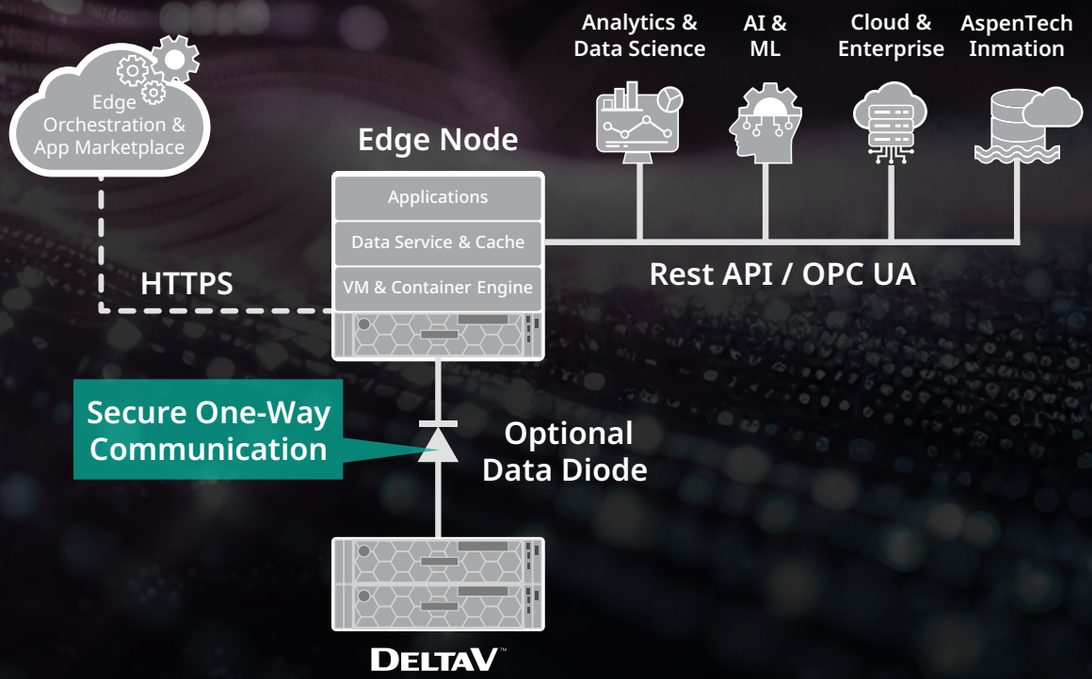
Unlock Operational Data Across Your Enterprise with

DeltaV™ Edge Environment

DELTAV™

EMERSON™



DeltaV Edge Environment Architecture.

A Practical Foundation for Industrial Digitalization

Modern operations need OT data that is timely, trustworthy, and easy to use, without putting the control system at risk. **DeltaV™ Edge Environment** is an on-premise platform designed specifically for DeltaV systems that delivers **secure, read-only access** to DeltaV data. This enables your team to build dashboards, reports, analytics, and workflows across the plant and enterprise.

DeltaV Edge sits between the control network and higher-level applications, replicating and serving DeltaV runtime and configuration data outside of the DCS while preserving system isolation. Because the data is delivered in the DeltaV hierarchy, users can work with information in context, without spending time flattening tags or rebuilding structure just to make the data usable.

At a glance, DeltaV Edge Environment enables:

- ✓ Secure access to DeltaV data across the enterprise through standard interfaces like REST API and OPC UA.
- ✓ Out-of-the-box context with hierarchy and metadata preserved from DeltaV.
- ✓ High-density runtime use cases without requiring long-term historian storage.
- ✓ Application hosting at the Edge through an integrated Application Marketplace and curated open-source apps.
- ✓ Centralized deployment and lifecycle management using Edge Orchestration across Edge nodes.

By delivering DeltaV data in context and in a format modern applications can easily consume, the DeltaV Edge Environment enables dozens of practical, real-world use cases that your team can begin building today.

Extend Real-Time Operational Awareness Beyond the Control Room

DeltaV Live Enterprise View

DeltaV Live Enterprise View extends DeltaV Live displays beyond the operator station by making them available through a standard web browser with secure, read-only access. Graphics, datalinks, and animations are presented exactly as configured in DeltaV Live, with no display conversion, duplication, or additional engineering required.

By reusing existing DeltaV Live content, teams can quickly provide visibility to key process areas without introducing new interfaces or maintaining parallel dashboards. This keeps everyone aligned to the same operational view during reviews, discussions, and investigations.

This capability is commonly used to support operational awareness for roles that need timely insight into plant conditions but do not require control access. Typical users include engineering, maintenance, reliability, quality, operations leadership, and remote collaborators who benefit from shared visibility.

