VERIO®

Weathers Blackouts, Earthquakes To Keep Data Centers OnLine

invensys

Foreseer® keeps an eye on Verio's Infrastructure

Mother Nature and Pacific Gas and Electric are conspiring to make life difficult for Joe Stephenson. As Vice President, Data Center Infrastructure, for Verio Inc., a leading provider of global IP services and the world's largest web hosting company, Stephenson is responsible for making sure the company's data centers stay up and running.

But storms, earthquakes and rolling blackouts, not to mention regular wear and tear, combine to challenge the resources of any network operations center. For Stephenson and his staff, anticipating problems and reacting quickly are key to staying online.

This year has been especially eventful. California's rolling power outages and the Seattle earthquake have taxed facilities. However, because of a sophisticated real-time monitoring system that Verio has installed in all of its new network operations centers, the company is able to proactively monitor and manage its critical facilities infrastructure.

Denver-based Verio offers an array of Internet-based services including dedicated access, Web hosting and managed services. "Our goal is to provide 24/7/365 continuous uptime to our clients," Stephenson says. "And that means being able to detect and deflect situations before they become critical."

So, when Verio began an ambitious expansion program in 1999, there was no question that the company would install a state-of-the-art environmental monitoring system in each new network operations center as it was built. "We felt this type of system was essential to ensure quality of service to our customers."

Verio selected DataTrax Foreseer® from Invensys Energy Systems as the monitoring system. DataTrax provides constant, real-time monitoring of all power, environmental, safety and security systems in a building or enterprise, irrespective of manufacturer. Verio employs DataTrax to monitor everything from uninterruptible power supplies and DC power plants to air conditioning units and temperature/ humidity sensors. DataTrax also covers standalone systems such as smoke detection and fire suppression. An online database for each monitored point and easy-to-use auto-mated data analysis routines deliver up to three years of historical and trending information such as magnitude of events, cause/effect relationships and before and after impact analysis of site changes. These proactive management tools help Verio's staff identify dangerous patterns so that corrective action can be taken before a failure occurs.

DataTrax multiple viewing options enable companies like Verio to monitor operational status globally or to focus in on a specific site or piece of equipment.

When trouble – or potential trouble – is detected, a multi-level alarm system provides real-time information on the developing situation. A green light indicates normal operation, a yellow indicates a cautionary situation and a red light indicates a critical alarm. Each monitored point is assigned up to four alarm thresholds – from routine maintenance alerts to system failure — with specific instructions for handling each type of alarm. In one case the system might send out an alphanumeric page to a Verio facility engineer while in another it might automatically notify the equipment manufacturer to dispatch a technician. "DataTrax' traffic light signaling scheme lets our operations people know at a glance the overall status of the systems and the severity of a condition," explained Stephenson. "When there's a problem, engineers can drill down for detailed information on the alarm and remediation procedures."

Operational status can be viewed on an enterprise, site or equipment-specific basis. Stephenson especially appreciates the global perspective that DataTrax provides and that all information can be accessed remotely via the Web.

"No matter where I am, I can see what's happening at any or all of our data centers. If there's a problem, I can take a close look at what's happening with any piece of equipment."

He also uses DataTrax during routine planning meetings with facilities managers. "We can teleconference, review facility status and plan our preventive maintenance programs more efficiently because we're looking at the same information in real-time. And, because of the trending information, we know which piece of equipment might need special attention."

The system monitors equipment from some 40 different vendors. Originally, this number was expected to be much lower, but an equipment shortage during construction forced Verio to buy from multiple sources.

Rick Waters was the DataTrax project manager assigned to the project. "Verio was a very complex project. Even though DataTrax maintains a library of 300-350 device drivers, additional drivers had to be written specifically for some of the equipment that was installed. Because of the national scope of the build-out, we worked with five or six different primary contractors. And some of the centers were built in phases so they could be up and running quickly. Given the scope of the project and our relatively short time frame (15-18 months for all 16 centers), things moved very smoothly. The fact that Verio had one point of contact for the work made a big difference."

