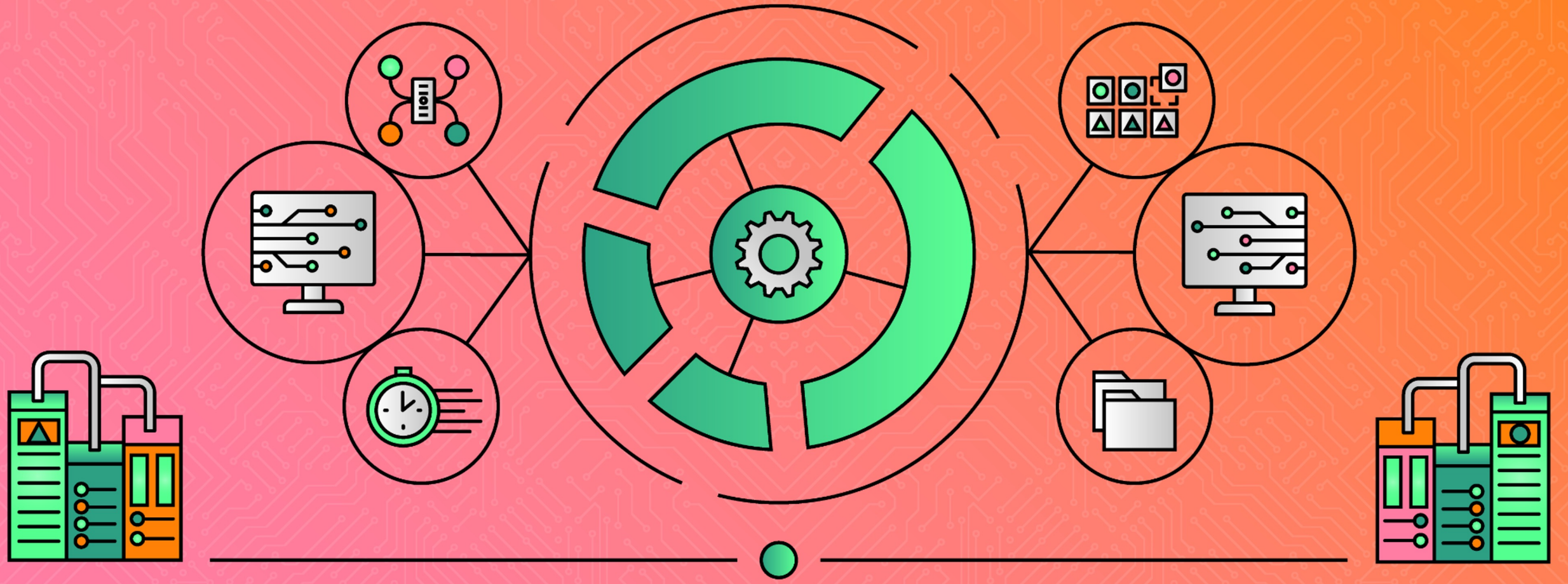
The Unified Namespace (UNS)

