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CASE STUDY

Deutsche Börse

Trading up to the speed of light

Deutsche Börse is one of the world's leading exchange organisations providing investors, financial institutions and companies with access to global capital markets. Their business covers the entire process chain from securities and derivatives trading, clearing, settlement and custody, through to market data and the development and operation of electronic trading systems.



The Challenges

In October 2010 Deutsche Börse decided on a new data centre location to set up T7, their new global trading architecture, which also offers customers low-latency connectivity. Deutsche Börse operates to the most demanding standards to deliver reliable services that meet the needs of the international financial markets — low-latency, high-performance and highly available trading systems. It chose to co-locate its new data centre with Equinix in Frankfurt, Germany. This move provided faster trading services to traders and enabled trading firms to install their own systems within the co-location areas of Equinix's facility, close to the exchange's T7 trading systems.

The new data centre, built up out of two completely independent data halls, needed a flexible, scalable and highly reliable infrastructure to support the extensive equipment and meet the future computing and application needs of the business. Most importantly it had to be rapidly and easily installed so that the data centre would be ready for testing within three months.

To meet this challenge, Corning worked closely with Deutsche Börse and Equinix to implement best practices in data centre design, together with the planning and installation of an innovative cabling infrastructure. Corning also provided up-front training to accelerate knowledge transfer and operational readiness to meet the strict timescales.

The Cabling Infrastructure

With best practice design in mind, Corning optimised the assembly of Deutsche Börse's network infrastructure with a modular structured cabling environment. The infrastructure included both fibre optic and copper cabling solutions utilising Corning's Pretium EDGE® Solutions for multimode and single-mode fibre and FutureCom™ EA copper systems.

Deutsche Börse Structured Cabling Deployment

- Innovative structured fibre and copper cabling environment using modular pre-terminated cabling provided a rapid time to operation for data centre consolidation.
- Corning's Pretium EDGE® cabling system with high-density, MTP® connector-based connectorisation enabled the fibre optic connectivity to scale to thousands of ports, supporting existing equipment and future expansion.
- Low-loss Corning® ClearCurve® OM3 multimode fibre cables to support existing 10G speeds with high-reliability and future higher speed requirements.
- Corning ClearCurve® XB OS2 single-mode fibre for connection to WAN services and the support of redundant data centre connectivity.
- Corning's FutureCom™ EA system provided an enhanced performance margin for 10Gbps speed over Cat.6A copper cable.

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For speed of installation and reliability, the Pretium EDGE solution used LC and MTP connections. This high-density, factory-terminated and -tested modular solution enabled the installers to connect cabling components faster and easier. The Pretium EDGE fibre cabling system, with 96 fibres in 1U connected to a 4U housing (576 fibres), was ready for service in the time needed to install a single housing using traditional methods. Similarly, the FutureCom™ EA system used factory-tested pre-terminated connections, saving 80 percent of installation time for copper cabling.

With the need to deploy up to 66,000 fibre and 6,000 copper ports, the approach was crucial to delivering the project on time. In addition, the innovative “universal polarity” wiring of the fibre optic modules also prevented polarity problems and ensured compatibility, high-performance, and consistent quality throughout the system, alleviating operational delays or disruption.

The fibre and copper panels in the data centre were connected with pre-terminated trunk solutions through the building. The high-density MTP® connector-terminated fibre trunk connections between rooms were implemented using Corning® ClearCurve® OM3 multimode fibre cables. The solution consolidates cabling into a smaller number of low-profile trunks between rooms. This consolidation resulted in up to 30 percent savings in physical cable space, improving the scalability and flexibility of cabling in the data centre and contributing to improved cooling efficiency, keeping ductwork clear.

By using bend-insensitive fibre the company helped to mitigate the risks of bend-induced loss that can impact the performance and reliability of systems. Such bending of cables becomes commonplace as moves, adds and changes (MACs) are made within the data centre over time. The Corning OM3 cable with low-loss MTP connectors minimised the optical power budget for extended distances, supporting distances up to 300m at 10Gbps where expansion to new rooms are needed. The cable is also designed to support longevity in the data centre allowing easy migration to higher speeds such as 100Gbps to support future applications and computing technologies. To support interconnection of IT equipment with WAN connectivity services, Corning ClearCurve XB OS2 single-mode fibre cable was used. This high-performance, extreme bendable optical fibre is specifically designed for longer reach and the installation rigours of WAN services.

The Corning FutureCom™ EA system is specially designed to support 10 Gigabit Ethernet networks using 10GBase-T over 100m with enhanced performance margin. The FutureCom EA S500 connections exceed the full specifications of the Category 6A/ClassEA standards for copper cabling, supporting data transmission at 10Gb/s over a 100m link with up to six connectors. This ensures that the copper solution provides the high-reliability needed to support existing equipment networked in the consolidated data centre.

Conclusions

In view of a tight delivery schedule, Deutsche Börse was able to set up and successfully integrate systems in its new data centre provided by Equinix. Deutsche Börse is now profiting from the high-flexibility and cost advantages of the co-location

model. With a single facility, the server, switch, storage and cable infrastructure, software and applications are easier to manage and control.

Key Attributes of the Corning Structured Cabling Solution

- **Double the density of competitive solutions:** 96 fibres in a 1U housing.
- **Fast delivery of pre-terminated cable:** Provided within eight weeks.
- **LC shuttered fibre ports:** Reduces the need for port cleaning and provides eye protection when high-speed lasers are used in attached IT equipment.
- **Universal wiring:** Ability to change polarity in less than 10 seconds for MACs.

Deutsche Börse offers its customers a high degree of reliability, speed, innovation and cost efficiency. The innovative modular cabling infrastructure supports this requirement with an efficient, high-quality and future-ready solution.

It also supports flexible provisioning to respond quickly to the company’s changing business needs. The fibre solution supports migration to 100Gbps, providing longevity for future applications and computing technologies.

Corning will continue to serve as the preferred cabling partner on future projects.

“As we were eager to have T7, our new global trading architecture, in place as fast as possible, we had a very tough timeline to meet. One of the bigger challenges was the design for the new data centre, which required the entire cabling (fibre and copper trunks) to be in place ahead of moving our trading systems into the data centre. We were forced to specify the length of all trunks ahead of the installation of racks and trays. The joint team of Corning and Equinix did an excellent job in specifying the length for every single trunk, avoiding excessive overlength. The end result was that T7 went online in time, made possible by the supportive and experienced team of Corning and Equinix.”

Michael Gruth, Head of Data Centres and Voice, Deutsche Börse



CORNING

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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