DeltaV Live Enterprise View broadens access to real-time process context while preserving system boundaries, enabling faster coordination and better decisions without changing how the system is operated.

Fast, Self-Service Access to a Contextualized Replica of DeltaV Data

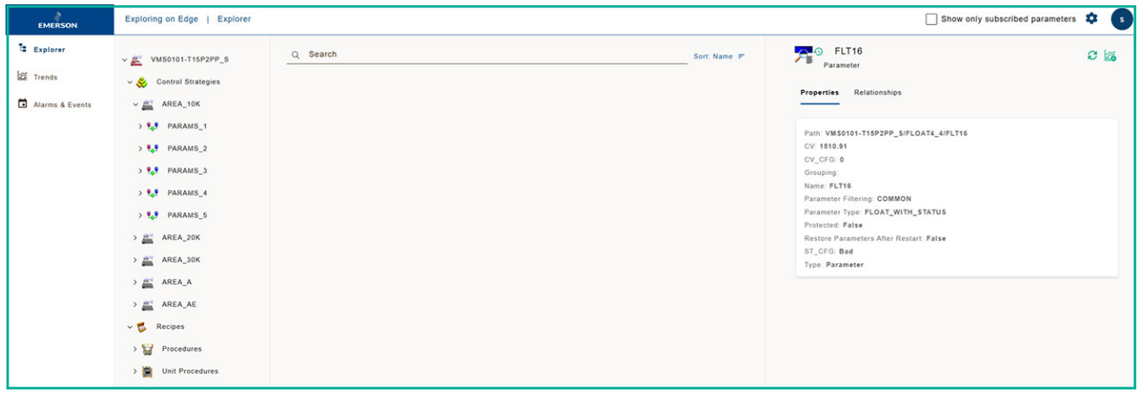
DeltaV Edge Explorer

DeltaV Edge Explorer is a ready-to-use web application that makes DeltaV Edge data easy to consume without requiring users to work directly with REST APIs or OPC UA clients. It provides a clear, navigable view of the DeltaV hierarchy replicated to the Edge, so users can quickly find modules, parameters, and related metadata in the same structure they already recognize from DeltaV. This makes it easier to confirm what data is available and understand how it is organized before using it in dashboards, reports, or other workflows.

Beyond basic browsing, Edge Explorer helps turn raw values into something usable. Users can view parameter values over time through built-in trending, with options to apply common aggregations such as average, minimum, maximum, and standard deviation. This supports quick checks of process behavior and variability, especially when validating suspected issues or reviewing recent operating conditions. Data can also be exported for use in external tools, supporting ad-hoc analysis and reporting workflows without needing to build a custom dashboard first.

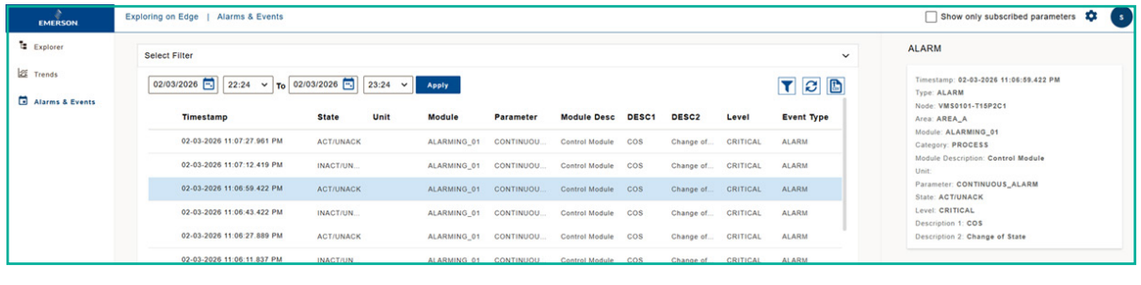
Edge Explorer also supports visibility into operational events by allowing users to query and filter alarms and events captured in DeltaV Edge. This makes it practical to review recent alarm activity, identify recurring patterns, and understand what was happening in the process around the time of an abnormal situation. When needed, alarms, events, and trends can be reviewed together to build a clearer timeline of what occurred.

For users who do build reports, dashboards, or integrations, Edge Explorer doubles as a structured reference for what data is present in DeltaV Edge and how it is organized. By exposing names, hierarchy, and context in a consistent way, it reduces trial-and-error when configuring REST API queries or OPC UA subscriptions in tools like Power BI, Grafana, SQL-based reporting tools, or custom clients.



Browse and search for your data within the context of the DeltaV hierarchy.

Monitor and analyze live process trends.



View and filter alarms and events.

