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UNS (Unified Namespace) Architecture with AVEVA System Platform

Ahmed Aly Khalil

AVEVA

Agenda

1.

Introduction to UNS (Unified Namespace)

2.

UNS Architecture Example

3.

System platform Useful features/capabilities for UNS

Introduction to UNS (Unified Namespace)

What is Unified Namespace (UNS)?

- The **structure**
- A **single source of truth**
- The **current state** of :
 - **Layers (Namespaces),**
 - **events,**
 - **data and information models contextualized and normalized**
- The **hub**
- The architectural foundation for **Digital Transformation**

Why: the *Unified Namespace* (UNS) is needed

**ISA 95 / IEC 62264
standards framework**
For Integrating Enterprise and Control Systems

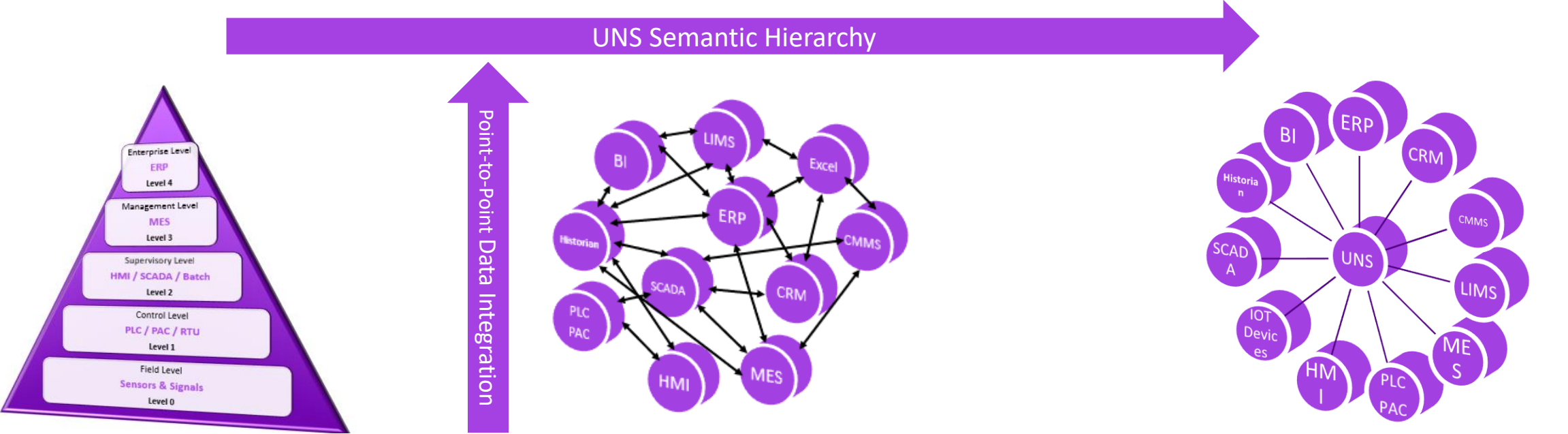
Traditional Industrial Automation Integration is aligned around point-to-point connections, passing data thru each level in the Technology Stack.

**Point-To-Point
Integration**
Traditional Industrial Automation Integration

Inconsistent Naming Conventions
Inconsistent Structure and Context
Difficult to maintain & scale
Data Isolation and Silos (Software Sprawl)
Breaks Down IT/OT Convergence

**Unified Namespace (UNS)
Integration**
Digital Transformation

Consistent (*Standard*) Naming Conventions
Hierarchical Structure based upon
(ISA 95 / IEC 62264)
Data in Context (Contextual Metadata)
Democratizes the Data
Faster & Normalized IT / OT Convergence