How-To Guide for Success



Presenters

Kent Melville

Director of Sales Engineering

Inductive Automation

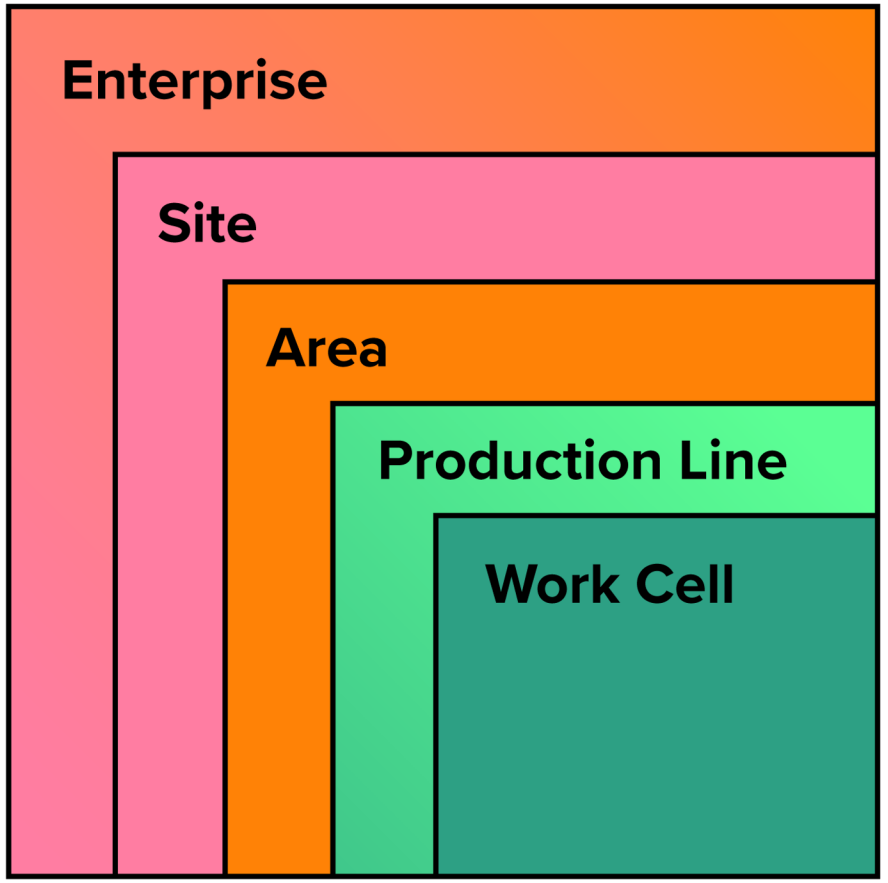
inductive automation | Ignition by inductive automation

Agenda

- Architecture Tips
- Using Ignition UDTs & MQTT to Build a UNS
- Audience Q&A

Unified Namespace Example Structure

ISA 95 Common Data Model



Overview of the Unified Namespace

```
Enterprise
    Enterprise/Site
        Enterprise/Site/MES
            Enterprise/Site/MES/OEE
                Enterprise/Site/MES/OEE/Availability
                Enterprise/Site/MES/OEE/Performance
                Enterprise/Site/MES/OEE/Quality
        Enterprise/Site/ERP
            Enterprise/Site/ERP/Production Schedule
        Enterprise/Site/Area
            Enterprise/Site/Area/Line 1
                Enterprise/Site/Area/Line 1/MES/OEE
                    Enterprise/Site/Area/Line 1/MES/OEE/Availability
                    Enterprise/Site/Area/Line 1/MES/OEE/Performance
                    Enterprise/Site/Area/Line 1/MES/OEE/Quality
                Enterprise/Site/Area/Line 1/Machine A
                    Enterprise/Site/Area/Line 1/Machine A/MES/OEE
                        Enterprise/Site/Area/Line 1/Machine A/MES/OEE/Top 5 DT Reasons
                        Enterprise/Site/Area/Line 1/Machine A/MES/OEE/Availability
                        Enterprise/Site/Area/Line 1/Machine A/MES/OEE/Performance
                        Enterprise/Site/Area/Line 1/Machine A/MES/OEE/Quality
                    Enterprise/Site/Area/Line 1/Machine A/Running
                    Enterprise/Site/Area/Line 1/Machine A/Setpoint
                    Enterprise/Site/Area/Line 1/Machine A/Process Value
            Enterprise/Site/Area/Line 2
                ...
            Enterprise/Site/Area/Line 3
                ...
```

