

# CASE STUDY

S t a d i u m

Corning Cable Systems



Olympic Stadium Berlin, Germany

## SITUATION

On the 30th of June, 2004, the newly renovated Olympic Stadium in Berlin, Germany, opened its doors to the public. During the past year, the stadium was completely modernized for 242 million Euros, in preparation for such events as the final match of the Football World Cup in the summer of 2006. The stadium now has a capacity of 76,000 with 300 additional press boxes. The renovation took place without having to close the stadium, which required a high level of planning and logistic.

As required by the government of Berlin, the communications infrastructure was planned as a convergent multi-service network for voice, data and video transmission using the most modern and future-proof IP technology. The contractor for the communications infrastructure, Siemens AG, hired the consultants from plan b digitation GmbH to develop a complete solution which met the functional and performance requirements of the government authorities.



The equipment and products which were chosen for the installation were required to be the most modern, as well as easily upgradeable during the next 10 to 15 years without change of components. In addition, stringent requirements were placed on the flexibility, availability and security of the solutions. For all of these reasons, Corning Cable Systems LANscape® Solutions and Corning Optical Fiber were chosen by the consultants for many of the passive network elements.

## NETWORK DESIGN

Plan b was able to optimize the network design without influencing any of the functional requirements. The data communication was installed through data centers with core switches and in the access area with floor switches. In order to guarantee 100% availability, a backbone with 100% reliability was installed, using Corning Cable Systems cables with 24 x full-spectrum SMF-28e® single-mode fibers and 24 x Laser-Optimized™ InfiniCor® SX+ 10 Gigabit/s multimode fibers. This infrastructure guarantees zero network downtime and optimal performance.

## BACKBONE PLANNING

The interior of the backbone was completed using a fiber optic network with four Gigabit Ethernet switch routers. It was imperative that the components used were applicable for 10 Gigabit Ethernet technologies. In order to make this possible, a modular high-speed fiber optic cabling solution was implemented using Corning single- and multimode fibers in-between all floors.

Within each floor where both copper and fiber optic connections would be needed, the modular LANscape Solutions products from Corning Cable Systems were ideal. The LANscape system allows for both fiber optic and copper connectors in the ports, panels and outlets and makes it possible to easily upgrade in the future. For example, an SC Duplex port that you install today can be easily upgraded to an LC Duplex port, saving future investment and time for the end customer.

*You have the requirements. We have the solutions.*

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Stadium

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## ACCESS AREA

The cabling for the access area was carried out according to the current standards EN 50173, 2002 as well as ISO/IEC 11801. The values and specifications for Category 6, Class E up to 250 MHz were required for all copper pairs in the network for the data transmission of Gigabit Ethernet (1000 Base TX), Fast Ethernet (100 Base T), Ethernet (10 Base T), ATM 655 MBit/s, as well as ISDN protocols.

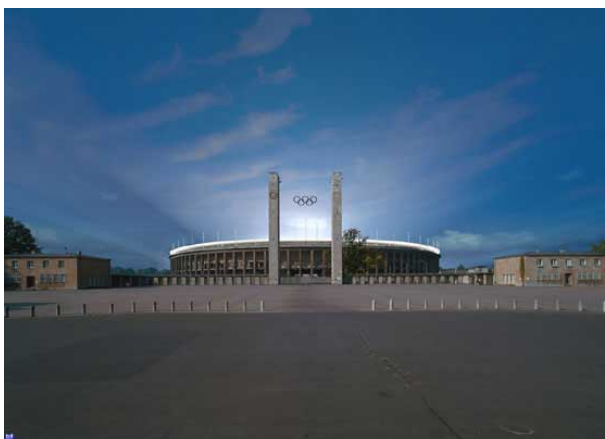
## COMMUNICATIONS INFRASTRUCTURE

For the planning of the communications infrastructure, plan b required a high-performance and high-quality passive network solution, which exceeded the standards and could support the large dimensions of the stadium. The suitable network was constructed with fiber optic cable and category 7, four-pair, shielded copper data cable. All of the work stations were connected identically and simultaneously to the floor cabling using individual RJ-45 category 6 certified connectors.

The outlets were installed within the cable conduits, in wall flushes and in floor boxes, although each workstation was equipped with two to four RJ-45 ports (one to two double outlets) from Corning Cable Systems, LANscape FutureCom E, Category 6. The planning of the network was such that the installation of further office equipment could be completed as fast as possible.

## CONCLUSION

The complete communications network of the Berlin Olympic Stadium is one of the most modern in the world, thanks to the thorough planning and installation of high quality, future-proof equipment, such as the fiber optic and copper solutions from Corning Cable Systems.



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