Data Visualization, Reporting, and Monitoring

DeltaV Edge enables teams to turn recent DeltaV runtime data, alarms, and events into clear views that support daily monitoring, troubleshooting, and performance reviews. Because the data replica preserves the DeltaV hierarchy and metadata, dashboards can be organized by area, unit, or module, making them easier to navigate and maintain as the system evolves.

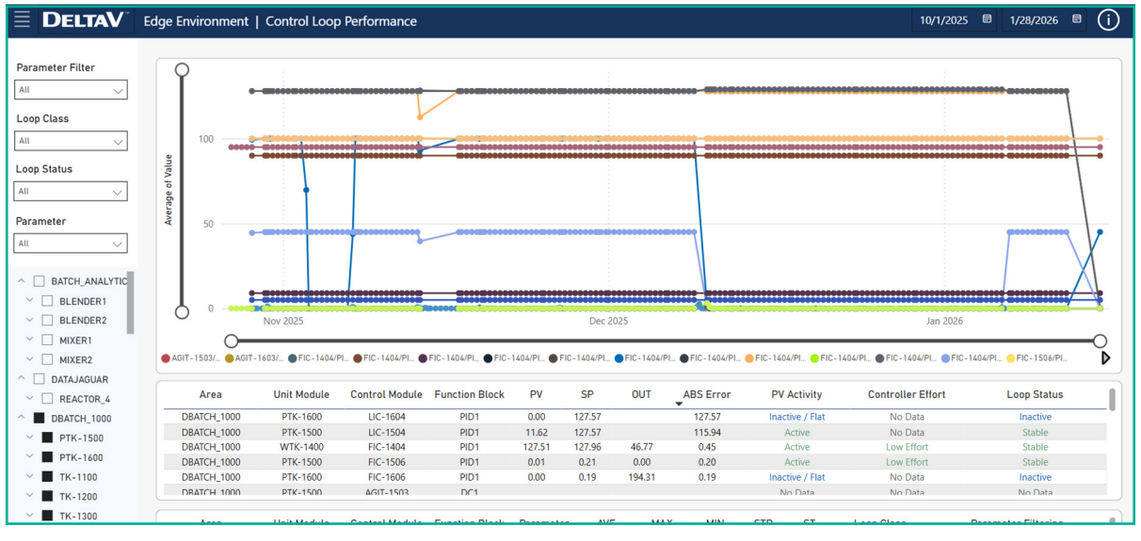
Typical applications include real-time and near-real-time dashboards, short-term trend analysis, and operational reports such as shift handovers and daily summaries. These views often combine process trends, alarm activity, and calculated metrics to create a shared understanding of current conditions and what has changed over time. As needs grow, the same data can be reused across multiple formats, from large-screen monitoring dashboards to targeted reports that focus on specific units, loops, or recurring problem areas.

Common Visualization Options

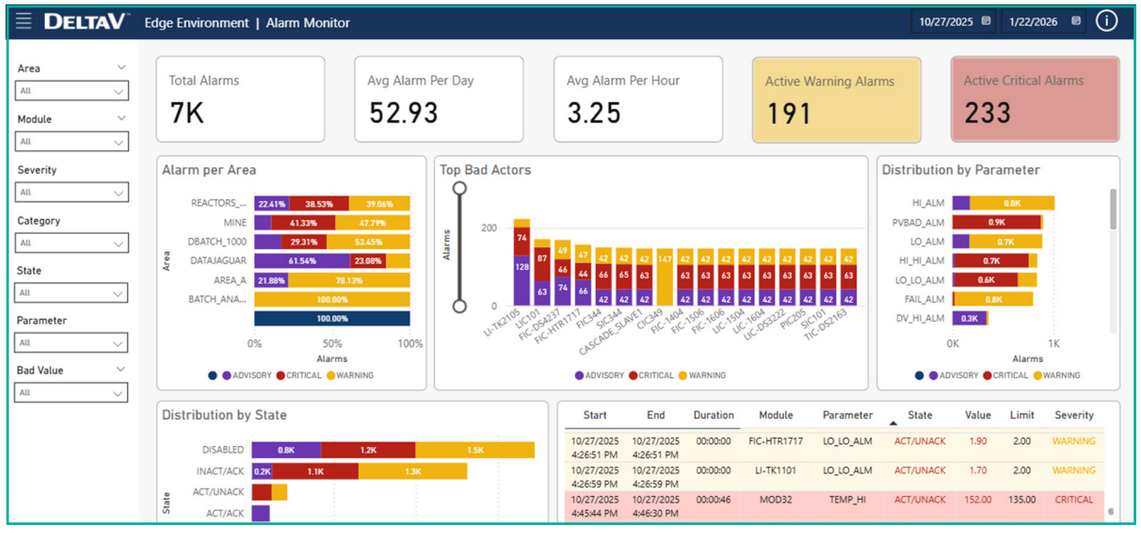
Power BI, Grafana, Excel, Node-RED, Metabase, custom web dashboards, Jupyter-based analysis and plotting tools.

