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The Top 5 Server Monitoring Battles—and How You Can Win Them



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Executive Summary

The role of servers in your organization has changed substantially—with their uses, requirements and complexity all increasing dramatically in recent years. Many of the traditional tools and techniques that worked in the past don't suffice any more. Consequently, server monitoring presents several critical battles in today's demanding environments. This white paper looks at some of the most pressing challenges administrators face in ensuring optimal server performance, and it offers insights into the tools and strategies required to address these demands.

Effective Server Monitoring: Tough and Getting Tougher

Server monitoring. It's never been more critical. It's also never been more challenging.

Today's businesses are competing in an application economy, an environment in which applications play an increasingly central role in a business' ability to deliver a differentiated and compelling user experience. To survive and thrive in an application economy, businesses need to develop and deploy software with precision and speed. This shift in the market dynamic has substantially changed the roles of servers—and escalated their criticality to your business.

In the application economy, your firm's servers represent a vital cog in the IT machine—a machine that increasingly represents the core of business being transacted. Whether a server's used for email, e-commerce or ERP, downtime, while always concern, is never an option. The monitoring of servers is essential to ensure associated business applications, and the very business, are running smoothly.

If you're responsible for the maintenance of these servers, your job is tough, and seems to be getting more so with each day. And with each new OS upgrade. And with each new server. And so on. In theory, there are a lot of monitoring solutions out there that can help. In practice, the products purported to be of assistance are either extremely complex or too narrow in scope, so they only meet limited objectives, if any.

Today, you confront several critical battles in your efforts to ensure that servers consistently meet the needs of the business. This white paper outlines these key challenges, and offers insights into the tools and techniques you can use to overcome them.

Battle #1: Managing Increasing Numbers of Servers with Limited Resources

Your battle

For today's IT administrators, it often does seem true that no good deed goes unpunished. Get one server cluster running smoothly, and you'll be asked to get another one running smoothly. Only the next server cluster may be at a branch office in another state or another country. And of course, regardless of the location of the servers, they most certainly will need to meet the all-the-time demands of a mobile, increasingly global customer base and workforce.

As your organization grows, so too do the demands. If only your headcount and resources kept pace. Ultimately, administrators need to do a lot more, with a lot less. For example, analysts estimate that, through manual administration, one full-time employee can manage 11 UNIX servers or 30 Windows-based servers. For a 1,000 server environment, this could translate to approximately 30 to 100 full-time server administrators. This is headcount that most businesses simply can not afford to hire and retain.

Server monitoring: Scalability checklist

- Fast, easy installation, maintenance and customization
- Automated monitoring of performance and availability metrics
- Automated, 24x7 alerting
- Remote monitoring and maintenance

What you need to win

To have any hope of meeting the demands of managing growing numbers of servers with limited resources, administrators need to be empowered with a solution that dramatically streamlines the time and effort required to monitor and administer servers.

Automating the monitoring of servers is one approach that can pay huge dividends in increasing the number of servers one administrator can manage. This needs to include routine automated monitoring of performance and availability metrics, as well as automated alerts and reporting.

To scale practically, server monitoring solutions need to be easy to install, maintain and customize. In addition, this solution needs to enable remote monitoring, so that, whether the server is based in Topeka or Tokyo, the administrator at the New York office can get real-time status reports and alerts. Finally, this solution needs to enable automated alerts, so that whatever time it is, administrators can be apprised of an outage, or sleep soundly knowing everything's running smoothly.

Look for server monitoring products that offer an efficient code base and robust functionality that enable you to manage more systems, more users and more data. Look for the following features, which will significantly improve your ability to do more with less:

- **24x7 monitoring automation.** Find a solution that automatically plots server statistics and measures them against user-defined thresholds, so that, when thresholds are exceeded, alerts can be generated and distributed automatically, preferably through a variety of notification options—including pager, cell phone and email.

- **Fast deployment.** Look for products that can realistically be deployed in days or weeks, compared with the lengthy, multi-month deployment times of the legacy monitoring solutions.
- **Quick customization.** Look for intuitive yet powerful features that make it is easy to adapt to the unique, and fast changing, demands of your business.

