Software Association of Oregon

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October 4, 2007
SAO unveils our new member services at our fall networking event!

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Serveron: Protecting the Electrical Grid

By Linda Barney, founder & owner, Barney & Associates

Serveron, founded in 2001, is a smart-grid technology provider that develops, delivers and supports online transformer monitoring products and diagnostic services that are helping restructure the way utility assets are managed. According to Steve Jennings, vice president of marketing, Serveron, "Our company vision is to supply hardware, software and services to the electric utility industry that support management of the physical assets, such as power transformers, in an electric substation. Serveron's products and services continually monitor the operating condition and changes in performance of critical transmission and distribution equipment in electric substations."

Problems facing the electrical and utility industry
The United States is experiencing problems with crumbling infrastructure, and the electrical power infrastructure is in a similar position. A single large power transformer in an electrical power substation or generating station has an operating life of 40 years; the average age of large power transformers in the United States is 42 years. The utility industry estimates 20 to 25 percent of employees are eligible for retirement in the next five to seven years. At the same time, utilities are faced with aging infrastructure, increased load requirements, and a need for higher reliability thanks to the need of a digital society for constant clean power.

"In developed and developing nations alike, the electric power infrastructure is aging, growing or both, and systems must be watched carefully to prevent failures and the blackouts that they can cause," says Bart Tichelman, chief executive officer, Serveron. These electrical infrastructure problems need a solution, and this is where Serveron fits in.

Serveron pnline transformer monitors
A power transformer generates a number of gases as it operates. These gases are dissolved in the mineral oil that is used to insulate and cool the components in the transformer. (The largest transformers have up to 25,000 gallons of mineral oil.) A Serveron monitor samples this oil, extracts the gases from it, measures their concentration, and reports this information to the engineering and maintenance groups for the utility. In turn, they are able to determine the health of the transformer and take steps to prevent potential problems.

When a transformer fails, the statistical average is that 20 percent of the time they fail catastrophically with an explosion that causes a major electrochemical fire and results in a mineral-oil spill. Even though the utility has trenches to gather the oil, a potentially costly and time-consuming environmental clean-up is required.

Serveron Monitoring Service

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SAO EVENT CALENDA

September 27, 2007
Agile QA Reality or Fant
A Conversation
Quality Assurance SIG

October 3-5, 2007
ITIL Foundations v2 Cou
Oregon Training Networ

October 4, 2007
Benefits Fair
SAO Connection - Quart
Networking Event

October 9, 2007
Virtualization: Efficiency
Data Management Clear
Technology Forum
Portland Event: 7:30an
Dalles Event: 12pm-2p
Bend Event: 5:30pm-8p

October 11, 2007
5th Annual High Tech Af
Hours Tradeshow
Corvallis Chapter

October 11, 2007
Halo 3 - Larger than Life
Diabetes Fundraiser
Development SIG

Full Event Calendar

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Monitoring the operating conditions of electric utility assets is a critical step in helping to ensure reliable power. The Serveron Monitoring Service (SMS) enables customers to easily access transformer dissolved-gas data by either downloading the data to their own servers or sending it to Serveron's secure servers. If Serveron stores and processes the data, customers can access it by logging into a secure Serveron web site through a web browser. Alternatively, they can automatically download the data with the help of SMS client software loaded on their own PCs. SMS, which uses an XML interface to communicate with the monitor, is written in C# and uses the Microsoft .NET Framework. The SMS client and server applications communicate via SOAP.

SMS software includes a variety of analysis tools that display graphs, charts and 3D plots so that customers can easily view data to help them determine the state of their transformer. SMS includes an alarm service that automatically notifies the customer if any transformer has an alarm for a pre-identified set of conditions. Serveron provides 24/7 monitoring and sends a text message, e-mail or page to designated customer contacts about the alarm. This enables customers to "monitor by exception," saving them time as they can ignore the monitors unless something goes wrong. Serveron alerts them before major problems occur.

Increasing sustainability in the electric grid
As Jennings explains, "Serveron's goal is to prevent transformer failures and make sure that no catastrophic failures occur. Serveron transformer monitoring can increase reliability and sustainability and provide utilities with a large return on investment by helping to prevent failures." A reliable electric grid prevents blackouts and brownouts, and provides the reliable power needed to run businesses and homes. In early August, Serveron joined the GridWise Alliance, a consortium of private and public companies that use "smart grid" technology to transform the electric grid and make it more efficient, cost-effective, resilient, secure and reliable.

Power transformers are extremely expensive, with a small transformer costing around $1 million and larger ones costing up to $10 million. The demand for transformers from the developing countries, particularly India and China, is dramatic. This demand has driven up the price of metals such as copper and steel and consumed the output of transformer factories. As a result, it is harder than ever to buy transformers, with a two-year order backlog. For these reasons, reliable monitoring is essential, says Tichelman: "As utilities work to secure the capital and support they need to upgrade this critical segment of their infrastructure, they must use monitoring to minimize unplanned transformer downtime."

Growth at Serveron
For the first half of 2007, Serveron revenues increased 38 percent over the same period of 2006. In addition, in June 2007, Serveron announced it was expanding its manufacturing capacity by 50 percent, to meet growing demand in the United States and internationally for its online monitors. Serveron has grown its business in China and Europe and opened offices in Beijing, China, and Brussels, Belgium.

About the author
Linda Barney is the founder and owner of Barney and Associates, a technical and marketing writing firm. Founded in 1990, Barney and Associates specializes in technical writing, documentation, online help, Web content and training. Barney and Associates also provides a wide range of marketing writing services including creating media articles, white papers, data sheets, solution briefs, case studies, Web content and reviewer's guides. Contact Linda Barney at linda@barneyassoc.com.