NOVEMBER 2022

Harnessing the power of the Sequential Data Store and the Assets Store in AVEVA™ Data Hub

Chad Chisholm – VP, Cloud Platform R&D Management

Derek Endres – Senior Manager, Product Readiness Guild

Agenda

Introduction

AVEVA Data Hub – Real time sensors data

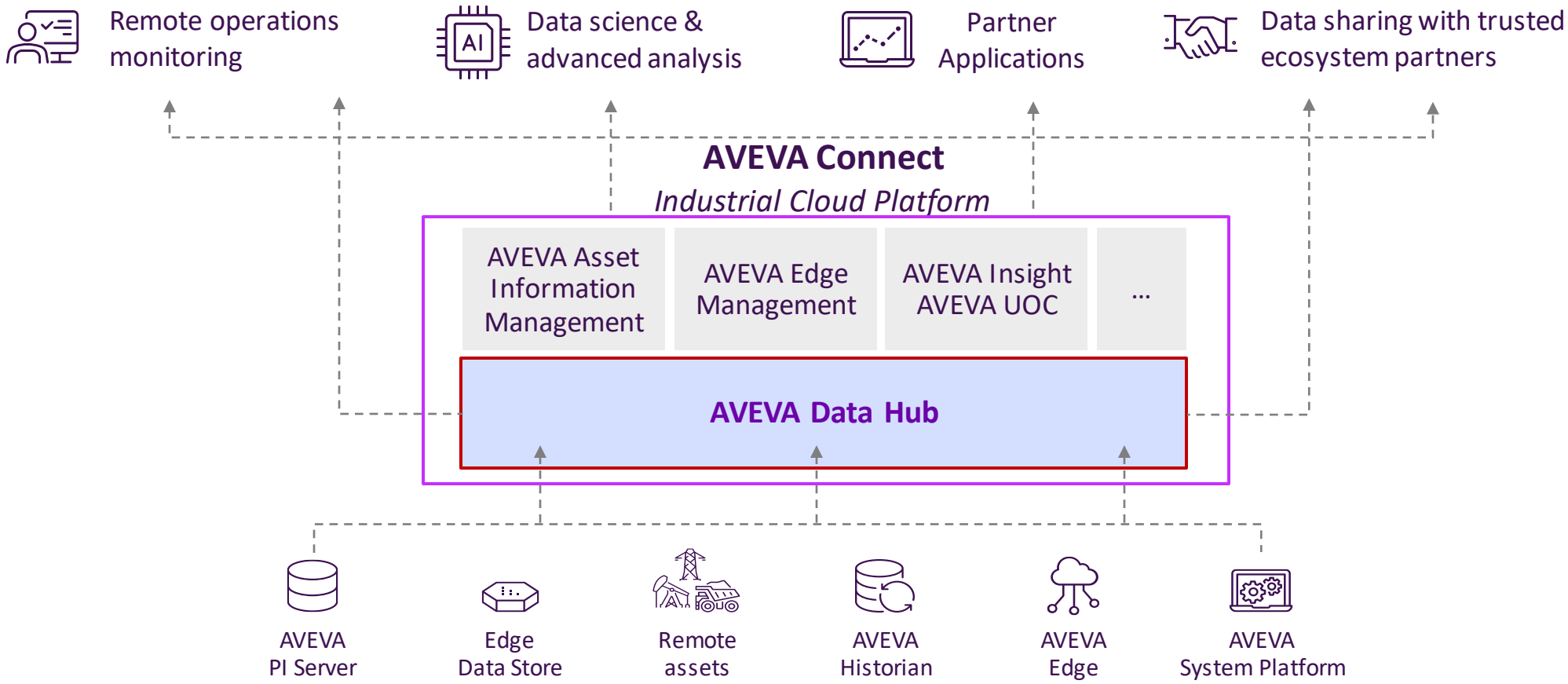
AVEVA Data Hub – Assets and Contextualization