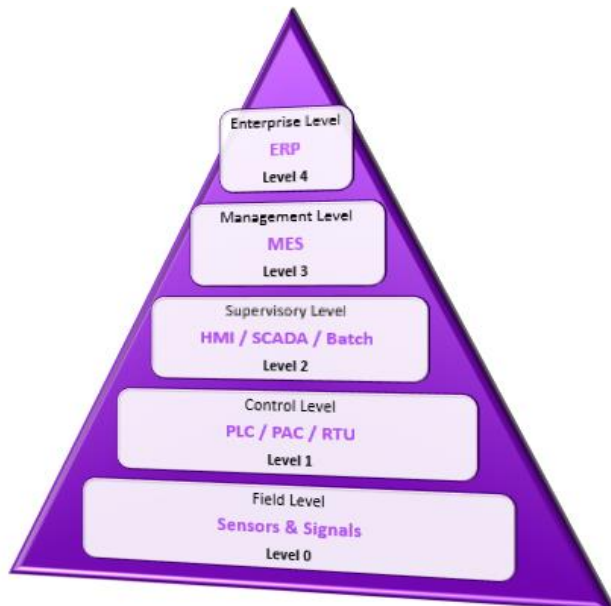
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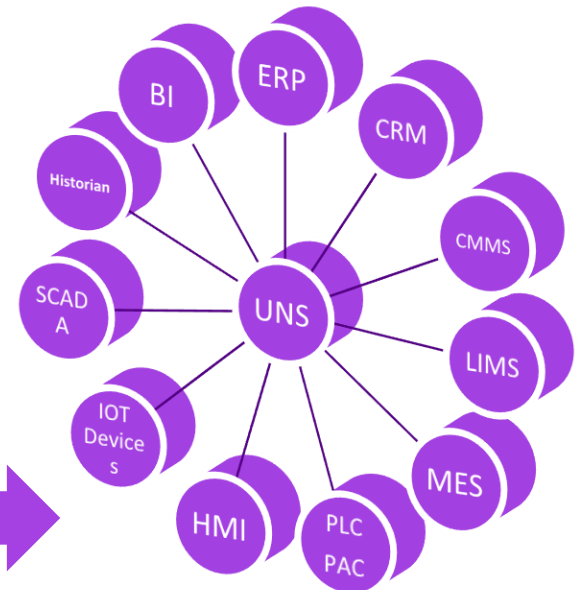
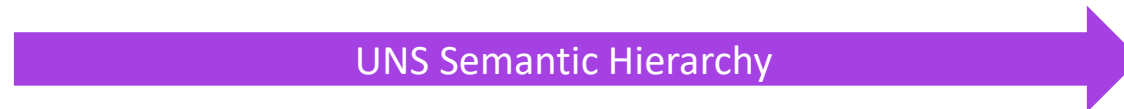
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- ENTERPRISE
 - SITE
 - AREA
 - LINE 1
 - CELL 1
 - CELL 2
 - LINE 2
 - CELL 1
 - CELL 2

