OPC DAY FINLAND 2018

NOVEMBER 13TH 2018 #OPCUA #INDUSTRY40 #IIOT #OPCDAY #OPCDAYFINLAND #AUTOMAATIO

Future Visions
with
OPC UA

FINNISH SOCIETY OF AUTOMATION
SUOMEN AUTOMAATIOSEURA RY

Future Visions with OPC UA

Another view from specifications to practical applications.

Agenda:

• Background

• Current status

• Systems

• Next generation applications

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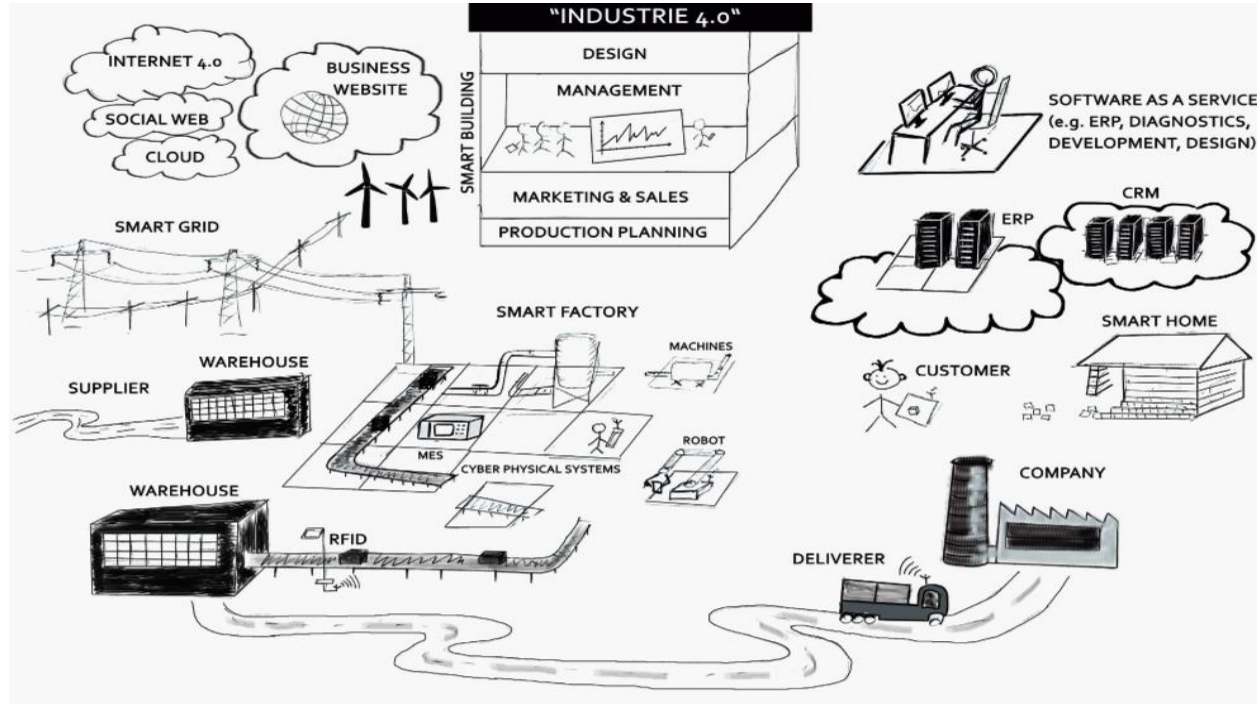
FINNISH SOCIETY OF AUTOMATION
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Background: Short History

