USU

White Paper

Application & Performance Monitoring and Capacity Planning

Maximum Performance Guaranteed: The ideal entry into professional IT monitoring

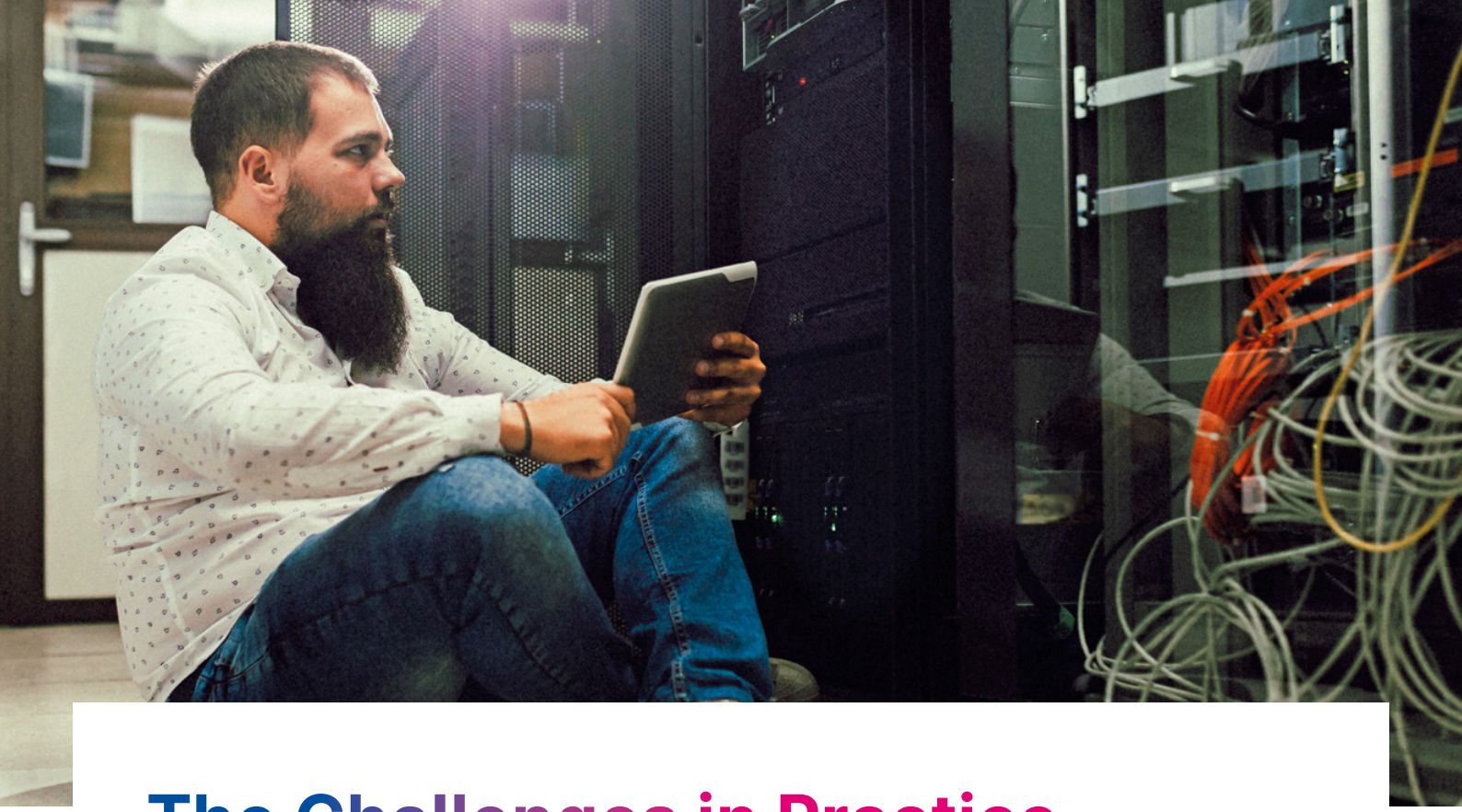
Content

Introduction

In the digital business world of today, where companies rely more than ever on a reliable and high-performance IT infrastructure, a smooth and stable IT infrastructure is crucial for efficiency, security, competitiveness and thus the success of companies.

