

ONLINE WORKSHOP

How to Achieve Data-Driven Manufacturing:

A Live Demonstration of Building a Unified Namespace with MQTT Sparkplug



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Hosted By  **HIVEMQ**

In Collaboration with

OPTO 22

SPRUIK

& **N3uron**

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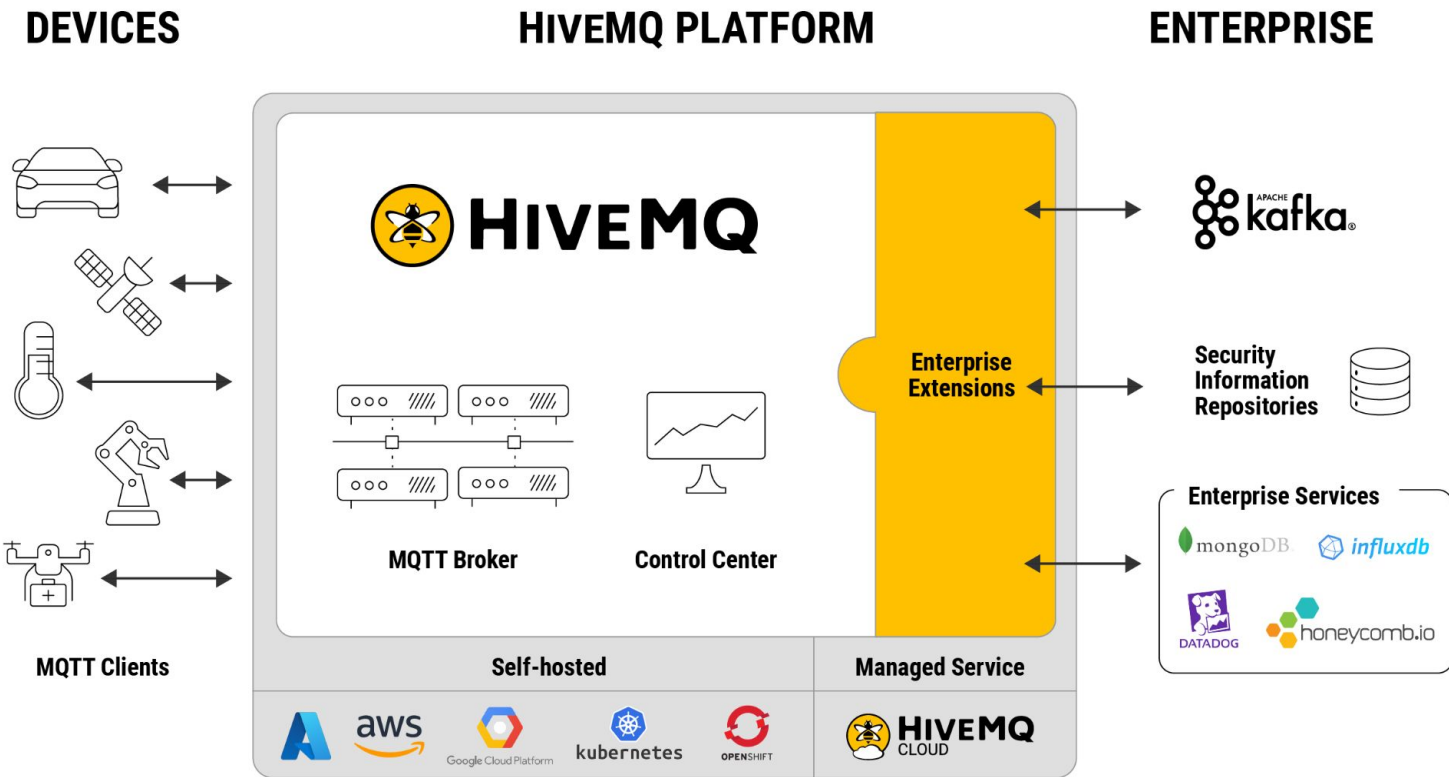
Introduction to HiveMQ