COMMON USE CASES

- Control loop performance dashboards with trends and calculated indicators.
- Alarm monitoring and alarm summary views by area, priority, or time window.
- Process overview dashboards combining key values, trends, and alarm status.
- Shift handover and daily operations reports using recent process history.
- Short-term trend analysis to investigate upsets and abnormal conditions.
- Statistical summaries such as average, min/max, range, and standard deviation.
- Exception dashboards highlighting values outside expected operating ranges.
- Comparative views across time windows, operating modes, or units.
- Correlation views linking process values with alarms and events.

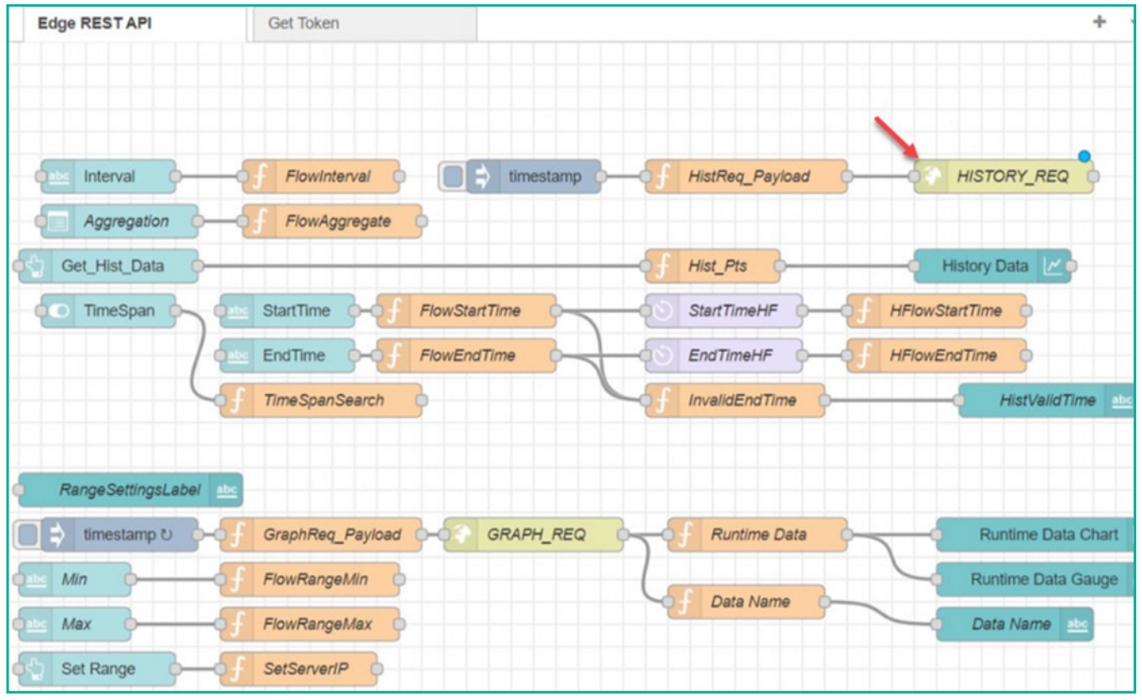


Control Loop Performance dashboard created using Power BI.