End-to-end, real-life scenario and demo

Conclusion

The Power of AVEVA™ Connect

AVEVA Connect enables a hybrid data architecture through cloud offerings



AVEVA Data Hub – Common features

High Availability/Resiliency

- Guaranteed 99.9% uptime

Global Deployment

- North Europe
- West US
- West Australia

Disaster Recovery Plan

- Recovery Point Objective – 24 hours
- Recovery Time Objective – 24 hours

Zero maintenance

- Managed by AVEVA

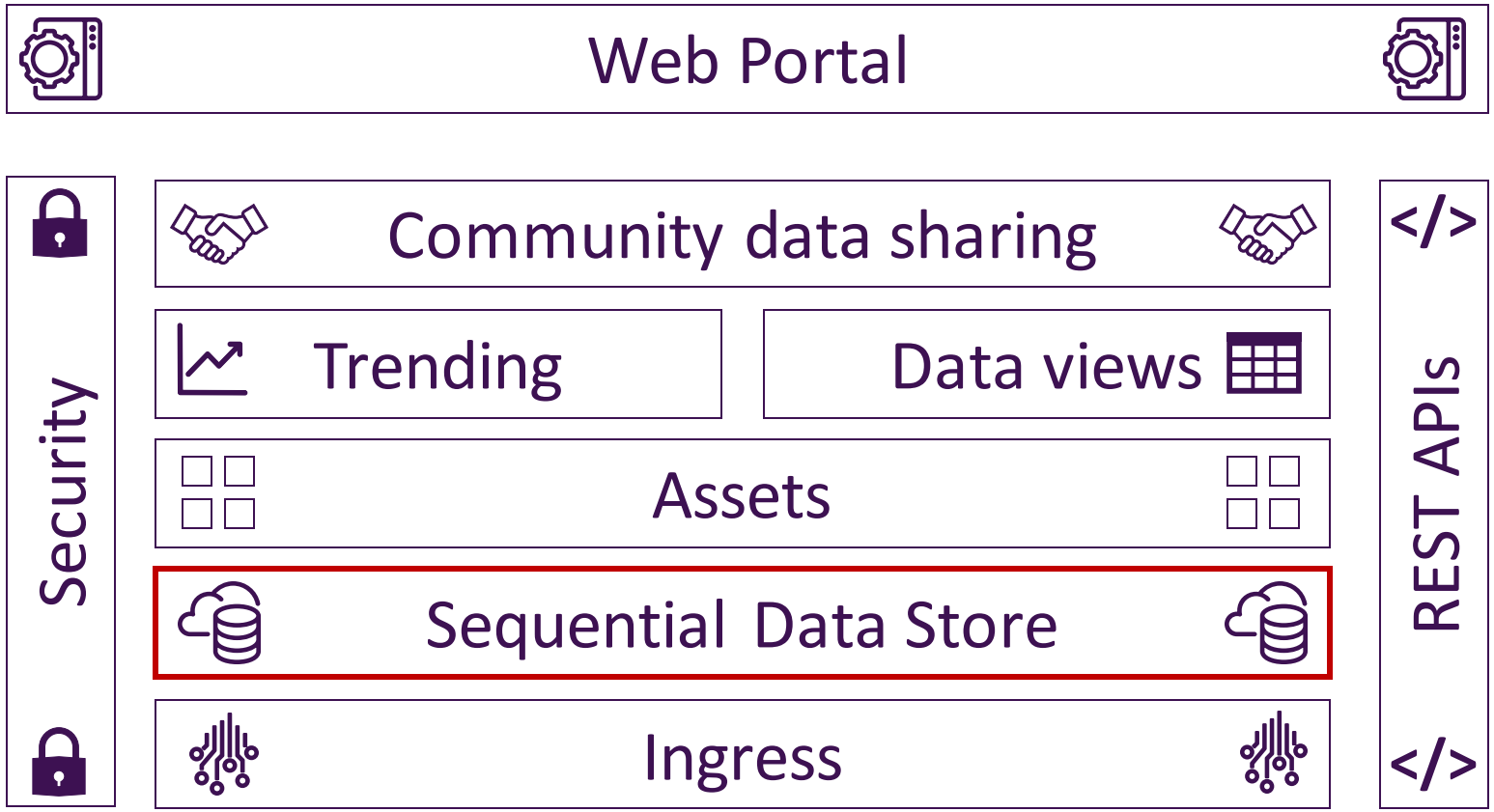
License Elasticity

- Scale as you go, up and down

Accessibility

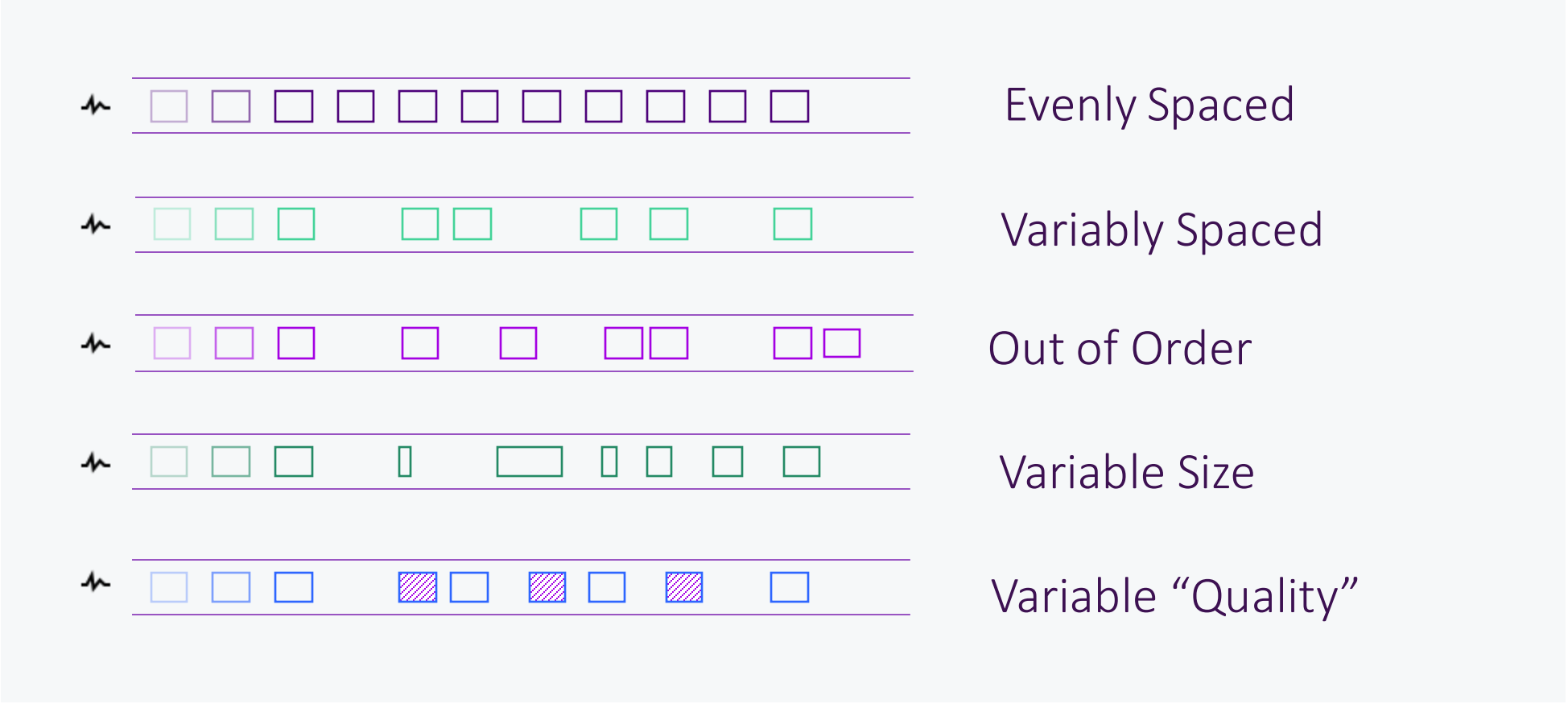
- Modern REST APIs
- Secure by design

AVEVA Data Hub Capabilities



What is AVEVA Data Hub Sequential Data Store (SDS)?

The Specificity of Sequential / Time series Databases



Sequential Data Store – Design Improvements

Lossless compression

Timestamping

- Resolution to nanoseconds
- Native support for future (and pre-1970) timestamps

Unity Of Measurements (UOMs)

Context information

- Stream Tag – free text
- Stream Metadata – Key:Value Pairs
- Stream metadata rules

