The future is transparent, convergent and time-sensitive

Industry 4.0 is an established trend in factory automation, aimed at increasing convergence and transparency. By implementing systems with these capabilities, businesses can gain greater insights into their processes, hence achieving better quality, productivity and reduced costs. The technology that is delivering these benefits is Time-Sensitive Networking (TSN).

John Browett, General Manager of the CC-Link Partner Association (CLPA) – Europe, looks at how TSN supports convergence and transparency and what solutions businesses can adopt

The Connected Industries of the future will generate a constant stream of data from their production systems. Insights derived from this data will provide a key tool for optimising manufacturing processes and improve the ability to adapt to new or varying demands. To gain these insights, data transparency and convergence will be paramount, as they represent the foundations of data-driven manufacturing.

The ability to implement these capabilities ultimately lies in the ability of industrial networks to deliver them. In particular, the network must be able to transfer high volumes of data from multiple sources across the enterprise. Also, it should share time-critical traffic in a reliable and predictable manner to maintain operational performance and efficiency.

The most promising technology for this is TSN, an extension of industrial Ethernet that supports deterministic communications via accurate time synchronisation and traffic scheduling. These mechanisms provide the foundation of the convergence necessary to provide the required levels of transparency. Hence, we are moving to a future where not only machine control data, such as I/O states, safety and motion control, share the same network in real-time, as it is the case with many current industrial Ethernet protocols, but now we can add almost any other kind of Ethernet traffic too. The benefits are simpler, less expensive and easier to maintain networks that provide unprecedented levels of transparency into manufacturing processes. The associated convergence can not only offer the ability to simplify networks on the shop floor, but can also more tightly bind the shop floor to the enterprise, delivering ever greater integration between the operational technology (OT) and information technology (IT) worlds.

The CLPA has a proven track record of leading the industry with ground-breaking open automation network technologies. In late 2018, the CLPA launched CC-Link IE TSN to help automation manufacturers develop TSN-driven products as quickly as possible, in turn supporting businesses to improve their operations by implementing the technology on the factory floor.

This is the first open industrial Ethernet that combines gigabit bandwidth with TSN functionalities and is designed to provide a gateway to the industrial communications of the future, while supporting current needs.

By selecting CC-Link IE TSN open network technology for automation devices, vendors can become the first to offer TSN-based products, gaining a unique competitive edge. Similarly, manufacturing businesses using these products can improve their current operations while getting ready for the future.

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Image Caption: John Browett, General Manager of the CC-Link Partner Association (CLPA) – Europe, looks at how TSN supports convergence and transparency and what solutions businesses can adopt.

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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.

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