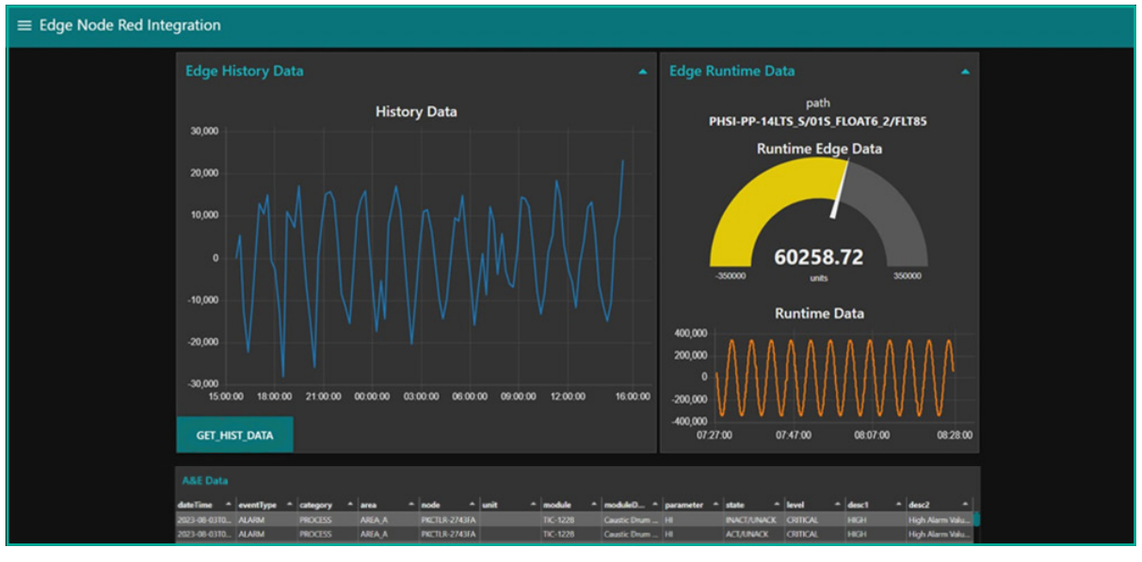


Alarm Monitoring dashboard created using Power BI.

Event-Driven Integration and Workflow Automation



Node-RED uses blocks to describe data flow.



Example diagram output based on the workflow setup in Node-RED.

DeltaV Edge enables event-driven workflows by making DeltaV alarms, events, and process values available to workflow engines that can evaluate conditions and trigger actions. This supports practical automation scenarios such as notification, escalation, logging, and system-to-system coordination, without embedding workflow logic into DeltaV configuration.

Workflows can run directly on the Edge Node using visual tools, allowing teams to build and update integrations quickly. These flows commonly pull recent values and context around an event, enrich the payload with metadata such as area, module, and priority, then route it to downstream systems for action or recordkeeping.

COMMON USE CASES

- Alarm and event notifications via email, chat, or SMS with contextual details.
- Automatic creation of maintenance or investigation tickets when conditions persist.
- Escalation workflows based on priority, acknowledgement state, or duration.
- Capturing “snapshot” records of key process values when an event occurs.
- Writing alarms, events, and snapshots into databases for reporting and audit trails.
- Triggering workflows based on process conditions, such as operating limits or mode changes.
- Routing selected events to enterprise tools for visibility and follow-up.
- Building lightweight “if-this-then-that” logic for operational coordination.

Common Workflow Tools

Node-RED, n8n, custom scripts and services, PostgreSQL, Redis, email and webhook integrations.

Batch Visibility and Batch-Oriented Analysis

DeltaV Edge makes batch execution data available alongside recipe configuration, continuous process values, and alarms and events, all delivered in a consistent, contextual structure. This enables batch-oriented teams to build analysis and review workflows using the same relationships between recipes, units, phases, and parameters that exist in DeltaV.

By exposing batch events, phase timing, and related runtime data together, DeltaV Edge supports deeper understanding of how batches actually execute and how process conditions and alarms behave during different stages of a batch. The data can be used by external tools to construct batch-focused views and analyses without changing batch logic or configuration in DeltaV.

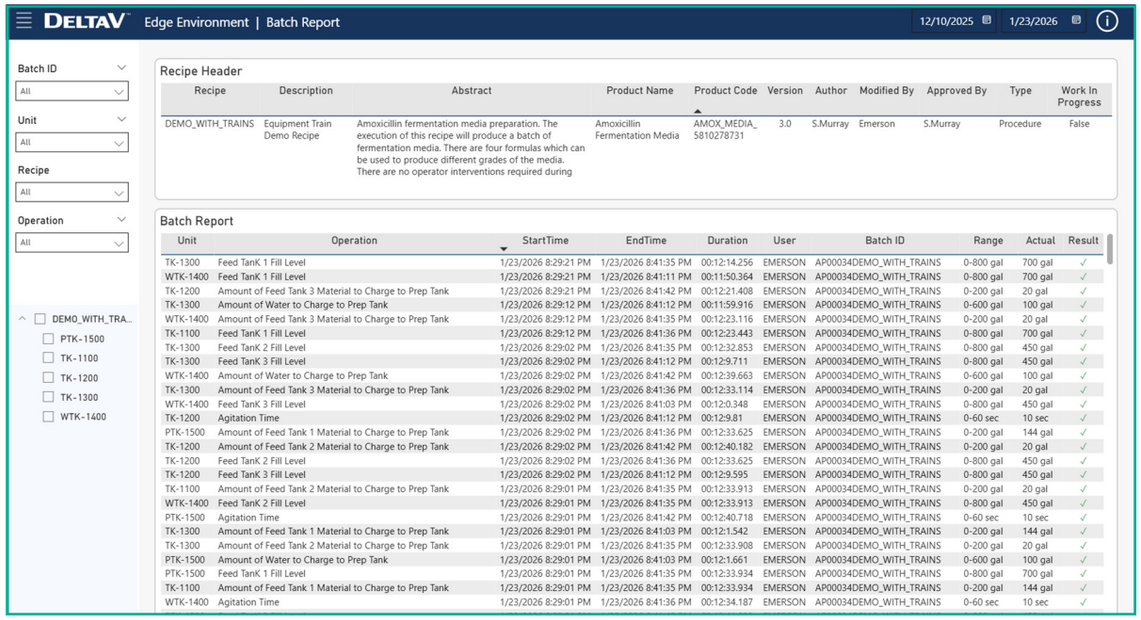
Typical batch-oriented use cases focus on review, comparison, and investigation rather than real-time control.