History

Microsoft operating systems dominate the industrial automation landscape. Automation vendors begin using Microsoft's COM and DCOM in their product offerings.	1990s	
	1995	Automation vendors Fisher-Rosemount, Intellution, Opto 22 and Rockwell Software form a task force to develop a standard for data access based on COM and DCOM, and call it OPC, an abbreviation for OLE (Microsoft Object Linking & Embedding) for Process Control.
The task force, established a year earlier, releases version 1.0 of a simplified OPC specification for Data Access (DA) in August.Within the first year, several other software and hardware vendors began using OPC as their mechanism for interoperability.It soon becomes clear that a more formalized organization of compliance, interoperability, certification and validation is necessary. The OPC Foundation is established at the Chicago ISA Show in September.	1996	
	1998	The OPC Foundation begins converting its existing specification to web services.
OPC Alarms & Events (OPC AE) specification is released.	1999	
	2001	OPC Historical Data Access (OPC HDA), Batch and Security specification are released.
OPC Complex Data, Data eXchange and XML-DA specifications are released.OPC Unified Architecture (OPC UA), comprising of 13 separate parts, is created by the OPC Foundation.The original OPC specification is now referred to as "Classic OPC" or OPC Classic.	2003	
	2004	OPC Commands specification is released.
OPC UA version 1.0 becomes available.	2006	
	2007	OPC Certification Program and Test Labs are introduced.Automation vendors begin offering the first products based on OPC UA.
OPC UA version 1.01 becomes available.OPC UA for Analyzer Devices (ADI) is released as a companion specification driven by the Pharma and Chemical manufacturing industries.	2009	
	2010	The first embedded OPC UA devices are released.OPC UA for IEC 61131 is released as a companion specification.
IEC 62541 is released (UA).	2012	
	2013	OPC UA 1.02 is released.OPC UA for ISA-95 is released.The OPC Foundation supports over 480 members across China, Europe, Japan and North America.

Reference: Jürgen Lange, Frank Iwanitz and Thomas Burke. "OPC from Data Access to Unified Architecture." 4th rev. Edition. Berlin: VDE VERLAG GMBH, 2010. ISBN 3-978-3-8007-3242-5

https://opcfoundation.org/about/opc-foundation/history/

INDUSTRIE 4.0

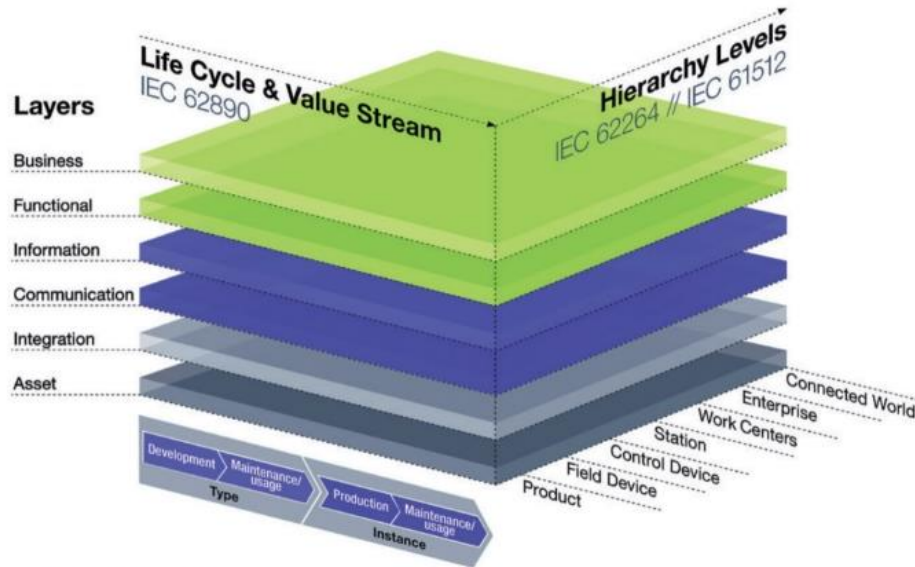© Valmet | Mika Karaila / Future Visions with OPC UA

