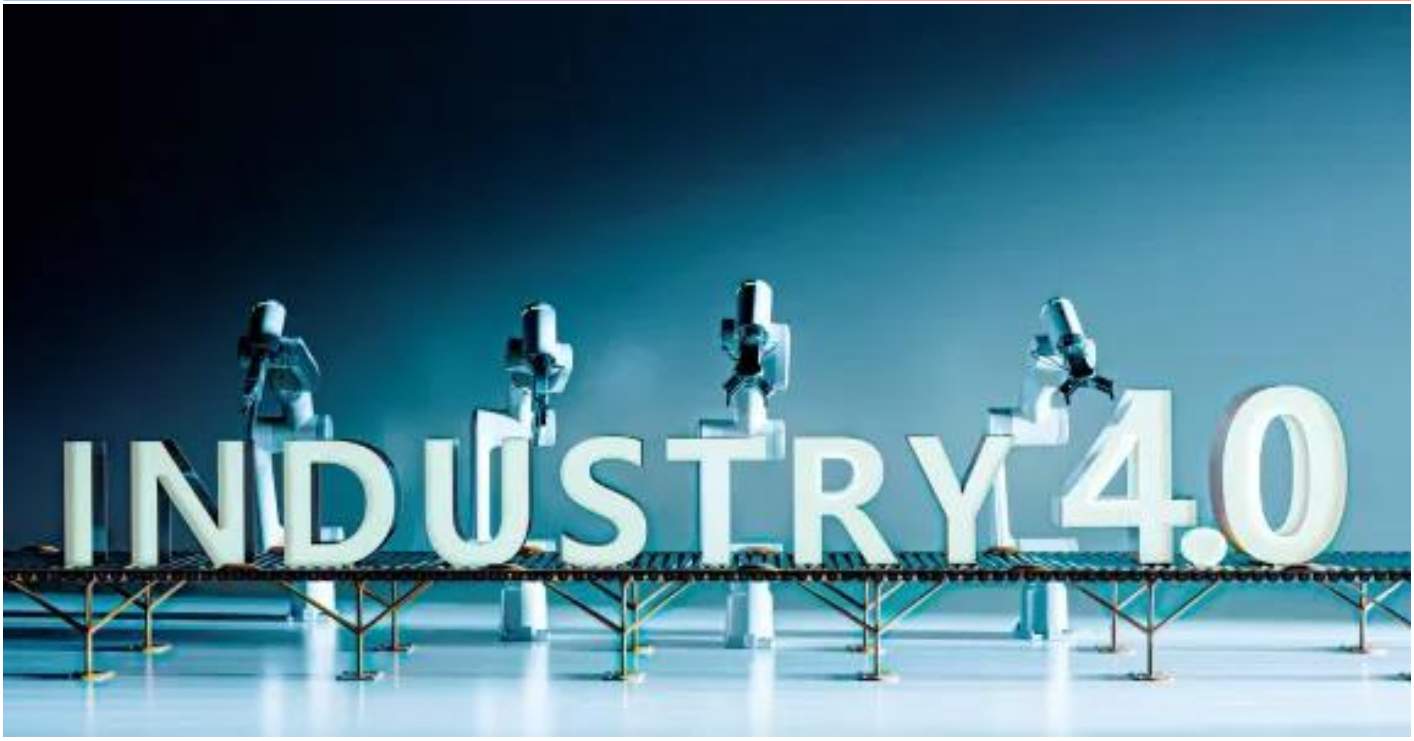


OPC-UA and Omlox: two pillars of Industry 4.0

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In connected industry, there are two prominent **major standards: OPC-UA** and **Omlox**. OPC-UA is a **communication protocol for the Industrial Internet of Things** (IIoT). Omlox is an **open standard** for **real-time location**. Together they support **interoperability**, **security** and **flexibility** in **industrial environments**. In this article, Olivier Gramaccia, SMART Products & Services expert at Sirris, explains how the OPC-UA and Omlox standards facilitate the transition of your manufacturing company to Industry 4.0.

OPC-UA: the key to a connected factory

The **OPC-UA (Open Platform Communications Unified Architecture) protocol** is an industrial communication standard. It allows machines, equipment and IT systems to be connected in a **unified ecosystem**. “Over the years, OPC-UA has become a key component of the Industrial Internet of Things (IIoT). This protocol is essential today in the most extensive IoT environments,” notes Olivier Gramaccia, SMART Products & Services expert at Sirris.

1. Increased interoperability of systems

“One of the major current trends with regard to the OPC-UA protocol is **interoperability**, that is, the ability to connect heterogenous systems,” explains Olivier Gramaccia. For example, OPC-UA is compatible with other industrial standards such as **MQTT** (Message Queuing Telemetry Transport) and **REST API**. This compatibility facilitates **communication between systems** of different generations and various manufacturers. Industrial processes thus become simpler to optimise.