In the era of manageable, physical IT resources, effective IT monitoring was relatively simple and easy to implement even without automation. However, this task has since become much more demanding in view of increasingly heterogeneous, hybrid IT landscapes, diverse applications and virtual servers or networks – even at smaller companies.

To guarantee a smooth and stable IT infrastructure, two essential aspects play a key role: application and performance monitoring as well as capacity planning. In this compact e-book, you'll learn how organizations can monitor system and application performance, identify bottlenecks, and proactively optimize. Best practices, tools and techniques will also be presented to help implement and monitor effective capacity planning to ensure infrastructure resource requirements are met at all times.



The Challenges in Practice

These days, an IT administrator faces a variety of challenges that make smooth IT infrastructure management difficult. One of the biggest difficulties is now the complexity of IT systems. Modern businesses use a variety of technologies, platforms and applications that interact with each other. Meanwhile, managing and maintaining these complex environments requires an ever-deepening understanding of the technologies as well as continuous staff training. This is the only way they can stay up-to-date and successfully implement innovative solutions.

Resource constraints are often another major burden. In many IT departments, resources such as time, personnel or budget are limited, making efficient planning and prioritization of tasks necessary.

IT is put under additional, growing pressure from corporate policies, compliance mandates, new government regulations, privacy requirements, and service level agreements (SLAs) with demanding quality and delivery requirements.

Given the wide range of challenges, you would assume that professional monitoring would now play a crucial role in ensuring smooth operations at IT departments. An IT team can hugely benefit from the support of an IT monitoring tool. These tools are extremely helpful in managing the large number of tasks. They enable efficient monitoring of the complex IT infrastructure, allowing early detection of potential issues using observability functions.

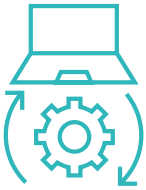
This enables the IT department to be proactive and to minimize disruptions. However, an IT monitoring tool also identifies bottlenecks and performance issues, monitors security, and ensures compliance with service level agreements (SLAs) and regulatory requirements. It also delivers valuable data for capacity planning and therefore also important information for future budget expenditures. In addition, meaningful dashboards, reports, and analytics help the IT department deliver a smooth and secure IT environment at all times.

But the reality often looks quite different. Compared with the size of the risk, small and medium-sized companies in particular are often not optimally positioned – in terms of overall monitoring of IT components and their importance for core business processes. This applies in the event of a failure just as much as day-to-day operations.

For example, a ransomware attack can cause significant damage in the absence of a sufficiently quick response or proper alert management. It is regrettable that many companies still do not give IT monitoring adequate consideration. Often it is seen as just a “side task” of an IT department and an employee who already has other core business tasks takes care of the monitoring tool on the side.

With the frequent lack of focus on monitoring IT infrastructure and limited resource capacities, coupled with a lack of experience and the absence of a comprehensive solution, the risk of a major system failure increases significantly. This situation becomes particularly alarming when the IT requirements from the specialist departments are constantly growing at the same time. These days, it is increasingly important that an ever-growing number of complex business processes function seamlessly with reliable IT support around the clock. With this growing complexity, hybrid environments including both cloud and container applications have become a common approach. For their applications, companies often use a combination of cloud infrastructures (such as Amazon Web Services, Microsoft Azure, Google Cloud Platform, etc.) and container orchestration systems (such as Kubernetes). Monitoring these systems is extremely challenging because the architectural complexity and dynamics of these environments place special demands on it.