Battle #2: Monitoring Heterogeneous Environments

Your battle

With your company's growth comes change, and part of that change invariably means not only more servers, but different types of servers that you're responsible for implementing, monitoring and maintaining.

Whether through acquisition, merger or evolving business needs, when your organization starts growing, your server infrastructure very suddenly starts looking a lot less homogenous. Your infrastructure now undoubtedly includes a mix of Windows, Linux, UNIX, Netware, AS400 and more. While monitoring a unified set of servers can be challenging, administering this heterogeneous mix can feel downright impossible.

Server monitoring: Heterogeneous support checklist

- Broadest coverage of servers and OS platforms
- Cohesive, consistent views across platforms

The days when organizations can get by with a single Windows or UNIX specialist in house are over. However, hiring an expert for each type of server is too expensive for most organizations. Strapped IT shops like yours do not have the luxury of staffing with platform-specific, silo-centric specialists. While point solutions are available for monitoring a specific type of server, installing, maintaining and managing multiple monitoring solutions is also too complex and costly.

What you need to win

To overcome the challenge of monitoring servers in a heterogeneous environment, you need a comprehensive, platform-agnostic monitoring solution, one that can be used to monitor every type of server and OS in your organization. With the right multi-platform monitoring tool in place, platform-specific variances can be masked from administrators, presenting a consistent monitoring interface for the entire infrastructure.

It is only by employing such a solution that you can scale your efforts and manage the competing and contrasting challenges of monitoring various server platforms. Armed with an effective solution, you can efficiently monitor all the servers in your organization's heterogeneous environment.

An effective solution supports all leading platforms from a single, easy-to-use console. Consequently, one IT generalist can monitor any server platform in your organization. From a monitoring standpoint, these solutions make a highly heterogeneous platform environment look and feel like a single platform. As a result, complexity and administrative effort is reduced dramatically.

Battle #3: Gaining Service Level Insights into the Infrastructure

Your battle

Imagine this scenario. An end user has just called to say that a core business application is down. After quickly analyzing the associated servers, you see they're up and running. Then what? Or what happens if you hear customers are complaining about slow response times. You see the server is operating at 80% of capacity. Is that the issue? How do you know?

What you need to win

In these scenarios, monitoring associated servers is only part of the story. Servers are part of a complex ecosystem, one that's comprised of applications, databases, network devices and more. In today's competitive business landscape, application monitoring is a must have, especially in the context of end user transactions and service levels.

To do this monitoring, you'll need a single solution that can encompass all aspects of the infrastructure and provide a cohesive view into the service levels being received, and, if performance issues or outages occur, a fast and precise way of determining what the issue is and how to fix it.

Given the intense demands being placed on your infrastructure, it's no longer sufficient to take a compartmentalized approach to monitoring. Ultimately, what really matters isn't the CPU cycles of a Web server. What really matters is whether sufficient service levels are being delivered. Achieving this goal requires full visibility and control of the entire IT infrastructure that is relied upon to deliver a specific business service.

As a result, you need comprehensive monitoring capabilities that enable you to centrally monitor and manage every key aspect of the entire IT environment, including servers, hosts, applications, databases, networking services and network devices.

Look for a solution that provides a centralized, cohesive view of your infrastructure—so you can effectively monitor, understand and manage the entire infrastructure on which a service is based. As a result, you can more proactively spot and avert issues, more quickly respond to issues when they arise, and more effectively ensure optimal service levels.

Server monitoring: Service level management checklist

- Broadest coverage of servers, applications, network devices and more
- Cohesive, centralized view of all components on which services are based

Battle #4: Monitoring Servers in Virtualized Environments

Your battle

Organizations around the world, in every industry and of every size have adopted virtualization technologies like VMware, and for good reason. With virtualization, your organization can pool its resources and ultimately get more performance, flexibility and cost efficiency out of its infrastructure investments.

