The 12 Pitfalls of IT Systems Management

and the bridges you need to cross them.

High availability and performance for mission-critical applications is no longer a luxury for most of today's organizations; it's a matter of business survival. If applications fail – or suffer from low performance levels – revenues and customers are lost. IT operations managers and administrators need to adopt both server monitoring and capacity planning solutions that can quickly be deployed, automate processes, and adapt to changing enterprise situations – without breaking IT budgets.

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Large, expensive, unwieldy frameworks have often failed to meet the growing demands of many IT groups. Despite huge investments in software, consulting and training, IT often lacks the visibility and agility it requires to ensure operational excellence.

Server monitoring, long a staple of many IT shops, has taken on a new urgency as companies continue to expand their data centers and computing power across vastly distributed networks and systems. Capacity management adds a new dimension to this challenge, as enterprises find they can no longer afford to simply "throw hardware" at problems to increase the level of available resources. Organizations need ways to more intelligently manage changes in capacity demand.

In recent years, the response offered by leading systems management vendors to these challenges has been almost a form of overkill, the IT equivalent to selling high-end Swiss Army knives for problems that a simple paring knife could handle. Companies such as BMC, Computer Associates, Hewlett-Packard and IBM offer information technology service management (ITSM) suites that purport to address server monitoring, capacity planning, as well as a range of other requirements. However, these large, expensive, unwieldy frameworks have often failed to meet the growing demands of many IT groups. Despite huge investments in software, consulting and training, IT often lacks the visibility and agility it requires to ensure operational excellence.

Recognizing the limitations of conventional ITSM frameworks, a new class of solution is emerging to address IT needs: *integrated server monitoring and capacity planning*. This approach not only combines server monitoring and capacity management into a single package, but is also relatively easy to deploy and is offered at favorable price points. IT operations managers and administrators are discovering that they no longer have to buy into heavy ITSM frameworks and remain shackled to them indefinitely. Integrated server monitoring and capacity planning solutions offer a rapidly deployable, cost-effective alternative that helps keep servers and systems running at their peak.

Market Drivers:

Server Sprawl and ITSM Shelf-ware

*Many of the features in large frameworks end up unused as "**shelf-ware**," due to the complexity and training costs associated with implementing these high-maintenance systems.*

Enterprises rely on information technology to maintain a competitive edge in their markets, build customer relationships, and manage operations. They require an on-demand, 24x7 infrastructure, resulting in a relentless demand for better performance, greater availability, and more capacity.

Often, the response by businesses and IT departments scrambling to meet this challenge has been relentless "server sprawl" – the almost unchecked growth of server farms across the enterprise that have been springing up in recent years to meet this insatiable demand for computing power and data. The cost of maintaining these systems is high. Gartner's most recent estimates put the IT operations tools market at $10 billion, with more than 200 software vendors. However, IT operations managers are under tremendous pressure to cut costs while improving service availability.[1]

Many companies – particularly larger enterprises – have attempted to better manage this systems growth by adopting the large ITSM framework products on the market today. However, many of the features in these packages end up unused as "shelf-ware," due to the complexity and training costs associated with implementing these high-maintenance systems. Many IT organizations simply aren't providing the resources – in time, budget, and staff – to sort through the intricacies of deploying

[1] *Hype Cycle for IT Operations Management,* Gartner, Inc., Milind Govekar, Donna Scott, Ronni J. Colville, July 2006.

such large-scale solutions.

Thus, IT operations managers and administrators are left with the job of figuring out how to achieve greater transparency in the reporting of system events. This can be a difficult challenge across enterprises with thousands of servers to be managed.

Two Sides to Performance and Availability Problems:

Monitor the Present, Anticipate the Future

IT operations managers and administrators face the challenge of being able to monitor the performance of growing arrays of servers, while being able to predict and plan for future capacity. Effectively addressing both server monitoring and capacity management can help these professionals find ways to cut costs and better consolidate IT infrastructures.

The following section explores the key issues that both of these categories present to IT operations managers and administrators:

Server Monitoring Issues

Companies keep adding more and more servers to their enterprise infrastructures, which adds more complexity and increases the risks of performance and availability problems arising. Optimizing and troubleshooting distributed server farms requires the ability to track both hardware and software across the network – to not only prevent or discover failure points, but also to spot under-performing systems.