Unified Namespace Architecture Tips

Tip #1 Model architecture on your environment/facility/processes

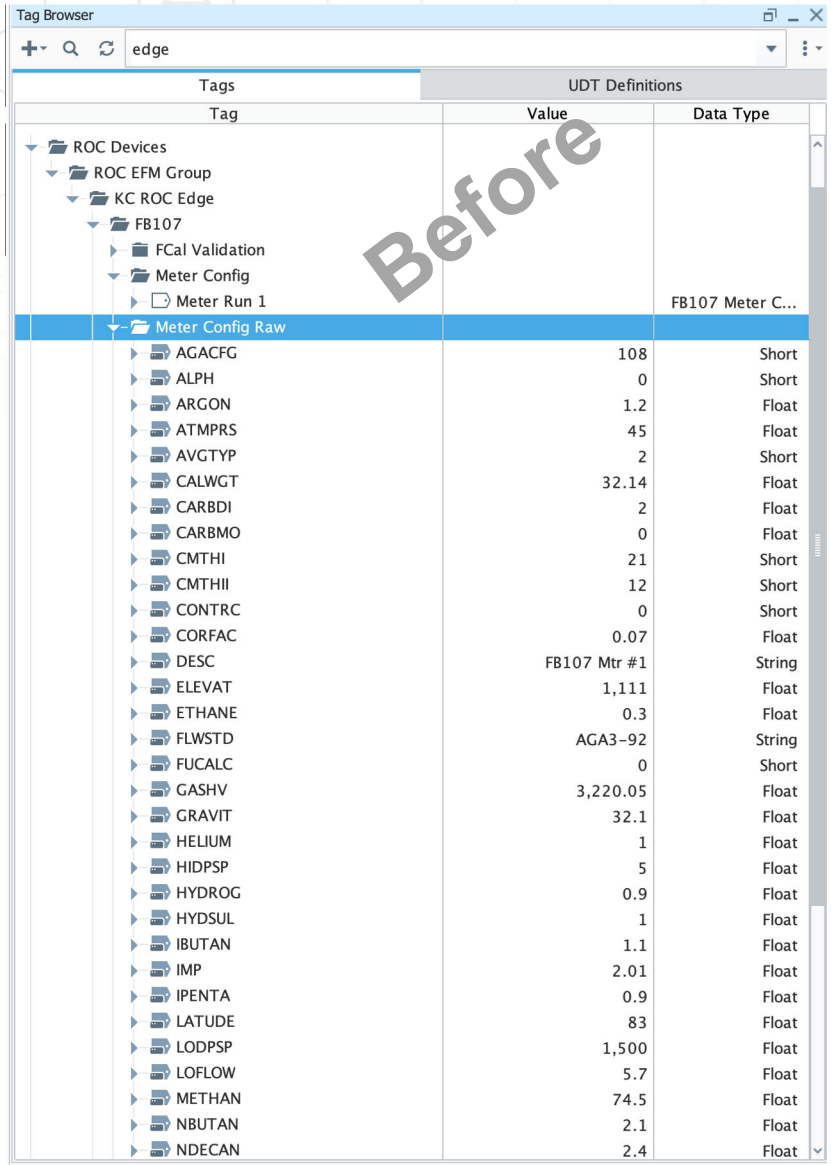
Tip #2 Follow what people in operations want to see