Connectivity as usual

- OPC UA cloud connectivity

- Systems connected to Azure / AWS / etc.
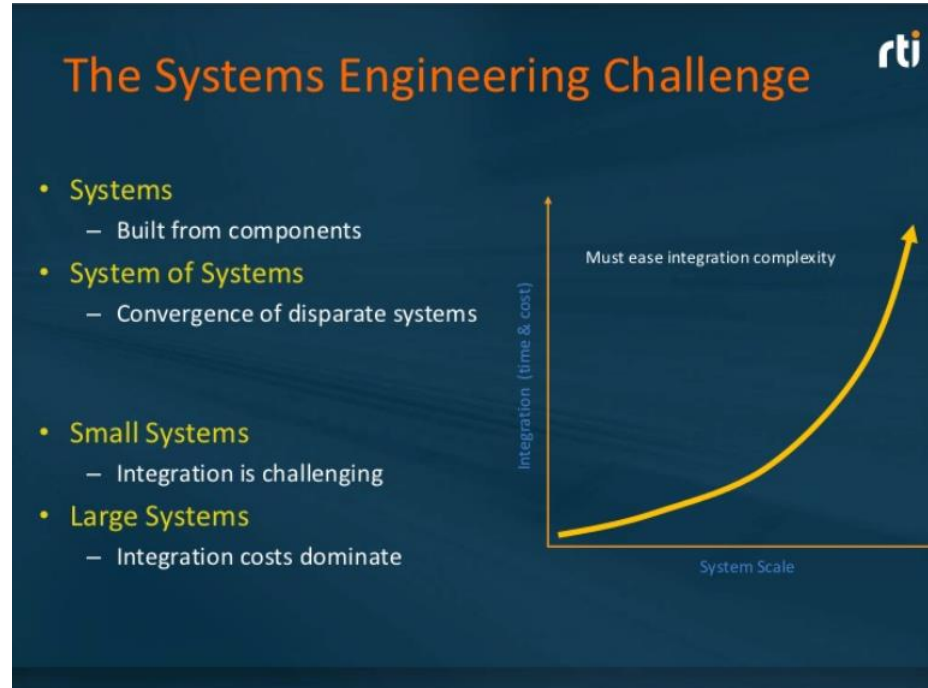
- Big Data & Machine Learning

- Edge

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Architecture

Communication – OPC UA

Reference Architectural Model Industrie 4.0
(RAMI 4.0)
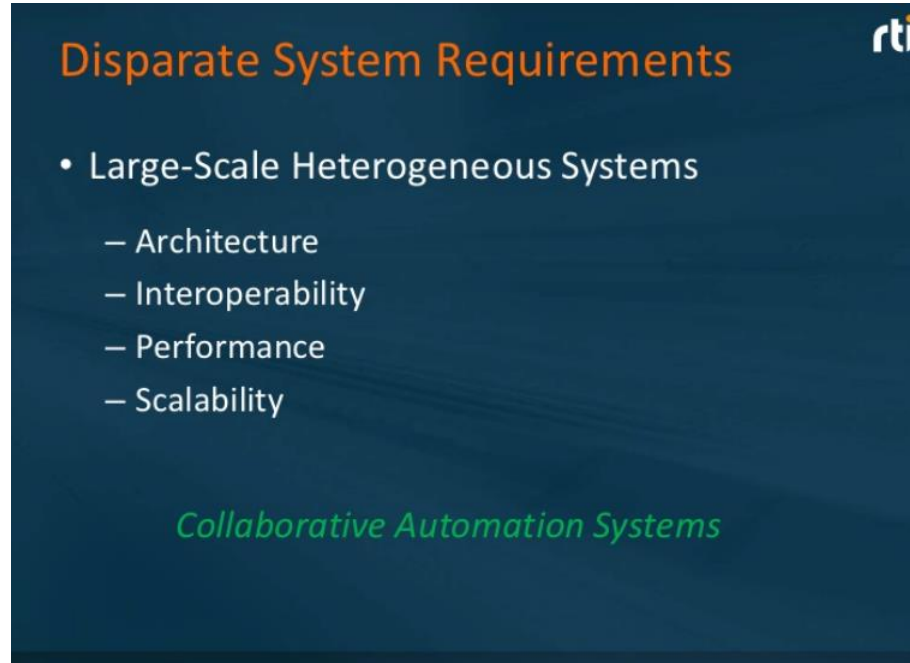
Source: Plattform Industrie 4.0