COMMON USE CASES

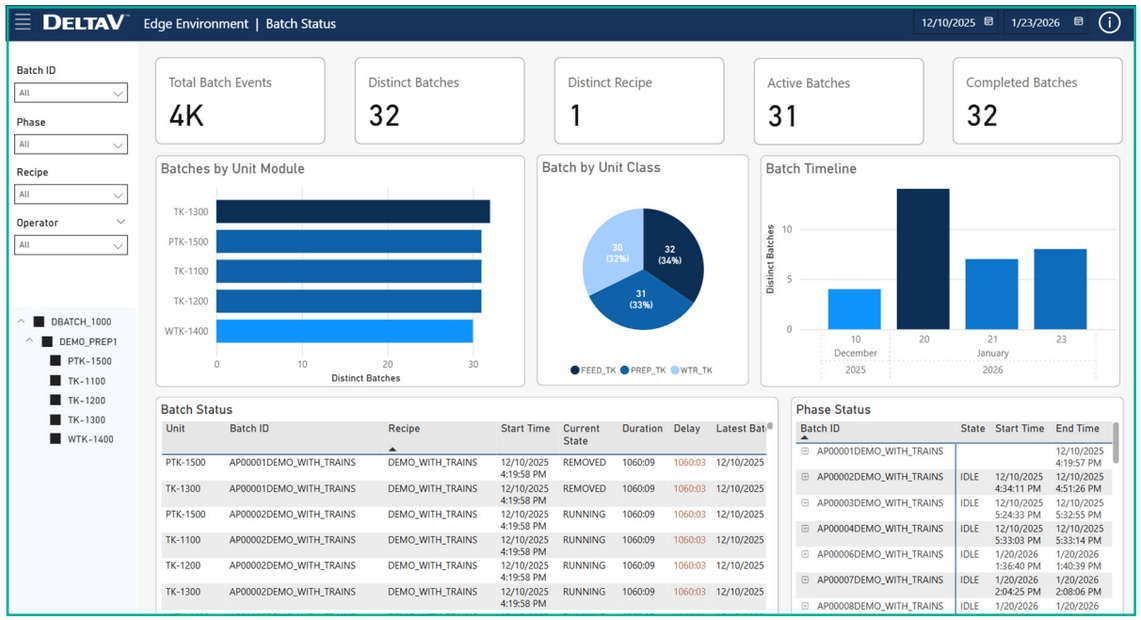
- Batch timelines with phase transitions and durations.
- Comparing batch, operation, or phase timing across runs.
- Reviewing alarms and events in batch context.
- Correlating alarms to phases and process conditions to spot repeat issues.
- Finding delays, holds, and abnormal conditions by batch stage.
- Correlating process values to phases to understand variability and consistency.
- Post-batch review dashboards for operations, quality, and engineering.
- Providing structured batch data for investigations and continuous improvement.

Common Analysis and Reporting Tools

Power BI, Grafana, Jupyter Notebook, Excel, custom web dashboards.



Batch execution report created using Power BI.



Batch summary report created using Power BI.

