



Concepts Meet Reality...

Performance Through the Eyes That Matter Most: The Customer



Introduction

Nothing indicates more clearly whether an application is performing at the customer's expectation than the end-user experience. Network monitoring is a prime example of implementing previous methods that are not client-centered. Many companies today still rely on the traditional form of monitoring focused on IT device performance, such as receiving alerts when a server or network is down or operating slowly. Often, this type of network monitoring does not provide information about what is actually happening at the other end. Outlined below are some industry "best practice" suggestions for achieving IT operational excellence by incorporating the end-user perspective in network monitoring strategies.

Background

Performance Issues Affect Diverse Applications and Impact Employee Productivity

Source: Yankee Group 2005 Enterprise Application Management Survey

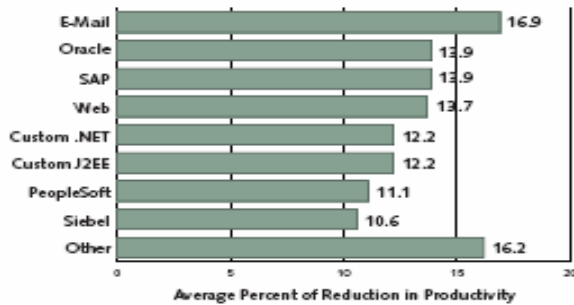


Exhibit 1: Performance Issues and Productivity

Historically network performance management involved separate monitoring of WAN/LAN resources and even further segmented monitoring of application performance. Network management technologies are reliable for revealing available devices, reporting incoming and outgoing traffic, monitoring resource capacity metrics, and reporting errors. However, it is apparent that improved business application monitoring strategies are critical due to their impact on business profitability. From the data entry clerk at the most remote branch office to the Executive VP of Finance, it is important that every task and network resource between the two perform optimally.

When network resources or services are unavailable, companies can suffer tremendous losses in revenue, time, and credibility. For example, according to an article by George Hamilton (September 2005), “application performance issues result in an average productivity loss of 14%” (See Exhibit 1).

Further, many companies today are frequently integrating their networks with IP or web-based applications rather than traditional software based systems, due to the competitive advantages integration offers. One of these advantages is the reduction in costs by not purchasing hardware and software, resulting in substantial savings for most companies. Another key advantage is the ability to provide multiple customer support channels, rather than via telephone alone, which has become inadequate. Customers now expect to be able to choose from web conferencing, text chat, e-mail, or video communications when soliciting support.

As advances in network technology continue, the tools to monitor and manage the technology must evolve as well. Unfortunately the traditional model of centralized server software depending on distributed agents and intermittent simple network management protocol (SNMP) polling of the network can not keep up with the rate of real-time change that today’s applications demand. Web services require active monitoring tools. Passive monitoring tools send a task to a human to respond, but active monitoring immediately corrects the issue as it occurs. According to a survey by Gartner

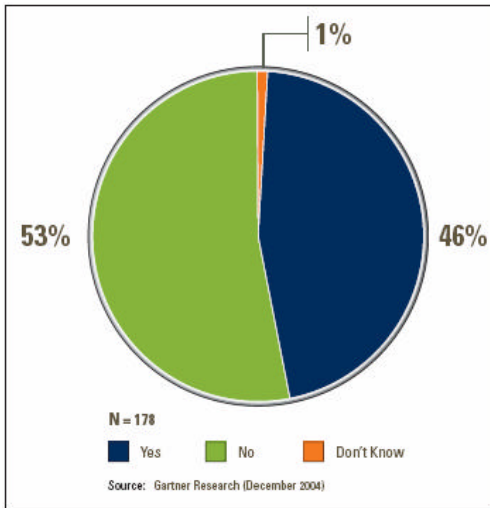


Exhibit 2: Performance Issues and Productivity

Research (2004), only 46% of companies today are utilizing end-to-end business monitoring practices. (See Exhibit 2).

This creates a problem because the most important perspective, the customer, is being overlooked. Companies today place too much emphasis on fault management, not realizing that systems that are fault tolerant still experience degradation in service that requires prompt attention. Additionally, system performance as a whole, or component performance, does not necessarily indicate the performance perceived by the end-user. Paul Arveson (1998) stated, “If customers are not satisfied, they will eventually find other suppliers that will meet their needs. Poor performance from this perspective is thus a leading indicator of future decline, even though the current financial picture may look good.”

