

## Reference report

### Copper next to glass fibre: more space in the rack

## tde installs high-available, modular cabling solutions at the Max Planck Institute Tübingen



**When important research data are quickly, safely and high-availably stored on the servers of the new data centre on the Max Planck Campus in Tübingen, it is also due to the network expert tde. The company based in Dortmund provided custom-made copper and fibre optic cables including connection and distribution technologies for the rack-to-rack cabling of the new data centre. The products by tde particularly impressed with their modular design and scalability.**

Researchers at the Max Planck Campus in Tübingen conduct basic research in the fields of biology, brain research and learning systems. Overall, 900 people from over 45 countries work and undertake research at the Max Planck Institutes for Developmental Biology, Biological Cybernetics, Intelligent Systems and at the Friedrich Miescher Laboratory. The individual institutes are divided into several scientific departments and research groups.

### Data centre moves one floor down

Setting up a new data centre was necessary due to various reasons: The previous data centre used to be located on the ground floor of the former carpentry. However, it had reached its capacity limit and had become too small. In order to accommodate all the server and storage systems of the institutes, the IT department already had to use additional rooms on campus. "This situation couldn't have become permanent – something had to be done", Stefan Tauber, IT employee at the Max Planck Institute for Developmental Biology describes the previous situation. "Recurring problems caused by varying cable specifications and the great heat in summer due to the flat roof were further issues."

In view of this situation, the persons responsible for IT were able to convince the decision-makers at the Tübingen Max Planck Institute of the need for a new data centre. The site for the new server rooms was quickly found: The IT department was to move one floor down into the basement of the previous data centre. There was enough space to pool all servers which were so far spread across campus and to be prepared for future growth. "Since the rooms in the basement used to accommodate the storage place of the carpentry, they provided the required height to install a raised floor. So there was nothing to stop the move", Stefan Tauber reports.

### tde impresses with modularity

All network connections of the entire campus merge in the old data centre on the ground floor. "It wasn't easily possible to relocate this cabling system to the basement. It wouldn't have been worth the effort and would have caused too many inter-

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ruptions”, Stefan Tauber recalls. So the IT team decided to leave the network components required for the connection to the outside on the ground floor. Since this primarily affected the passive components, problems with the cooling systems were not to be expected. “However, we needed a future-proof solution for the connection in the new server room in the basement. It had to be a modular system”, Stefan Tauber says.

The Max Planck Institutes in Tübingen commissioned a local planning office to plan and design the new data centre. At the same time, the people responsible for the project were looking for a suitable partner to provide the rack-to-rack cabling solution for the new data centre. The search led them to the LAN-line TechForum in Munich. “We consulted the exhibitors and gathered information on their solutions and technologies”, Stefan Tauber explains. One of the key requirements of the Max Planck Institute was the modular design of the cabling system. “Our demand was not to waste so much space in the rack and to remain flexible for future requirements”, Stefan Tauber illustrates. As one of few network providers tde has modular systems in its portfolio. So it didn't take long to make the decision in favour of the company based in Dortmund.

**On your cables, get set, go!**

tde delivered the pre-assembled cables and all other network components exactly tailored to the specifications provided by the electrical engineers. So as to ensure high availability and to get a grip on the recurring cable problems caused by varying specifications, tde precisely determined all cable specifications in advance and had the components installed by a manufacturer-certified electrician. “Stefan Tauber made sure that those responsible for the network at the other institutes were also involved in the planning and designing of the new cabling solution. That's why it was also important to create uniform specifications and in this way network conformity”, remembers Elmar Herwig, application consultant for high-speed networks.

There are two rack rows with six server racks each in the first room of the new data centre. In the adjacent room, there are four racks forming the cluster, which the Tübingen Max Planck Campus had previously outsourced. In the course of the redesign it was also integrated into the new data centre. The research centre equipped the racks with the tML cabling solution from tde. The leading cabling system regarding packing density enables the integration of fibre optic and copper cables in one panel within one height unit. “The modularity of the systems makes us more flexible when we migrate to 40G, for example. Moreover, the tML system equips us well for future requirements. Especially the MPO connector system from tde to connect a 40G connection convinced us. tde has more than a decade of field experience and offers top quality”, Stefan Tauber reports.

When handling a large amount of fibres in fibre optic distribution systems, MPO is the connector of the future. With the MPO technology users can easily and efficiently scale and migrate to 40 or 100G network operation. Thanks to their enormous packing density, MPO connectors are highly space-saving while at the same time multiplying the performance. Plug-in processes can also be simplified and shortened: Unlike LC duplex connectors, which can only connect two fibres, MPO connectors using the plug-and-play connectivity can connect at least 12, 24 or up to 72 fibres depending on the application.

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### Commissioning according to plan

The feedback at the end of the project was positive in all respects. tde delivered, connected and put the solution components into operation. Elmar Herwig trained the employees and gave them full instructions to the new solution. "Commissioning could not have gone any better. No system problems have occurred so far", Stefan Tauber summarises. "We now have copper and fibre optic cables combined in one panel. We previously gave away space in the rack and wasted entire panels when using only five ports for copper, for example. We now have 40G fibre optic right next to copper. This is a huge progress and benefit."

The new cabling solution fully meets the current requirements of the Tübingen Max Planck Institute. And the research centre does not have to worry about the future. Thanks to the highly scalable solution, the Max Plank Campus can easily keep up with increasing demands. "In the future, we will certainly need higher data transfer rates. The cabling of the rear area and the modules support migration; future requirements can be easily met by replacing the modules. Thanks to the high packing density, there is sufficient reserve space so as to re-route connections, if necessary. In cooperation with tde, of course", Stefan Tauber adds.

### About Tübingen Max Planck Campus

The Max Planck Campus in Tübingen is home to the Max Planck Institute for Developmental Biology, Biological Cybernetics and Intelligent Systems/site Tübingen as well as the Friedrich Miescher Laboratory. Overall, 900 people work and conduct research on the campus. The Institutes are part of the 83 research facilities of the Max Planck Society for the Advancement of Science e.V.

For more information visit [www.tuebingen.mpg.de](http://www.tuebingen.mpg.de)

### About tde – trans data elektronik GmbH

For more than 25 years, the internationally successful company tde – trans data elektronik GmbH has specialised in the development and production of scalable cabling systems for highest packing density. Also the nuclear research centre CERN relies on the know-how of the leading company in multi-fibre technology (MPO). The portfolio "Made in Germany" includes complete system solutions with a focus on Plug&Play for high speed applications in the field of Datacom, Telecom, industry, medical and defence. With its own service department tde offers planning and installation services from one source and supports the "European Code of Conduct" for energy efficiency in data centres.

More information at: [www.tde.de](http://www.tde.de)