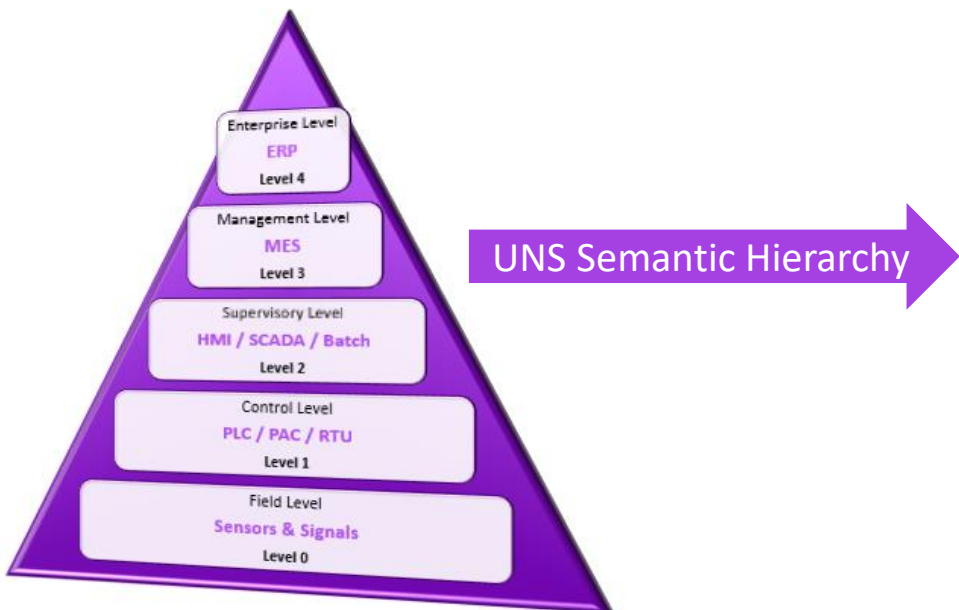


How: the *Unified Namespace* (UNS) is built

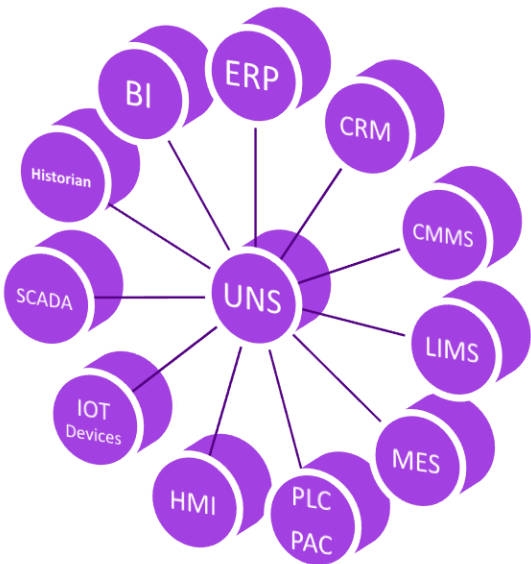
ISA 95 / IEC 62264
standards framework

For Integrating Enterprise and Control Systems

Unified Namespace (UNS) semantic hierarchy is usually driven by the ERP systems in place as this commonly becomes the Master Data Model used within the business.



- ENTERPRISE
 - SITE
 - AREA
 - LINE 1
 - CELL 1
 - CELL 2
 - LINE 2
 - CELL 1
 - CELL 2



- ENTERPRISE
 - Functional namespace
 - Informational namespace
 - Definitional namespace
 - SITE
 - Functional namespace
 - Informational namespace
 - Definitional namespace
 - AREA
 - Functional namespace
 - Informational namespace
 - Definitional namespace
 - LINE
 - Functional namespace
 - Informational namespace
 - Definitional namespace