- **Founded in 2012**, headquartered in **Landshut, Germany**, near Munich.
- For **manufacturing**, we **connect** data from different equipment sources and **aggregate** them in a **secure** and **reliable** way to enable **Industry 4.0** and Factory modernization
- **130+ customers** trust our solution to enable their digitization journey
- Raised **€49.3 million** in seed and series A funding



HiveMQ Enterprise MQTT Platform



About Opto 22

49-year technology innovator, from **SSRs** to **I/O, control systems, mobile, & IIoT**

All products **designed, built, and supported** in Temecula, California

Unique in industry to **combine capabilities in OT** – ruggedness & reliability – **with IT** – networking, protocols, edge processing

Flagship products include **groov** EPIC, **groov** RIO, and **groov** RIO EMU



 **MADE IN THE USA**



About *groov* EPIC

Real-time Linux-based gateway, controller & I/O

- PR1 – **2GB** RAM, **6GB** Industrial SSD
- PR2 – **4GB** RAM, **26GB** Industrial SSD

Multiple **programming** options

- CODESYS, PAC Control, C++, Python

Built-in, web-based **HMI** with **HDMI** support

Ignition, **Node-RED** pre-installed

Gateway functions

- **Multiple** NICs, VPN, zoning & conduits

Zero-trust **cybersecure** out-of-the-box

- Accounts, firewalls, TLS certificates

Web-based, **OT**-managed, **IT**-approved



Operating Temperature: **-20 to 70° C**
UL/cUL (Class 1 Div. 2), CE, ATEX, RoHS, DFARS, UKCA

