

## Thinking outside the box

*Monitoring as a universal tool for an increase in enterprise-wide efficiency.*

It has always been the object of the IT department to ensure the smooth operation of the IT infrastructure. While in the past, this described the responsibilities of the IT manager, today such a limited view is by far not sufficient. The IT systems are not only a central part in the administrative processes, but also in product development and production. There are also web-based applications and services that are used by customers and partners. The IT manager is increasingly found in the role of "Business Enabler", and must ensure a "24 / 7" proper functioning of the critical business processes. The IT department can only reach this goal, if 100% transparency, with respect to the current and future status of the companies information technology, exists.

## IT, OT, BT or environmental Monitoring?

The range of technologies used in a company is large. An isolated view of information technology without the inclusion of components such as the buildings, production or safety technology is often not sufficient. Already, in many cases, the climate control, the (emergency) power supply, energy efficiency and access technology from data centers lies within the responsibility of the IT manager. And the next step is already clear: Under the heading of "convergence" analyst firms like Gartner and Forrester propagate the increasing inter-departmental consideration of different technologies. A process, which for example, has advanced in the telecommunications sector. Whether it includes terminology such as "operational technology" (OT), "business technology" (BT) or "smart world" - it always involves the convergence of previously parallelly existing worlds of technology. In most cases, the IT department, will be responsible for the management and monitoring of these heterogeneous technologies. This is especially true because of the increasing share of IT technology and networking technology in all areas of the business. As a consequence, it is necessary an extension of the monitoring system beyond the limits of traditional IT. To avoid system interruptions, it requires a cross-platform monitoring and management solution, as the previously common practice, of parallel operation of multiple vendor-bound systems, is neither practical nor efficient. One approach, pursued for example by the company azeti Networks AG with the solution SONARPLEX; A Platform across all technologies used in the company - consolidated in a monitoring environment - from information technology through the buildings technology to environmental parameters and production facilities.

One of the biggest challenges to this approach is to make the visualization of the different technologies to be monitored as clearly and structured as possible. In addition to traditional network plans, for example, the building floor plans or diagrams have to be integrated in the system to meet the different needs and objectives of the users.

The reasons range from legal regulations to internal guidelines, to hard economic needs: idle assembly lines, halting delivery of goods or errors in the ordering system strike with tangible losses to the books every minute. Experts suggest that, a system failure, costs a five-to six-figure sum per hour - in banking system, these costs can quickly increase to several million euros. However, these figures represent only the directly attributable costs: Medium-and long-term costs such as customer - or confidence loss or impact on the stock price can be very difficult to quantify, but also have a significant impact on the company's success. Monitoring systems can counteract these negative effects not only through faster problem resolution due to a more precise identification of the cause, but, ideally, can also go a step further. **Through early identification of emerging errors (for**

**example, rising temperatures, borderline system utilization, and so on) countermeasures can already be initiated before a failure occurs, so that the failure itself can be avoided completely.**

## **Monitor Locally, Manage Centrally**

Resulting from the outlined increased requirements on the technology, it is inevitable the implementation of an ideal monitoring solution. A viewing angle is the distinction between local and central systems. The aim of the central systems is to concentrate the management and administration of the system, including troubleshooting into one single point. This approach has the disadvantage that a reliable data connection to the monitored systems and sites must exist constantly. A problem which does usually not occur in the monitoring of a central data center. But when it comes to decentralized structures (offices, production sites or even technical installations), this aspect is more important. If, for example, a central switch or the Internet connection fails, quickly, entire (sub-) networks can be separated from the monitoring system. In this case, local problems are not detected or not signaled to the monitoring center any more, so service staff fails to be notified. Local monitoring systems at each site provide the advantage that the monitoring system can continue to work even with the loss of leased lines or the Internet / VPN connection. It is also usually easier and safer, for example, to transmit the values obtained through agents or SNMP queries within a LAN. An ideal monitoring system should be able to link the advantages of the two identified variants (central management and local monitoring). Efficiently operating local monitoring instances execute "on location" autonomously their duties and enable parallel central access to the latest data and centralized configuration and administration of the system. It should be ensured that the collected monitoring data is also stored on local level, so that no data is lost in case of connection breakdown.

It is important that the monitoring system itself meets the security requirements. Appliance solutions offer the advantage that the combination of hardware and software, can bypass the typical security threats and attack points of server systems, especially if adapted and closed operating systems are deployed on the appliances. Another advantage of the Appliance approach is that the monitoring is completely decoupled from the monitored systems, so that the failure of a server can not simultaneously freeze the monitoring system also. Especially in decentralized monitoring environments, appliances also offer the advantage of being virtually maintenance-free.

In order to connect different sites to a central monitoring system it is inevitably that data is transported via external connections (such as local agent or local monitoring instance to the central monitoring system). In the selection of the monitoring system, it is advisable to respect the fact, that for communication only one dedicated port is used, so that the company firewalls must not be offset by generous connections. Also, the transfer of data should only be carried out in encrypted form. Providers, such as azeti networks, rely on the certification of its agents by external bodies such as TÜV, to increase security. In addition to the function of the "remote checks", Agents provide the analysis of problems from the perspective of the user, and thus an "end2end" monitoring. In this way problems which are not clear from the administrator point of view are detected, for example when the cause of a slow database access is not due to the performance of the database server in the data center, but rather due to the available bandwidth of the connection of the individual sites. Another feature that requires the use of agents, is the "dual event-handling". Here it is possible, when the problem occurs by means of a unique script of the agent, to initiate a local reaction (eg. "reboot"), and simultaneously launch a central problem escalation. Especially in remote locations without extensive local IT support many problems can automatically be solved in this way.

**From the infrastructure technology to the "business enabler"**

A further application for monitoring solutions can be found in the environment of business services and solutions. This monitoring is used directly to the provision and quality assurance of business services. Telecommunications companies are mentioned as an example. This monitoring does not only ensure system availability (monitoring of IT equipment, cabinets, cell towers or exchanges), but enables the possibility to realize new business models. Because of the decreasing margins in conventional voice- and mobile telephony, telecommunications operators are inclined to create value added services; ranging from set-top boxes for residential customers to managed service offering for companies to medical real-time health monitoring; it always depends on the availability of the systems. To ensure the customers maximum service quality and availability, the functionality and performance, must be checked in a complete monitoring solution (eg: with a local agent on the Enddevice). Especially in critical applications such as health monitoring (eg: mobile heartbeat monitoring) downtime must be minimized. But even with business applications, compliance with agreed service levels, is crucial a monitoring system that can be used to both, document the system availability (eg: SONARPLEX SLA monitoring) and to minimize downtime. As the source of errors can be detected easier through detailed monitoring, a more focused problem escalation is possible. In case of trouble, depending on the problem, the cause can immediately and automatically be submitted to the correct service technician (such as IT specialists, electricians), resulting in a significant reduction in service costs.

### **Conclusion - It is worthwhile to think outside the box**

Properly designed and implemented, cross-technology monitoring offers the opportunity to operate more effectively, not only to an in-house technical infrastructure ( IT or operational technology), but it also offers a platform for the realization and optimization of new product and service approaches. This requires, however, the overcoming of thinking in areas of responsibility and a comprehensive technology and innovation management within the company. Such a process will not be feasible from today to tomorrow, but it does offer companies the chance to positively distance themselves from the competition and achieve higher productivity and greater customer and employee satisfaction.