

SONY®



# SystemWatch<sup>SM</sup>

Remote Network Monitoring

# SystemWatch Network Monitoring Service: Real World Experience

Sony's SystemWatch network monitoring service uses device and networking monitoring software in conjunction with 7x24 "live" remote management of analog and digital device infrastructure through IP networks. We parse daily, in real-time, an average of one million pages of performance logs per site. We do trend analysis of device and network performance, at predefined thresholds. Which generates alerts to on-site engineers to perform pre-emptive actions. Therefore we seek to prevent rather than react to operational interruptions. Device restarts can be initiated from the remote management location as required.

With more than eight years of real-world experience, Sony's SystemWatch service has been deployed with a variety of customers, from broadcast television companies with "live to air" news systems to retail stores requiring Point of Sale data transfers to hierarchical storage environments. Our service has helped them to operate in a more efficiently and cost-effective manner, and has assisted customers with system restarts and recoveries after catastrophic failures such as power blackouts.

## **SystemWatch Network Monitoring Service Objectives:**

- Maximum up-time for end users utilizing problem prevention to reduce the possibility of abnormal occurrence.
- Quick, responsive resolution of any abnormal occurrence using remote diagnostic techniques, self-help, operations help, and visible escalation.
- Minimizing cost for this service to the end user.
- Easy to install, operate and maintain.
- Active communication with the end user.
- Partnership and mutual dependency in customer satisfaction.
- Measurable feedback to evaluate the performance.
- Motivated and satisfied technical staff.



# SystemWatch Network Monitoring

Sony's SystemWatch<sup>SM</sup> network monitoring is the highest level of remote monitoring service offered by Sony Professional Services to customers with 24/7 mission critical business ecosystems that will be adversely affected by operational interruptions. Our service continuously monitors the health of the entire ecosystem including mission critical systems, the health of the networks over which the data these systems generate flow and environmental conditions affecting system performance.

Using high-speed data networks to link remote AVIT systems has long been considered an "ideal" goal. That goal is rapidly becoming achievable through the combination of economic driving factors, emerging technologies and new equipment introductions. However, maintaining system performance and reliability requires new approaches to tools and skill sets for a centralized technical staff using a Network Monitoring System (NMS). Sony Professional Services addresses some specific issues and solutions in creating a NMS in an environment of new and legacy equipment using a managed object approach.

When moving video and control systems over IP networks, user visibility of overall system performance is masked. Content creation device outputs generated in ISR, SNMP, TCP/IP,



"LIVE" REMOTE



MONITORING



24/7

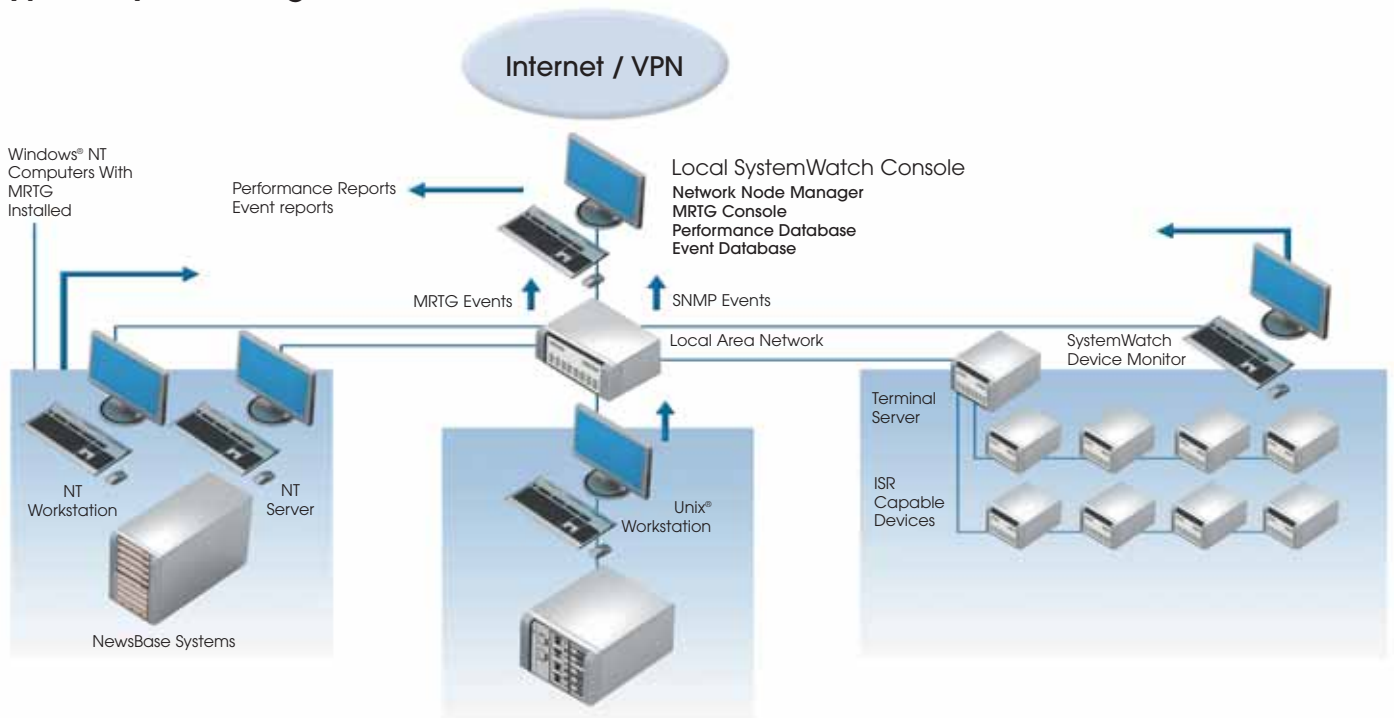
UDP and other protocols provide performance metrics at the device level to stand-alone remote monitoring software applications, but these applications do not indicate overall network system health, pre-emptive failure intervention and performance trending.