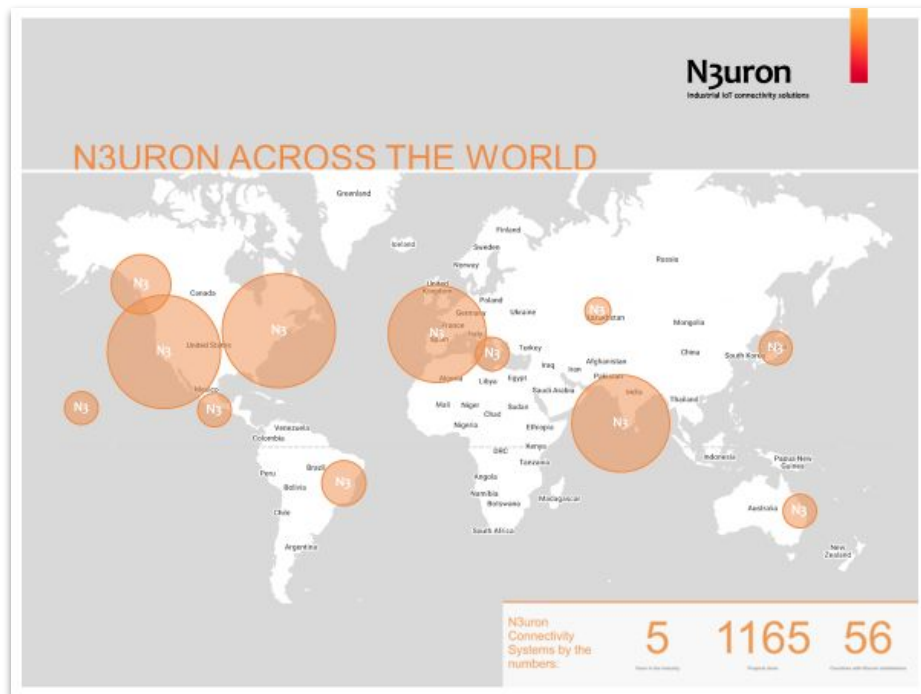


About N3uron Connectivity Systems

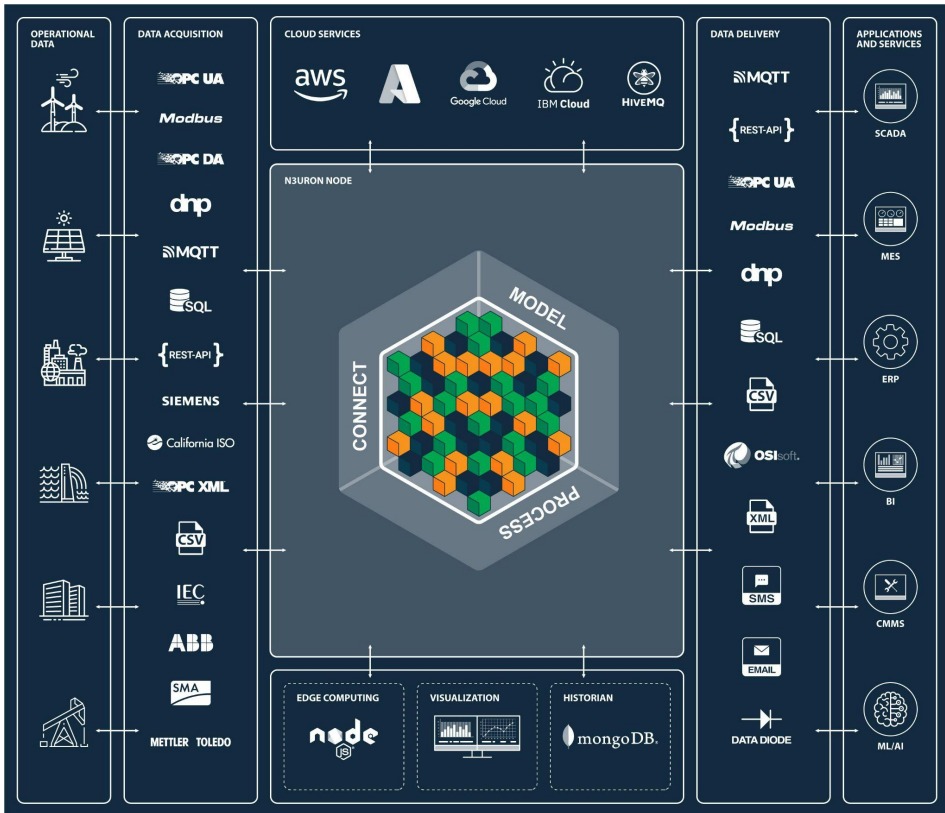


N3uron Connectivity Systems

- Founded in 2018 by System Integrators.
- Product: **N3uron** the Industrial Edge Platform for DataOps.
- Service: **Fleet Manager**.
- Used in 50+ countries.
- 50% average annual growth rate since 2018.



N3uron: Industrial Edge Platform for DataOps



Unmatched Connectivity, Data Modeling & Edge Computing Capabilities:

- Modular configurability.
- Cross-platform.
- Unlimited license.
- Web-based.
- Rapid deployment and development.
- Extremely efficient.
- Scalable and versatile architecture.