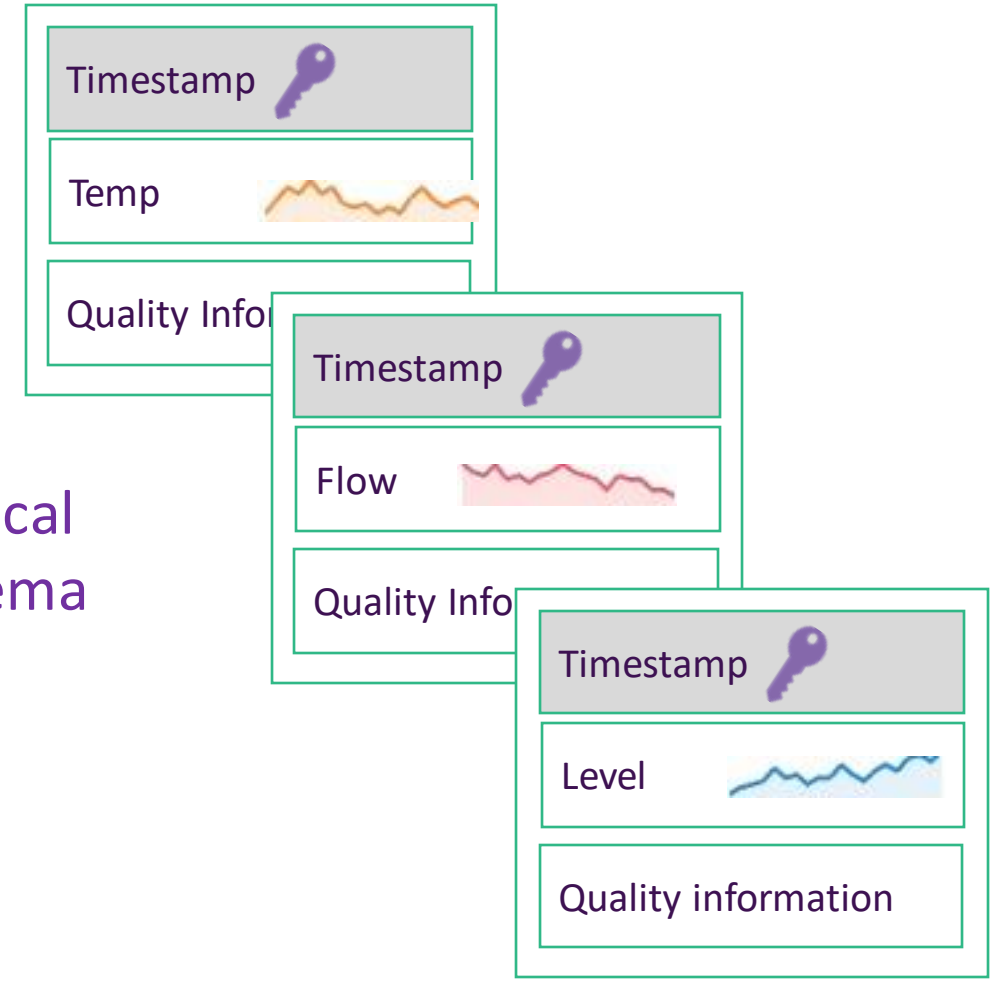
Complex, custom Stream Types

Secondary and compound indices

AVEVA

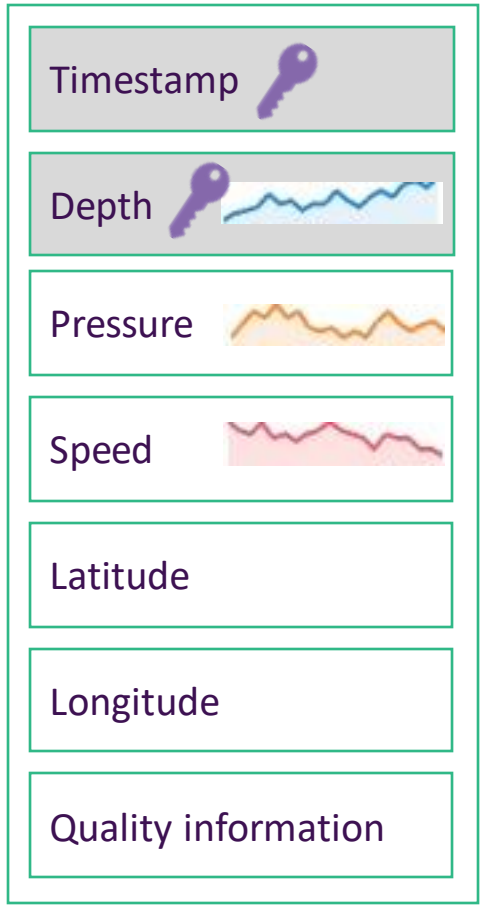
Flexible Sequential Data Store that keeps related data together

Typical Schema



POINTS/TAGS PROPERTIES

SDS Schema



STREAM PROPERTIES

Most Common Sequential Data Store Stream Types

