Email and database servers are integral parts of any modern business infrastructure. No matter if an external or internal solution is used, the essential requirement remains the same: constant availability. The medium-sized company JAM Software GmbH develops software products and distributes them via an online shop system – working servers are vital for everyday business life.

Safety measures such as smoke detectors are just as important as the in-house telephone system and should be closely monitored. Automatic monitoring can help prevent critical errors. JAM Software uses its very own ServerSentinel to ensure a maximum of security.

ServerSentinel is best explained as an if-then-machine: the minute a predefined condition is met ("if") the corresponding action is triggered ("then"). JAM Software utilizes ServerSentinel to monitor all vital systems and automate monitoring tasks. ServerSentinel can be adapted to any situation and monitors external as well as internal resources.

New applications of the software often present themselves in daily business processes: more than once, critical areas could be covered by simply creating and applying new sensors.

**Challenge**

- Complex systems are integral part of daily business life
- Continuous monitoring is necessary
- Flexible reaction and adaptability to local requirements needed

**Solution**

- JAM Software uses ServerSentinel

**User Profile**

JAM Software was founded in 1997 by Joachim Marder. Since then, the company has been very successful in software development and software sales. The software is sold via a company-owned online shop and a network of international resellers. The complete product range can be tested free of charge for 30 days in fully functional trial versions. JAM Software's customer base includes about 80% of the top 100 international companies. Partnerships with renowned software and hardware developers such as Microsoft, Intel, and IBM speed up the optimizing and updating process.

www.jam-software.com

**Put to the test: JAM Software relies on ServerSentinel**

**Reliable monitoring of system resources and hardware sensors**

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Monitor servers, guarantee availability

When it comes to monitoring complex systems at JAM Software, ServerSentinel plays an integral part. The firewall is vital for data security and needs to be active at all times. Database and Exchange server are equally important; their availability has to be guaranteed.

A possible weak point of server systems is an increase in disk space consumption on the hard disks: if disk space runs out, the possibility of a server crash grows. ServerSentinel can prevent this worst case scenario. “Once a certain amount of disk space is used, the operators are warned via email and thus enabled to take appropriate measures.” explains Alexander Zirbes, chief operator of JAM Software.

The software TreeSize is downloaded many thousand times per day and needs to be available. ServerSentinel checks in periodic intervals if the relevant files can be accessed. If an error is logged, a warning will be sent out. The availability of important subpages is secured via the same process: tailored sensors not only monitor the server status in general but also keep an eye on single partitions.

ServerSentinel can also be utilized to monitor complex systems. At JAM Software, ServerSentinel monitors the online shop and makes sure that customers can access it. In addition, it checks whether unhindered communication between shop and SQL customer database is possible.

If the shop is unavailable for a longer period of time or the connection between shop system and database is broken, the monitoring software will send out warnings via text message and email. If the webserver is unavailable, ServerSentinel will trigger a specific action and switch to the fallback system. Thus, functioning business operations are guaranteed at all times.

Save and analyze data

All data gathered by ServerSentinel is saved permanently and can be used for evaluation purposes. This way it can be determined whether contact to the server suffers from long response times during peak hours. Patterns can be detected quickly on the diagrams ServerSentinel provides – bottlenecks are easily identified and fixed.

If minimum availabilities were stipulated in a service level agreement with a telecommunication provider they should be monitored closely. JAM Software uses ServerSentinel to document server communication and create a proof of the service quality.

Blackout as an Achilles’ heel: monitor UPS continuously

JAM Software’s uninterrupted power supply (“UPS” for short) guarantees that the server room will not be disconnected from power abruptly, even in the case of current fluctuations or a blackout. A battery grants buffer time allowing servers to power down safely. This is a very important security measure: servers may lose data and or can even retain physical damage due to sudden power loss.

Benefits

- Warnings in case of critical errors in the infrastructure
- Monitoring of local hardware and resources
- Server room monitoring (temperature and security) 24/7

Case Study ServerSentinel

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JAM Software logs the electric power consumption in the server room continuously. Alexander Zirbes describes the events taking place in case of a blackout: “The UPS provides a buffer of about 20 minutes under maximum capacity. ServerSentinel monitors the remaining runtime of the UPS. This enables us to power down less important systems first to extend the runtime of integral systems such as the database, SAN storage, network switches, firewall, and internet connection. This is realized via routines connected to ServerSentinel. Our operators receive warnings via text message and email immediately and the tiered shut downs buy them additional time to either fix the problem or power down the servers safely.”

