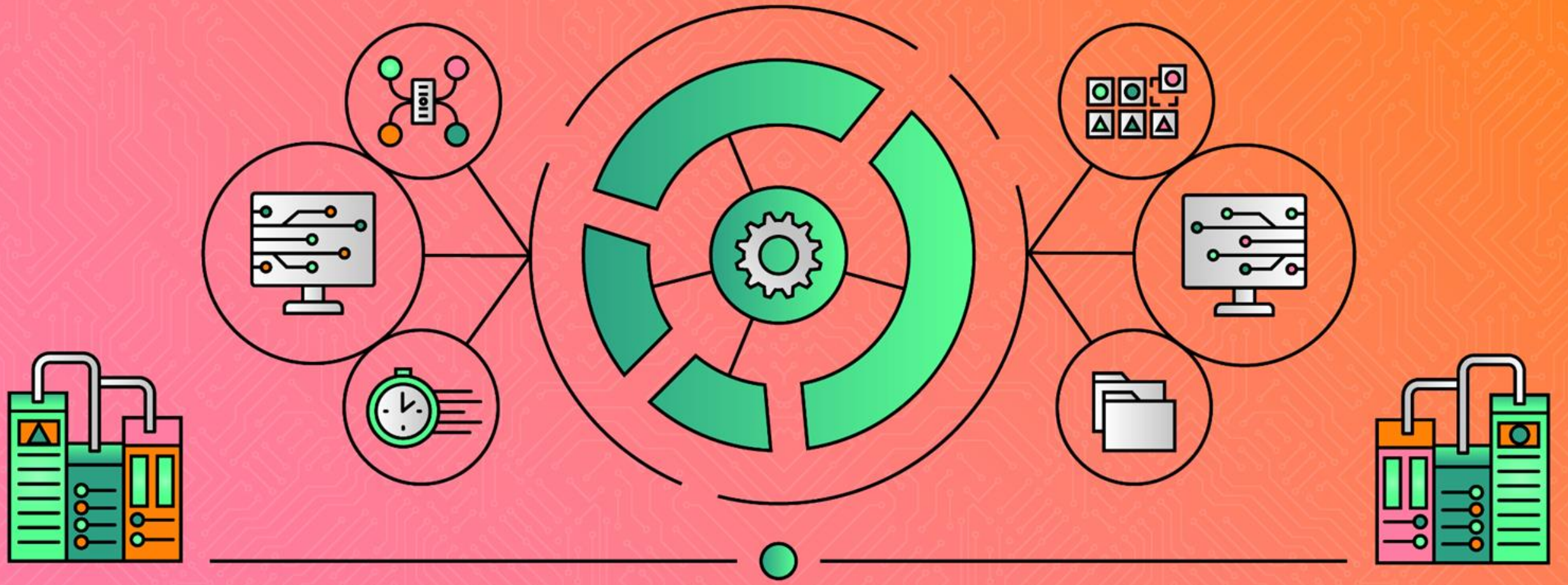
Ditch Data Silos:
Create a Unified Namespace With Ignition UDTs & MQTT



Presenters

Kent Melville

Director of Sales Engineering

Inductive Automation

Arlen Nipper

President & CTO

Cirrus Link Solutions

Ignition!®
by inductive automation
The Unlimited Platform for SCADA and So Much More
• Connect, Design, Deploy Without Limits:
- One central hub for everything on the plant floor
- Create any kind of industrial application
- Web-deploy clients to desktops, industrial displays & mobile devices
• Unlimited licensing
• Industrial-strength security and stability
• Trusted by thousands of companies worldwide

Agenda

- Overview of the Unified Namespace (UNS)
- Architecture Tips
- Using Ignition UDTs & MQTT to Build a UNS
- Demo
- Audience Q&A

The Problem

Lack of Data Standardization

- Data silos
- Difficulty sharing data with others

Problematic Data Management

Manual Data Entry

- Time-consuming
- Error-prone

Point-to-Point Data Integration

- Need for specialized engineering
- Namespaces are tightly coupled
- Difficult to scale

Overview of the Unified Namespace

What is a Unified Namespace?