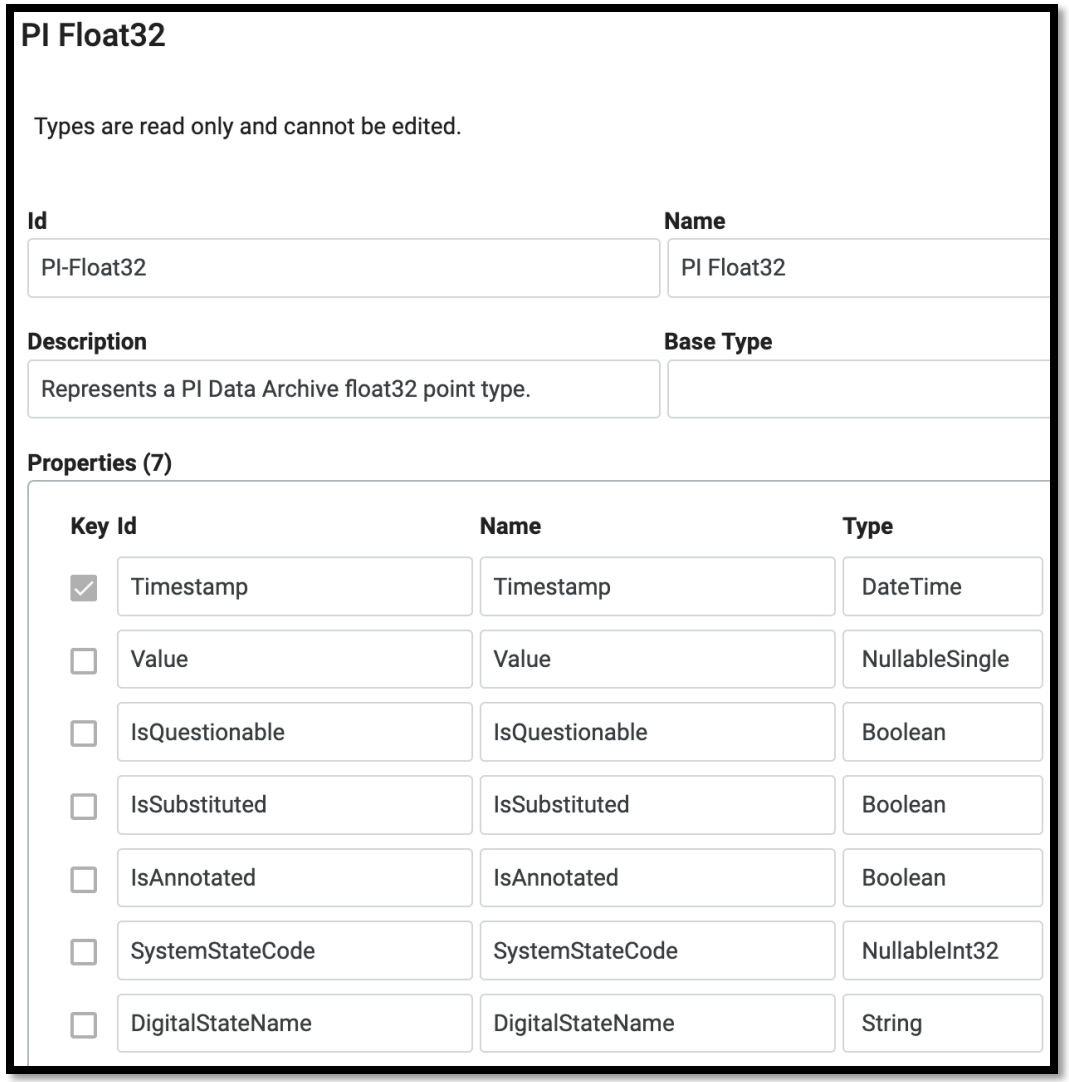
PI TO AVEVA DATA HUB

AVEVA PI ADAPTERS

AVEVA SYSTEM PLATFORM 2023

Streaming data - demo

- SDS types
  - PI type
  - Weather Station type
- SDS Stream
  - Stream examples
  - Stream Tags
  - Stream [Key:Value] pairs
- Stream Metadata rule



PI Float32

Types are read only and cannot be edited.