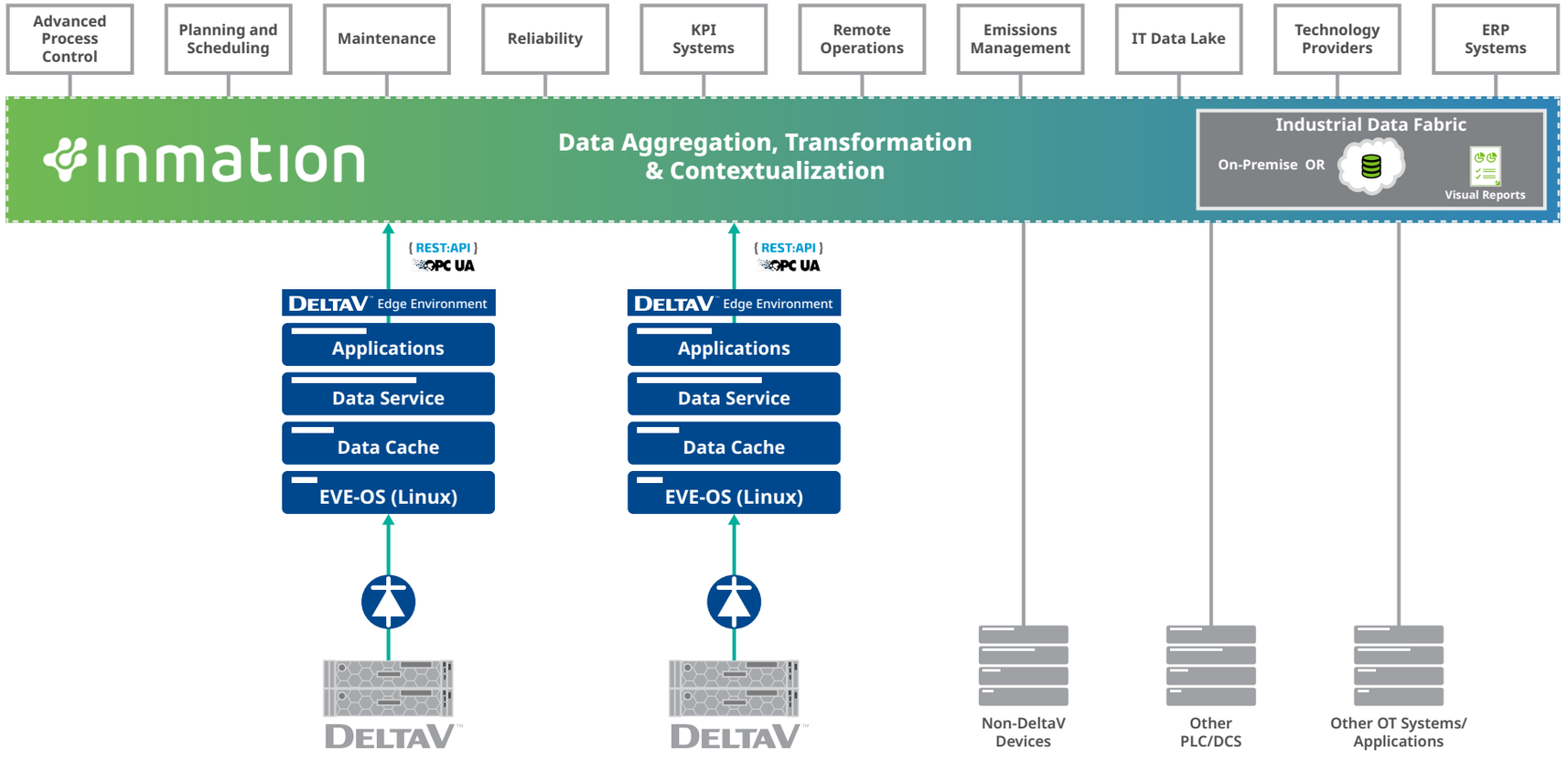
Enterprise Connectivity and OT Data Fabric Integration

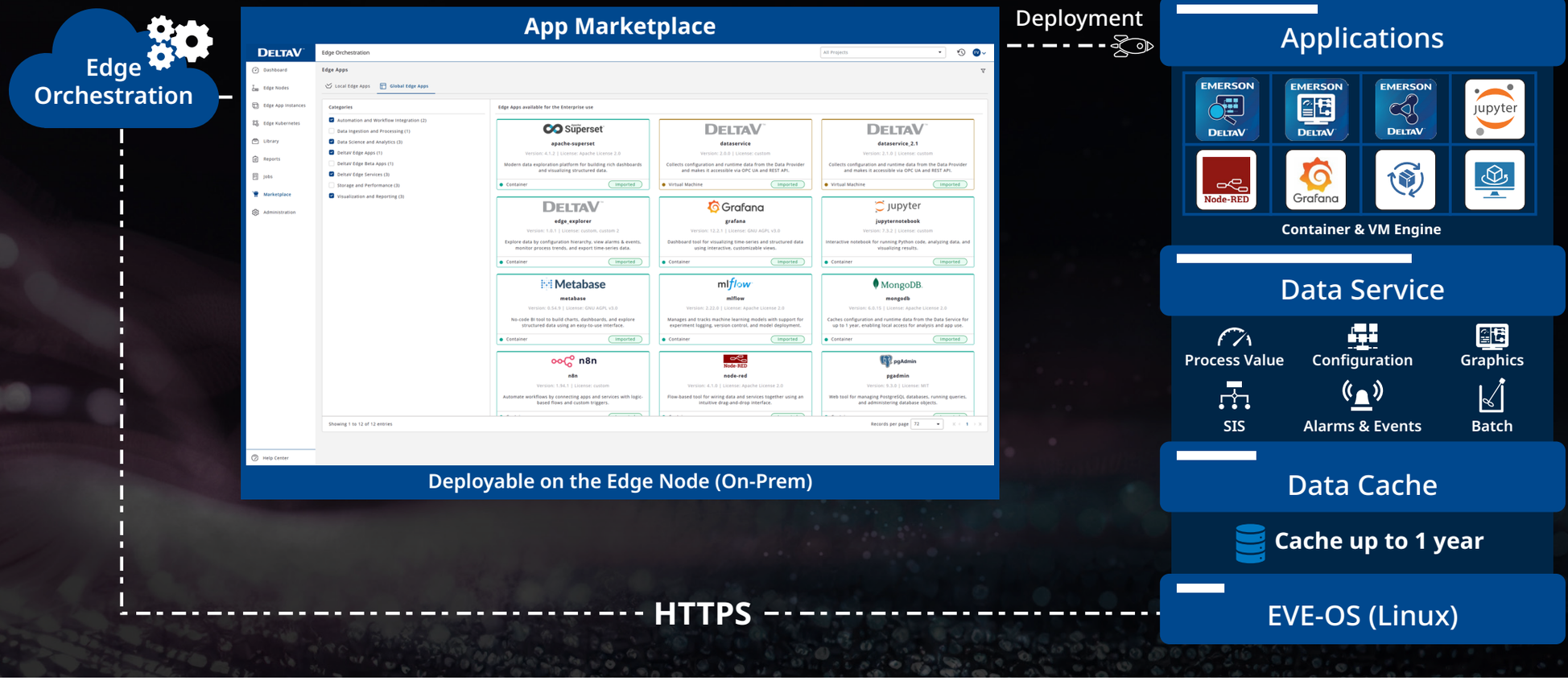
DeltaV Edge provides a structured entry point for bringing DeltaV data into enterprise and cloud architectures at scale. It exposes DeltaV runtime data, alarms and events, batch events, and configuration context through standard interfaces, so higher-level systems can consume the data without needing to rebuild DeltaV structure or manage low-level connectivity.

In this model, DeltaV Edge serves as the DeltaV-facing layer, making DeltaV data available with its hierarchy and metadata preserved. That context matters because it allows enterprise platforms to organize information by area, unit, module, or batch structure, instead of treating everything as disconnected signals. This improves consistency across sites and makes data easier to interpret and reuse across teams.

Downstream platforms such as OT data fabrics, enterprise data hubs, data lakes, or cloud services can then focus on what they do best, aggregation, transformation, long-term storage, and advanced analytics. This separation of roles supports scalable architectures where DeltaV data can be combined with other OT and IT sources to enable centralized reporting, cross-system analysis, and broader digital transformation initiatives.

Whether the destination is a data fabric such as AspenTech Inmation, an on-premise enterprise data lake, or cloud platforms like AWS, Azure, or Google Cloud, DeltaV Edge provides a repeatable integration pattern. It helps standardize how DeltaV data is delivered across plants and systems, reducing point-to-point complexity and enabling enterprise initiatives to scale with less rework over time.





Application Marketplace and Edge App Hosting

DeltaV Edge is not only a data access layer, but also a platform for running applications close to DeltaV data. Through its built-in App Marketplace and container-based runtime, teams can deploy, manage, and scale applications directly on the Edge Node without standing up separate infrastructure or tightly coupling logic to the control system.

Applications run in isolated containers on the Edge Node and consume DeltaV data through standard interfaces such as REST API and OPC UA. This allows developers and solution teams to build visualization, analytics, workflow, and integration applications that operate on contextualized DeltaV data while maintaining clear separation between control, data, and application logic.

The App Marketplace provides a curated starting point with supported open-source and Emerson-provided apps, while also allowing customers and partners to deploy their own applications. This enables a consistent deployment and lifecycle model across sites, reducing one-off integrations and simplifying maintenance, upgrades, and governance.

By hosting applications at the Edge, teams can keep data processing close to the source, reduce latency, and avoid unnecessary data movement. The result is a practical way to operationalize dashboards, automation, and analytics use cases using DeltaV data, without turning Edge into a monolithic analytics platform.

LEARN MORE

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www.github.com/emersondeltav/deltav-edge

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