- Standardized way to organize and name data
- Contains an enterprise’s structure and events
- One communication interface

Unified Namespace Benefits

- Makes data accessible
- More affordable way to get needed data together
- Better ability to predict when things will go wrong
- Better traceability
- Easier scalability

Unified Namespace Benefits

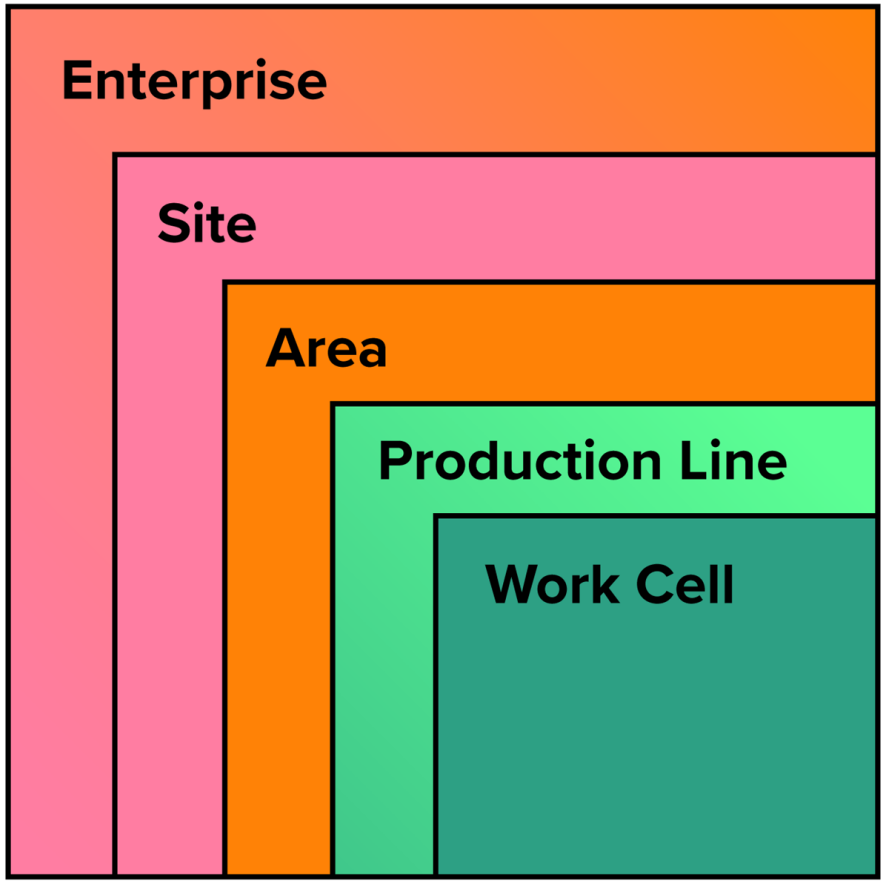
- Single source of truth
- Less manpower/engineering
- Use supply chain better
- Greater efficiency
- Better decision-making

What is Driving the Unified Namespace?

- Artificial Intelligence (AI)
- Machine Learning (ML)
- Predictive Maintenance (PM)
- Leveraging the above in large enterprises
- Maintaining the above in cost-effective ways