Id	Name
PI-Float32	PI Float32

Description	Base Type
Represents a PI Data Archive float32 point type.	

Properties (7)

Key	Id	Name	Type
☑	Timestamp	Timestamp	DateTime
☐	Value	Value	NullableSingle
☐	IsQuestionable	IsQuestionable	Boolean
☐	IsSubstituted	IsSubstituted	Boolean
☐	IsAnnotated	IsAnnotated	Boolean
☐	SystemStateCode	SystemStateCode	NullableInt32
☐	DigitalStateName	DigitalStateName	String

Streaming data - demo

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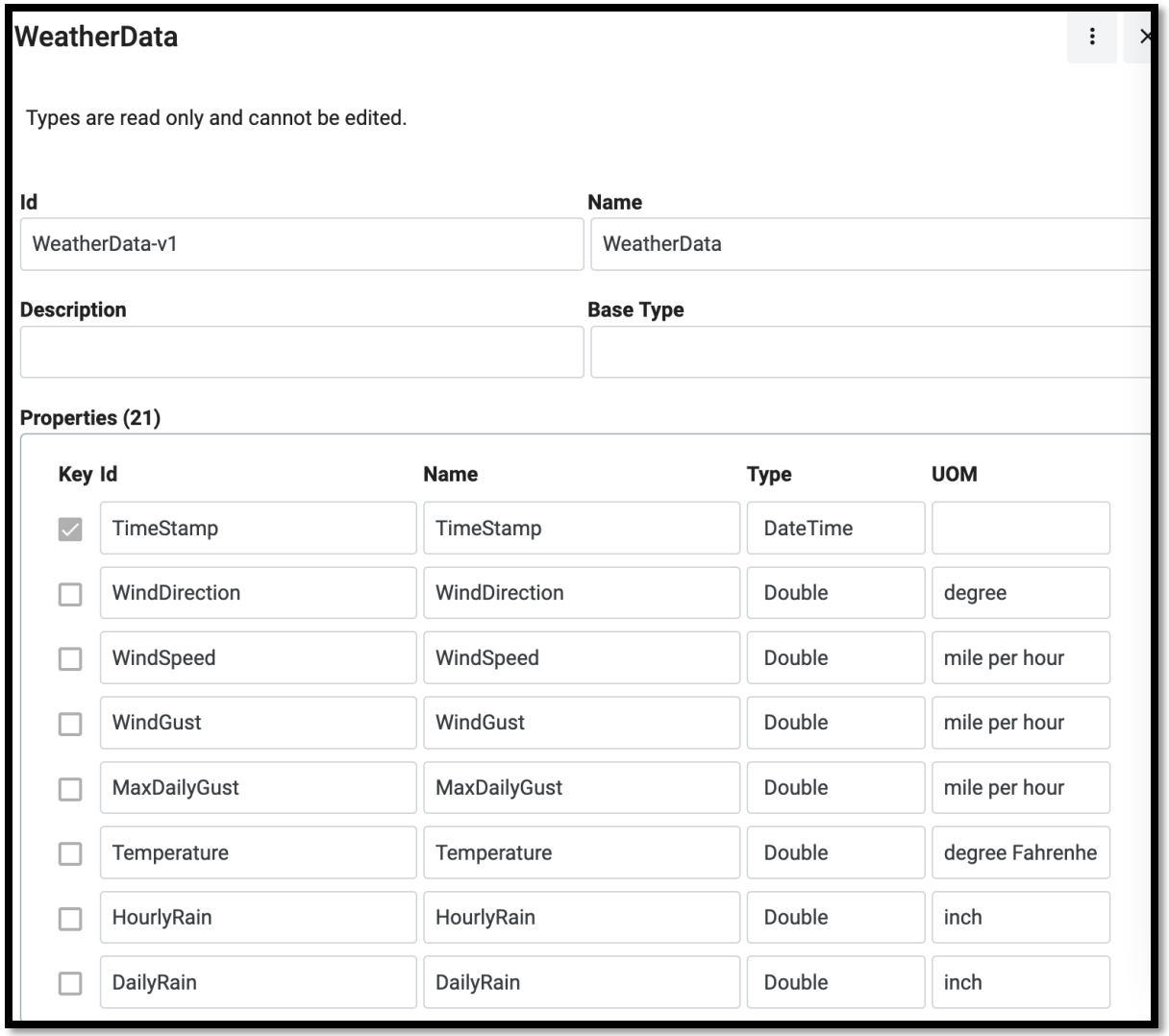

