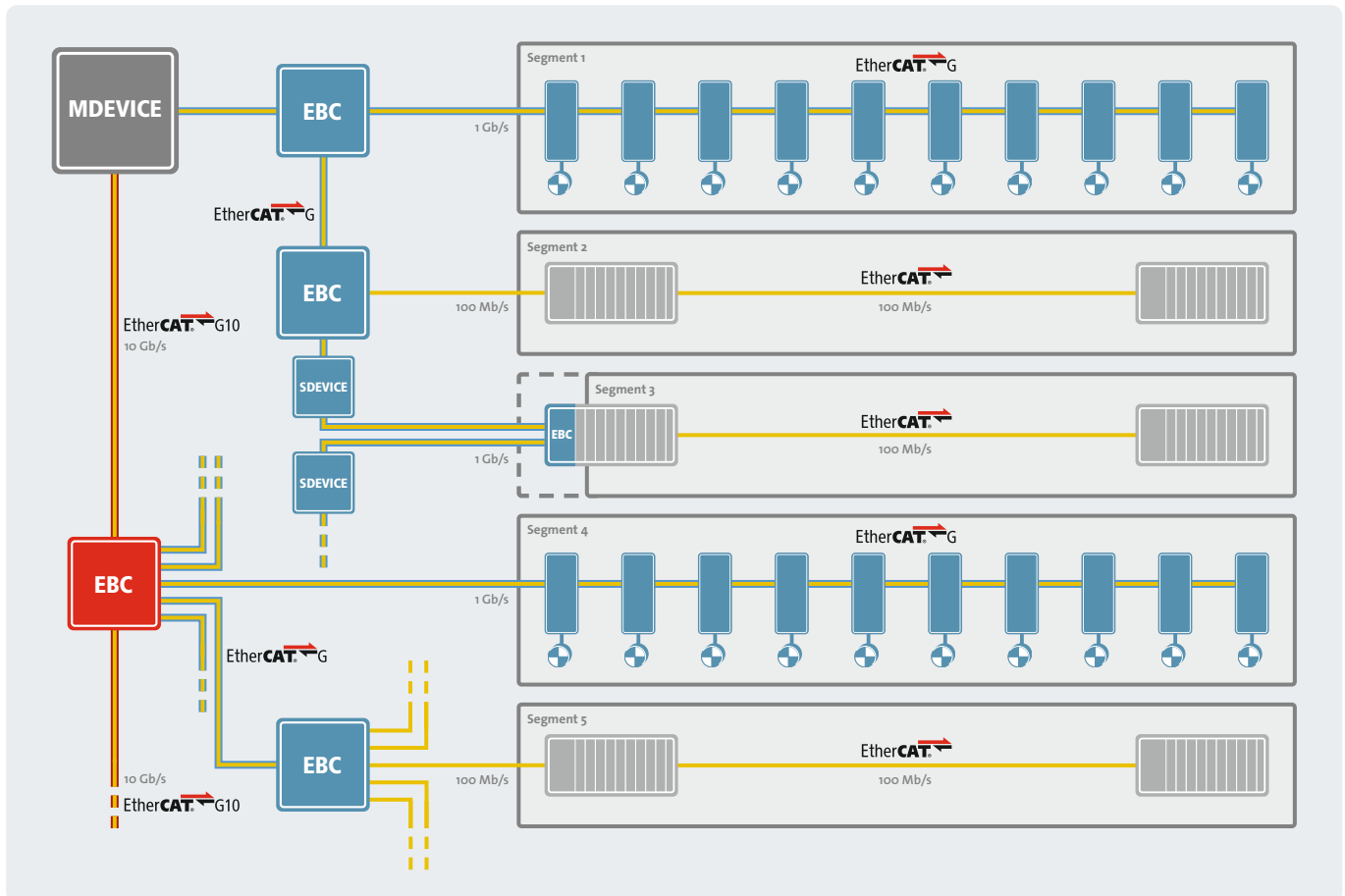


### Enhanced EtherCAT functionality at gigabit levels

EtherCAT G lifts EtherCAT technology up to gigabit levels – and thus delivers in applications that must transport particularly high process data per device, e.g. in the field of machine vision, high-end measurement technology or in complex motion applications. As an addition to the core EtherCAT technology, EtherCAT G is fully compatible. Existing devices based on

100 Mb/s can be integrated seamlessly because EtherCAT G devices act like traditional EtherCAT devices in a 100 Mb/s EtherCAT system. The well-known benefits of EtherCAT, including data transmission on the fly, comprehensive diagnostics, easy configuration and integrated synchronization, are of course fully retained when EtherCAT G is used and are carried into the connected segments transparently.



### How does it work?

A central element of EtherCAT G is the branch concept. It is realized with an EtherCAT Branch Controller (EBC), which essentially fulfil two main functions:

- They act as a kind of node for the integration of independent segments with 100 Mb/s devices.
- They enable parallel processing to the connected EtherCAT segments.

As a result the propagation delay is significantly reduced, which increases system performance many times over previous levels.

With the branch concept even big plants can be managed from one central control unit. The configuration of the network participants is conducted EtherCAT-typically by the MainDevice without the need for additional configuration tools.