 - Ad-Hoc (Edge 1)
 - Ad-Hoc (Edge 2)
 - CELL
 - Functional namespace
 - Informational namespace
 - Definitional namespace

How: the *Unified Namespace* (UNS) is built

Key Concepts

Semantic Hierarchy

the foundation of the UNS,
hierarchical structure.

Descriptive Namespace

static data and information

Examples asset's name, ID, location,
OEM (Original Equipment
Manufacturer).

Functional Namespace

Operational aspects and
actions.

Examples of functional namespaces
include OEE (Overall Equipment
Effectiveness), Production Line, Change-
over, Edge Data Ingress, and Roll
Consumption.

Informative Namespace

Structured data for easy
interpretation & decision.

Dashboard, Transaction, and Endpoint.

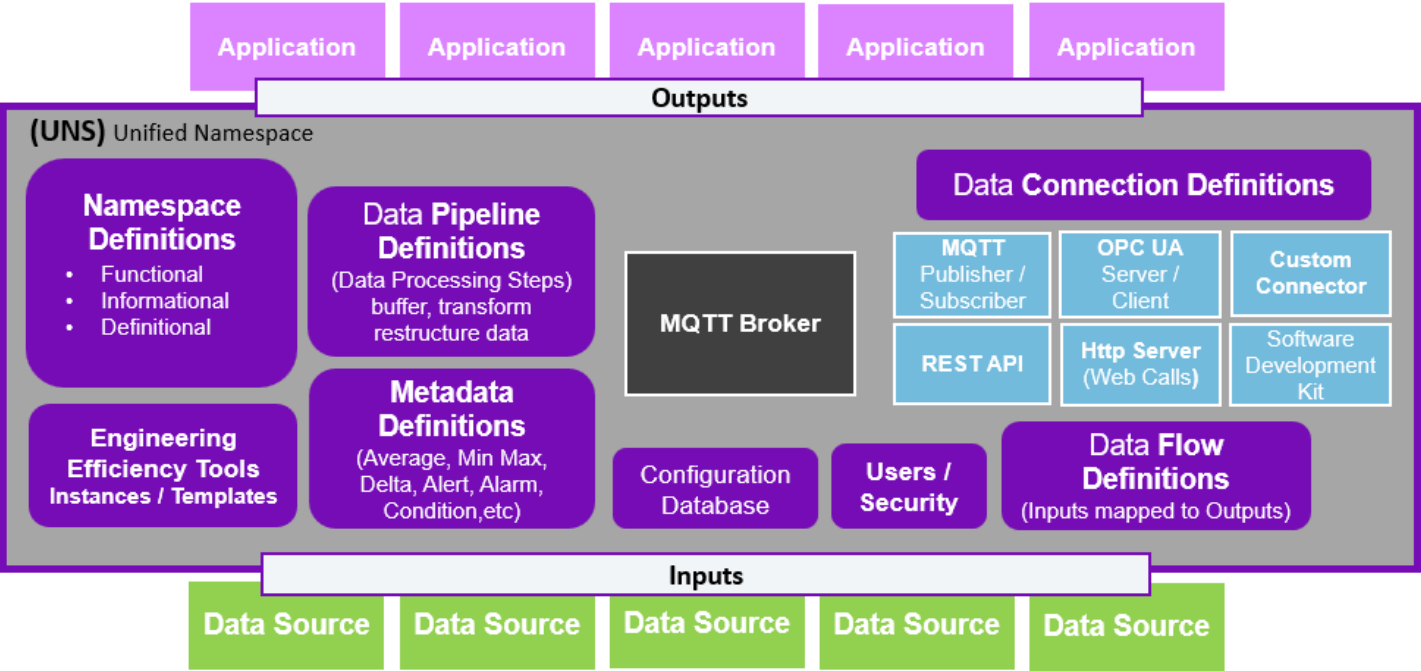
How: does a *Unified Namespace* (UNS) work

