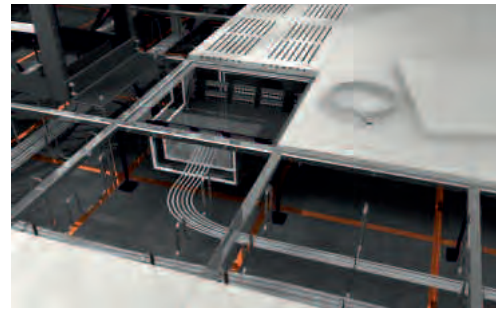


## Copper Cabling in Data Centers

Copper is the preferred medium for switch and server connections. Most servers have copper connections and therefore cabling to servers needs a copper cabling system. With the introduction of global cabling standards for data center, newer data centers have an end of row design or in principle a dedicated distributor (POD). Each rack for the equipment contains copper and fiber patch panels for servers or storage devices.

Tyco Electronics offers pre-terminated cabling in both copper and fiber. All systems are pre-terminated, scalable and support different customer designs. The systems support Ethernet and Fiber channel from 1 Gb/s up to 40 Gb/s. All solutions are integrated in the AMP Hi-D cabling platform for an overall professional IT-infrastructure platform. Please check page 1.



Consolidation point cabling

**AMP NETCONNECT systems can be used for:**

**Applications:**

- Equipment Cabling
  - Server Cabling
  - SAN Cabling
  - Supports EoR-Design
  - Supports POD-Design
- Ethernet
- Fiber Channel
- Infiniband



Sigma Link



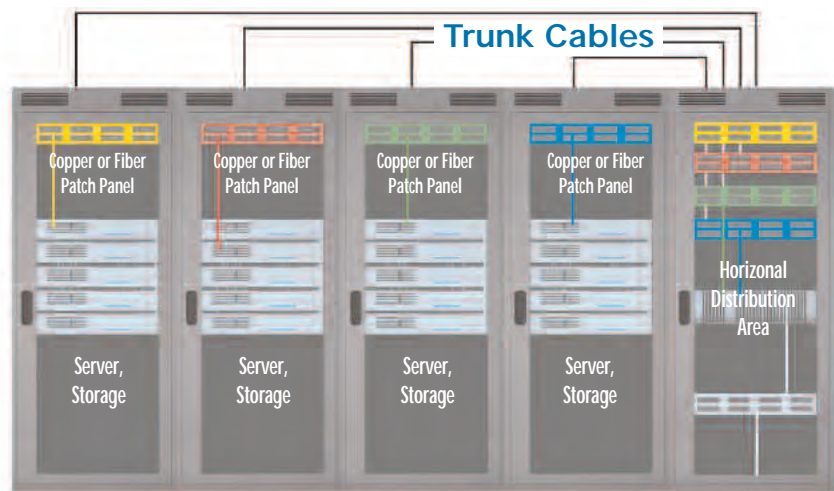
MRJ21 rear cabling

**Electromagnetic Environment:**

- Shielded systems for MICE classes E<sub>1</sub>, E<sub>2</sub> and E<sub>3</sub>
- Immunity against air discharge (8 kv) and contact discharge (4 kv)
- No separation distance to electrical devices, such as:
  - fluorescent lamps
  - power cable
  - mobile phones and walkie-talkies

**Speed:**

- 1 and 10 Gigabit Ethernet
- 40 Gigabit Ethernet\*



Standard compliant equipment cabling

**MICE Classes:**

International standard bodies have recognized the importance of the environment when designing cabling systems. To underline the importance ISO/IEC has released the TR 29106:2007 paper. The content of this paper is being used in more and more standards such as ISO/IEC 11801, EN 50174-2 and TIA 569-C. In the TR 29106:2007 paper are three defined classes. The classes have been named MICE and have the following meaning:

- Mechanical
- Ingress
- Climatic
- Electromagnetic

Class 3 has the highest requirement while Class 1 has the lowest one. For copper cabling systems the electromagnetic behavior is directly related to the technology. The global parameter is coupling attenuation, which is a kind of EMC factor.

Data Center belongs to Class E<sub>2</sub>, for flawless and reliable services in the data center. Copper cabling systems shall comply in all disciplines to E<sub>2</sub> specifications as there are many different electrical systems in a small area. Independent tests have shown that devices such as fluorescent lamps, power cabling, wireless devices may have an impact.

This is particularly true for UTP cabling systems supporting 10 Gigabit Ethernet applications. The XG and XG<sub>A</sub> systems from Tyco Electronics fulfil the E<sub>1</sub>, E<sub>2</sub> and E<sub>3</sub> requirements and provide highest availability with consistently high margins.

\* With Class F<sub>A</sub> system up to 50 m, based on current studies. Length and capability depend on final definition by IEEE 802.3ba.