# SystemWatch Network Monitoring Service: A Closer Look

Sony's SystemWatch network monitoring is a service that provides 24 hour, seven days a week, remote network monitoring of CPU and memory utilization, hard disk drives, network load, and other event monitor parameters. Computer resource monitoring includes the overall percentage of CPU usage, overall memory availability in megabytes/virtual memory and the amount of free disk space availability measured in megabytes. In addition, computer systems and device resource usage is monitored and reported upon.

Network traffic is monitored by measuring the throughput for each host in bytes and packets per second. These elements also assist in reporting the total network traffic volume. Process-service monitoring includes service run changes and process resource utilization. This assists in determining the percentage of processor time used by a process, the CPU spike activity, overall memory used by a process, and the virtual memory usage.

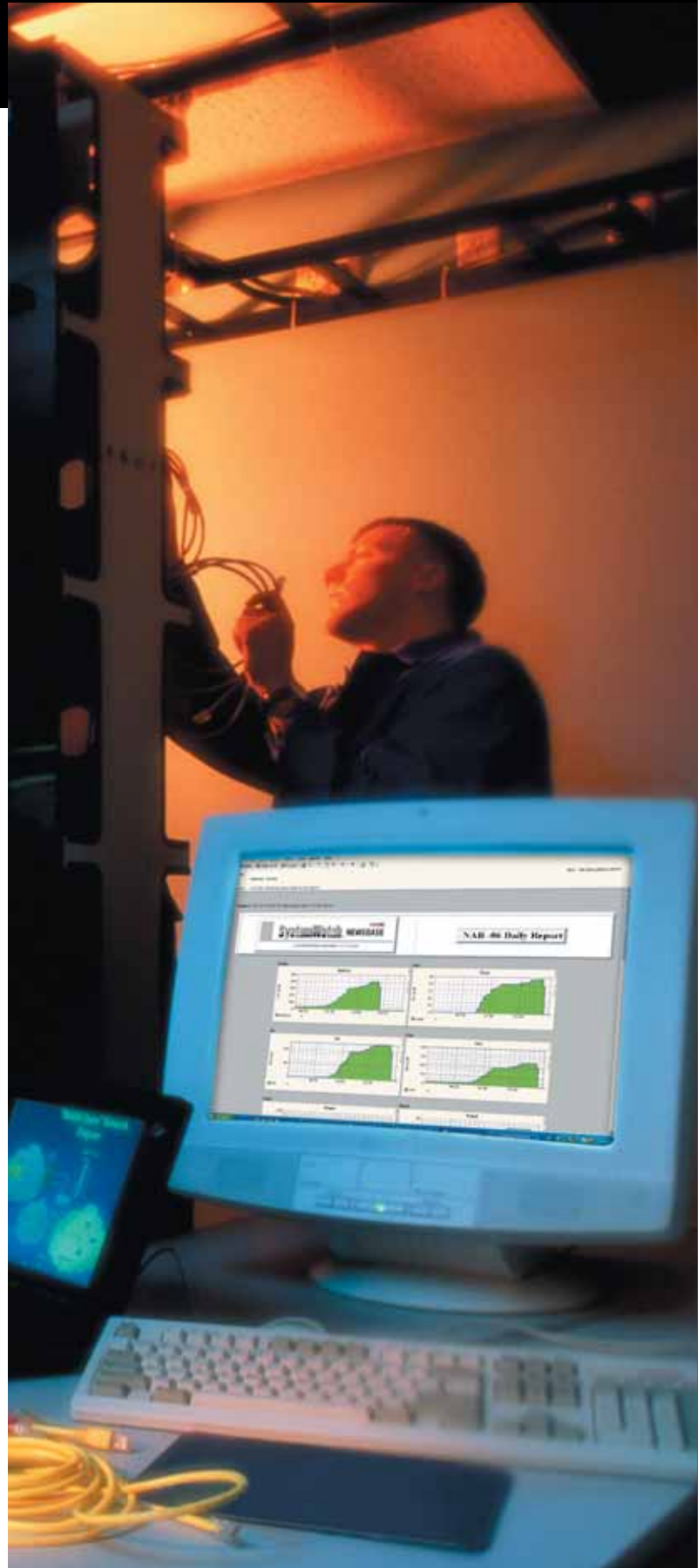
## A Typical System Diagram



Internal security is in place with the use of console security and permissions. Sony Professional Services works closely with customers' IT organizations to set and comply with system access requirements. Consistent with customers' security requirements, the initialization, installation and configuration of agents, filters and thresholds can be automated and updated agents pushed to system devices.

Hierarchical alerting is based on incremental thresholds, which includes alerts based on timed "over-under" thresholds, event-repetition frequency, specific applications, and multiple user pathways pre-determined by severity and repetition.

Utilizing Simple Network Monitoring Protocol (SNMP), SystemWatch network monitoring service can receive traps based on sender and message content. SNMP agent polling features MIB values from devices, results based on message content, and threshold setting based on polled values. In addition to monitoring the Windows® NT 4.0 platform, Windows 2000 Windows Vista operating systems, SystemWatch network monitoring service is also able to Solaris™, FreeBSD™ and Linux™ operating systems.



# Daily Reporting

Historical and trend databases are maintained allowing for automated graphical performance reporting, as well as event-trend reporting based on pre-set filter criteria matching. Reports including event-alert history, device and network performance and graphical trend analysis can be emailed to appropriate personnel, as well as made accessible on a secure, password-protected web browser interface made available to the customers' designated recipients.

A key factor in understanding system behaviors is trending performance over time under all conditions. As usage of the system, network traffic and demand of resources change, behaviors in the systems change. The SystemWatch service graphs and trends performance over time. The result is that systems can be "benchmarked" and notification thresholds set accordingly. Thresholds can be adjusted over time. System changes can also be easily accommodated. Trending information helps system designers working on updates and expansions see where bottle necks may occur.