Streaming data - demo

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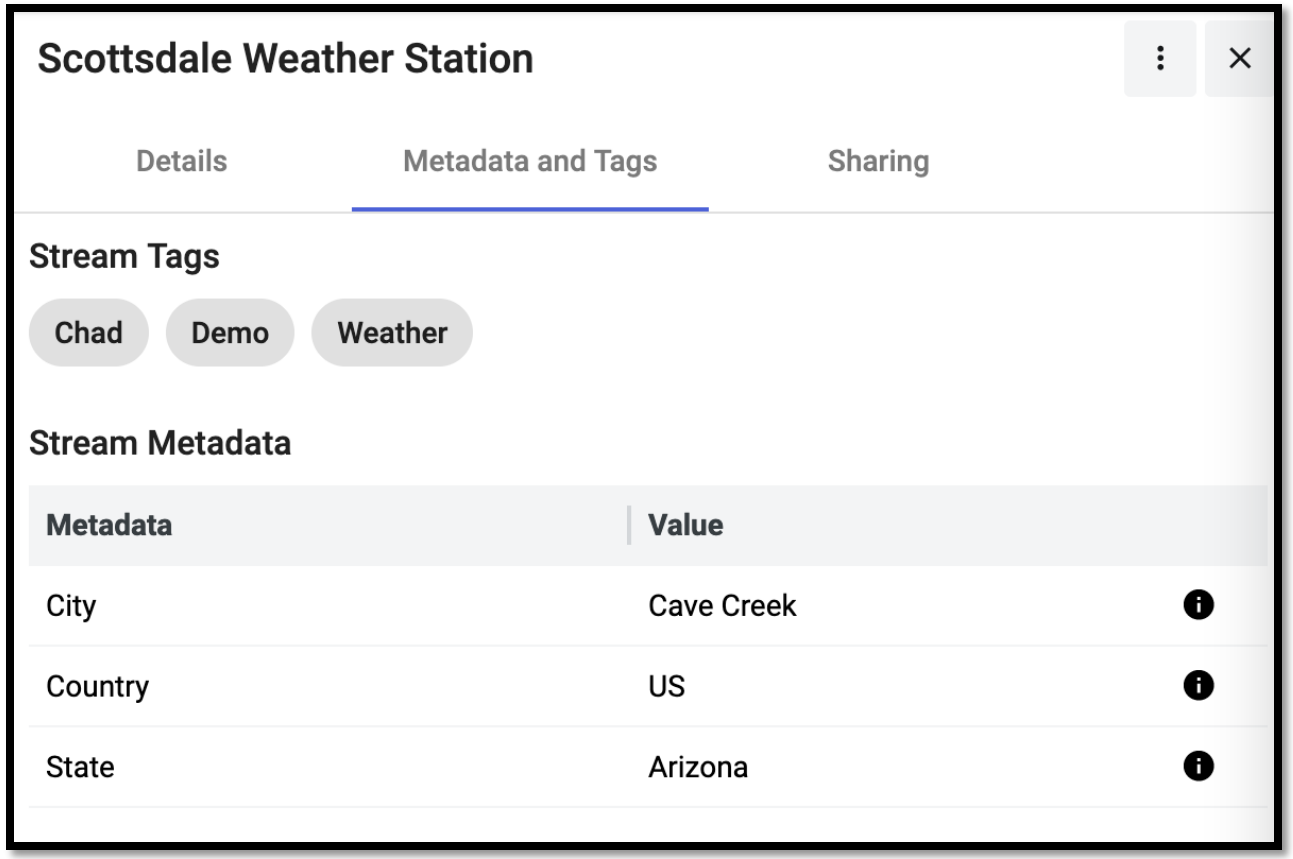

Streaming data - demo

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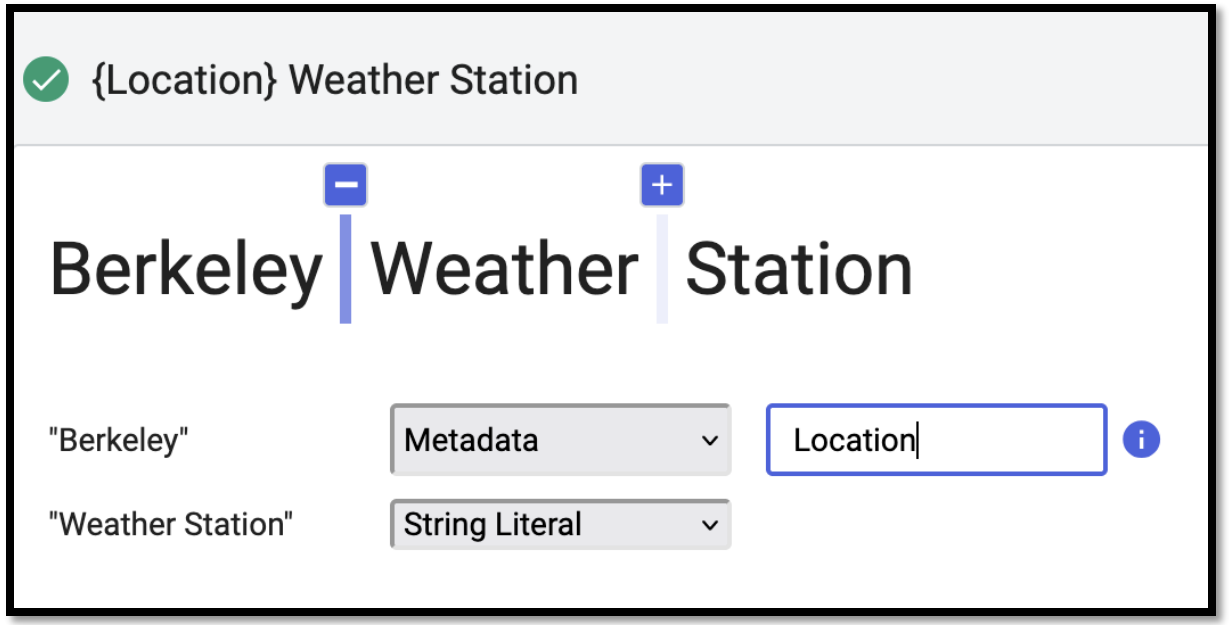
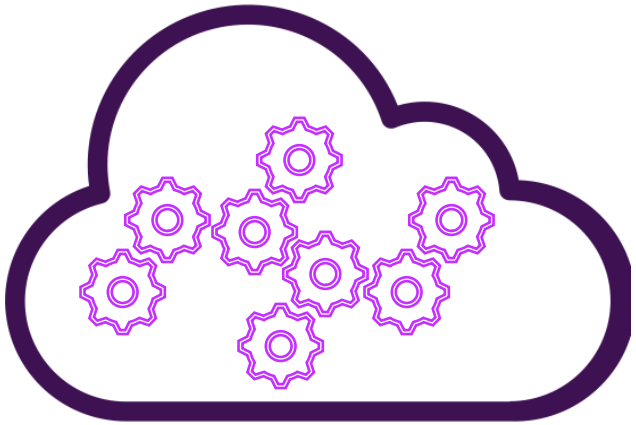