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https://opcconnect.opcfoundation.org/2015/06/opc-ua-in-the-reference-architecture-model-rami-4-0/

Systems Engineering

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https://www.slideshare.net/RealTimeInnovations/extending-opcua-through-architecture-flexibility-performance-and-scalability?next_slideshow=1

Disparate Systems

Disparate System Requirements

- Large-Scale Heterogeneous Systems
  - Architecture
  - Interoperability
  - Performance
  - Scalability

Collaborative Automation Systems

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Next generation applications using OPC UA

Real-time animated domain symbols

Communication through OPC UA

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OPC UA Alarms & Events

Active alarm – Value panel - Context menu

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OPC UA Alarm -> teleport to object

3D Tank level animated through OPC UA
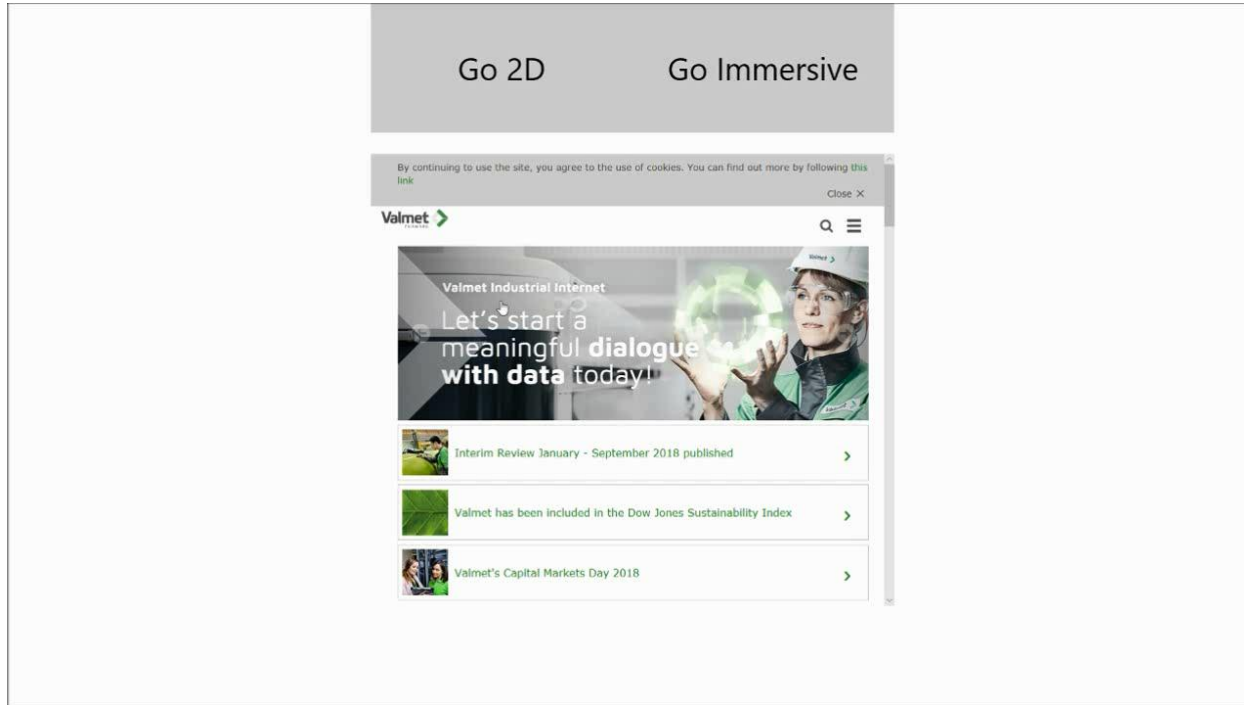
SUMMARY

- Evolving from information models to systems

- From architecture to new applications

- OPC UA with new technologies

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Thank you!

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