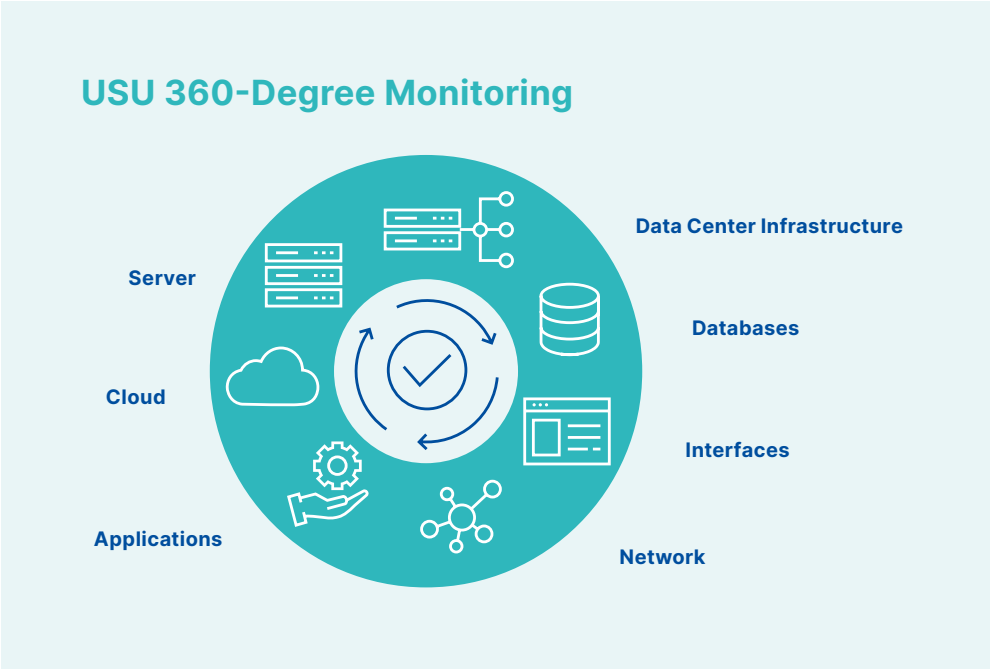
Traditional tools, such as standard ones provided by hardware manufacturers or isolated monitoring tools, are increasingly reaching their limits when facing these challenges. In the modern world, a modern and comprehensive monitoring solution is essential for companies to meet increasing demands and ensure smooth and stable operations.



What an Ideal Solution Should Achieve

For today's companies, it is critical to aim for a total intelligent solution that delivers comprehensive 360-degree monitoring of the often heterogeneous IT landscape, including multiple sites.

This solution should provide the required flexibility to incorporate new technologies, applications, networks and other IT resources quickly and easily. To this end, additional integration capability with other sub-disciplines such as cloud monitoring, service monitoring or end-to-end monitoring is required. This ensures that future expansions can monitor the entire process chain and allow comprehensive 360-degree monitoring.



Professional application and performance monitoring together with well thought-out capacity planning already provides a strong starting point for effective monitoring and management of your IT resources. It provides a solid basis for optimizing IT operations and identifying bottlenecks at an early stage. This monitoring allows companies to respond to emerging problems at an early stage, optimize performance and provide reliable IT infrastructure. It enables them to identify and resolve potential bottlenecks and performance issues in a timely manner before they affect business operations. The proactive approach guarantees high availability, reduces downtime and supports ongoing efficiency improvements in the company's operations.

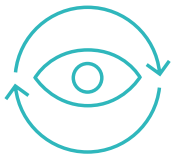
The overall solution should also include intelligent alerting functions and automated actions. By integrating IT service alerting, the relevant teams and responsible persons are immediately notified as soon as abnormal behavior or performance issues arise in the IT infrastructure. This allows them to respond quickly to identify and address potential issues before they impact company operations. In this way, rapid notification enables a proactive approach to minimize downtime and optimize the efficiency of problem resolution.

The future viability of the IT monitoring solution used is also of crucial importance to be able to react flexibly to future challenges and to meet changing requirements. While years ago it was still a matter of monitoring simple client-server structures, today it is the concept of the cloud in particular that poses new challenges for effective system management of modern hybrid IT environments. Connecting cloud applications into the monitoring cycle should be quick and simple using cloud connectors.

Why do You Need Performance Monitoring?

Well-functioning and effective performance monitoring is crucial to keeping mission-critical systems highly available over the long term. This refers to the process of detecting, recording, analyzing and monitoring the runtime behavior of IT components such as hardware, software, services and system processes, and provides all relevant data to identify and remove potential sources of errors at an early stage so that ongoing operations are not impacted.

Various parameters are monitored to ensure the condition and stability of the system:



Real-time monitoring of resource utilization

This includes continuous monitoring of the utilization of resources such as CPU, memory, disk space and network bandwidth. This helps determine whether there are any bottlenecks or unused resources.

Availability and reliability

It monitors the availability of IT systems and services to ensure that they are operational at all times. This can minimize downtime and increase reliability.

Long-term analysis

Performance monitoring also includes long-term analysis of performance trends to identify seasonal variations or slow performance degradation.