Issues with Server Monitoring:

1. *Determining what needs to be monitored*
2. *No clear and holistic view of the data*
3. *Too many – or too few – "agents" for the job*
4. *Too many manual tasks*
5. *Too much complexity and hidden costs*
6. *Hodgepodge of low-end tools*

Server monitoring spans three areas of operations: Monitoring server operation (the running status); monitoring server traffic (both in and out); and monitoring the results of server use (keeping logs, statistics, and analysis). This encompasses monitoring physical hardware, server performance, services, and the network. [2]

The following are the most pressing issues in server monitoring:

1. **Determining what needs to be monitored:** Assessing exactly what kind of data needs to be monitored can be confusing. Many server-monitoring solutions offer both real-time and historical monitoring of server performance. However, many employ "agentless" or SNMP monitoring, which does not utilize a resident program directly on targeted servers. Such solutions do not capture enough detail to aid in alerting or root cause analysis without considerable customization. Conversely, the large ITSM suites generate a deluge of monitoring data, making it difficult to sort through reports to pinpoint the most important data points.

2. **No clear and holistic view of the data:** As is the case of medicine, root-cause analysis in IT administration seeks to address the underlying causes of problems, rather than merely treating the symptoms. In many enterprises, however, administrators are not aware of the underlying problems, and often are alerted to issues after they are encountered and reported by end users. Many solutions on the market today – particularly the heavy ITSM frameworks – do not provide high level, transparent views of existing multi-platform systems and don't enable end users to easily drill down to help quickly pinpoint why systems are down or

[2] "Server Infrastructure Tools, Monitoring Software," Nelson King, *ServerWatch*, June 15, 2005

*The large ITSM packages introduce **heavy-footprint agents**, which run so much code that they themselves create enormous overhead on the servers they are monitoring.*

underperforming. In addition, since IT operations managers and administrators don't have access to required metrics from specific applications or processes that may be affecting system performance, they are unable to directly correlate the impact of business systems transactions with system performance.

3. **Too many – or too few – "agents" for the job:** When it comes to the use of agents, many companies either go too far to one extreme or the other. Many solutions offer agentless monitoring, relying instead on SNMP feeds. However, such feeds do not offer enough data to provide a true picture of server performance. At the other extreme, the large ITSM packages introduce heavy-footprint agents, which run so much code that they themselves create enormous overhead on the servers they are supposed to be monitoring.

4. **Too many manual tasks:** Many IT operations managers and administrators are bogged down in manual scripting and system monitoring that takes up a significant portion of their workweeks. One common example is in backups. Many solutions don't automatically monitor server backups, and, as a result, administrators aren't immediately notified when a server crashes and a backup system is being used. This results in considerable manual work when events do happen.

5. **Too much complexity and hidden costs:** Many of the high-end framework products on the market today are not easy to use and end up as 'shelf-ware' after numerous painful attempts at deployment. In addition, conventional ITSM frameworks carry a

*Lower-end and freeware monitoring tools usually require **excessive custom scripting and rebuilding**, and tend to lead to misspent resources and reduced productivity.*

heavy payload of hidden costs. Many enterprises, in fact, spend millions of dollars on not only ITSM software and accompanying hardware, but also service and consulting fees. Often, these efforts fail because companies underestimate the amount of resources and time required to put these systems in place, including extensive end-user training. Typically, these expenses often double the original quoted cost of the software.

6. **Hodgepodge of low-end tools:** Many organizations mistakenly think that deploying low-end or open source tools is a viable and low-cost alternative to the ITSM frameworks. However, since lower end tools usually require excessive custom scripting and rebuilding, they tend to lead to misspent resources and reduced productivity. Such situations also cause IT organizations to become over-dependent on the individuals managing these tools and scripts. As noted by analysts at Gartner, "these tools provide basic monitoring capabilities, with much of the implementation of automated actions being performed via scripts, leading to high maintenance costs and potentially long implementation times."[3]

Capacity Planning Issues

In capacity planning, simulations are run on models of an organization's software and hardware infrastructure to determine how to best allocate resources. Capturing data related to server and system capacity is relatively straightforward, and many organizations have access to such information. However, most organizations do not engage in trending

[3] *Hype Cycle for IT Operations Management,* Gartner, Inc., 2006.

analysis, in which baselines are set and measured against future resources.

Issues with Capacity Planning:

1. *Lack of expertise for capacity planning*
2. *Reliance on complicated capacity-planning solutions*
3. *Poor data and not enough of the right data*
4. *No clear and holistic view of the data*
5. *Multiple tools required*
6. *Inability to convert data into actionable results*

The following are the most pressing issues in capacity planning:

7. **Lack of expertise for capacity planning:** True capacity planning, even with the modules provided in many ITSM products, requires an extensive knowledge of statistics to interpret incoming data and make recommendations for realigning resources. In fact, capacity planning is beyond the capabilities of most systems management solutions, due to the complexity of modeling up to hundreds of systems to simulate transactions and conduct "what-if" analyses.

8. **Reliance on complicated capacity-planning solutions:** Some vendors offer capacity planning solutions that are essentially business intelligence applications, employing predictive analytics algorithms. However, predictive software can leave too much to chance with many variables. Plus, such solutions are often too complex for even the most sophisticated users to operate and interpret.