To ensure that the system, which Stephenson calls "very complex," ran smoothly right from the start, Verio and DataTrax ran an extensive testing and commissioning procedure. Verio initially used a third party to test every piece of infrastructure equipment for functionality and ran full tests at three of its Premier Data Centers. This emphasis on system reliability has paid off for Verio. With a Premier Data Center located in Northern California, Verio could have been vulnerable during the recent rolling power outages. However, DataTrax has enabled the company to act more quickly and proactively according to Stephenson. "We depend on DataTrax to watch our power supply, to alert us when we might have to go off of utility power and to handle

"The system kept us in a heightened state of alertness so that we could act more quickly and proactively when we had to go off utility."

the switch-over seamlessly. The result was that Verio ran smoothly when other companies were having problems."

DataTrax' remote capabilities also came into play during the crisis. Verio facilities engineers who are responsible for multiple data centers were able to access their sites' system status via the Web, saving travel time and allowing them to act more quickly during critical situations.

Even Mother Nature hasn't been able to hurt Verio's operations. After the Seattle earthquake, Verio used DataTrax to test the system's robustness and state of readiness. By the time the structural engineers reached the data center, Verio's facilities engineers had all the environmental data gathered and collated for their review.

"DataTrax really helps keep us up and running smoothly," Stephenson asserts. "Because we know in advance about conditions that might affect our operations, we can control the situation before it gets out of hand. And if a problem does occur, we know immediately what we have to do to correct it. We stay on line and, most importantly, so do our customers."

Data*Trax*
S y s t e m s

DataTrax is a proactive management system

DataTrax is a proactive management system that helps the IT, ISP and communication industries reduce unplanned downtime caused by the failure of critical power, environmental, safety or security systems.

Through a combination of software technology, data acquisition strategies and professional services, the DataTrax Management System provides:

▶ Intelligent connectivity to critical support equipment and systems through the vendors' own protocols. Monitored equipment includes UPS, PDUs, generators, ATS, STS, DC power plants, power quality instruments, TVSS, AC units, chillers, temperature/humidity sensors, flow etc. DataTrax also monitors stand-alone systems ranging from building management systems to battery monitoring, leak detection, fire suppression, fuel management and security.

▶ Proactive management tools, including an online database for each monitored point and easy-to-use automated data analysis routines that deliver up to three years of historical and trending information. These include magnitude of events, cause/effect relationships and before and after impact analysis of site changes.

▶ Comprehensive alarm notification includes intelligent alphanumeric paging, email, multi-level alarm thresholds, user messages, SNMP outputs and complete event logs. Notification through wireless PDA devices and Web access ensures that this critical status information is available anytime, anywhere.

▶ Customized advanced information screens can automatically access the on-line database. Information such as power density and capacity, environmental profiles and power train analysis can be viewed for both real-time and historical data.

DataTrax first released the DataTrax Management System in 1988 as a high level analytical tool to improve the quality and yield of semi-conductor wafer fabrication. As a result of input from customers' data center operations managers, who were charged with improving the availability or uptime of their systems, DataTrax was re-engineered into a powerful, effective tool that IT and data communications center managers can deploy to help keep their operations up and running.

Alarm notifications can be sent to a variety of devices including wireless phones and PDAs.

Data*Trax*
S y s t e m s

To compliment the DataTrax Management System's strong data acquisition and analysis capabilities, the company introduced Foreseer®, a graphical user interface (GUI) that enables systems to be viewed on an enterprise, site or equipment-specific basis. Foreseer's client/server architecture is highly scalable to meet the size and requirements of any site. And, to ensure proper installation and configuration of each system, DataTrax offers professional services such as project management, site start-up, training and turnkey installations.

Today DataTrax, a part of the Powerware Division of Invensys plc, continues to provide IT, networking, process management, Internet Services Providers (ISPs) and telecommunication clients with products designed to maximize enterprise availability by managing mission-critical systems.

invensys