

Smart factories Need smarter equipment

EDGE COMPUTING

MACHINE AND EQUIPMENT BUILDERS SEEK NEW WAYS TO OFFER MORE VALUE TO CUSTOMERS WHILST CREATING NEW REVENUE STREAMS FOR THEMSELVES. ENTER, EDGE COMPUTING, AS STRATUS TECHNOLOGIES' GREG HOOKINGS EXPLAINS

Business models and company methods vary widely between OEMs and the industries they serve, but there is one thing that is always the same; they operate in competitive environments. Spurred on to continuous improvement, each generation of machines offers value and performance improvements over its predecessor.

In the same way that the introduction of PLCs and PACs marked a step change for automation in the plant a generation ago, Edge Computing, as part of the digital transformation era, is revolutionising industrial enterprises today. OEMs can now employ Edge Computing directly, allowing end users to operate at peak performance by analysing data from where it is collected, providing real-time actionable intelligence to managers that can inform decisions to drive improved overall equipment effectiveness (OEE).

The case for deploying analytics at the edge is growing rapidly year on year. A recent report from Gartner shows that today 10% of industrial IoT analytics are completed at the edge; jump forward to 2022 and this number is expected to be 50% and still rising. As edge computing is better understood, and the platforms become simpler to deploy and maintain, more autonomous, and more secure, it becomes increasingly difficult to ignore its clear advantages. Setting out a clear Edge Computing strategy is now vital to maintaining a competitive edge in the future.

Machines-as-a-service

A subscription-based model is becoming increasingly popular as it offers a host of benefits for end users looking to cut costs while improving capabilities. In the first instance, there is a reduction in capital expenditure. The added flexibility offered by this model also means that a new facility, machine line, or machine upgrade can be designed, installed and operational far more quickly than before. This helps meet the rapid, consumer-driven demand for responsive manufacturing, product variants and mass personalisation.

OEMs have two main approaches to the as-a-service model. One approach includes selling the machine at little or no cost and receiving a small sum for every item or product it produces. By implementing Edge Computing with this model, both OEMs and end users benefit from real-time data. The OEM receives consistent data about their machines giving them new intelligence about real-life usage patterns as well as real time visibility into performance which can allow for effective predictive maintenance. By entering into such a service agreement, the OEM becomes an important partner of its end user for the life-time of the machine and receives a steady revenue stream – a firmer financial footing for their own R&D. The second approach to

machines-as-a-service would be for a facility owner to purchase a machine from the OEM, opening it up for use by other external end users looking to manufacture a specific product.

The benefit of Edge Computing within both of these approaches are the same. If you are paid a subscription fee for a machine, keeping it 'always-on' keeps a continuous revenue stream for OEMs, facility owners and their customers.

But what about existing plant equipment? Edge Computing is a scalable and modular technology. It can help enable equipment manufacturers' existing applications, such as monitoring and control software, to be consolidated onto a single platform while enabling other critical applications to run on the very same platform. This makes it easier to develop IIoT enabled machines and equipment and, due to the scalable nature of Edge Computing equipment, manufacturers can add future applications to address customers' evolving digital transformation needs.

With manufacturing, a sector that often sees legacy hardware sticking around for a long time, Edge Computing can help push that first step into digital transformation. By deploying Edge Computing, the communication protocols from legacy devices are converted into language that modern smart devices can understand. Embracing digital transformation without the need for complex retrofitting and redesign or investing in expensive new equipment will be a popular strategy for many end users, and if supported by OEMs, can offer new business models that benefit them too.

Simple, protected and autonomous

With the benefits of Edge Computing plain to see for both OEM and end user, what should your Edge Computing platform do? First, it has to be ready for potentially harsh environments at machine level. From facing the elements on an offshore platform, to hot, dusty, humid, or wet conditions on a factory floor, the edge platform must sit on more robust hardware than traditional IT technology. It must also have inherent security features such as restricted USB ports to help mitigate security threats and easily configured host-based firewalls for network protection.

With an Edge Computing platform that is physically and digitally capable, the next consideration is the implementation and maintenance in an environment likely to have reduced IT support. An effective Edge Computing platform must complete complex tasks autonomously and run virtual machines with fault tolerance capabilities to eliminate unplanned downtime. To achieve this, the solution deployed needs to be simple. Simple to deploy



and simple to manage for on-site operators with limited IT know-how. The best platforms should work out of the box and be as simple to install as a games console, while redundancy can be ensured with mirrored data capture and hot swappable components that not only tell you when they must be replaced but can be changed by operators without IT support.

Edge Computing is an essential part of the digital transformation journey. End users understand the need for digitalisation to keep their production process as efficient as possible. The opportunity that now exists for OEMs is to implement edge computing at the machine level and sell solutions that return the value of real-time analytics to machine builders and manufacturers alike. OEMs can now sell not just the capability of the machine, but also the peace of mind of reduced unplanned downtime and the protection of a traditional IT network at the machine level. Importantly, OEMs can sell this in new ways, with advanced service models that help stabilise income for the whole product lifecycle and offer them a firmer footing for ensuring their own continued competitive edge.

Edge Computing can help by meeting the unique needs of both OEMs and end users, using data at the machine level to simultaneously improve efficiency for the end user and reduce maintenance costs for OEMs using a service model. Contact Stratus Technologies for more information on how you can embrace Edge Computing within your Digital Transformation.

Stratus Technologies enables Digital Transformation by delivering Zero-Touch Edge Computing platforms. Platforms that are simple to deploy and manage, protected from threats of interruption and autonomous in operation, ensuring continuous availability of business-critical applications.

For more information on the differentiation and competitive advantages offered to the machine world by the IIoT, access the Stratus Technologies white paper: www.stratus.com/smarter-machines