9. **Poor data and not enough of the right data:** Often, enterprises do not collect data over a long-enough period of time to spot short or long-term trends that will help IT operations managers and administrators make decisions about managing system workloads. Many solutions do not collect enough data to provide an essential baseline and trend for analysis. As is the case with server monitoring, many companies also have a difficult time determining what metrics to focus on for capacity planning and reporting.

10. **No clear and holistic view of the data:** While a number of solutions on the market today – particularly the ITSM frameworks – provide the essential metrics required for capacity planning, they do not provide high level, transparent views of existing multi-platform systems, and don't enable end users to easily drill down to solve problems.

11. **Multiple tools required:** Multiple tools are generally needed to collect or gather data from the different platforms for capacity planning. A multi-platform enterprise running Unix, Linux, and Windows servers may require different tools for each platform.

12. **Inability to convert data into actionable results:** While some solutions on the market deliver fairly detailed reports on capacity requirements, few actually will correlate the results of capacity reports to actions and process for better IT service delivery.

As discussed, there are a number of solutions on the market today to help companies address server monitoring and capacity planning. However, while the large ITSM framework vendors provide server-monitoring capabilities, these complex solutions can be expensive and difficult to implement. The low-end tools with little to no licensing fees may cost little to bring in to the organization, but often require considerable time by IT staff to engage in scripting and customization to cover the infrastructure. Given these limitations, IT organizations are now seeking new and effective solutions.

Solution:

Integrated Server Monitoring and Capacity Planning

*The best approach is a solution with **integrated capabilities** that can address a range of requirements – including server monitoring, capacity planning, SLA reporting, virtualization identification and monitoring, IT service and application monitoring, and workload profiling.*

To address today's systems management challenges, IT decision-makers increasingly are implementing *integrated server monitoring and capacity planning* solutions. This approach employs intelligent agents that can capture a wide range of metrics, but without the overhead and expense of ITSM frameworks. This emerging class of systems management tools offers a compelling value proposition to IT operations managers and administrators that need to deliver high levels of performance and availability to their business end-users, but without blowing a hole in their IT budgets.

Consider these key benefits:

Integration of Both Server Monitoring and Capacity Planning. Server monitoring and capacity planning both play a role in achieving high performance and availability in today's systems. Why shouldn't they both be addressed within the same solution and not as disparate modules? Often, IT operations managers and administrators will have to buy and install several solutions or modules to cover all these bases.

The best approach is a solution with integrated capabilities that can address a range of requirements – including server monitoring, capacity planning, SLA reporting, virtualization identification and monitoring, IT service and application monitoring, and workload profiling. In addition, such solutions need to provide a holistic view across all platforms within the enterprise. While the ITSM suites claim to handle this breadth of requirements, they are often packaged as a number of separate modules

that tend to be not well integrated.

An effective server monitoring and capacity planning solution should be easy to navigate for all levels of employees – from CIOs to administrators. A server monitoring and capacity planning solution should be ***deployable within minutes, not weeks.***

Streamlined Navigation. Many server monitoring and capacity planning products on the market require extensive click-throughs across multiple nodes and through multiple modules. An effective server monitoring and capacity planning solution should be easy to navigate for all levels of employees – from CIOs to administrators.

From a single dashboard, end-users should be able to point and click, quickly drilling down and accessing the root cause of a problem. A streamlined navigation solution should help end users instantly figure out what is happening in their IT infrastructure with deep resource, process, and service metrics.

Rapid Time to Deployment. A server monitoring and capacity planning solution should be deployable within minutes, not weeks – as is the case with many solutions on the market today. Business is moving too fast for IT operations and administrative staff to get mired in long deployment cycles. The solution should be highly intuitive for rapid and easy adoption by end-users, without the need for weeks of training and consulting engagements.

Enhanced Automation. Both the large, heavy ITSM frameworks and low-end tools require extensive manual intervention by the IT operations and administrative staff. A solution should automate as much of the server monitoring and capacity planning process as possible. Areas that should be automated include report generation and distribution, service discovery, monitored element discovery, and virtual machine discovery. Through greater automation, IT teams can focus their time and resources on higher-priority tasks that provide more value to the business than

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monitoring and fighting fires on server infrastructures.

Cost Effectiveness. An investment in a large ITSM framework is no longer necessary to achieve comprehensive reporting, monitoring and capacity planning within a server infrastructure. Such packages, when or if finally implemented, provide overwhelming and complex volumes of data that are too difficult to decipher. Nor is it necessary to commit weeks or even months of IT staff resources to cobble together low-end or open-source utilities, which can be almost as costly in the long run. Such applications only provide scant amounts of data that don't even provide insights for root-cause analysis. The best approach is rapidly deployable solutions that provide as much data as needed for root-case analysis, in a highly automated fashion, for a minimal investment. This is the value proposition integrated server monitoring and capacity planning solutions offer to enterprises of all types and sizes.