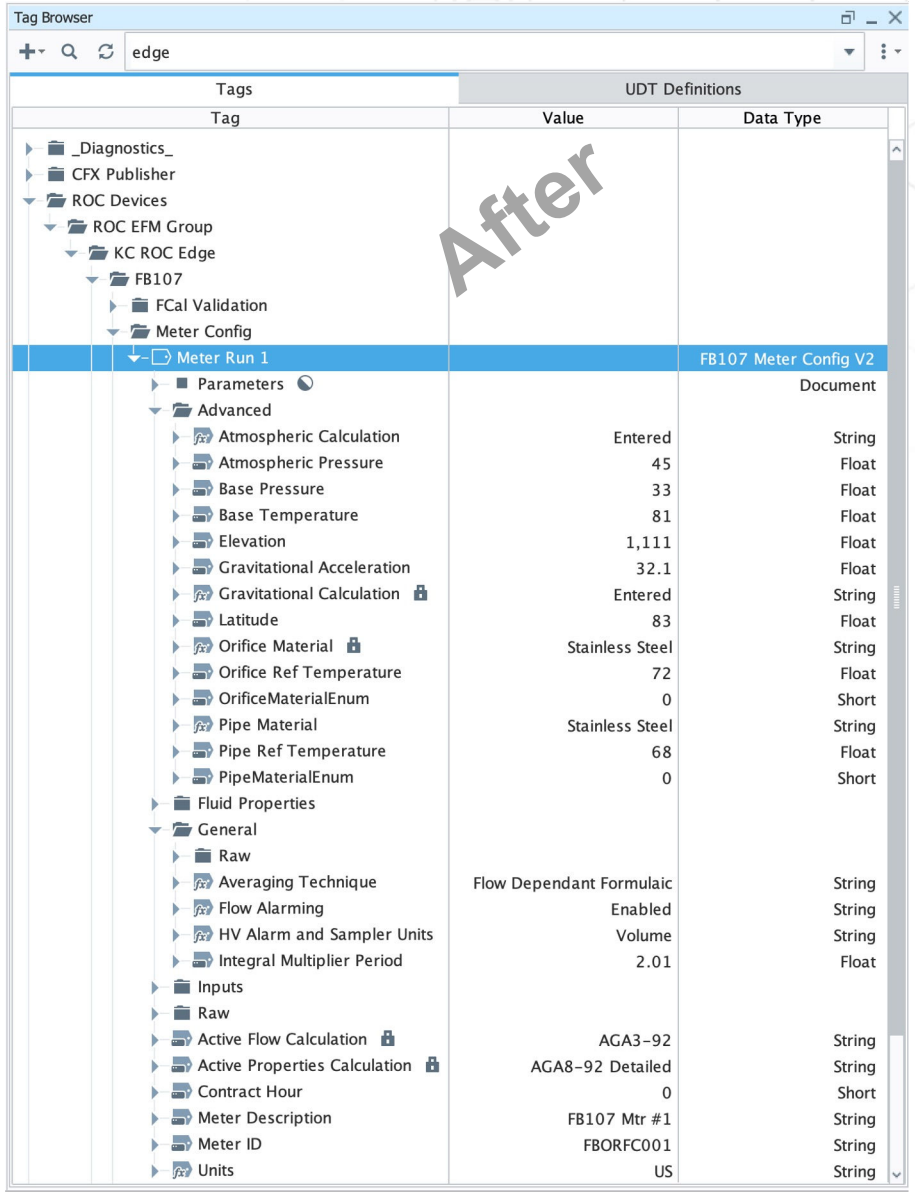
Tip #3 Base naming conventions on your hierarchy

Ignition UDTs

- User-Defined Types
- Enable an object-oriented approach
- Create parameterized data templates
- Instances automatically inherit a change to the definition

The Power of UDTs





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Using Ignition UDTs for a Unified Namespace

- Ignition's flexibility lets you create a custom data standard
- Bonus functionality for building a UNS
  - Reference tags
  - Derived tags
- Create nested directories for a UNS
- Map nested directories onto MQTT topic structure

MQTT and Sparkplug

MQTT

Publish/subscribe protocol that lets edge-of-network devices publish to a broker

Sparkplug

Open-source software specification that defines how to use MQTT in a mission-critical, real-time environment

