

Gaining an Edge with TSN

Edge computing is key to optimising data-driven activities, supporting the implementation of innovative digital technologies and ultimately the creation of the Connected Industries of the future. It allows data processing to take place close to the source, turning key data into actionable information. For Edge computing to work effectively, advanced network technologies are required to build the supporting infrastructure that is the backbone of successful enterprises.

John Browett, General Manager at the CC-Link Partner Association (CLPA), looks at how to reap the benefits of the Edge with advanced industrial communication solutions.

Unprecedentedly high volumes of data are being generated by smart applications and technologies, providing the foundation to create an in-depth understating of equipment status, processes and activities. This, in turn, can be translated into unique actionable insights to improve productivity, performance and efficiency.

Large datasets are another raw material required by competitive enterprises. But having a solid, reliable infrastructure to share process data, information and knowledge is equally important to succeed. Moreover, Edge computing is instrumental to creating frameworks that are capable of quickly and securely evaluating data.

This technology conducts analytics for real-time decision-making at the periphery of the network, close to where data is being created, while also supporting knowledge generation by filtering what should be sent to the Cloud or other higher-level systems. As a result, the Edge can reduce latency and network costs as well as optimise bandwidth usage, increase speed, security and scalability. Even more, enhanced transparency, flexibility and availability can also be achieved.

At the cutting edge of industrial networks

In order to take advantage of all the opportunities offered by Edge computing, it is important to set up a suitable network. More precisely, the ideal solution should be able to support the key aspects of this technology.

An ideal industrial communications system should support a converged architecture that allows real time process traffic and asynchronous process data to share the same network without compromising the overall function of the system. This is achieved with a foundation of determinism, ensuring that all data types flow across the network in a predictable manner to deliver the required performance.

The key to delivering this deterministic, converged architecture is Time-Sensitive Networking (TSN). This allows the critical data running the process to coexist with the equally critical but perhaps less time sensitive data about the process. It is this latter data type that is the lifeblood of the Edge server. Using TSN means that these equally

vital but very different streams of traffic can use a single network architecture, saving cost, simplifying maintenance and reducing project time.

Secondly, companies should look for an open solution that can provide maximum connectivity. This means supporting communications with different devices, whether on the shop floor or higher up in the automation hierarchy. Openness, interoperability and an integrated solution for automation on different levels are therefore essentials.

The CLPA has long been able to offer enabling network technologies for Edge applications. This began with CC-Link IE open gigabit Ethernet. By leveraging a token-passing method and 1 Gbit/s bandwidth, it could deliver deterministic performance and low latency, even with high data traffic loads. Also, the different versions of CC-Link IE networks, which supplement each other and cover different aspects of industrial communications, could connect the various parts of an enterprise needed to create Connected Industries.

The organisation's latest advancement, CC-Link IE TSN, goes even further in its ability to support Edge computing, enhancing and expanding the capabilities of this solution by adding Time-Sensitive Networking (TSN), to deliver the capabilities discussed earlier. Ultimately, by selecting CC-Link IE TSN compatible components, businesses can gain a unique, competitive edge in the marketplace.

Image captions:

Image 1: Advanced network technologies are required to build the supporting infrastructure for successful Edge computing applications (Source: iStock/TomML)

Keywords: CLPA, CC-Link Partner Association, CC-Link IE TSN, Time-Sensitive Networking, Edge computing, open gigabit Ethernet, network

About The CC-Link Partner Association (CLPA)

The CLPA is an international organisation founded in 2000 dedicated to the technical development and promotion of the CC-Link family of open automation networks. The CLPA's key technology is CC-Link IE TSN, the world's first open industrial Ethernet to combine gigabit bandwidth with Time Sensitive Networking (TSN), making it the leading solution for Industry 4.0 applications. Currently the CLPA has over 3,800 member companies worldwide, and more than 2,000 compatible products available from over 300 manufacturers. Over 26 million devices using CLPA technology are in use worldwide.

The image(s) distributed with this press release may only be used to accompany this copy, and are subject to copyright. Please contact DMA Europa if you wish to license the image for further use.

Editorial contact:

DMA Europa Ltd: Chiara Civardi

Tel: +44 (0)1562 751436 Fax: +44 (0)1562 748315

Web: www.dmaeuropa.com

Email: chiara@dmaeuropa.com

Company contact:

CLPA-Europe: John Browett

Tel: +44 (0) 7768 338708 Fax: +49 (0) 2102 532 9740

Web: eu.cc-link.org

Email: john.browett@eu.cc-link.org