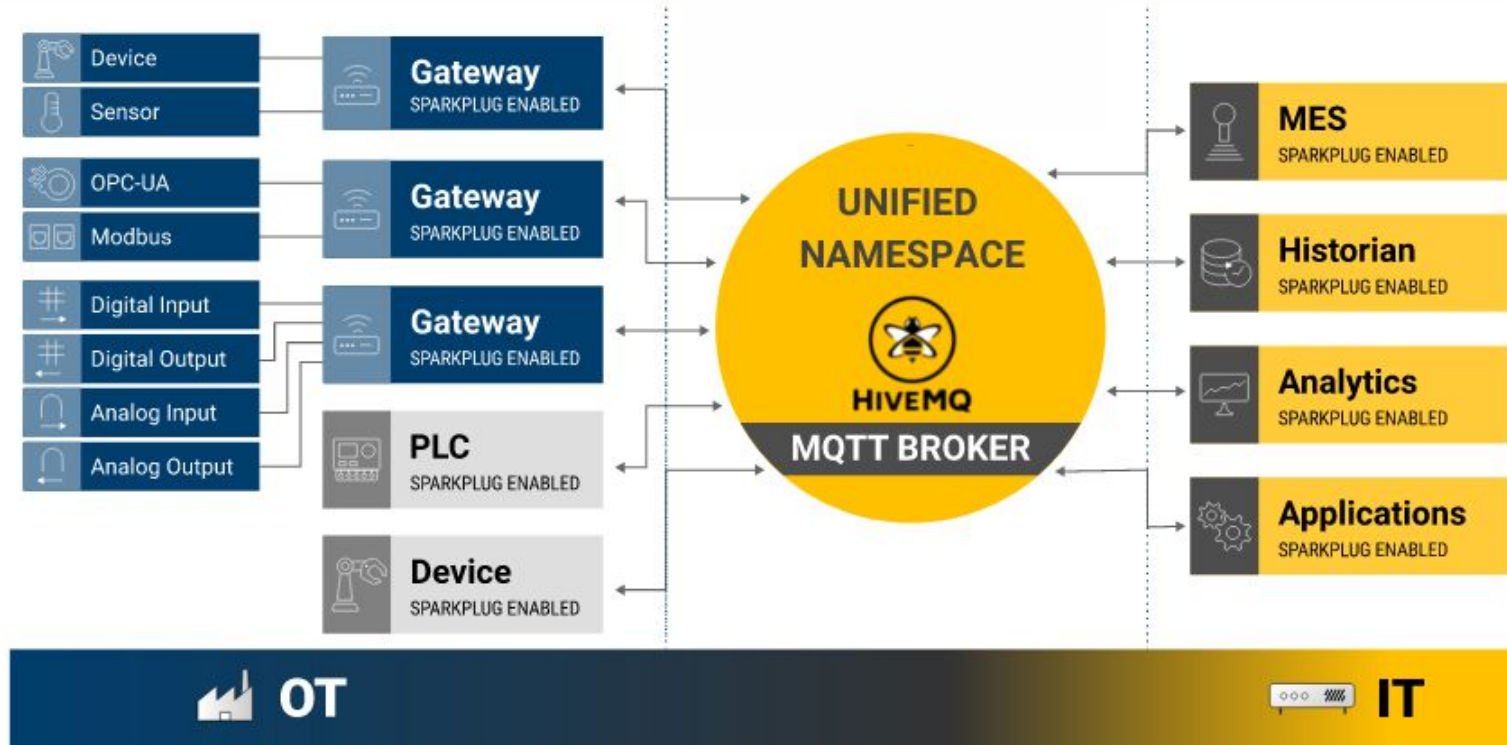
About Spruik Technologies



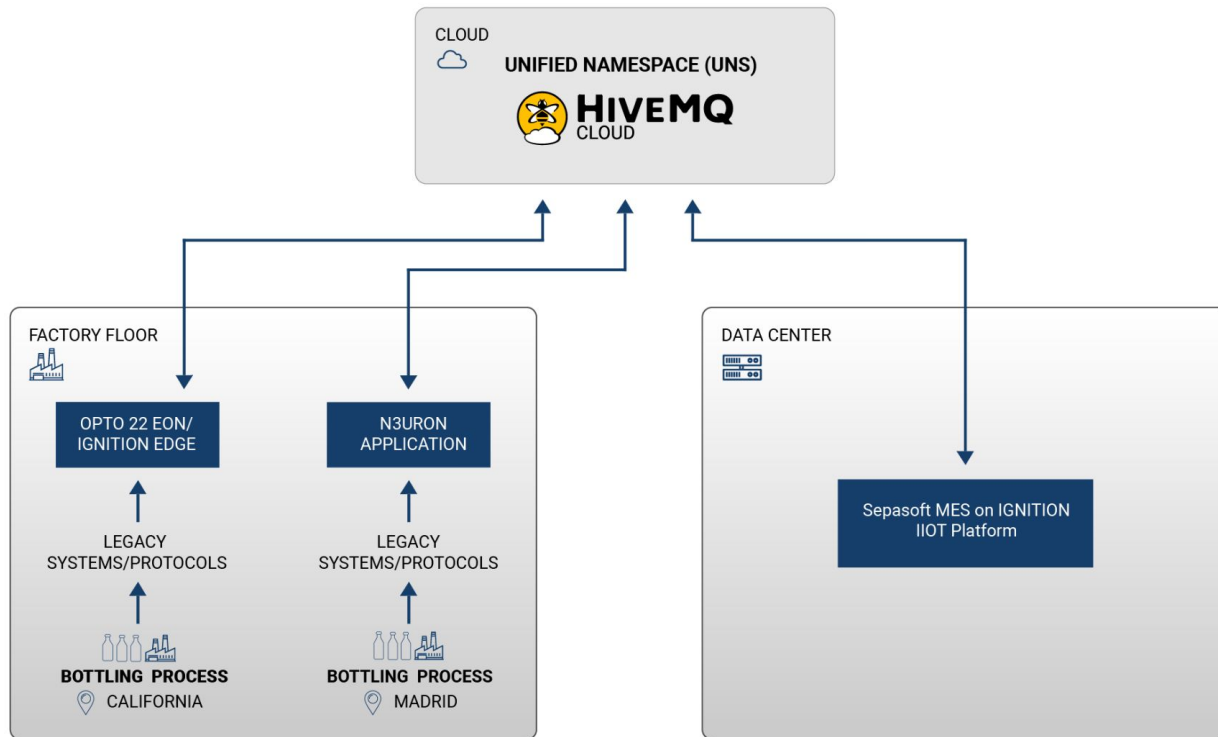
- Founded in 2017 for the purpose of promoting modern technology and processes in manufacturing software.
- Offices in the US, UK and Australia, with 20+ employees. Virtual “headquarters” in Minneapolis.
- Expert consulting and implementation in all areas of Industry 4.0 Digital Transformation.



Why Unified Namespace?



Demo Architecture



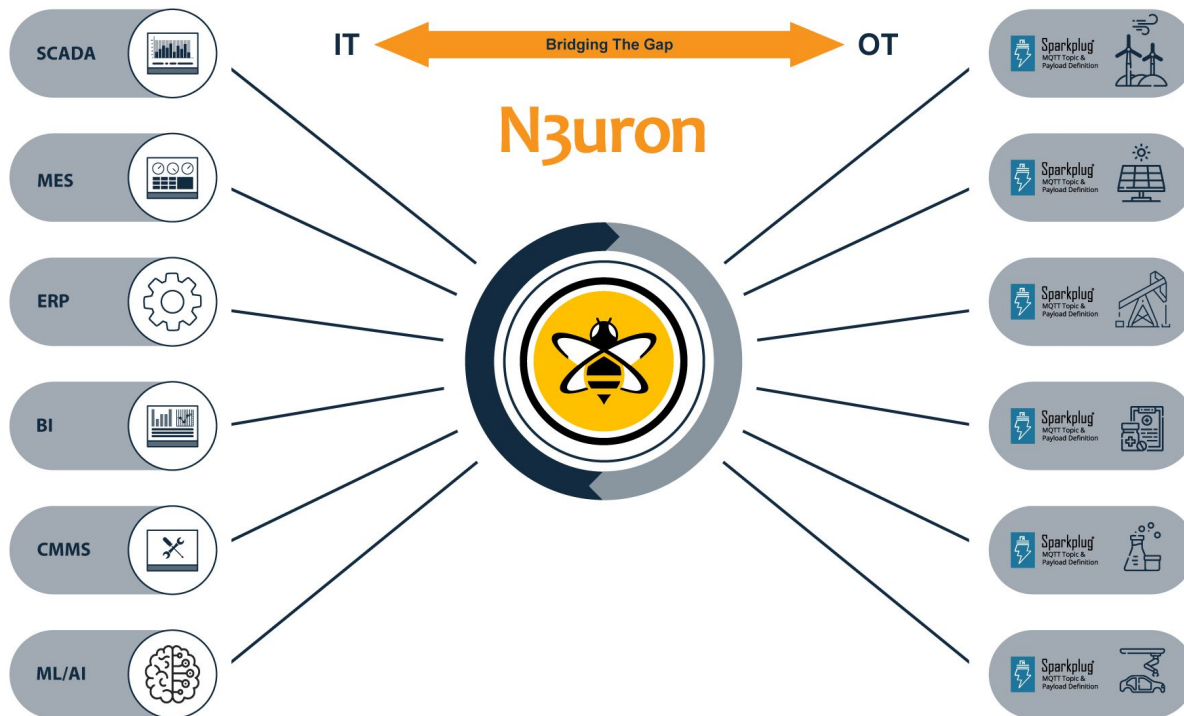
Why is N3uron well-suited for UNS?

