Industrial Internet of Things (IIoT)

TIMELINE

On January 1, 1968, **Dick Morley had a hangover.** It was not an auspicious start to the day he would draft a memo that led directly to the invention of the **Programmable Logic Controller (PLC)**.

'68 PLC is born

Machine-to-Machine (M2M) devices that **combined telephony and computing** were first conceptualized by **Theodore G. Paraskevakos** while working on his caller line identification system.

'83 Ethernet standardized

'86 PLCs are linked to PCs

Tim Berners-Lee implemented the first successful communication between a **Hypertext Transfer Protocol (HTTP)** client and server via the internet.

'89 World Wide Web is invented to share research

BECOMING STANDARDIZED:

Human Machine Interface (HMI)

Supervisory Control and Data Acquisition (SCADA)

'92 Ethernet and Transmission Control Protocol / Internet Protocol (TCP/IP) connectivity for PLCs is introduced

'94 The OPC Foundation forms to secure data exchange in industrial automation

OPC FOUNDATION

The Interoperability Standard for Industrial Automation

'95 MS Windows becomes the mainstream OS in the factory

'96 OPC Data Access (DA) protocol is released

'97 Wireless M2M technology becomes prevalent in industry

'98 Ethernet turns 25 and becomes ubiquitous in industrial environments

'99 "Internet of Things" is coined by Kevin Ashton

'02 Cloud technology takes hold with the launch of Amazon Web Services (AWS)

Legacy devices connect to the internet, **extending connectivity to industrial things**

'06 OPC Unified Architecture (UA) protocol is released, enabling secure remote communications between devices, data sources, and applications

Devices get **smaller and smarter**

Historian adoption rises

Battery and solar power become more powerful and economical

'10 Sensors drop in price

'11 Bring Your Own Device (BYOD) becomes mainstream

IT standards enter industrial automation (Ex: MQTT, REST, HTTP)

16 Billion connected things

'16 IIoT vision emerges

Data scientists move into leadership roles

What does the future hold for IIoT?

Augmented reality and virtual reality become standard UIs for IIoT architectures

The **security** of industrial data and assets remains critical

IT and operations collaborate to drive business-level decisions

27 Billion connected things

$3 Trillion generated in revenue

Kepware