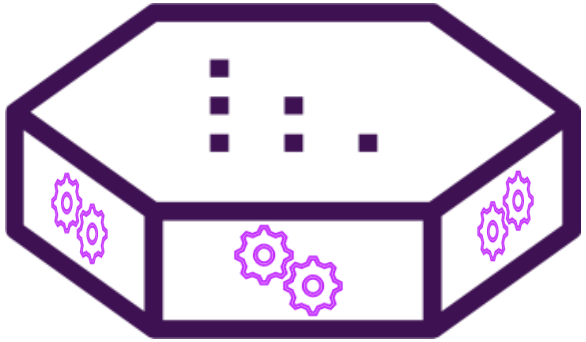
Common technology and developer platform

Sequential Data Store – Edge to Cloud

AVEVA Data Hub



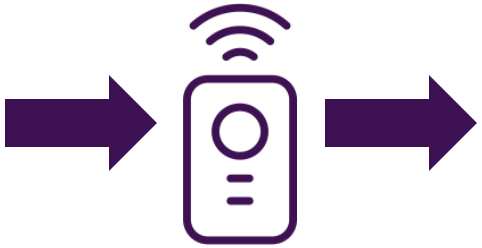
AVEVA Edge Data Store

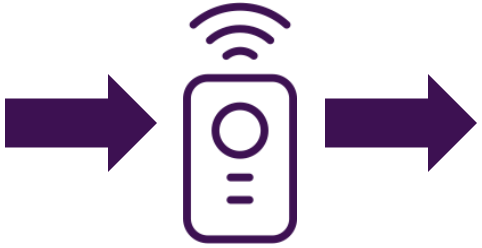


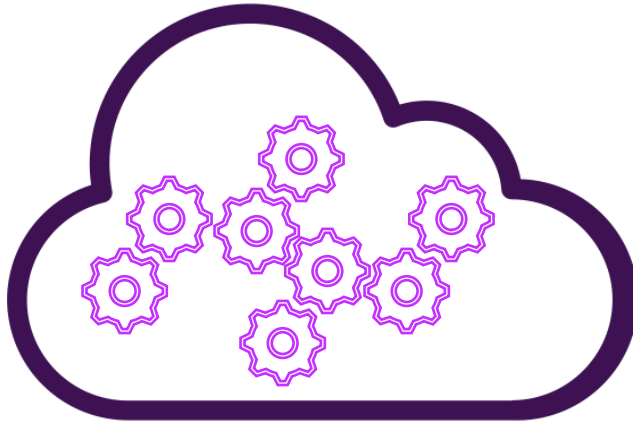
Common data storage technology