Yet in spite of all its benefits, virtualization presents you with significant challenges from a monitoring perspective. Virtualized environments represent an ecosystem of interrelated parts, all of which must be functioning optimally to ensure that business applications remain available. When virtualization gets implemented, an entirely new layer of “moving parts” gets added to the mix, and dramatically increases the complexity of monitoring servers and the infrastructure upon which they rely.

What you need to win

Virtualization has led to a paradigm shift in monitoring, one that legacy systems management tools and point monitoring products are not equipped to adapt to. While VMware and other vendors offer solutions for monitoring various aspects of the virtualized infrastructure, they don't provide a complete picture of the entire ecosystem. Virtualization demands a new breed of monitoring solution, one that offers an effective, convenient and holistic way to monitor the entire environment, both virtualized and non-virtualized.

In your organization, you need a broad solution that can monitor all the servers, hosts, applications, databases, networking services and network devices—as well as virtualization systems like VMware. By combining this broad infrastructure coverage with extensive support for the VMware environment, an effective monitoring solution enables your organization to fully optimize its VMware investments and better ensure the highest service levels.

Look for a solution that can collect an extensive number of health checks in VMware environments. You can then easily leverage this data to understand the status of the VMware environment, and get the information you need to more proactively manage the infrastructure. Finally, look for a product that delivers service level management capabilities so you can more effectively ensure that the business applications hosted in these virtualized environments are in compliance with service level agreements.

Server monitoring: Virtualization checklist

- Broadest coverage of virtualized and non-virtualized systems
- Visibility of business applications operating in virtualized environments

Battle #5: Effectively Managing Resource Utilization

Your battle

After large investments in hardware, one thing typically happens: More and more hardware is purchased and installed. While the term “throwing hardware at a problem” is used often, it is often all that hardware that starts to be the problem. In addition to the up-front investment, managing and supporting this increasing number of systems is increasingly time consuming and costly. Yet all too often, each individual resource is underutilized. How can your organization start to ensure existing resources are fully utilized before investing in more?

What you need to win

With effective server resource monitoring and reporting, you can identify those servers with underutilized resources and make them available for allocation as needed to more fully maximize existing investments and avoid unnecessary expenditures. To manage resource utilization effectively, you need trend reporting solutions that afford better visibility into metrics on CPU, memory and disk/ storage. You also require insights into how these metrics are potentially affecting the service levels end users receive.

Knowing that a server is operating at 80% capacity is part of the equation. The other part is determining whether that performance threshold is affecting the service levels end users receive, and, if so, to what degree.

In this environment, you need a solution that delivers vital insights for quickly and accurately understanding the fundamental pieces of the optimization equation. What performance thresholds does a server need to exceed for end user performance to start being affected? What resources are being underutilized? What resources are too close to redlining?

Look for solutions that can monitor if CPU, memory or number of threads rises above, or falls below defined threshold values. Additionally, ensure your solution can monitor expected user-run processes and ensure the proper number of process instances are running.

With this improved visibility of resource utilization trends, you can pre-empt server outages and diminished application service levels. If your solution features daily, weekly, monthly, quarterly and custom date/time reports that summarize resource usage, you can identify trends to facilitate capacity planning and guide spending decisions. In addition, armed with these insights into utilization trends, you can easily gain advance visibility of performance trends that may ultimately compromise application performance.

Server monitoring: Resource utilization checklist

- Extensive coverage of server performance metrics, such as CPU, memory and disk/ storage utilization
- End-user, service level monitoring coverage
- Flexible duration reporting that summarizes resource usage and trends

Conclusion

There are a lot of reasons why server monitoring presents critical challenges in today's IT environments. This guide lists five, but there are others, and the specifics can vary dramatically within each organization.

To combat your specific battles most effectively, find a solution that offers broad coverage so that all the systems currently in your organization today—and even those that may be added tomorrow—can be monitored from a single unified solution. This can help you monitor and manage more, and more types, of servers and systems over time. Make sure the product offers the ease of use you need so you can quickly install the solution—and adapt it to your changing environment.

Ultimately, server monitoring solutions that offer the optimal combination of features will best position you and your organization to manage your servers, your infrastructures and your service levels most effectively.

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