### Put simply, it's EtherCAT

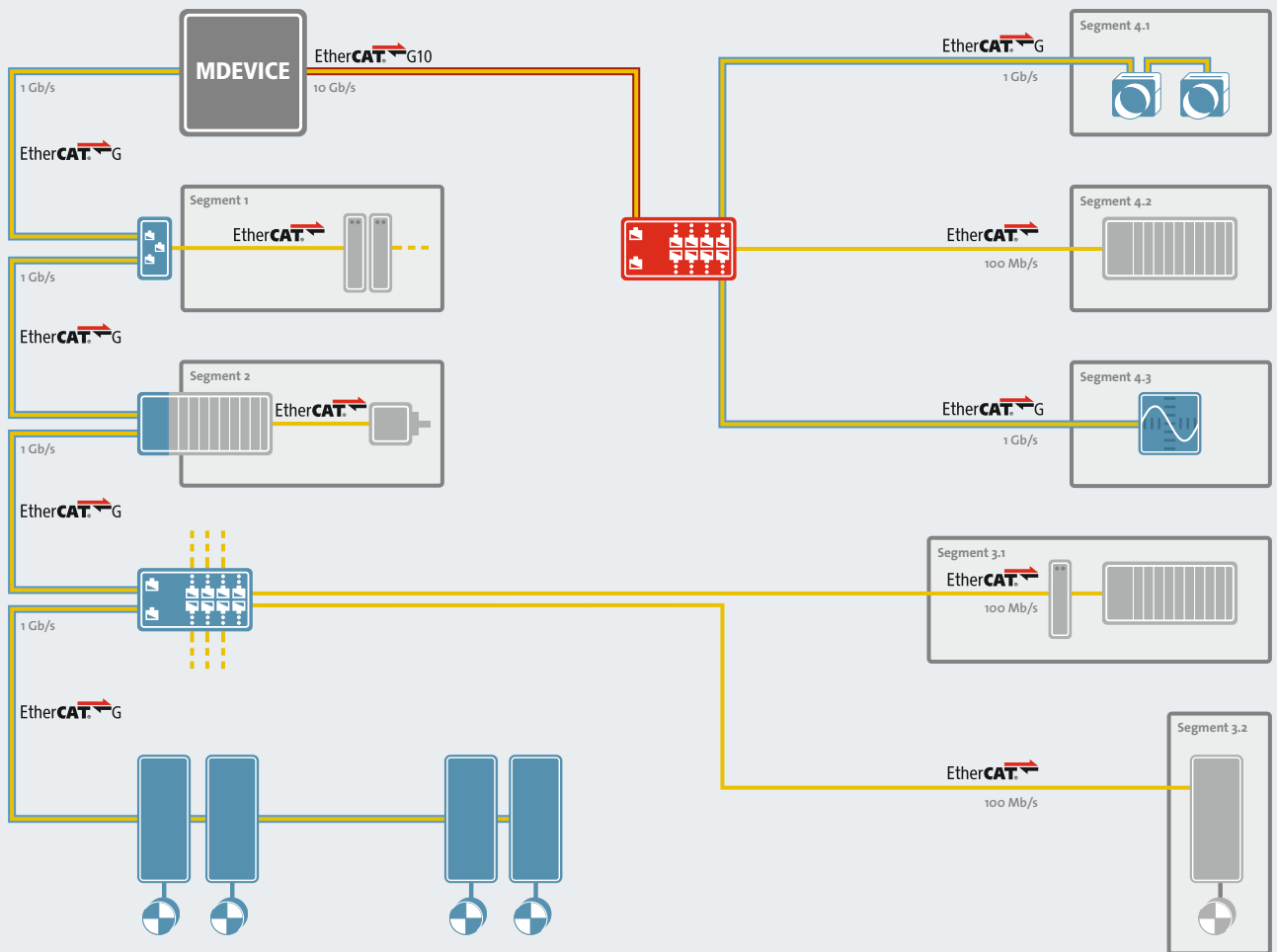
EtherCAT G is fully compatible to the IEEE 802.3 Ethernet standard. With EtherCAT G, topology flexibility is fully retained, too: branches, lines, daisy chains or tree structures can all be realized. And with the EtherCAT Branch Controllers you now have the possibility to optimally combine Gb/s segments with 100 Mb/s segments in one single network.

# What does the demo application show?

## Implementation of EtherCAT G in an EtherCAT network

- One EtherCAT MainDevice (Beckhoff) to control the network with EtherCAT, EtherCAT G and EtherCAT G10
- Four EtherCAT Branch Controllers (3x EtherCAT G, 1x EtherCAT G10) to integrate the individual segments
- One of them is an EtherCAT G coupler with internal EtherCAT Branch Controller functionality for the integration of standard 100 Mb/s terminals up to complex topologies with standard 100 Mb/s EtherCAT
- A total of seven connected segments with 100 Mb/s EtherCAT drives as well as I/O modules from different manufacturers (Baumer, Beckhoff, esd electronics, LTI Motion, Weidmüller Interface)
- Direct connection of two AX 5000 series EtherCAT G drives (Beckhoff)

### Setup of the demo application



### What is EtherCAT?

EtherCAT (Ethernet for Control Automation Technology) is an open Industrial-Ethernet solution. EtherCAT sets new standards with respect to real-time performance, low costs, flexible topology and ease of use.

[www.ethercat.org](http://www.ethercat.org)

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