

CORNING



CASE STUDY

Green Mountain

A unique green data centre

The deep interior of a mountain situated on an island in a remote Norwegian fjord is the unique location for a Tier III+, carrier-neutral, high-security data centre. A former NATO ammunition bunker located near Stavanger, Norway, the Green Mountain data centre covers 21,000 square metres with six mountain halls and several dedicated customer rooms utilising 100 percent renewable hydroelectric power and the efficient cooling of the adjacent fjord to provide a PUE of less than 1.2. The secure location, its green credentials, and low-cost electricity supply has attracted both Norwegian and international customers.



Green Mountain was chosen by a major Norwegian company to host their data centre equipment because of its low energy consumption, cost-effectiveness, high availability, and connectivity with other parts of Europe. Having already supplied Green Mountain with Corning solutions for its meet-me rooms and internal infrastructure, Corning's authorised distributor Anixter was asked to tender for the provision of a new cable infrastructure to support the hosted solution.

The Challenge

The project necessitated rapid implementation so that Green Mountain could promptly hand over the multiple server room infrastructure to its client. As such the optical cabling components needed to be delivered to site within two weeks of the order placement and followed by immediate installation. The unusually tight and aggressive timescales placed on this project made it tough to meet by any standards. Following a review of the submitted tenders, Green Mountain was assured that Corning's commitment to fast delivery of products and its reputation for innovation and quality solution, together with Anixter's local expertise, meant that the project requirements could be met with the best available solution.

The Solution

Anixter proposed the provision of a Corning structured cabling solution designed to provide cost-effective, flexible capacity. This solution could also accommodate the essential rapid deployment, high scalability, and reliability characteristics that support service longevity. The solution included:

- Modular pre-terminated cabling with fast shipment of cabling components to site providing rapid time to operation for the customer
- Provision of Corning's EDGE™ cabling system with high-density, MTP® connections enabling the fibre optic connectivity to scale to thousands of ports
- Low-loss Corning® ClearCurve® OM4 multimode fibre cables to support high-performance computing and future higher speeds with maximum reach

The deployment of a fibre-rich cabling infrastructure in the facility is perfectly adapted to the energy efficiency needs for Green Mountain. Firstly, the lower power consumption of optical transceivers and the fewer number of switches required in an optical system results in potential energy savings over copper equivalents. Secondly, the high fibre counts and low profile of optical cable provide as much as 30 percent reduction in physical cable and rack space, keeping void space clear of congestion and avoiding possible cooling energy losses.

In addition to the predominantly fibre solution, Corning also provided FutureCom™ EA pre-terminated cables to support 10 Gbps speeds over Cat.6 copper cable.

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Rapid delivery and deployment

Corning worked closely with Anixter, who provided the design and planning of the cable installation, including cable routing and cable measurements, enabling the expedited manufacturing process to begin. The logistics of the cabling project was significant with 10,470 fibres required to support 5,235 ports in multiple server rooms. Corning impressively achieved the required two-week order to delivery target for the cabling components. Plus, the innovative plug and play capabilities of the Corning solutions helped facilitate rapid installation of the cabling, following in quick succession to the installation of racks and other infrastructure. Similarly, the FutureCom™ copper cabling solution was supplied as factory-tested, pre-terminated plug-and-play connections which also saved on installation time.

The use of 100 percent factory-tested pre-terminated cabling was very important as this provided consistent quality to ensure high system performance and a highly reliable network for its customer. The high-density, factory-terminated and-tested modular solution enabled the installers to connect cabling components faster and more easily. The MTP connector-terminated cabling provides low-profile, high-fibre-count trunk cables allowing for quick routing and deployment between zones, server rooms, and switch locations.

“Corning impressively achieved the required two-week order to delivery target for the cabling components. This fast track implementation of the cabling solution enabled Green Mountain to quickly hand over the server room infrastructure to a highly satisfied client. Subsequent success has followed, with Corning’s optical fibre solution being implemented for further valuable co-location clients.”

Tor Kristian Gyland, Chief Operations Officer

The approach also supports flexible provisioning for future expansion of customer needs. Most importantly, the cabling trunks can be quickly added and easily routed to new racks without disrupting operations. With such high capacities, the EDGE cabling solution offers flexible modular patch cord/connector access while achieving a high port density. Once installed and operational, the system is able to provide easy access to allow moves, adds, and changes (MACs) to happen quickly and without disrupting the daily operations of the data centre.

High standards and high performance

Green Mountain chose to standardise on the best available multimode fibre cable using ClearCurve bend-insensitive OM4 fibre cables. The deployment of OM4 optical fibre provides a high-end cable solution that supports service longevity. It has the capability to support increasing capacity, higher-performance servers, and storage that drives the need for higher networking speeds over the infrastructure during the life of the data centre. With OM4 cable in place, data speeds of 100 Gbit/s can be supported on cable distances in excess of 100 m. Bending of cables is commonplace as MACs are made within the data centre over its life span.

By using the ClearCurve cable, the risks of bend-induced loss that can impact the reliability of systems can be mitigated ensuring unscheduled downtime is avoided.

Conclusion

Enterprise IT departments are under extreme pressure to deliver projects faster than ever with the need to meet tough timelines for production systems. A key factor for Green Mountain in choosing the Corning solution was the ability to deliver the cable infrastructure products in a short time frame. Structured cabling solutions tie together the switches, servers, and storage and need the agility for rapid, as well as modular and scalable, implementation. The need for fast and flexible provisioning is now becoming expected within the industry.

Advanced developments in fibre cabling solutions from Corning are making everything faster and easier for data centre managers and their installers to reliably perform important cabling tasks. Corning controls its own supply chain and has invested in fast delivery to ensure customers like Green Mountain obtain the solutions they require in the most rapid timescales achievable. Corning has built on this with strong delivery responsiveness through its FastShip and FastConnect programmes.

Corning Optical Communications’ reputation for innovation and quality is focused on delivering long-term, future-ready return of investment as well as immediate time and labour saving benefits. Plus the innovative cabling technology plays a significant role in facilitating the growing needs for higher speeds, high performance, and high-density.

Demonstration Capability

Following the successful provision of the cabling infrastructure for Green Mountain’s client, Corning provided a cable infrastructure demonstration capability for use in their welcome centre. This enables Green Mountain staff to explain the cabling options that are available to potential customers.

The demonstration cabinet is configured with a combination of Corning’s EDGE and PCH products along with a Cisco Nexus 7000 switch; a typical high-end system found in the data halls. The facility promotes the benefits of the EDGE high-density and advanced optics portfolio, as well as the copper Cat.6 (S250) and Cat.6A (S500) products..





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Corning Optical Communications GmbH & Co. KG

Leipziger Strasse 121

10117 Berlin, GERMANY

+00 800 2676 4641

FAX: +49 30 5303 2335

www.corning.com/opcomm/emea

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