2. Focus on security and upgradeability

Security is central to the development of OPC-UA. The protocol incorporates advanced mechanisms such as data encryption, authentication and access control to guarantee **protection of the information** exchanged. According to Olivier Gramaccia, the proliferation of **Edge and Cloud architectures** make this protection even more important.

3. OPC-UA for Industry 4.0

OPC-UA is often considered a **key facilitator** of Industry 4.0. It facilitates exchange of data in real time among machines, equipment, and applications. At the same time, OPC-UA also ensures convergence between **information technologies** (IT) and **operational technologies** (OT). Thanks to this development, **smart factories** capable of adapting to production needs in real time can be created.

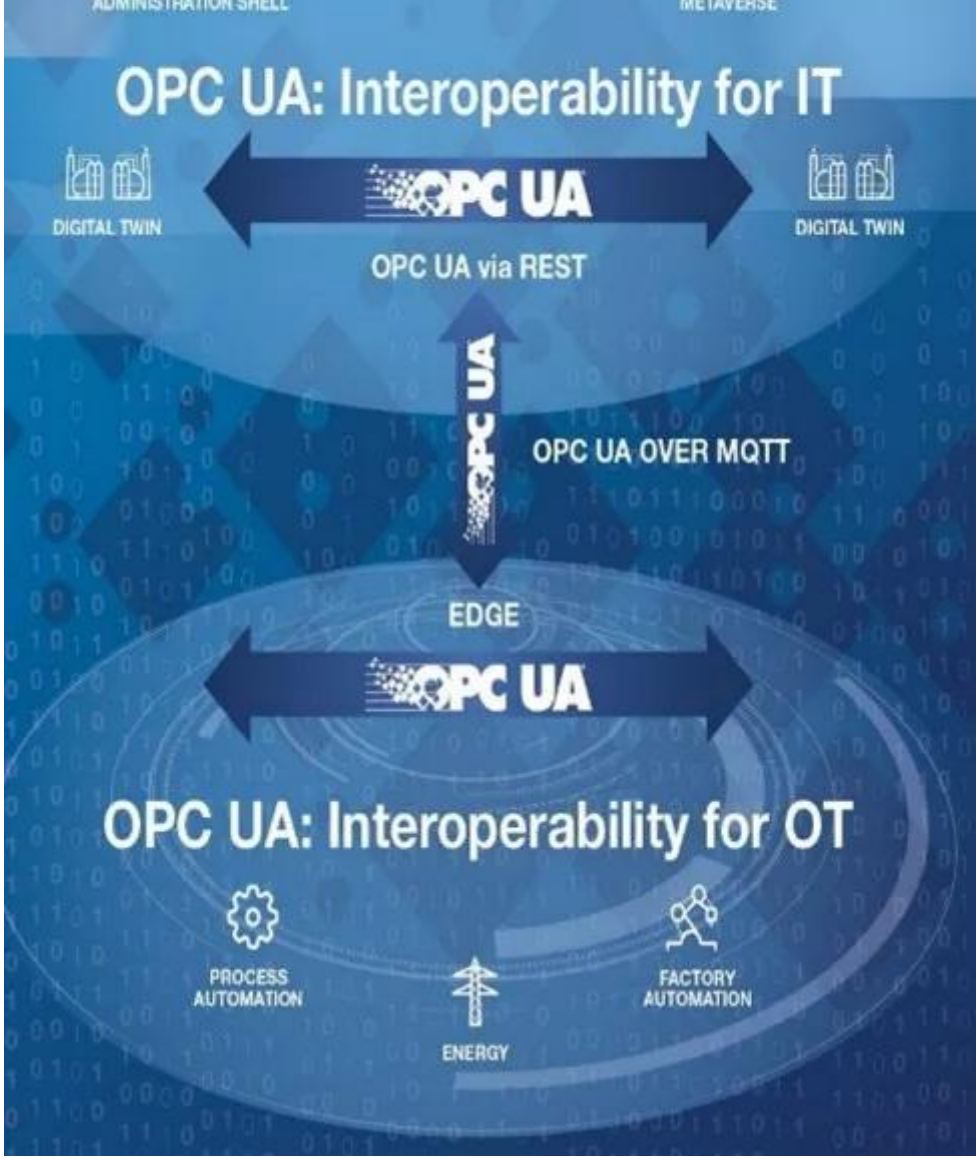
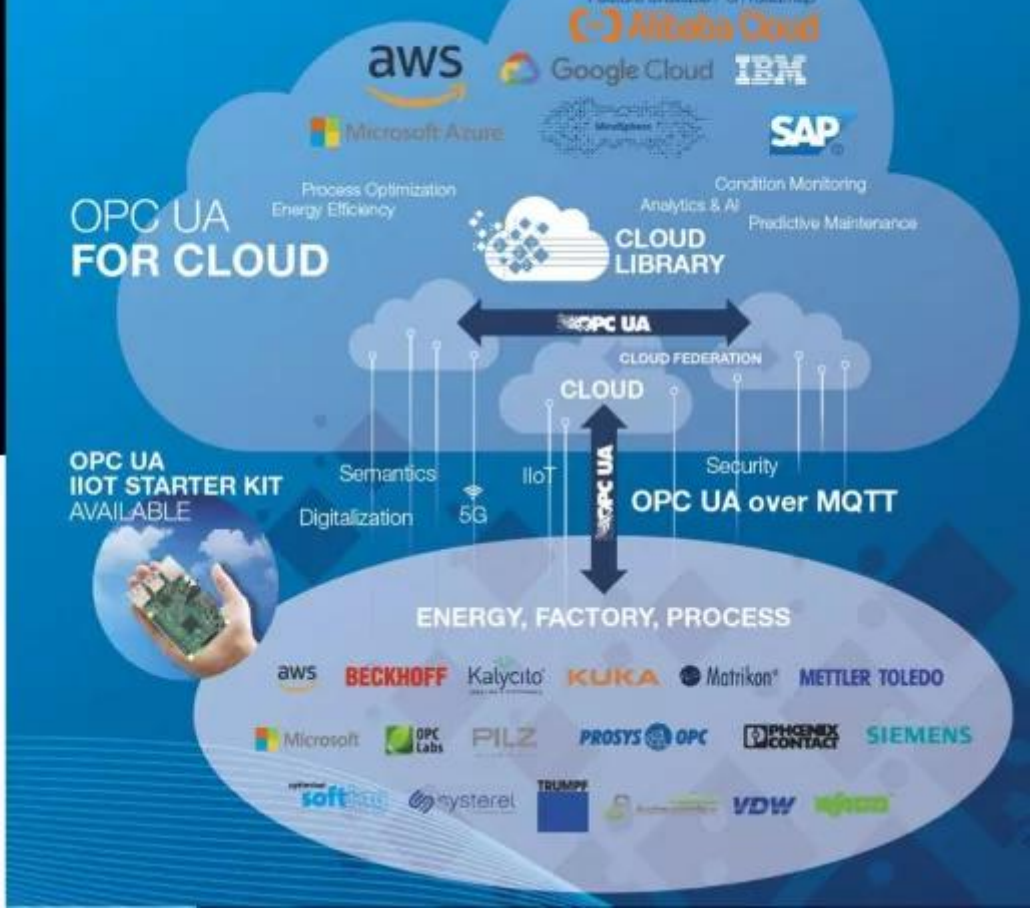