Unified Namespace Example Structure

ISA 95 Common Data Model



Unified Namespace Architecture Tips

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

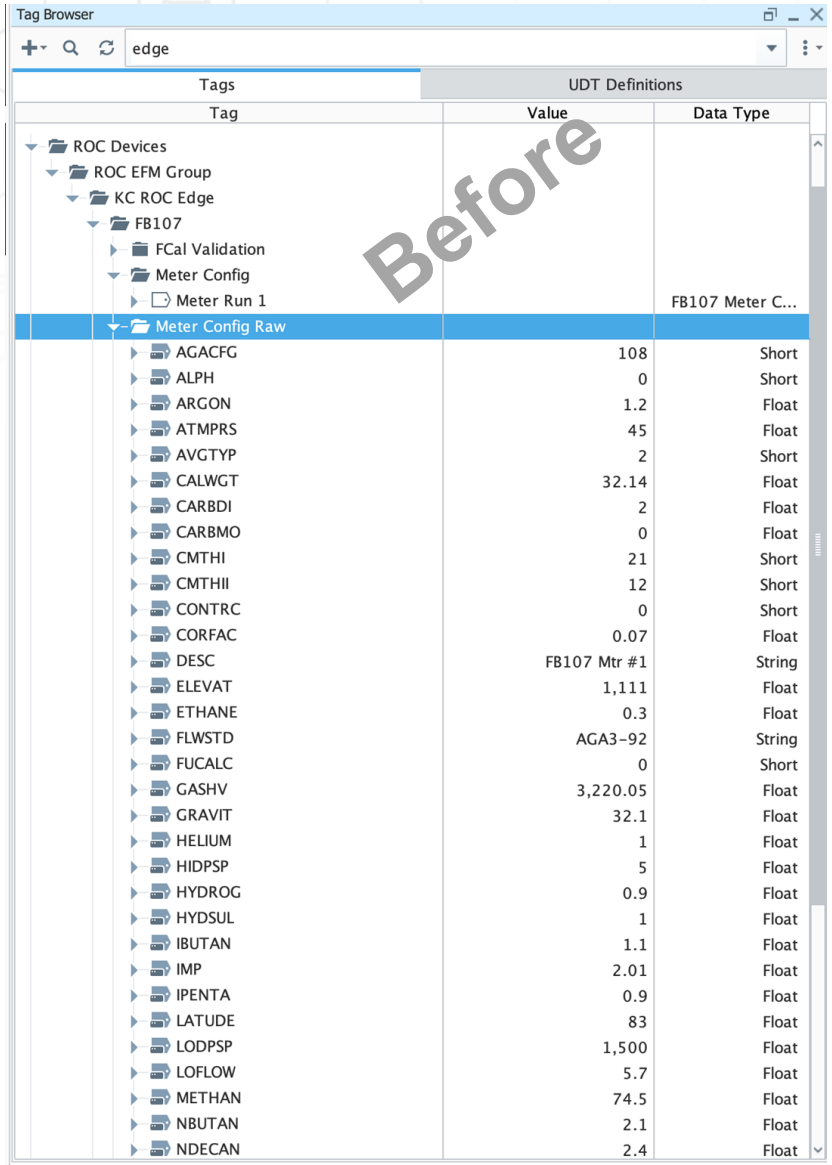
Tip #2 Follow what people in operations want to see

