispersed R&D partners to work together intensely over brief periods to get new products defined and into development. IT and the business unit managers from all partners agree that a conferencing service could support this business objective and agree on a metric, say 99.9 percent availability, that represents the acceptable level of the service for use by design team members.

The network organization then integrates several underlying service elements, including the audio- and videoconferencing equipment in each location and the long-distance connections (over frame relay, for example). All must work properly for the conferencing service to be available to the partners. For example:

- n The frame relay service might be available, but a functional problem with the conferencing equipment could make the service unavailable.
- n The frame relay service might be available, the conferencing equipment working properly, but the user may not be able to operate the equipment, making the service unavailable.
- n The frame relay service might be unavailable, but the back-up ISDN service takes over so conferencing service is available.

The network organization must map the service levels received from its own vendors/suppliers to the service levels it offers to the business partner customers. Such a mapping typically combines both vendor negotiation and network design. The partners in our example require conferencing service availability of 99.9 percent, but perhaps the frame relay service provider is only guaranteeing availability 99.5 percent of the time. To resolve the difference, the network organization could either negotiate a higher level of availability from its WAN supplier or design redundancy into the WAN. Very often the appropriate choice depends on how much the partners are willing to pay for the increased availability.

The second challenge is to combine the detailed information about availability of the underlying service elements into the overall metrics requested by the partners' business unit managers. While it is important for the network organization to know about the frame relay and ISDN services individually, the business unit managers will only want to know the availability figure for the *conferencing* service itself.

Besides feeding back performance data to the

BUs, IT should regularly engage the BUs in discussing performance objectives, and their relationship with business requirements and future initiatives—even if these have not yet been committed or incorporated into specific SLAs. A stewardship report is the ideal mechanism for IT to use in reporting progress toward such objectives. Remember, it is the ongoing dialogue that is so important for IT to understand in order to formulate plans to meet business objectives.

Conclusion

Implementing a Service Level Management solution is an important step to bridging the gap between business unit managers and the IT organization in general, as well as the networking units in particular. Overall, you can expect the need for Service Level Management to grow even more rapidly as e-business applications put increasing pressure on IT organizations to provide identifiable, quantifiable services to

their business unit clientele.

While there is no single right way to implement SLM, we strongly recommend a tiered approach where services are defined and delivered to the BU clients on a base of equipment and services from vendors/suppliers. A layered architecture provides two key advantages:

- n A network management architecture that is layered from a technical perspective is far more likely to add value when it closely mirrors the layered business processes it is intended to support.
- n A layered approach allows IT managers to choose best-in-class management applications for each particular service component in the enterprise infrastructure.

Today's use of Internet technologies and Web browser interfaces throughout enterprise management solutions provides simpler, more cost-effective integration than has ever been possible outside single-vendor, proprietary approaches. Your satisfaction with the completeness and integration of SLM products will depend primarily on whether you can produce the metrics and reports you need for interaction with your own business unit managers □

"A layered SLM solution should mirror the business processes IT supports."

Companies Mentioned In This Article

- Cisco Systems (www.cisco.com)
- Concord Communications (www.concord.com)
- Hewlett Packard (www.hp.com)
- Visual Networks (www.visualnetworks.com)