

# The power of payloads in your unified namespace

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The Unified Namespace (UNS) is among the fastest-growing data architecture patterns for Industry 4.0, promising easy publish-subscribe access to hierarchically structured industrial data. The UNS is often defined as a consolidated, abstracted structure by which all business applications can consume real-time industrial data in a consistent manner. A UNS allows users to combine multiple values into a single, structured logical model that can be understood by business users across the enterprise to make real-time decisions.

Unfortunately, users at many industrial companies are finding that though they've loaded their device telemetry data in their UNS, they are struggling to use it. The UNS' uniform data standards, hierarchical structure, and publish-subscribe pattern do an excellent job of providing easy, logical access to data, but business and analytics users often discover that they must subscribe to multiple data streams from separate levels of the hierarchy to get what they need for their applications.

There are two problems with this approach:

1. They may not know which data streams contain the information they need.
2. Even when they find the information they need, they can't collect it in usable contextualized payloads.

With a UNS, it is easy for users and systems to subscribe to individual data streams from individual hierarchy levels, but how often do they need something more? They can see the measured values on an asset and might be able to glean when something has gone awry, but that only tells a small part of the story.

In some ways, these UNS challenges reflect the core barrier to Industry 4.0: Too much data and no context to inform users on what to do with it. Data users often do not know what to subscribe to, and streams only innately include information from one device or system at a time, meaning that a UNS architecture alone cannot blend data from different systems or layers of the hierarchy into single payloads. Yes, the UNS makes data much easier to access, but data users need much more than uncorrelated, unstructured, uncontextualized data streams to build successful, scalable use cases.

## How the Intelligence Hub can help

[HighByte Intelligence Hub](#) contains the necessary capabilities to build and operate a UNS, including data movement, contextualization, and standardization—and with its [embedded MQTT broker](#), the Intelligence Hub can even function as a complete UNS for single sites or pilot programs. But, more importantly, the Intelligence Hub can help users overcome some of the limitations of UNS architecture by creating models that combine data streams from separate systems and assets into single payloads.

As a quick example, let's say that a sensor on a conveyor line detects more scrap than usual, streaming data reflecting as much to a quality engineer. The only information the quality engineer gets from this payload is

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that more scrap has been detected. The engineer doesn't know exactly what is causing the additional scrap or where the issue is. They might view additional streams to gain a better understanding of what and where the issue lies, but at the end of the day, the engineer is stuck having to comb through multiple individual data streams. After they've isolated the problem, they then must look at the higher levels (workcell or line) to discover what the impact is of this problem.

By contrast, if the engineer uses HighByte Intelligence Hub to build a payload combining their UNS data streams, they can resolve problems much quicker. If the conveyor line sensor detects excess scrap, the Intelligence Hub can be used to model and flow a payload containing data streams from sensors earlier in the line, revealing the exact source of the problem, as well as additional data from the line or workcell level detailing the impact of the problem on their overall costs and productivity. With the Intelligence Hub, the engineer no longer needs to manually piece together data to isolate and report problems. Instead, they immediately receive the data they need to act on it in real time.

### Wrap up

The UNS promises better data accessibility and standardization, and though it does unlock industrial data, the inability to create complex payloads has been a barrier to realizing its full potential. HighByte Intelligence Hub removes this barrier. [Models](#) and [flows](#) in the Intelligence Hub provide the necessary functionality to make the UNS more useful for operations and business user alike.

So, to wrap up, the Intelligence Hub contains everything you need to begin building a UNS and flowing complex payloads according to the needs of consuming applications, including abstraction, data flows, and even an [embedded MQTT broker](#). As you scale your UNS across the enterprise, you may want to upgrade to an enterprise-tier MQTT broker such as [HiveMQ](#), but the abstraction and data flow capabilities present in the Intelligence Hub can comfortably scale with you from pilot all the way to enterprise implementation.

When you're ready to try HighByte Intelligence Hub for yourself, come [join our free trial program](#) that provides access to the latest release, product resources, and a HighByte team member to help guide you through your evaluation.

## About HighByte

HighByte is an industrial software company founded in 2018 with headquarters in Portland, Maine USA. The company builds solutions that address the data architecture and integration challenges created by Industry 4.0. HighByte Intelligence Hub, the company's award-winning Industrial DataOps software, provides modeled, ready-to-use data to the Cloud using a codeless interface to speed integration time and accelerate analytics. The Intelligence Hub has been deployed in more than a dozen countries by some of the world's most innovative companies spanning a wide range of vertical markets, including food and beverage, health sciences, pulp and paper, industrial products, consumer goods, and energy. Learn more at <https://highbyte.com>.



### About the Author

John Harrington is the Chief Product Officer of HighByte, focused on product management, customer and partner success, and company strategy. His areas of responsibility include market research, customer use cases, product priorities, go-to-market, and financial planning.

John is passionate about delivering technology that improves productivity and safety in manufacturing and industrial environments. He has spent his 25-year career both delivering software to manufacturers and working for manufacturers in operations roles. This experience has given him a unique perspective on how suppliers and end users each play an integral role in implementing new technology solutions.

John has a Master of Business Administration from Babson College and a Bachelor of Science in Mechanical Engineering from Worcester Polytechnic Institute.