Unmatched Connectivity, Data Modeling & Edge Computing Capabilities:

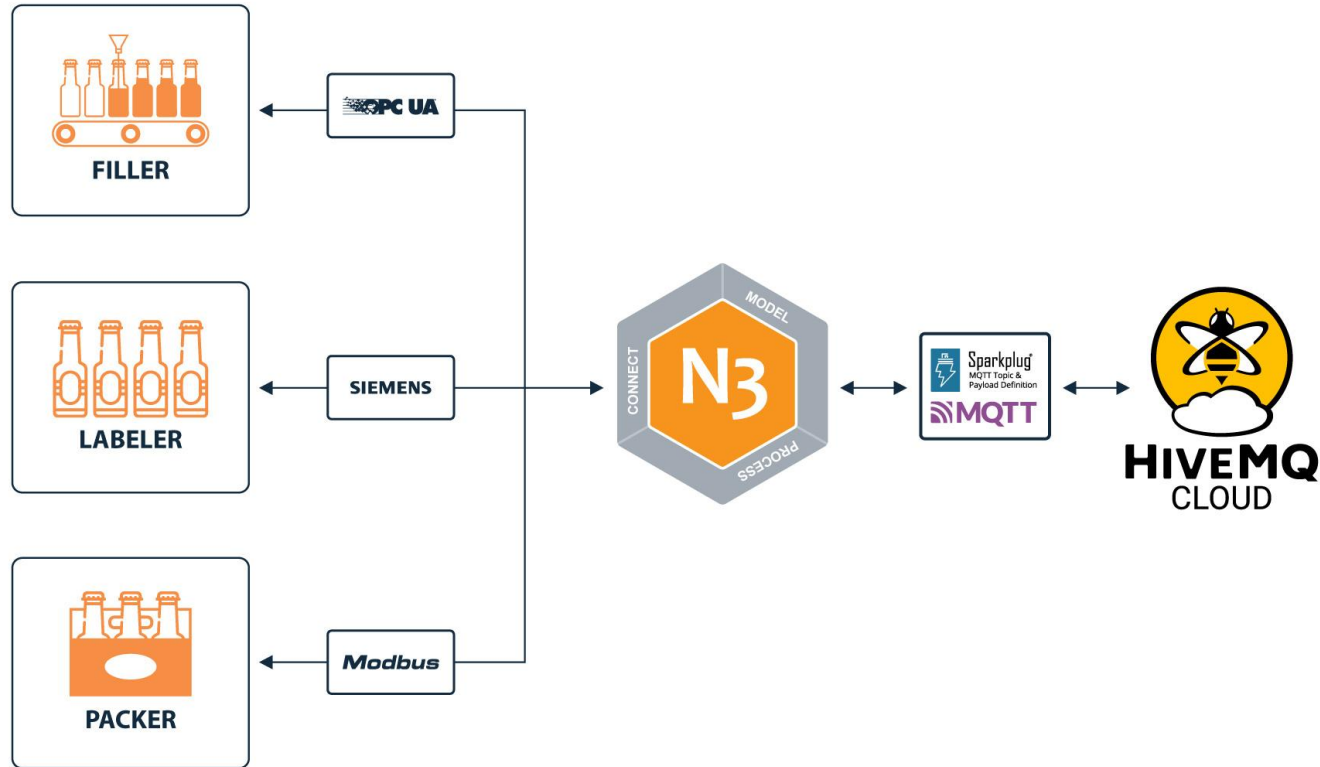
- **Edge native:** Connect and exchange data with a large variety of data sources on the plant floor using OT & IT protocols.
- **Consolidate** all the data in a single application and build **consistent** and **standardized** data models you can **replicate** → Templates.
- Flat **MQTT** and **Sparkplug** client modules.
- Other Delivery modules for data consumers that do not support MQTT (REST API Server, SQL, OPC UA Server, etc)
- **Open Architecture**, Highly Scalable & Secure