**Physical sensors grant security**

Servers need to be protected from physical damages as well. Hardware sensors placed in the server room constantly measure temperature and humidity and compare measurement results to thresholds. Reactions are tiered. If the server room temperature rises above 28°C, the operators will be informed via email. Should the 30°C mark be crossed, a text message is sent out. Alexander Zirbes adds: “If there is danger of overheating, an additional air conditioning system can be switched on to optimize the cooling process.”

JAM Software’s internal fire alarm system is monitored by ServerSentinel. In case of a fire alarm the company management and the operators are informed via text message in addition to the usual responses. The status of the smoke detectors is monitored as well. Errors or empty batteries will never go unnoticed, even in the case of detectors in cellars or soundproof doors unable to alert operators via auditory or visual signals.

To secure the servers against unauthorized access, a motion detector monitors the server room at all times. If ServerSentinel registers movement outside business hours, a text message will be sent to the security service.

**Anticipate critical errors**

Continuously running hard disks are prone to failure – a hard disk crash and data loss can be the result. The industry standard S.M.A.R.T. (short for “Self-Monitoring, Analysis, and Reporting Technology”) is available for nearly all hard disk models and enables precise monitoring of certain important parameters. S.M.A.R.T. values provide information regarding hours of operation, number of damaged sectors, hard disk temperature as well as read/write errors.

Most failures or breakdowns can be anticipated by keeping an eye on those values and checking them for abnormalities. ServerSentinel reads all values and compares them to the thresholds defined by the hard disk manufacturers. If thresholds are crossed, a warning is sent out.

“Hard disk crashes cost valuable working hours. Even with the version control system used at JAM Software we lose time, since work results saved to the system be updated every few minutes. After a number of consecutive hard disks failures on several local machines, we now use ServerSentinel to identify error-prone hard disks early on and replace them with newer models before errors occur.” states Joachim Marder, CEO of JAM Software.

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**Protect servers effectively**

Prevent data loss

ServerSentinel guarantees a secure and smoothly running business infrastructure – for JAM Software as well as for our customers.

Joachim Marder
CEO of JAM Software GmbH

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Case Study ServerSentinel

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Monitor facilities and systems securely and easily

At JAM Software ServerSentinel monitors the status of the internal telephone system with the help of a HTTP sensor. The monitoring software logs in to the system’s webinterface. Here the status of each line is indicated via a small graphic: a green dot signifies a working line, a red dot marks an error. ServerSentinel parses the page’s source code for the code of the error graphic. If it is shown, the operators are alerted to a possible error.

Another great help in daily business life is the printer monitoring via SNMP trap (“Simple Network Management Protocol”). ServerSentinel receives status updates regarding toner or ink level, missing paper, or errors via SNMP and interprets them. Once a value crosses a predefined threshold, the responsible employee is notified via email.

Alexander Zirbes summarizes: “Thanks to ServerSentinel, we have managed to save hours of work, reduce errors of internal and external resources, and guarantee the security of irreplaceable systems.”

ServerSentinel Specifications

Use Case: Monitoring of IT infrastructure of JAM Software GmbH


Database: Microsoft SQL Server 2008 (supports: MSSQL, MySQL and integrated database)

Sensors in use: 114 (as of 04/2013)

Coding Language: Powershell (supports script languages such as VBScript and Batch as well as EXE-applications, e.g. created with C#/VB.Net, C++, or Delphi)

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Case Study ServerSentinel

Configuarion of a USB Temperature and Humidity Sensor to monitor humidity and temperature in the server room at JAM Software.

The conditions for “tiered notifications” were defined as follows: at more than 28°C an email is sent to the operators, once the temperature measures more than 30°C, a warning is sent via text message.

Overview over the data collected by the USB Temperature and Humidity Sensor: the lower graph represents the temperature, the upper graph represents the humidity.