



As solid as a rock—literally

Location:

Stockholm, Sweden

Segment:

Data Centre

Problem:

Expand its premises into an underground Cold War military bunker and nuclear shelter.

Solution:

Rely on Eaton's UPS protection for network operations and co-location services.

Results:

Absolute 24/7 power to all of Bahnhof's customers.

Bahnhof, a Swedish internet service provider, established a science fiction-style data centre in an old nuclear shelter 30 metres below the city of Stockholm. The centre relies on Eaton's UPS protection to provide rock-solid network operations and co-location services.

Background

Amazement – that's the first reaction you have when seeing this futuristic installation deep inside the bedrock of the Swedish capital. Simulated daylight illuminates greenhouses and waterfalls alongside rows of black and white rack cabinets, while hulking backup power engines, originally designed for submarines, squat domineeringly in rock caverns bathed in blue fluorescence. One can't help thinking the place is the set of a science fiction film. But no – this is in fact an ultra-modern data centre located in an old nuclear bunker.

Bahnhof has provided internet and hosting services since its founding in 1994. In 2006 it came across an interesting opportunity: to expand its premises to include an underground shelter that had originally been a military bunker and nuclear shelter during the Cold War.

"We have grown consistently throughout our existence – by approximately 40 percent per year. Though we're a rather small player, we already host 15 percent of the internet traffic in Sweden. That's why we needed more space to provide our growing customer

base with solid internet and hosting services," says Kristian Thorin, Senior Project Manager at Bahnhof.

Challenges

"Once we had decided to build our newest data centre in this distinctive place with its thrilling history, there was no way we could do just a minimal installation; we wanted to go beyond the basic solution and make the most of the shelter in the spirit of science fiction films. We wanted to create a feeling of going down into the mountain."

From a dark bunker to an ultramodern communications hub

The Pionen White Mountains data centre – the name originates from the facility's military days – was completely redesigned between 2007 and 2008. More than 4,000 cubic metres of rock were blasted out to create the 1,200 square metres that Bahnhof needed. The repurposed shelter went live in September 2008, hosting a large part of Bahnhof's network operations and acting as a co-location centre for a variety of companies and individuals in need of server capacity services.



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Pionen is Bahnhof's largest data centre and can employ more than 6,000 server computers, all of which need to be protected against any malfunction caused by power fluctuations.

"Everyone can understand the consequences of a power disturbance to a data centre's operation. We simply must be able to provide absolute 24/7 power for all our customers, be they individuals or businesses," Thorin says.

Solutions

Bahnhof has worked with Eaton since 2000 and uses Eaton's power protection solutions in all five of their data centres in Sweden. Prior to Pionen, Eaton had delivered a variety of products, including 10 three-phase UPSs of 30–60 kVA, nearly 200 single-phase rack-mount UPSs and a selection of Eaton's rack-based ePDU® products.

For Pionen, Bahnhof chose a larger-scale UPS solution, with an option to expand as needed to provide as the number of servers at the centre increases.

"We needed a powerful UPS with a modular structure, allowing the UPS system to grow in line with our needs. That's why we turned to the Eaton 9395 UPS and chose a 275 kVA unit.

"However, shortly after the installation we realised that the UPS system had to offer more capacity and redundancy in order to ensure that the data centre worked reliably. We were prepared to expand the UPS system at a later phase, but the need for upgrading came a lot earlier than we had predicted.

"That's why we added a 9395 825 kVA unit with inherent redundancy to our UPS system.

Now we have a system with 825 kVA plus 275 kVA, which meets our requirements precisely."

Pionen also employs a great number of Eaton's monitored (over IP) ePDUs.

Eaton's broad product portfolio spoke for itself

Bahnhof's and Eaton's experts worked together on a project period of a few months before the 9395 was installed in late 2009. Thorin says that Eaton's excellent customer cooperation was one of the main reasons that Bahnhof chose Eaton as their large-scale UPS provider.

"As a big producer with a wide product portfolio, Eaton is a trustworthy partner. We had also had very good experiences with their services and support functions earlier," Thorin says.

Results

For Bahnhof, the future looks positive. An ever-increasing number of companies rely on co-location centre services – a trend that is globally recognised. Bahnhof's ultramodern data centre deep in the Swedish bedrock is a great example of how important, mission-critical applications can also be fun.

"Pionen needed something other than a traditional approach to interior design," says Thorin. "Why not take a big step forward instead of playing it safe?"



Eaton 9395 825 kVA UPS

The Pionen data centre in a brief

- The largest of five data centres belonging to Bahnhof, a Swedish internet and hosting company
- Hosts a large part of Bahnhof's network operations and houses co-location hosting services
- Former military bunker and nuclear shelter buried 30 metres deep in the Stockholm bedrock
- Designed between 2007 and 2008 by Albert France-Lanord Architects and Kristian Thorin as a project manager
- 15 full-time employees. Total number of Bahnhof employees: approximately 70
- UPS solution: Eaton 9395 825 kVA + 275 kVA for redundancy plus multiple Eaton Monitored ePDUs
- Backup power from two German V12 diesel submarine engines, 850 kVA each



Simulated daylight and leafy plants create a pleasant working environment