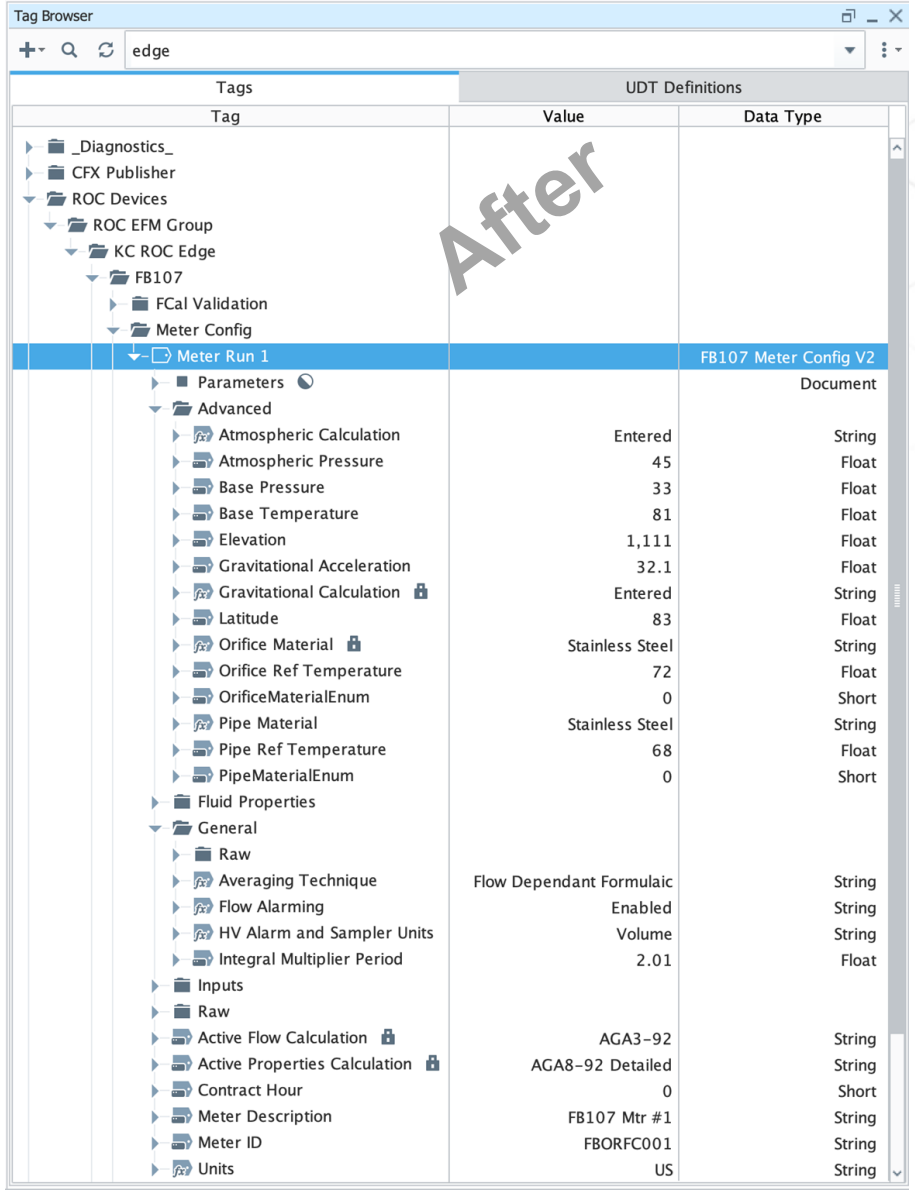
Tip #3 Base naming conventions on your hierarchy