Real-time monitoring and alerting

It facilitates real-time monitoring of events and triggering of alerts in the event of critical performance degradation or failure.

The collected data from the individual parameters is analyzed by the performance monitoring and visualized in informative dashboards and reports.

Figure 1: USU Dashboard Performance Monitoring

This makes it an essential component for companies to ensure optimal performance and availability of their IT systems, to avoid bottlenecks, improve efficiency and boost customer satisfaction.

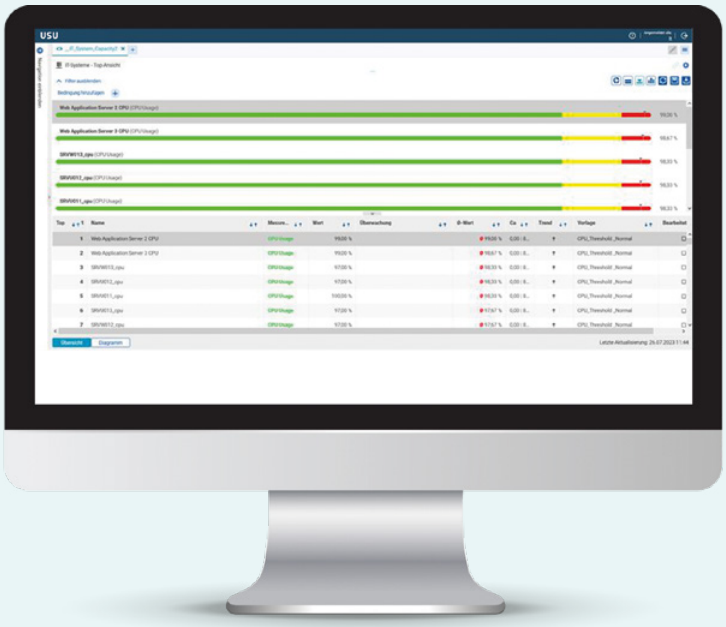
What is Application Monitoring?

Application monitoring enables organizations to track the performance of software applications and identify and investigate issues during execution. With the arrival of SaaS applications and cloud-native infrastructures, application monitoring has become an indispensable tool to ensure service quality for web applications and mobile apps in particular.

Application monitoring KPIs mainly focus on measuring application performance. Monitoring records metrics such as application response times, load times, and throughput. This allows performance bottlenecks or issues in the application to be identified and resolved.

By using additional **observability** functionalities, companies can make even better use of the data they collect. This includes identifying problems before they impact a company's employees or customers, reducing downtime, speeding up response times, and complying with service-level agreements (SLAs). Application monitoring is therefore an indispensable tool for increasing the efficiency and reliability of IT infrastructure and improving user satisfaction.

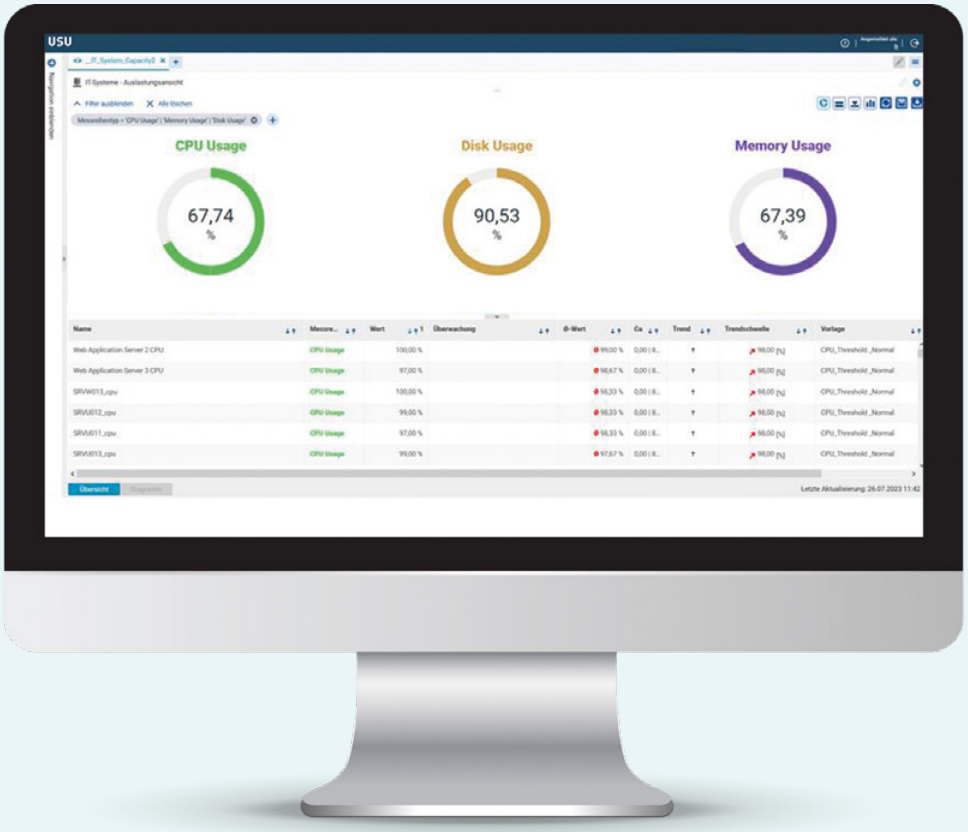
Figure 2: USU Dashboard Application Monitoring