OT/ IT Interoperability



Demo Architecture



Full *groov* EPIC IT/OT Architecture

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- The diagram illustrates a hybrid IT/OT architecture. At the top, three main environments are shown: **On Premises** (with logos for canary, OPENVPN, Microsoft SQL Server, Ignition, MQTT, OPC UA CLIENTS, and HIVE MQ), **In the Cloud** (with logos for aws, Azure, MQTT, OPENVPN, and HIVE MQ CLOUD), and **On Devices** (with logos for OPC UA CLIENTS, groov VIEW, Ignition, and OPENVPN). These environments connect to a central **CORPORATE NETWORK**. Below this network, a large box represents the **IT** layer, containing logos for CODESYS, groov MANAGE, Ignition, PAC Control, groov VIEW, Ignition EDGE ONEBOARD, ssh, Node-RED, OPENVPN, Sparkplug, MQTT, and OPC UA SERVER. A green padlock icon is on the left of this box. Below the IT layer is the **OT** layer, which includes a **3rd PARTY CONTROL & I/O** section (with a red padlock icon) and an **ANALOG • DIGITAL • SERIAL • CAN • USB** section. The OT layer also features a red padlock icon and a red flame icon. At the bottom, there are icons for various OT components: a server rack, a PLC, a battery, a temperature sensor, a pressure sensor, a valve, a motor, a pump, a conveyor belt, and a robotic arm. The groov EPIC logo is also present at the bottom.

Demo

Watch the demo here.



Resources



[Get the HiveMQ MQTT Broker.](#)



[Learn more about Opto 22 Groov Epic](#)



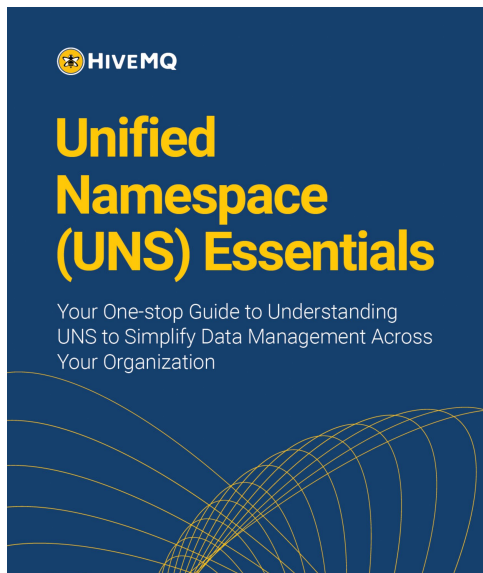
[Learn more about Spruik Technologies](#)



[Learn more about N3uron](#)



Additional Resources



[Get your copy of UNS Essentials guide now.](#)



THANK YOU

Contact Details

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