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





inductive automation | Ignition

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

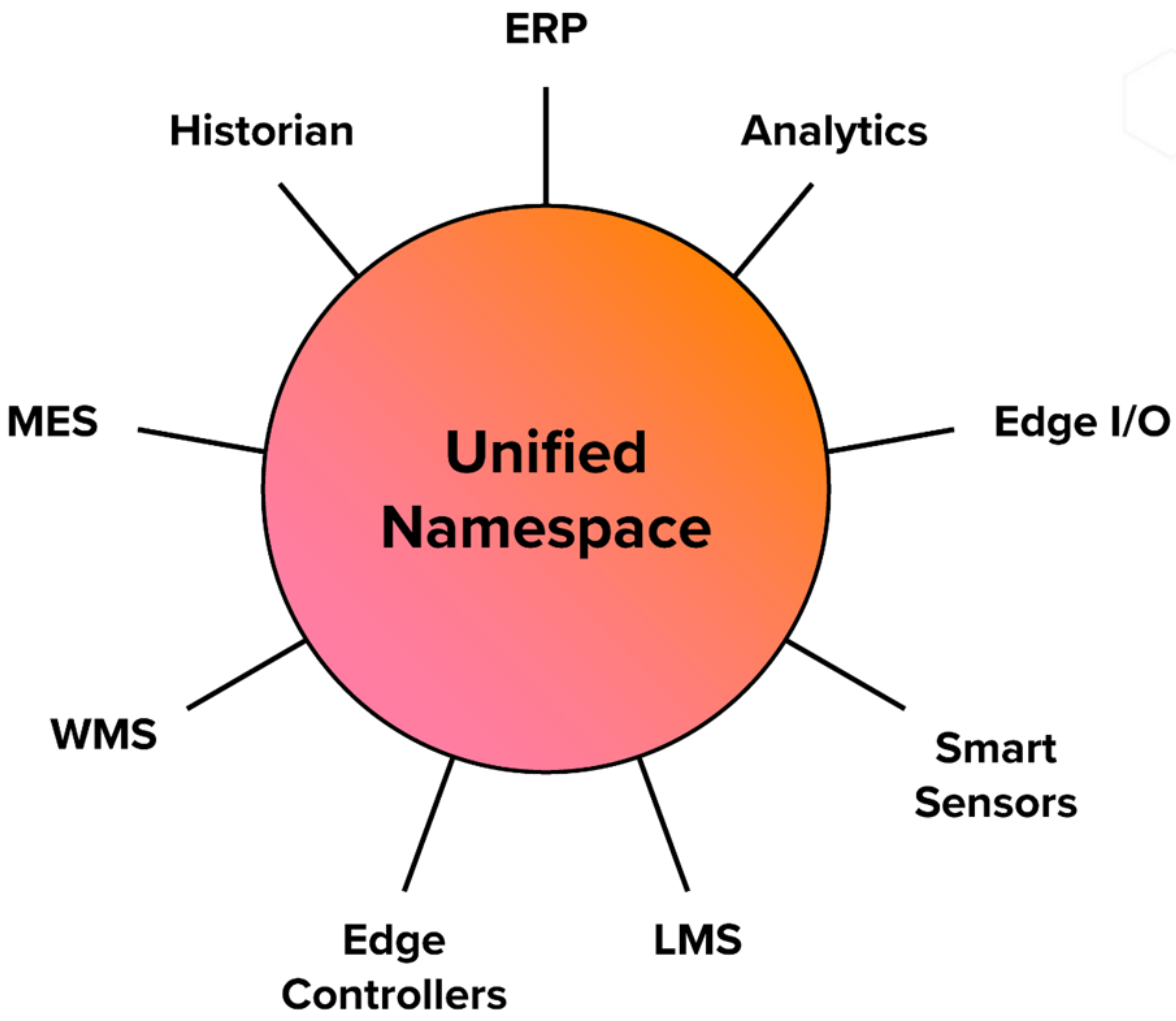
- Lightweight
- Open architecture
- Reports by exception
- Edge-driven