Added Value Capacity Management

Beyond pure application and performance monitoring, capacity management ensures that the IT capacities maintained meet current and future requirements while guaranteeing an optimal cost/performance ratio. Capacity management determines the required capacities of IT resources, planning these resources, and forecasting workloads in order to achieve agreed performance targets and comply with service level agreements (SLAs). Continuous monitoring, planning and provisioning of the resources used for IT service has various benefits. On the one hand, the capacities of certain resources or components required for services, systems and applications can be measured; on the other hand, automated data analysis and the inclusion of previous values allow capacities to be prioritized, optimized and planned on the basis of forecasts and trends. Clear dashboards for different roles, e.g., service owner, specialist departments, control centers or management, provide the information required in each case at a glance.

Figure 3: USU Dashboard Capacity Management



An integrated “monitoring screen” covering all performance data enables them to be combined and consolidated in a uniform structure and perspective. And in the event of impending capacity bottlenecks or other specific problems, the alarm management system goes into effect. Thanks to predictive capacity planning and monitoring, companies can better respond to potential performance issues and outages, minimizing the risk of service interruptions. At the same time, IT department budget planning can be significantly simplified with professional capacity management. By purchasing “capacities” in a demand-oriented manner, it is possible to significantly optimize the balance between economic efficiency and performance.

Conclusion

Central application and performance monitoring with integrated capacity management often works “behind the system scenes” and is not necessarily immediately visible to everyone. For modern companies, despite its hidden role, such a system is critical and an absolute must-have for the IT department. It plays a central role in ensuring a smooth user experience, minimizing downtime and guaranteeing high availability of business-critical IT infrastructures. Effective application and performance monitoring with integrated capacity planning enables companies to maximize their IT resources, improve compliance with service level agreements (SLAs) and optimize overall business operations. This enables better control over IT infrastructure, early detection of bottlenecks and proactive planning to resolve them, ultimately leading to increased efficiency and customer satisfaction.

When implementing application and performance monitoring with integrated capacity planning, it is also very important to opt for a future-proof system that can be easily adapted to the changing needs of the company, as the rapid development of new technologies such as cloud, containers or AI is forcing organizations to realign their IT monitoring strategies.

Only a flexible and extensible solution that includes the ability to go beyond application and performance monitoring will allow companies to keep track with growing demands and seamlessly integrate new technologies or business processes. This ensures that the monitoring system remains effective and up-to-date in the long term and makes a valuable contribution to improving IT performance and overall business activities.

About USU

USU is Germany's leader in IT monitoring solutions. The extensive range of services in the area of IT monitoring covers the entire development and implementation of the monitoring solution, the transfer of expertise to the respective IT departments as well as first class support and reliable software maintenance. With unrivaled expertise and a long track record of success, USU is also able to take individual customer requirements into account and offer customized solutions.

USU IT Monitoring has also been awarded PinkVerify™ certification in the areas of Event Management, Availability Management and Capacity Management. This is how USU guarantees standardized and service-oriented IT service management.

Need more information, a live demo or have any questions? Most questions can be best clarified by speaking directly. We look forward to answering your questions and requests by phone.

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Get in touch for further information.

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