Why MQTT & Sparkplug are Ideal for a UNS

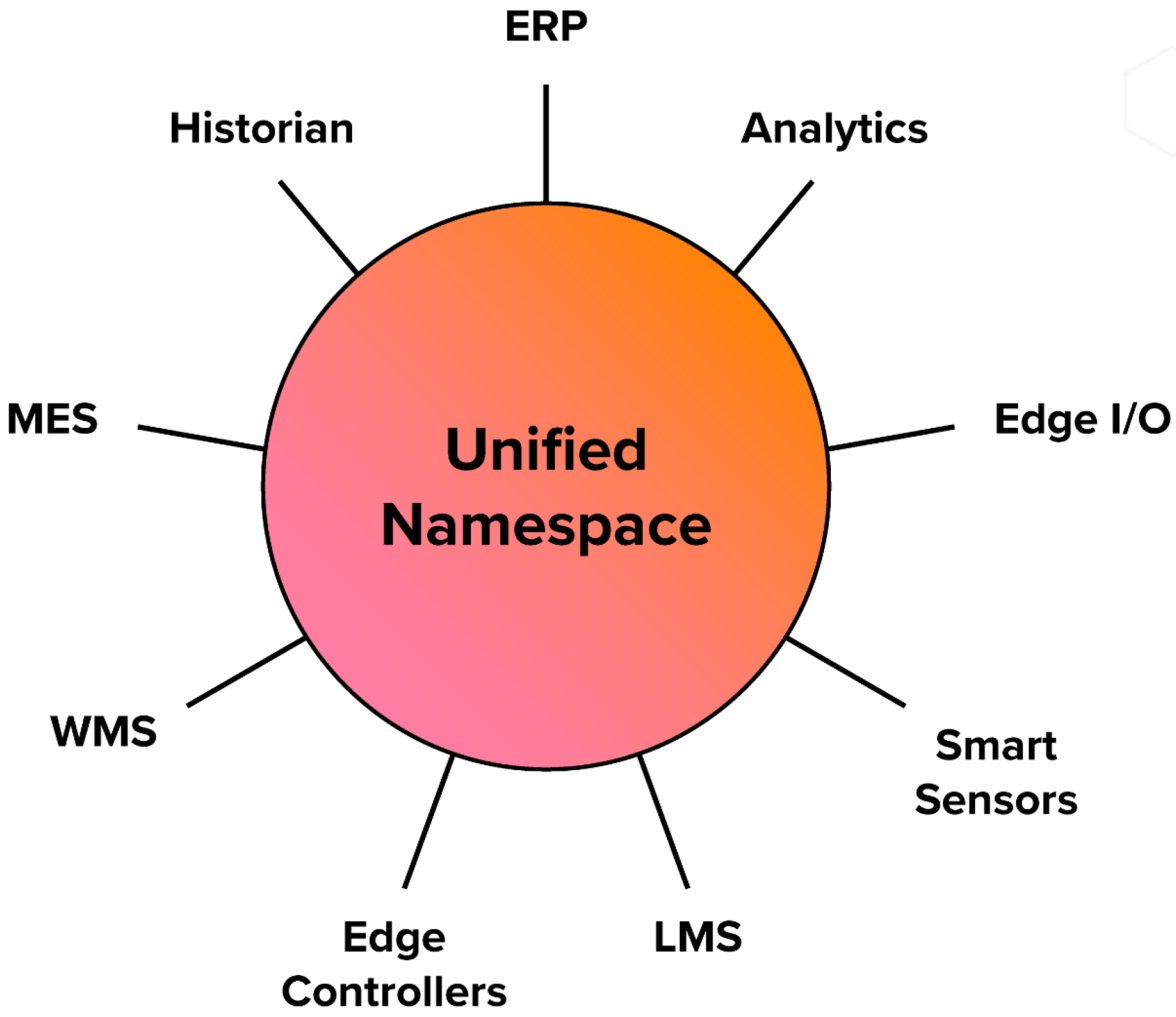
- Lightweight
- Open architecture
- Reports by exception
- Edge-driven