Building on MQTT and Sparkplug is the most common UNS architecture

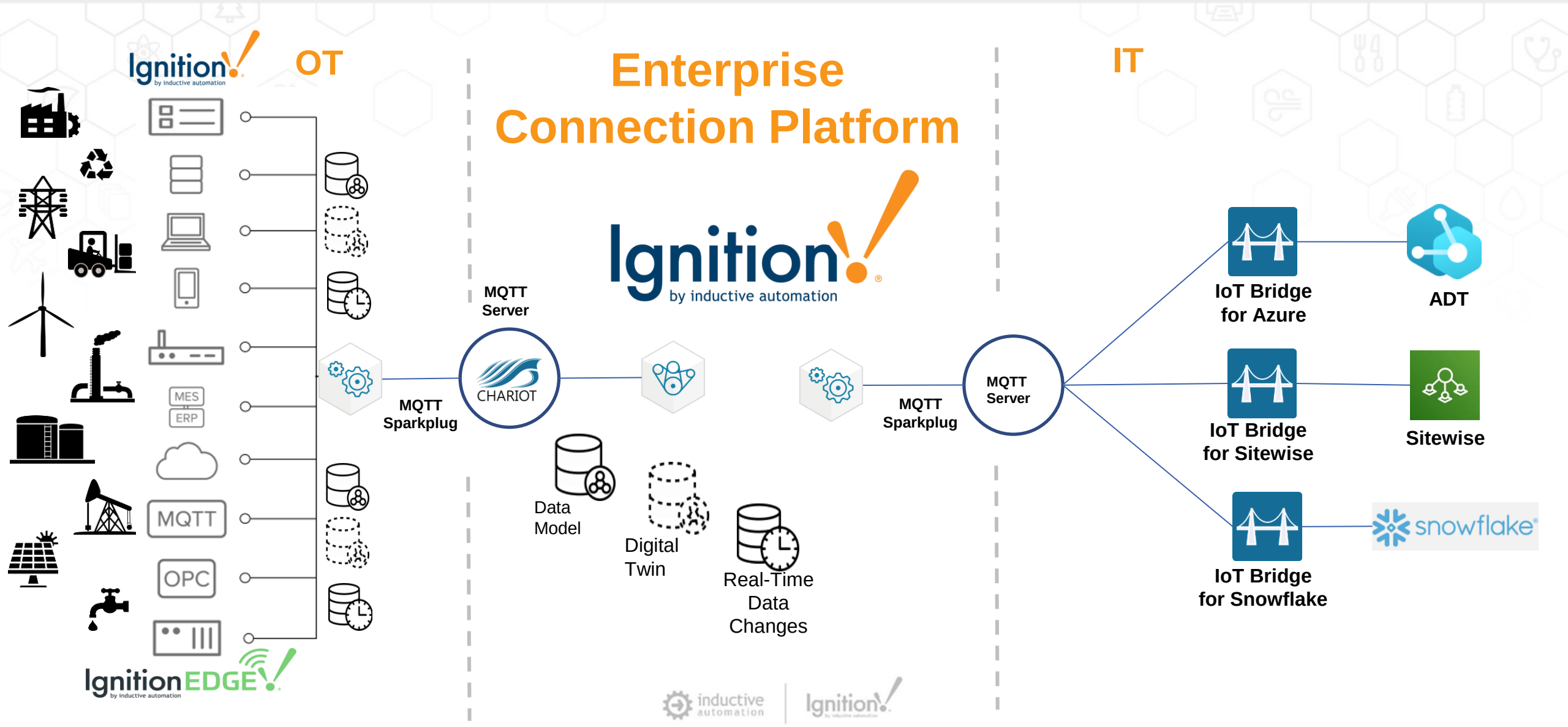
How MQTT & Sparkplug Work to Create a UNS

- 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



Demo

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

ICC 2023
ELEVATE
September 26-28, 2023 in Folsom, CA
Register at icc.inductiveautomation.com/register
Save $250 when you register by July 16 | Livestreaming Pass (available soon)

International Distributors

Australia	iControls Pty Ltd.	www.icontrols.com.au
Brazil	FG Automação Industrial	www.fgltda.com.br
Central America	NV Tecnologías S.A.	www.nvtecnologias.com
France	AXONE-iO	www.axone-io.com
Italy	EFA Automazione S.p.A	www.efa.it
Middle East / North Africa	Clarien Solutions	www.clarien.solutions
Norway / Sweden	Autic System AS	www.autic.no
South Africa	Element8	https://element8.co.za
Switzerland	MPI Technologies	https://mpi.ch

Contact International Distribution Manager Yegor Karnaukhov at: ykarnaukhov@inductiveautomation.com

Questions & Comments

Call us at: **800-266-7798**

Call Cirrus Link Solutions at: **844-924-7787**

Jim Meisler
x227

Ramin Rofagha
x251

Lester Ares
x214

Vannessa Garcia
x231

Shane Miller
x218

Maria Chinappi
x264

Myron Hoertling
x224

Robert Graves
x142

DJ Parsons
x150

Roman Couvrette
x163

Abran Mathews
x151

Justin Reis
x186

Thank You

Stay connected to us on social media
& subscribe to news feeds: