CONNEQT

Enabling the Green Economy using AVEVA Data Hub

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AVEVA Data Hub

Remote monitoring

Data science & AI/ML platforms

3rd party analytic tools

Data sharing with business partners

Custom & partner applications

Reporting & Dashboards

OMF Apps & Remote assets

AVEVA Adapters

Edge Data Store

AVEVA PI Server

AVEVA Historian

AVEVA System Platform

Cloud apps & silos

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A cloud-native industrial platform designed for aggregating, storing, enriching, accessing, analyzing, and securely sharing real-time operations data from historians, edge devices, and more

- Managed, secure, multi-tenant platform
- Operated & maintained by AVEVA
- High speed, scalable, elastic, & resilient
- Modern, secure REST APIs
- Built & deployed on Microsoft Azure

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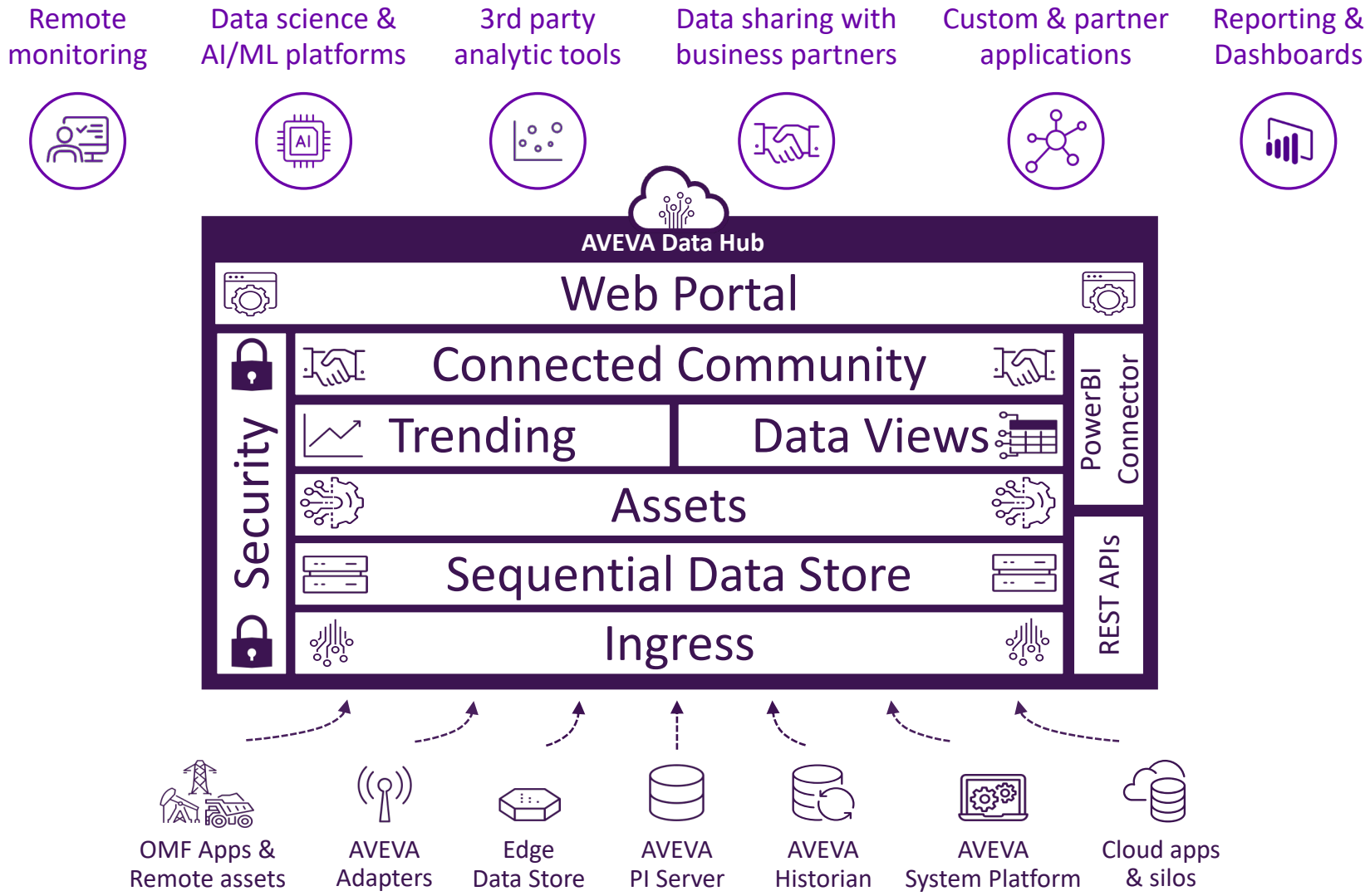
AVEVA Data Hub



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Supported Regions
West US (California)
North Europe (Ireland)
Australia East (New South Wales)

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Why AVEVA Data Hub?

Purpose-built for OT, ready for the enterprise

- **Easiest path to get industrial operations data to the cloud & optimized for OT data, at scale**
- Native integration to AVEVA PI System, AVEVA Historian, Edge Data Store, & connectivity to other data sources
- Protects control network with one-way communication
- **Contextualized, curated operational data is immediately available** to enterprise business applications, IT applications, **analytics, and data science**

Secure data sharing enables new opportunities

- Easily share operational data with your ecosystem of trusted business partners, analytics providers, and digital service providers in a standard way
- **Scalable & transparent data sharing that puts you in control of your data**
- Reduced security risks with sharing data externally
- Securely engage vendors and partners for expanded expertise and new insights

Ready-to-use industrial cloud service

- Be **operational in hours**, not months
- No DIY microservice assembly needed; key capabilities and security functionality is already interoperable
- REST API complements and makes it easy to integrate with existing IT cloud applications & investments
- Multi-tenant industrial system designed natively for the cloud
- SaaS operated by AVEVA; nothing for you to manage or maintain

AVEVA

The value of SaaS solutions

SaaS is the fastest and most secure way to access software solutions

- Always the latest version with the most up-to-date security features
- On-demand scalability—never run out of capacity
- Fastest time to value through elimination of deployment and configuration

SaaS is more sustainable and cost-efficient

- Eliminates the need for expensive infrastructure investments (CapEx)
- Eliminates overhead cost of owning software: deployment, maintenance, IT staff

SaaS will become the priority platform for release of future capabilities

- Aligns best with agile software development practices
- In some cases, capabilities will depend on cloud technology

From data source to AVEVA Data Hub

Supporting hybrid industrial architectures from the edge to on-premises to the cloud

Custom edge & cloud apps
- OMF – Open Message Format spec
- Maximum flexibility for developers
- Supported on any HW & OS
- REST API available as well

PI to Data Hub
- Native connectivity
- Support for PI points & AF Elements
- Current data & Historical data
- Simple, easy, & centralized config

Edge Data Store
- Persistent storage at the edge
- Cross platform & self-healing
- Flexible egress filtering config
- Same REST API as AVEVA Data Hub

AVEVA Adapters
- Ready off-the-shelf connectivity
- Cross platform (Windows & Linux)
- Lightweight footprint
- Client & Server level failover

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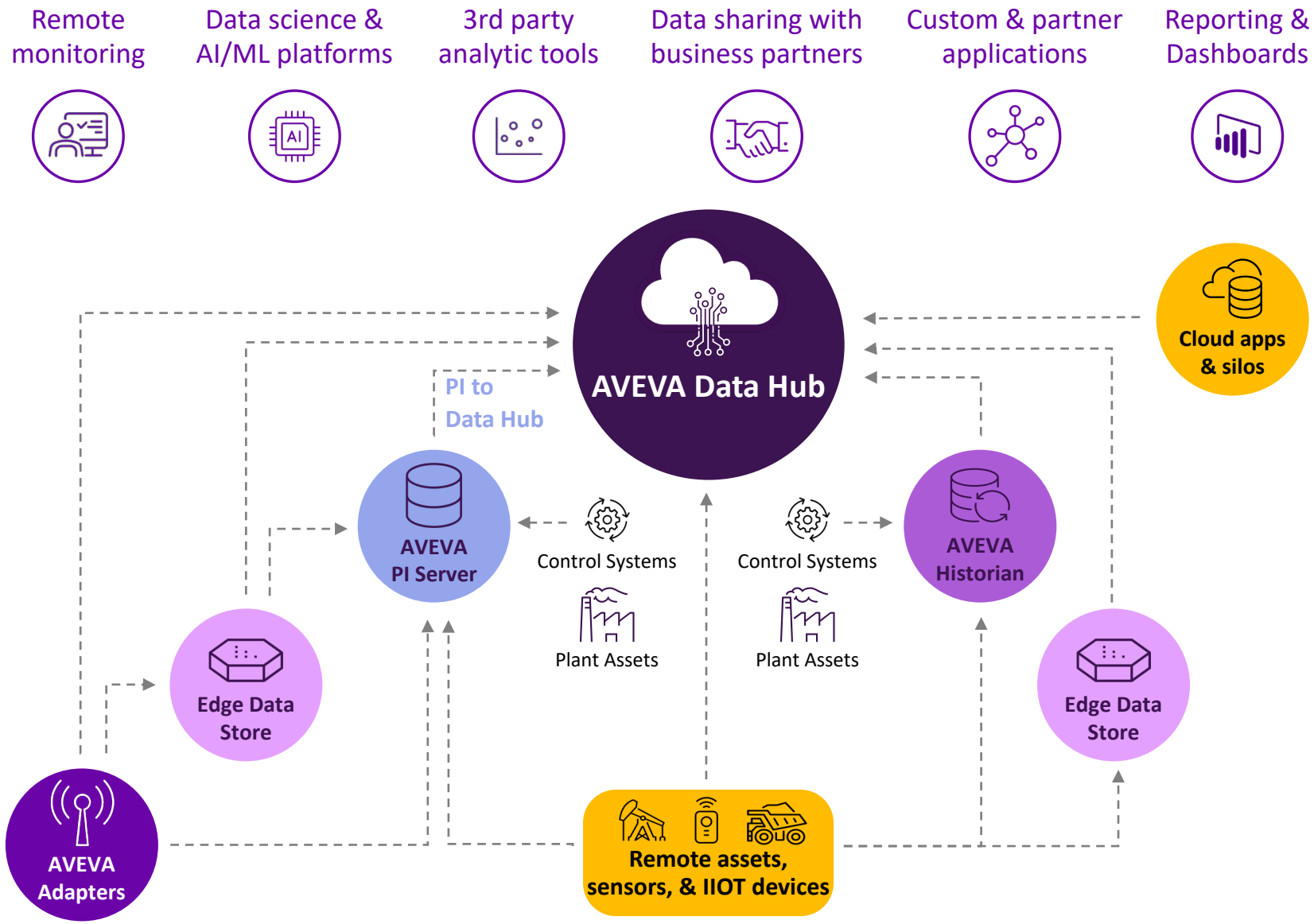

Adapters available for: Azure Event Hubs, BACnet, DNP3, Modbus TCP, MQTT, OPC UA, RDBMS, Structured Data Files

All connections shown are based on OMF unless noted

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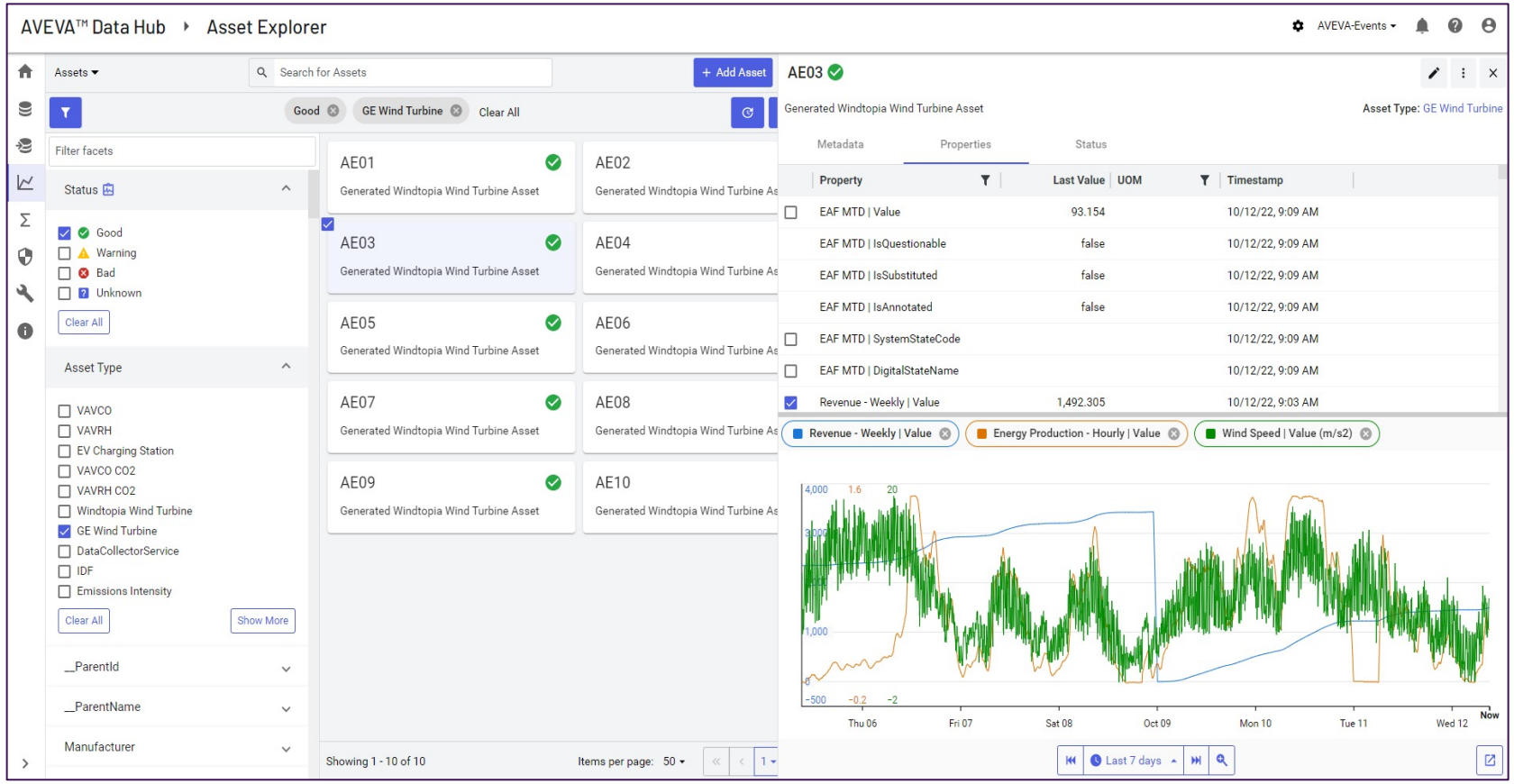
Assets give useful context to your data streams



- ✓ **Static metadata** (Region: North America, Wind farm: Big Buffalo Wind Farm, Asset Type: GE Wind Turbine, Manufacturer: Truvale, …)
- ✓ **Stream reference properties** (Active power, expected power, operating state, wind speed, etc.)
- ✓ **Asset status** (stream property values mapped to status: good, warning, bad)

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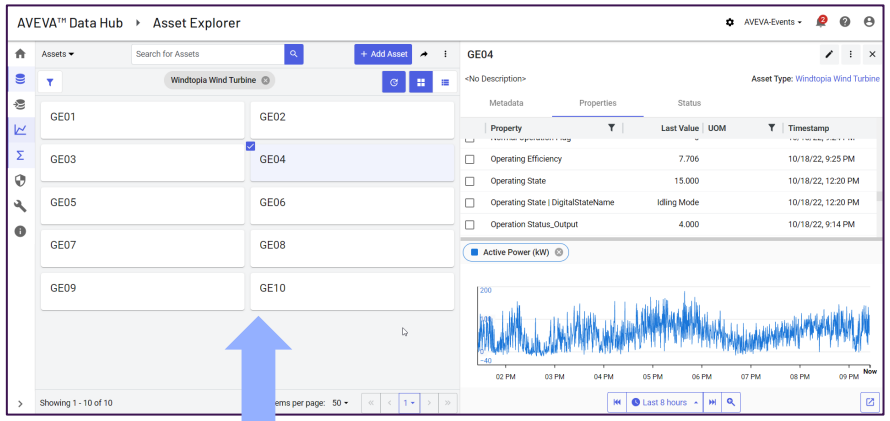
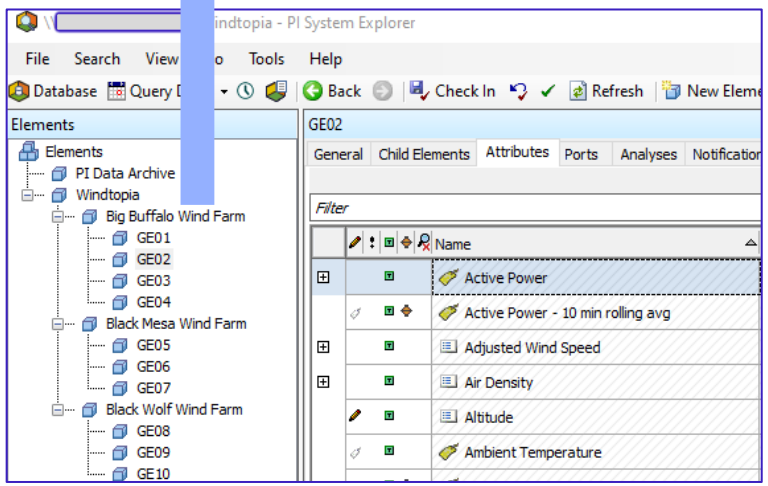
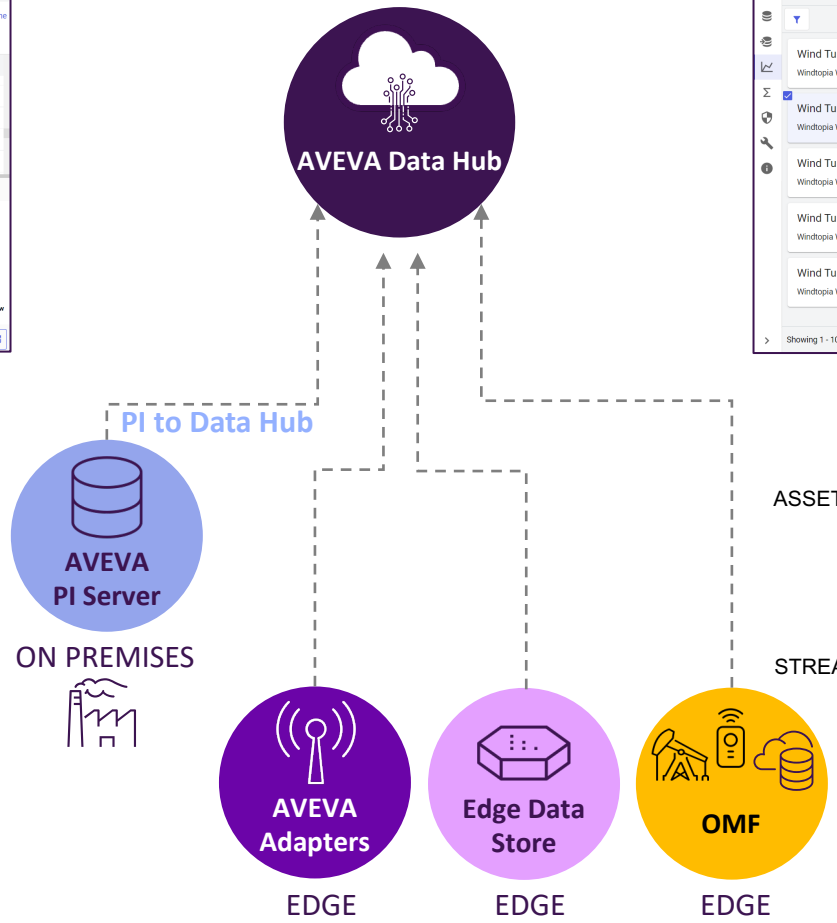
Automatic context creation for different scenarios

Leverage existing PI AF Elements

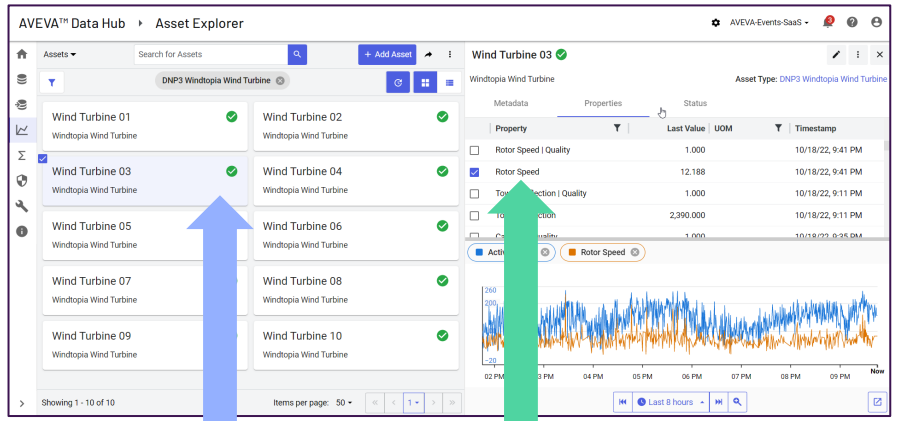


Designed to leverage on premises
AVEVA PI Server & AF Elements





Create Assets from Stream name patterns with Asset Rules



ASSET RULES

WindTurbine03 identifies the **asset name**

RotorSpd identifies the **Rotor Speed** property

STREAM NAME **DNP3-1.WindTurbine03.RotorSpd.0**

Designed for Edge to Cloud &
Remote Operations Monitoring scenarios

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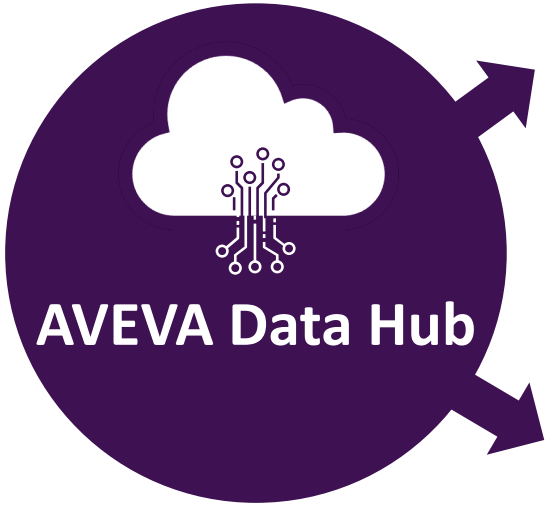
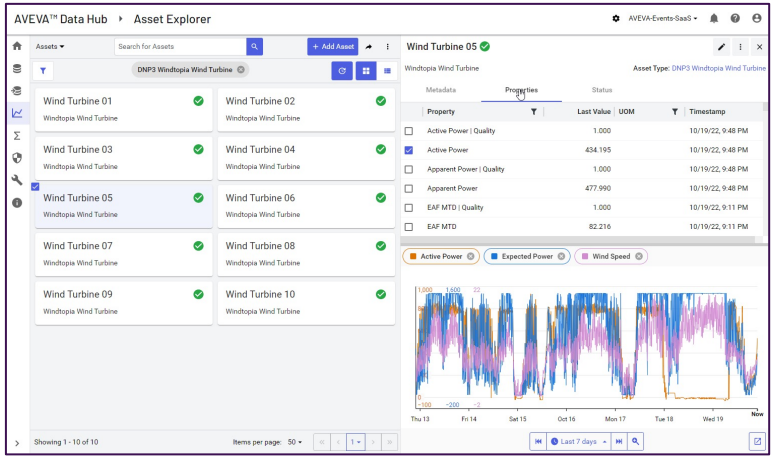
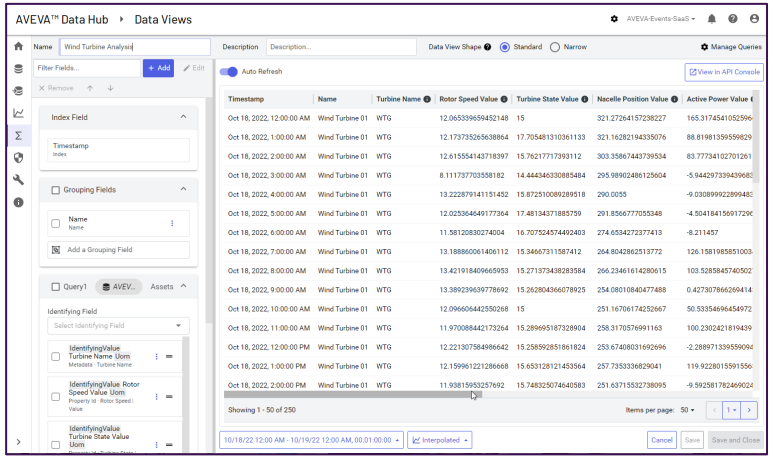
Ready to use operations data in context & accessible from the cloud



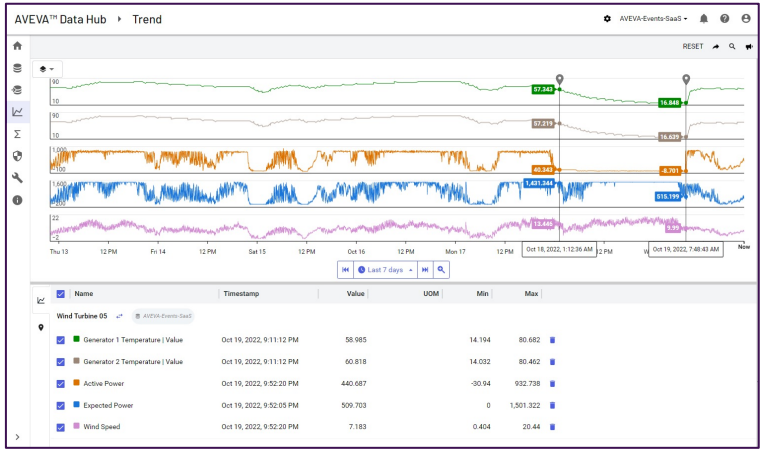
Remote Monitoring / Fleet Monitoring



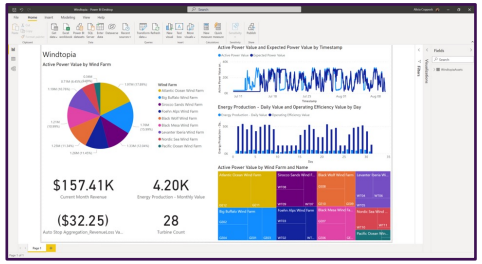
Enabling Data Science, ML, & Analytics



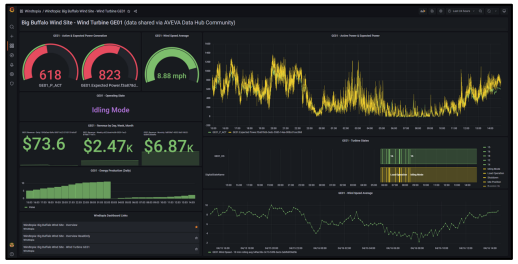
Trending & Investigations



Enterprise Dashboards



3rd Party Applications



Custom Applications (via REST API)

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Obstacles to effective industrial data science

- Availability of trustworthy data where you need it
- Alignment and trust between domain experts and data scientists
- Complexities of industrial time-series data

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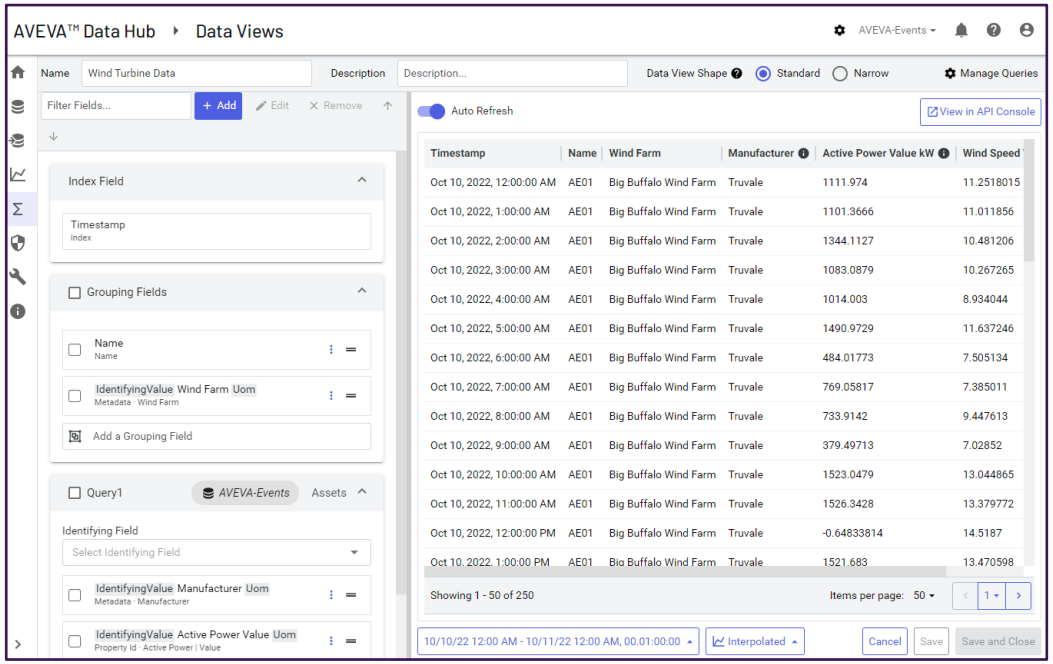
Data views curate operational data for external consumption

DATA VIEWS

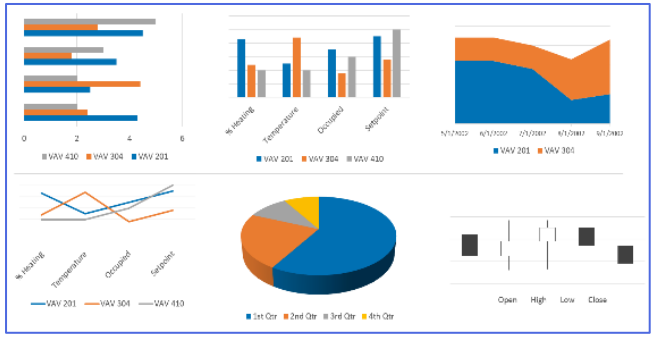
AVEVA Data Hub

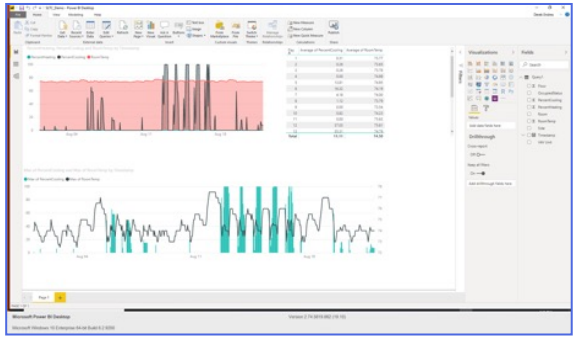


REST API

- **Data Science Tools & Data Exploration**
- **Data Science via Code**
- **Partners & Apps**
- **Cloud Platforms**

Power BI Connector





Power BI

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Getting more value out of industrial data, together

INDUSTRIAL DATA

MORE VALUE

Equipment Suppliers

Service Providers

Partners

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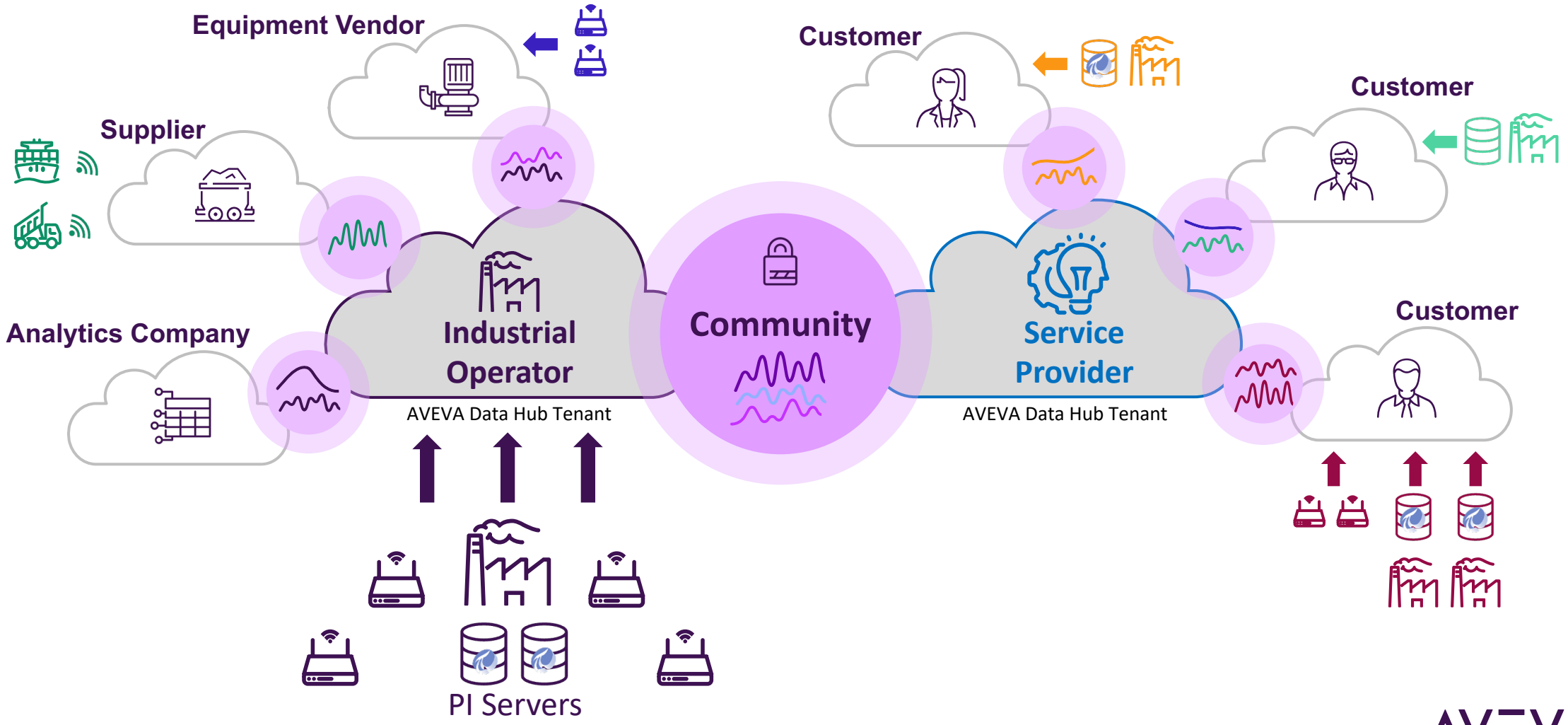
Connected community: Powering your industrial ecosystem



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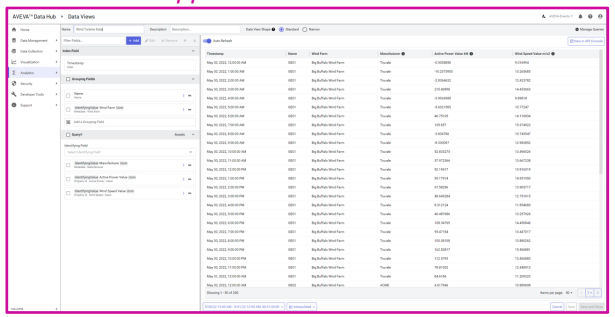
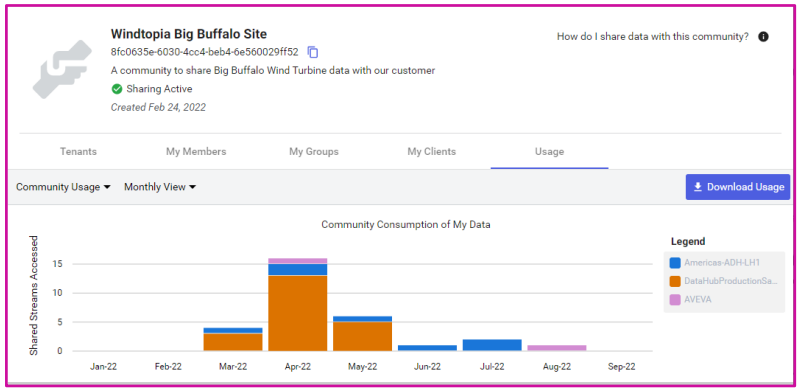
AVEVA Data Hub connected community

- Data Science Tools & Data Exploration
  - Data Science via Code
    - Partners & Apps
      - Cloud Platforms

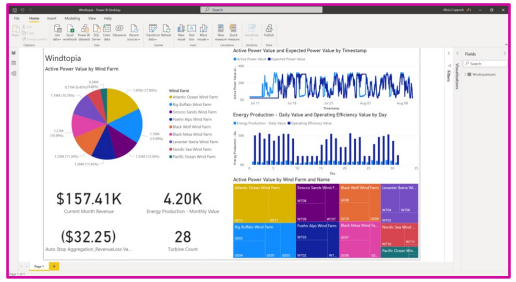
Data Views support shared streams



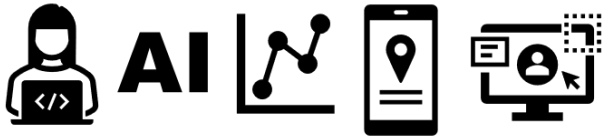
Transparent community usage



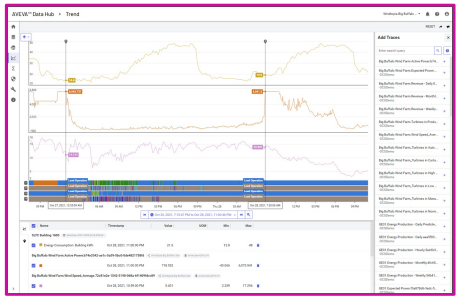
Power BI (via Data Views & Data Hub Power BI Connector)

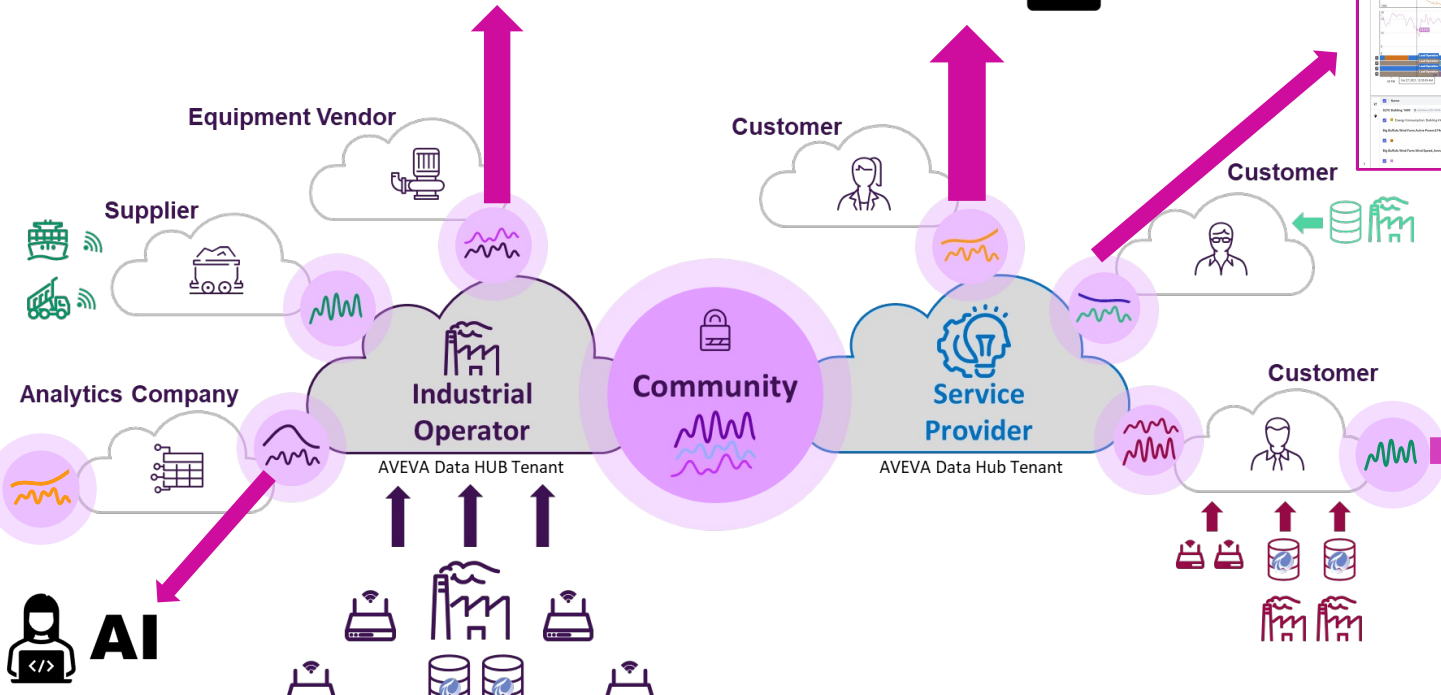


Custom Applications (via REST API)



Trending supports shared streams





Grafana (via REST API)

Spreadsheets (via REST API)

	A	B
1	Timestamp	Temperature
2	3/1/2022 12:00:00	79
3	3/1/2022 12:01:00	65
4	3/1/2022 12:02:00	92
5	3/1/2022 12:03:00	81
6	3/1/2022 12:04:00	86
7	3/1/2022 12:05:00	88
8	3/1/2022 12:06:00	77
9	3/1/2022 12:07:00	92
10	3/1/2022 12:08:00	80
11	3/1/2022 12:09:00	49
12	3/1/2022 12:10:00	69
13	3/1/2022 12:11:00	44
14	3/1/2022 12:12:00	73

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ZGlobal, along with its partners SVCE and EDF Renewables, uses AVEVA Data Hub to simplify real-time data sharing in power operations

Simplified real-time data sharing between multiple organizations

Improved security, transparency, and trust

Analysis of data aggregated by AVEVA Data Hub has saved thousands of dollars on power purchases

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Thank you
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