DÜSSELDORF WATER AUTHORITY

Stratus ftServer keeps Düsseldorf's water supply running

Ensuring sufficient high quality drinking water to meet the requirement of consumers requires absolute availability of a complex plant infrastructure at all times. When Düsseldorf Water Authority came to review its infrastructure in 2011 it considered hosting its control rooms' servers on either cluster systems or fault tolerant servers.

This case study explains its choice...

Quick Facts

Solution Profile
- ftServer ensures absolute availability of IT infrastructure in German water authority's control rooms. No hidden costs. No administration, IT technicians or retraining required …

Solutions
- Stratus ftServer system
- Wonderware SCADA

Business objectives

Düsseldorf's Water Authority provides water to over 600,000 residents. It operates from sites in Flehe, Am Staad and Holthausen. Each site contains extensive technical plant, all of which needs to be up and running at all times. In 2011, the time had come to review this infrastructure.

With wells, treatment plants, elevated tanks and pressure boosts and reducers in each location, the plant had been operated by programmable logic controllers since the 1990s. The system was controlled through a network of measuring devices with around 40,000 data points. If, for example, there was a leak in the distribution network, these devices could quickly locate it through any deviation from the required pressure readings. The information from the measuring and control devices

from all three plants was then collated in the respective control rooms and the data archived. It was imperative, for legal and health and safety reasons, that this data was securely stored – and remained safely stored and permanently updated during any technology migration projects.

The control rooms at each location had an IT-assisted SCADA (Supervisory Control and Data Acquisition) control system. These collected information and put it into graphical form, so that service personnel could make quick adjustments to the waterworks. However, the fully automated control system meant that service personnel usually only had to monitor the process rather than make manual adjustments. The water authority did not want this to change.

> "We still only need one licence to use our software on our new servers, unlike a cluster. This offset the higher acquisition cost of a fault tolerant system, so both options were identical from a cost point of view. The higher availability and the easy administration of the Stratus ftServer were crucial in our decision …"

Heiko Jepp,
Team Leader, Water Mechanics Department
Düsseldorf Water Authority

The over-riding need was to find a hosting solution that could guarantee absolute availability of the system at all times, with absolutely no interruption to service or data collection whatsoever.

Doing so in a way that enabled Düsseldorf Water Authority to keep its existing infrastructure in place, without the need to train or bring in IT expertise was also important.

Business solution

After much consideration, Düsseldorf's Water Authority decided to replace two database servers and the central domain controller with Stratus ftServers. These servers have redundant hardware in one physical machine. Each component is doubled – CPU, RAM, IO units and the hard disk – and each of these operate totally in sync. So, should one component fail, its partner component continues to operate and an automatic message is sent to Stratus, ensuring a replacement component is dispatched immediately. There is no system down time, no loss of data and no need to restart the machine.

Furthermore, the failed part, which Stratus automatically sends, can be replaced while the machine continues to run and synchronizes itself automatically with the system. The failure does not require any action by the administrator. There is no need for training or internal expertise.

"We evaluated a cluster system too, but not for long. Cluster systems are complicated to install and have a higher administration cost," advises Heiko Jepp, team leader in the water mechanics department at Düsseldorf Water Authority.

"It soon became obvious that it wouldn't have been an acceptable solution for us. The fault-tolerant servers are different in that no adjustments to the existing software are necessary; the redundant components operate as a single system, while, as a rule, applications in a cluster system need adapting," he adds. Düsseldorf Water Authority has also been able to continue to use its Wonderware data-processing software without any changes.

"The fact that we still only need one licence to use it on our new servers, unlike a cluster, is a positive side effect of high availability," explains Jepp.

"This offset the higher acquisition cost of a fault-tolerant system, so both options were identical from a cost point of view. The higher availability and the easy administration were crucial in our decision in favour of Stratus ftServer," he concludes.

Business impact

Since summer 2011, Stratus ftServers have been installed in two of Düsseldorf's waterworks sites. The databases that record processing data operate on this system, receiving and saving data from the service area. A third server was installed in the central domain controller. The SCADA applications themselves continue to run on non-redundant Windows clients, so the wider IT infrastructure remains intact with no downtime or extra costs incurred.

The three new servers have proven themselves since the start of their operation in autumn 2011, with no downtime occurring at all. That though is not the only positive impact of hosting on Stratus ftServer, as Jepp points out:

"It's a good feeling to know that you don't need to worry any more about the storage of your data. We have been really well set up by its availability…"

About Düsseldorf Water Authority:

This utilities company has delivered energy and water to Düsseldorf for more than 145 years. The three waterworks sites "Flehe", "Am Staad" and "Holthausen" supply more than 600,000 people in Düsseldorf, Neuss, Erkrath and Mettmann with fresh drinking water daily, producing over 50 million cubic metres of water every year. That's 140 million liters of drinking water every day on average. The network is 1,800 kilometers long in total. Düsseldorf Water Authority employs 2,500 workers.

About Stratus Technologies:

In today's always-on world, applications run under increasingly demanding circumstances. With these escalating demands comes greater pressure to prevent even the smallest amount of application downtime. Companies are responding to this need for always-on solutions by searching for technologies that either conform to or enhance their current IT infrastructures.

Stratus Technologies' solutions enable rapid deployment of always-on infrastructures, from enterprise servers to clouds, without any changes to your applications. Stratus products (software and servers) combined with Stratus people, enable customers to prevent downtime before it occurs, ensuring uninterrupted 24 x 7 x 365 performance of essential business operations.

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