A Unified Namespace (UNS) can mean different things to different people as it is commonly referenced as:

Technology Stack (“UNS Architecture”)

OR

Software Offer used to build a “UNS”
/ Data Ops software



Source: Crosser Technologies

Benefits of *Unified Namespace* (UNS)

Scalability

Normalization

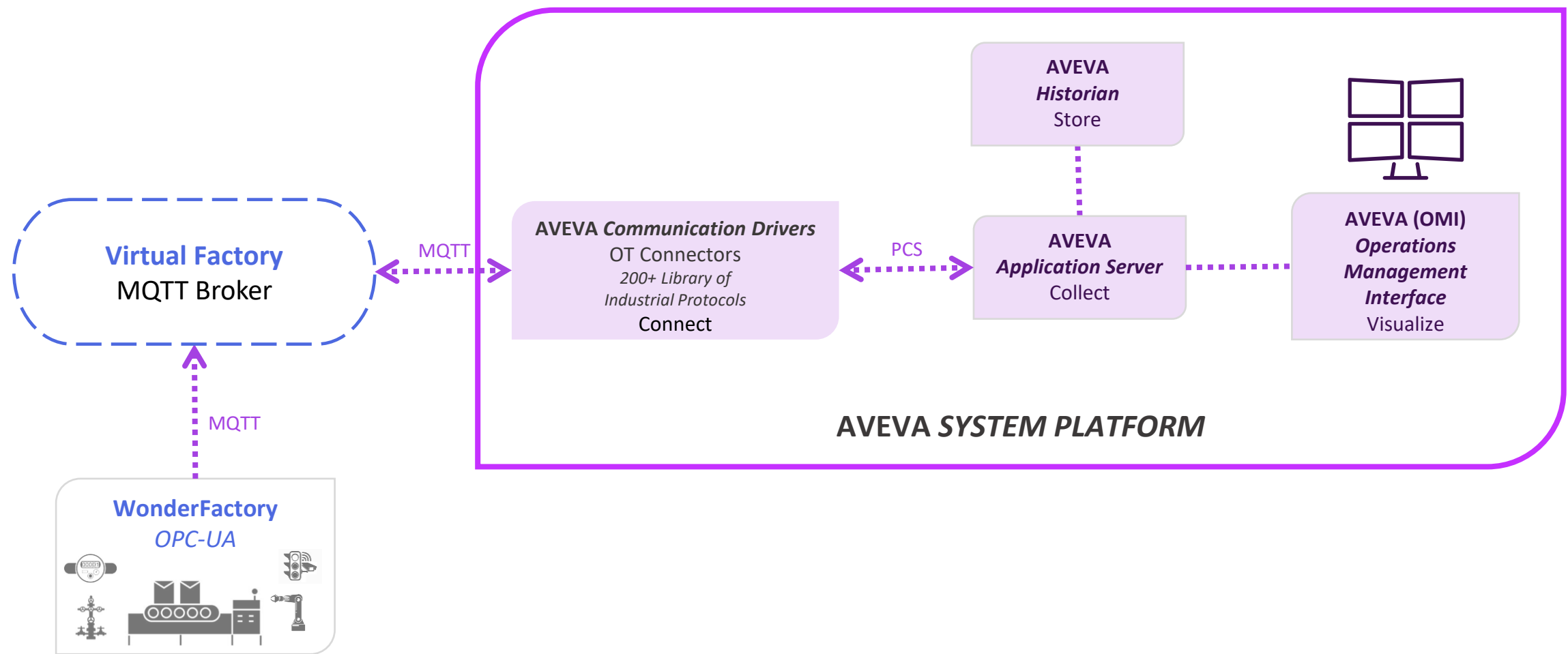
Time to Value

Security

AI

UNS Architecture Example

UNS Architecture Example



System platform Useful features/capabilities for UNS

System platform Useful features/capabilities for UNS

1. System platform OPCUA server.
2. Publishing - read only - OMI app to CONNECT.
3. Galaxy builder Tool (Source Code coming to GitHub – Planned/Subject to change).
4. OMI Web Client OS agnostic – download as an app from browser.
5. Import as SVG.

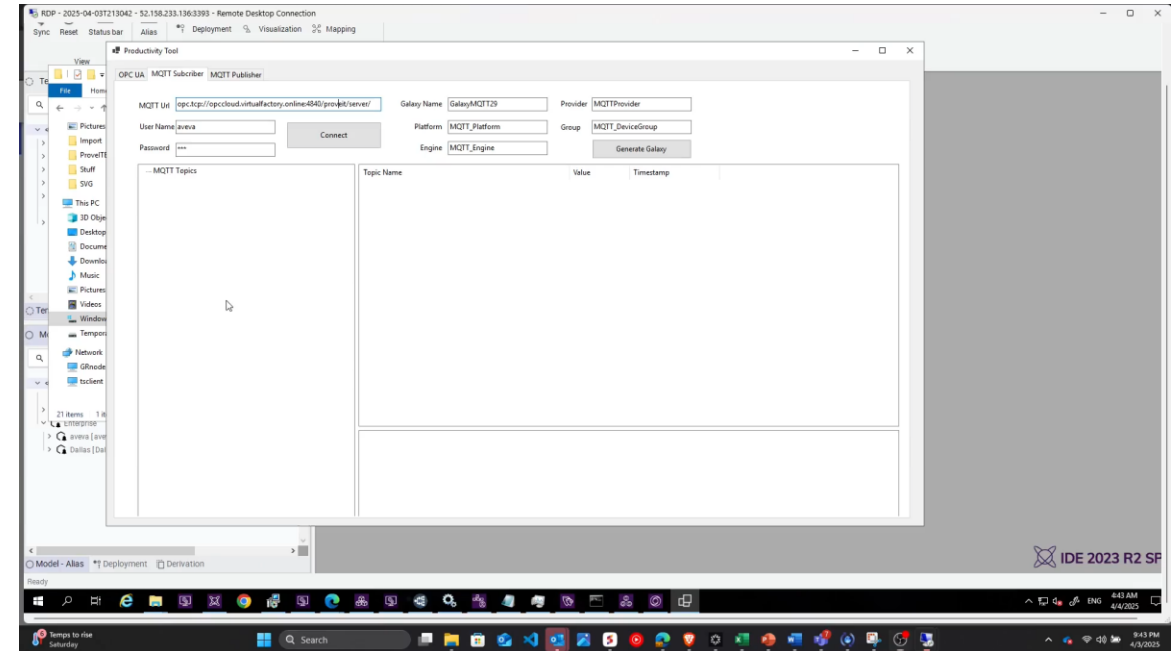
Galaxy Builder tool

Subject to Change

**New Capability
Planned
Availability**

Q4 2025

- Replicates UNS server models in System Platform using ISA-95 rules and mechanisms.
 - OPC UA Server
 - MQTT Broker
- Tag Creation and Naming convention rules:
 - Attributes = The deepest topic/metric level with a value.
 - Tag name = OPCUA Browse path / MQTT Topic path of the Level above.
 - Convert Special Delimiters("/").
 - Alias/Contained Name = topic /node
 - Galaxy Model = Hierarchy in MQTT or OPCUA





Q&A

A background image showing several people's hands giving thumbs up, overlaid with a semi-transparent purple filter. A large purple circle is on the left side of the image.

Thank you

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