Figure 1: OPC-UA

4. Openness to the Cloud

Recently the OPC Foundation launched the **OPC Foundation Cloud Initiative**, which is supported by giants like Amazon, Microsoft, Alibaba, SAP and Huawei. “This initiative aims to create **complete interoperability** between **IT** and **OT** by proposing a **unified standard** applicable to the entire industrial production line,” explains Olivier Gramaccia.



Omlox, the open standard for real-time location

Omlox is an **innovative standard** dedicated to **real-time location** (RTLS - Real-Time Location System) in industrial environments. It standardises object tracking technologies like **Ultra Wide Band** (UWB), **GPS** or **Wi-Fi**. “Omlox is distinguished by its **open, modular approach**, allowing broader and more flexible adoption of the **location solutions**,” explains Olivier Gramaccia.

1. Standardisation of RTLS systems

Historically, **real-time location systems** have been fragmented between various suppliers. “Omlox resolves this problem by proposing a common basis so that these systems function together harmoniously,” explains Olivier Gramaccia. “This **standardisation** reduces dependence on a supplier and allows **better integration of location technologies** within factories,” he continues.

2. The increasing adoption of UWB

Among **location technologies**, Ultra Wide Band (UWB) stands out for its precision and low energy consumption. Omlox promotes adoption of this technology while offering **compatibility** with other systems. Olivier Gramaccia confirms this; UWB is especially useful for real-time tracking of objects and equipment in complex industrial environments.

3. Close integration with Industry 4.0

Like the OPC-UA protocol, Omlox plays a crucial role in Industry 4.0. Omlox precisely locates **objects and equipment** in production processes. This optimises key aspects such as **logistics, stock management** and **workflows**. “Thanks to its **open approach**, Omlox is easily integrated with Industry 4.0 systems such as **ERP** (Enterprise Resource Planning) or **data analytics platforms**,” Olivier Gramaccia stresses.

OPC-UA and Omlox, pillars of connected industry

In summary, **OPC-UA** and **Omlox** represent two major advances for **connected industry**. The OPC-UA protocol guarantees **interoperability** and **security** in **complex industrial systems**, while Omlox standardises and improves **real-time location**. Together, these two standards facilitate the transition to **smart, flexible** and **connected** factories, true symbols of Industry 4.0.

Ready to make the leap to connected industry?

Do you want to digitalise your factory and make it more connected? Or understand how the OPC-UA and Omlox standards can improve your production? At Sirris, we support you in adopting these standards to digitalise your processes, improve your performance and make a successful transition to Industry 4.0.
Send an email to our experts: connected.factory@sirris.be.

Contact us to find out more and accelerate your transformation!

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