Additionally, end-user monitoring incorporates network resource connectivity, application performance, and availability over network resources. Furthermore, end-user monitoring detects and corrects a problem or degradation of service before the end-user notices the problem. Ultimately the most important factor is the success of the end-user to conduct business or perform job duties as efficiently as possible. In an article by Peter Goldin (2006), Rich Schofield expertly states, “When end-user monitoring tools are correctly configured, they provide the most direct indication of the performance of the business service.” It is for the reasons aforementioned along with many others that companies must continue to invest in monitoring strategies that focus on the end-user experience, the network core, and everything in between.

Analysis:

End to end performance monitoring measures how well the network is providing network and application resources to the end-user. This approach monitors performance from the top down and provides management with a simple overall view of the current and historical events taking place within the network. By tracking the end-user experience, in addition to the IT devices and applications themselves, IT management becomes more aligned with the business goals of the company. By providing a framework for companies to achieve IT operational excellence, the following four steps should be followed for the implementation of end to end network performance management.

1. Define Performance in Terms of the End-user

The company must begin by clearly identifying exact business applications and network resources that are important to the company, while keeping the focus on what is important to the end-user. Some experts suggest that response time is the best indicator of how well an application is performing for the end-user. Still others suggest the most important metrics to monitor include total transaction time, TCP setup time, DNS lookup time, server processing time, time spent in the client PC, and time spent in the network.

While there is no universal list of the correct metrics to measure, information about the actual user experience serves to enlighten companies about application performance in terms of their own customer's requirements. Obviously, this will vary from company to company; however, in general most end-users only care about "things working in a timely fashion when they are supposed to." For example, end-users expect their email to open every time they click on the link to open an email attachment; they also expect a file, no matter how large it is, to open within a few seconds. These are just two examples of how important application availability and application response time are to the end-user (assuming the network resources are operating appropriately.) By identifying these needs upfront, it enables the company to design a network monitoring strategy and shop the market for tools that will supplement such a design.

2. Meeting Your Needs While Incorporating Best Practices

Once the resources (critical applications, network devices, etc.) have been identified for tracking, it is important to select the tool(s) that best meet the needs of the company and utilize industry best practices, without incurring additional costs to the company. Below are some considerations when evaluating solutions:

- a. Critical applications:** Determine the impact a major outage of a critical application would have on the company, considering issues such as time, revenue, stakeholders, and productivity. The selected solution must be able to provide timely problem recognition and resolution. Knowledge of your customer’s priorities is essential in deciding on which vital metrics to monitor.
- b. Integration with existing management tools:** Unless fees are an issue, the solution selected must be able to integrate with the existing network management tools and be easily deployed throughout the network.
- c. Correlation between network and system management data:** The solution must provide correlation between network device alerts and with the data captured on the end-user desktop. The tool(s) must be able to tie the impact of infrastructure and application changes back to end-user performance.
- d. Adequate visibility:** The selected solution should visibly alert the company to degradations in service and allow quick analysis into the root cause of the problem.
- e. Normalcy:** The chosen solution must be able to identify “what is normal” as it pertains to resource response time, as this is most important factor for the end-user. To do this, the solution must have built in processes that can quickly compare real-time network and application performance with baseline performance statistics, and then automatically trigger immediate analysis of events as they that are outside of the norm. This capability alone will have a tremendous impact on reducing time involved in troubleshooting.

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- f. Proactive and reactive:** Most companies today have some form of reactive infrastructure monitoring technology in their network. It is important to select a solution that allows real-time proactive assessment as well as reactive analysis. The ultimate goal is to prevent or reduce the impact of a major disruption of service.
 - g. Isolation of Problem:** The chosen solution should be able to quickly isolate the source of the problem to the application, server, or network.

3. Working Together

End-user monitoring will not be successful unless the IT and business teams work together toward the common goal of improving the company's business services.

4. Obtaining Assistance

Most companies do not have the skill set in place to design, purchase, and implement an effective end to end monitoring system in a rapid manner. It must be stressed that it may take years to create the expertise needed for such a large task. Thus, companies would benefit greatly by engaging help to implement the initial system.

5. Educating the team

Once a solution is selected, it is very important to train the performance support team on the proper way to use the tool(s) and maintain the system once it is in production.

6. Deploying the solution

Once the team has been properly trained, the solution must be deployed throughout the network. If there are financial constraints prohibiting the deployment throughout the entire company, an alternative would be to only deploy where it makes the most sense financially. By doing so, the company is maintaining the goal of preventing or reducing the impact of a major outage to a critical resource within the company.

Summary

It is no longer feasible for companies to attempt to manage network resources separate from the business applications they support. Traditionally, companies have designed network management strategies around WAN/LAN resource availability. Today companies must incorporate end-user expectations of fast, reliable applications into their performance management strategies. To achieve true IT operational excellence, this requires a shift from the mindset of solely managing infrastructure devices to include management of the end-user experience, and all aspects between.



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