Building on MQTT and Sparkplug is the most common UNS architecture

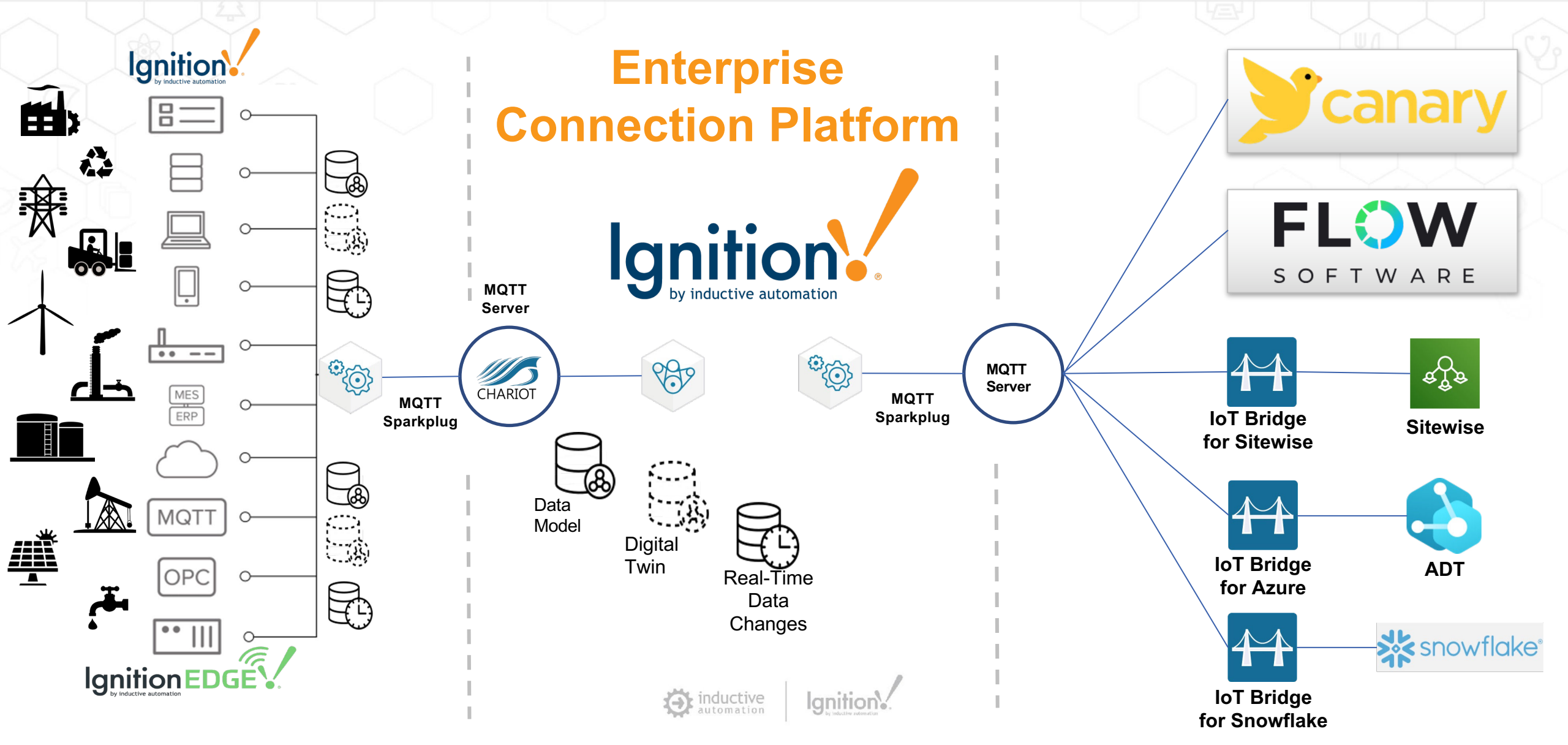
How MQTT & Sparkplug Work to Create a UNS

- Decouples devices from applications
- MQTT helps all components in a system communicate
  - Device/machine/equipment publishes/subscribes to central hub/broker
- Sparkplug provides context & data modeling
  - Map data models into Sparkplug w/ Ignition

Communication in a Unified Namespace



Example: Applying a Unified Namespace



Ready to Try Ignition for Yourself?

Download the full version for free at:
inductiveautomation.com

inductiveuniversity.com

Ignition User Manual also available at:

docs.inductiveautomation.com

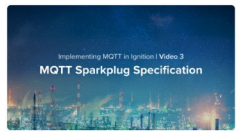
MQTT Training and Guidance

RESOURCES / ARTICLES

MQTT: The Leading Messaging Protocol for IIoT

What is MQTT, How it Works, and How to Get Started Using MQTT

3 minute read



3. MQTT Sparkplug Specification

4. MQTT & Ignition

5. MQTT Distributor Module

6. MQTT Transmission Module

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Videos

All Videos | How-to | Overview | Podcast | Product | Webinar

IoT Bridge for Snowflake

VIDEO: Overview
Demo showing how easy it is to create models in Snowflake using Ignition and Cirrus Link Modules.

Watch the Video

Chariot MQTT Server

VIDEO: Product
Chariot® is the MQTT broker built to connect operational data that powers mission-critical use cases. Created by the inventors of MQTT and Sparkplug, Chariot exposes the full features of these open specifications for the secure and reliable movement of industrial data.

Watch the Video

MQTT and Sparkplug 3.0: The Future of Industrial OT – IT Integration

VIDEO: Webinar
This webinar provides an overview of MQTT and Sparkplug 3.0 from its creation, why and how it is dominating the future of OT-to-IT integration. No better presenters to walkthrough this evolution than the co-creator of MQTT itself, Arlen Nipper and the inventor of Sparkplug, Wes Johnson. We also cover the...

Watch the Video

Leverage Your Ignition UDTs In

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