Success Stories: Lower TCO, Higher ROI

Companies that have adopted this new generation of server monitoring and capacity planning solutions report significant levels of IT savings and increased efficiency. Consider these compelling examples:

Bank of Montreal Financial Group (BMO) was looking for a solution that could help its IT administrators identify potential issues quickly and drive out inefficiencies in a cost effective manner. BMO needed to better monitor its infrastructure and aid in application testing, to take control of its IT environment quickly, driving both better utilization and problem resolution. The company implemented an integrated server monitoring and capacity planning solution to improve its server and applications monitoring, system

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performance, and capacity planning and forecasting. BMO reports a 50% to 70% savings in installation, and a 25% boost in productivity and business efficiency. Plus, the bank's IT team reports that they are now able to consistently pinpoint and head off infrastructure problems before they can cause outages.[4]

Telekurs Financial was able to migrate off a heavy ITSM framework to an integrated server monitoring and capacity planning solution to increase the performance and availability of 125 servers. Telekurs saved money by lowering its licensing costs and eliminating consulting costs. In addition, the new solution delivered ROI to the company by significantly boosting the productivity of its server administrators. Overall, the company reports that its integrated server monitoring and capacity planning solution cut its costs by 60% from the ITSM framework it formerly used, and experienced a five-fold increase in ROI.[5]

A major household food service company sought a way to better leverage its consolidated Unix-based server farm that served 250 retail locations across the Western United States. Existing system management software was not providing the necessary features and was too complex. IT administrators were unable to pull the data they needed to effectively reprovision server resources. The solution was an integrated server monitoring and capacity planning tool that provided the 3-D graphing, automated reporting, alerts, and capacity planning solutions required in a large AIX environment, with the ability to grow and manage a heterogeneous infrastructure in the future. As a result, the retailer

[4] "Large North American Financial Institution Drives Down IT Costs by 50%-70% While Increasing Productivity," uptime software Case Study.

[5] "Large Financial Company Decreases IT Costs While Using Historical Trends to Plan for the Future," uptime software Case Study.

immediately saved $50,000 during the first proactive outage alert, and increased uptime by pinpointing problems before outages occur.[6]

When a company effectively monitors its servers and proactively plans for future capacity, the results are a lower cost of ownership and a greater return on investment. These are signs of a company whose infrastructure is helping it become a market leader.

Conclusion:

Free Up Administrator Resources for Higher-Value Pursuits

Monitoring servers and proactively managing capacity can help a company maintain service level agreements, meet contractual obligations, improve customer and partner satisfaction, and move forward into new markets.

The benefits of monitoring servers and planning capacity across the enterprise become obvious very quickly. With properly monitored servers, a company can ensure that its mission-critical database, email, web site and e-commerce applications are operating at optimum efficiency and productivity. End users, including employees and customers, are neither frustrated nor disappointed by unreliable servers. A reliable server application will help develop a sense of trust and confidence, an important component in raising both the level of an employee's productivity and revenues from existing and potential customers.

The adoption of integrated server monitoring and capacity planning solutions can alter, for the better, the entire role of a company's IT team. IT

[6] "DBA Consulting Helps Huge Business and Household Foodservice Company to Save $50,000 Instantly by Avoiding Outages," uptime software Case Study.

operations and administration staff can focus on maximizing server performance to meet ever-changing business requirements as opposed to constantly troubleshooting to bring servers back online. Indeed, proactive server management can create new cost-saving and revenue-generating strategies -- greatly simplifying the planning of application growth and the adoption of the latest products and technologies.

About uptime software

uptime software has been providing powerful, easy-to-use, and affordable server monitoring, IT service availability reporting, and capacity planning software since 2000. Our all-in-one solution includes IT performance dashboards that help organizations eliminate unnecessary IT outages, increase service availability, and reduce the costs of server management. uptime provides all this and more in one versatile software solution called 'up.time 4'.

*"After easily deploying up.time to over 125 servers, we are seeing an immediate and significant cost savings, especially in consulting fees. In fact, time spent on monitoring and planning has dropped dramatically. This year, we'll realize a **510% ROI** from using up.time."*

- Wally Beddoe, VP of Technology, Telekurs Financial

up.time 4 is self-deployable with no consulting needed, and IT departments can start seeing real data in a few as 15 minutes from clicking on the free 14-day trial below. up.time 4 also leads the industry in virtualization and consolidation monitoring and reporting, including the "Server Virtualization™" report that automatically identifies and flags opportunities for consolidation and virtualization across an entire infrastructure.

For more information, please visit:

- ✓ Systems Management ROI Calculator
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Free Strategic Assessment on Performance, Availability and Capacity Management

To find out how uptime software can help you address your performance, availability, and capacity management challenges, please contact Chris Knowles at (416) 594-4612.