SystemWatch network monitoring staff, located in Sony Professional Services various Network Operations Centers, interface in real-time with customers' personnel when critical or fatal error conditions are encountered, engaging in remote diagnostics and problem resolution.



# Managed Objects Approach

Understanding how systems work together, the operations performed by them, their behavior, and contributing external factors such as environmental conditions are key factors in the prediction and prevention of operational failure within the ecosystem. SystemWatch network monitoring service is much more than a simple software package that attaches to a system and monitors elements. Rather, it is a powerful combination of human and machine intelligence combined in a service that seeks to understand how systems interact, and assess the impact of that interaction on the health of the ecosystem. Each customer's ecosystem is unique, as is the service solution Sony Professional Services creates for that customer.

Understanding how systems work together is achieved using the "Managed Objects" approach. Managed Objects are defined by four parameters:

- Attributes, which are the properties or characteristics of the object.
- Operations, which are performed upon the object.
- Behavior, which is exhibited in response to operations.
- Notifications, which are emitted by the object.



When designing a SystemWatch service solution, Sony Professional Services takes the time to understand how the ecosystem works. It starts with the "attributes" of the ecosystem and its components. An attribute is the definition of what a component is designed to do in order to accomplish its function.

But, just knowing the functionality is not enough to keep today's sophisticated networked systems operating full time. How the functions are used to keep the flow of work moving is equally critical. So, Sony Professional Services uses the expertise of engineers with direct system experience to understand its operations.

They first gain an understanding of attributes and work flow, learning the behaviors, or "pulse points" of the ecosystem's performance. For example, if a system has a maximum overhead of 25 memory pages per second, but typically uses an average of 8 to 9, it is a behavioral aberration if it suddenly starts to use 15. SystemWatch network monitoring service can trigger a message based on its observation of aberrant behavior to alert a Network Operations Center engineer to investigate the cause and work to prevent a potential operational disruption.

Whether those "pulse points" are SNMP, computer performance monitors, network traffic, or logged error messages, SystemWatch™ has the capability to look at the notifications that an object in the system generates.



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