Customer Examples

Cobre Panama

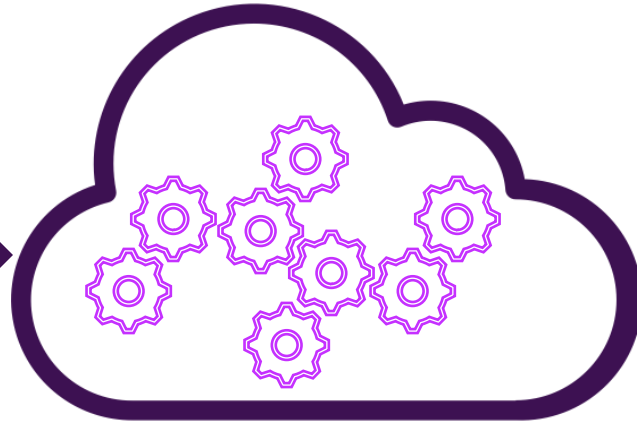




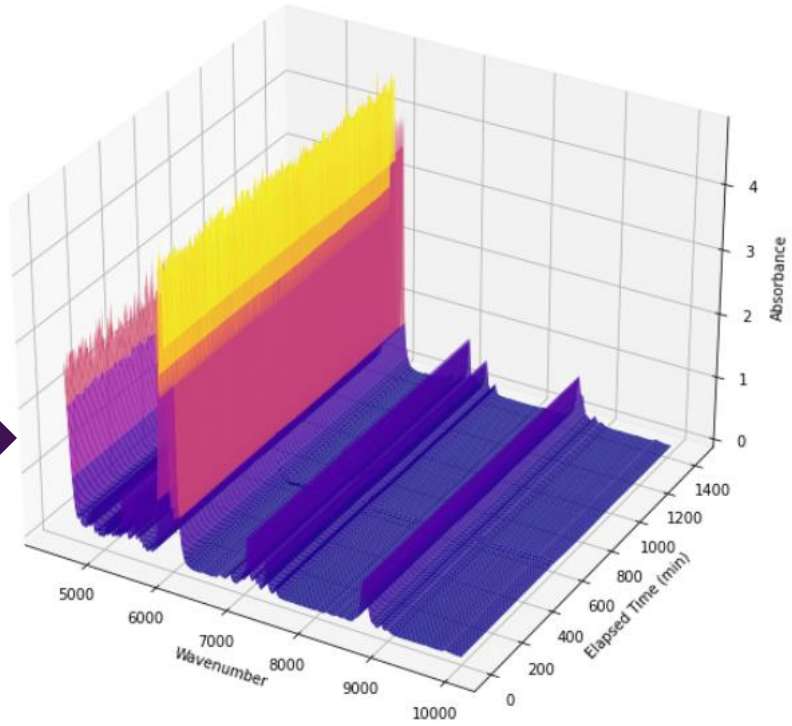


AVEVA Data Hub

Lonza



AVEVA Data Hub



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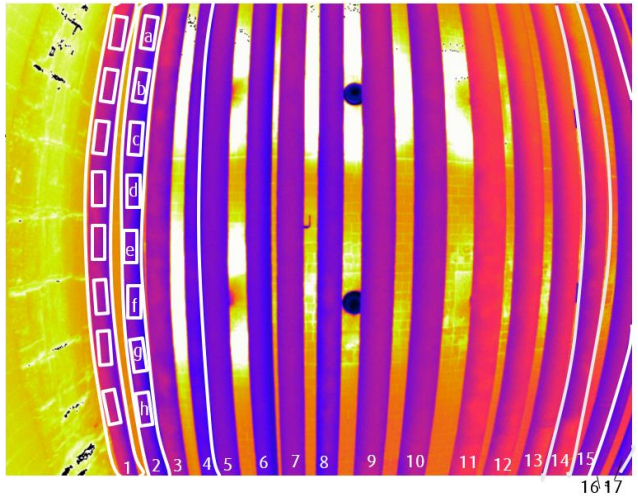
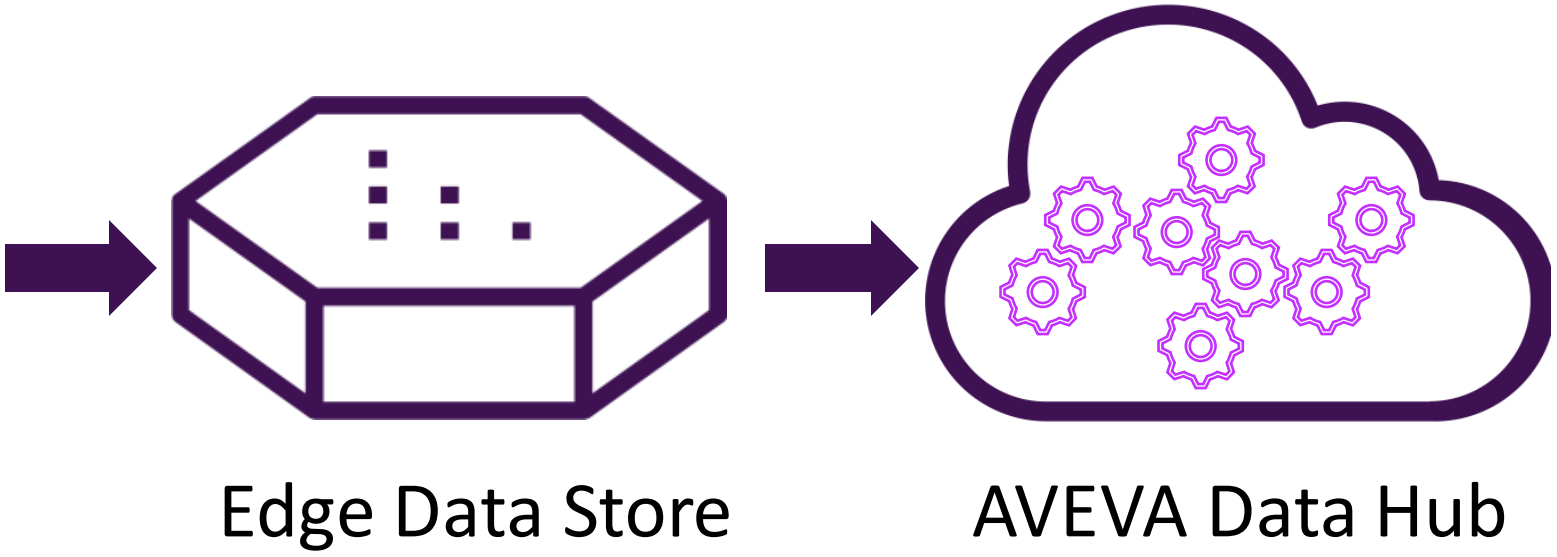
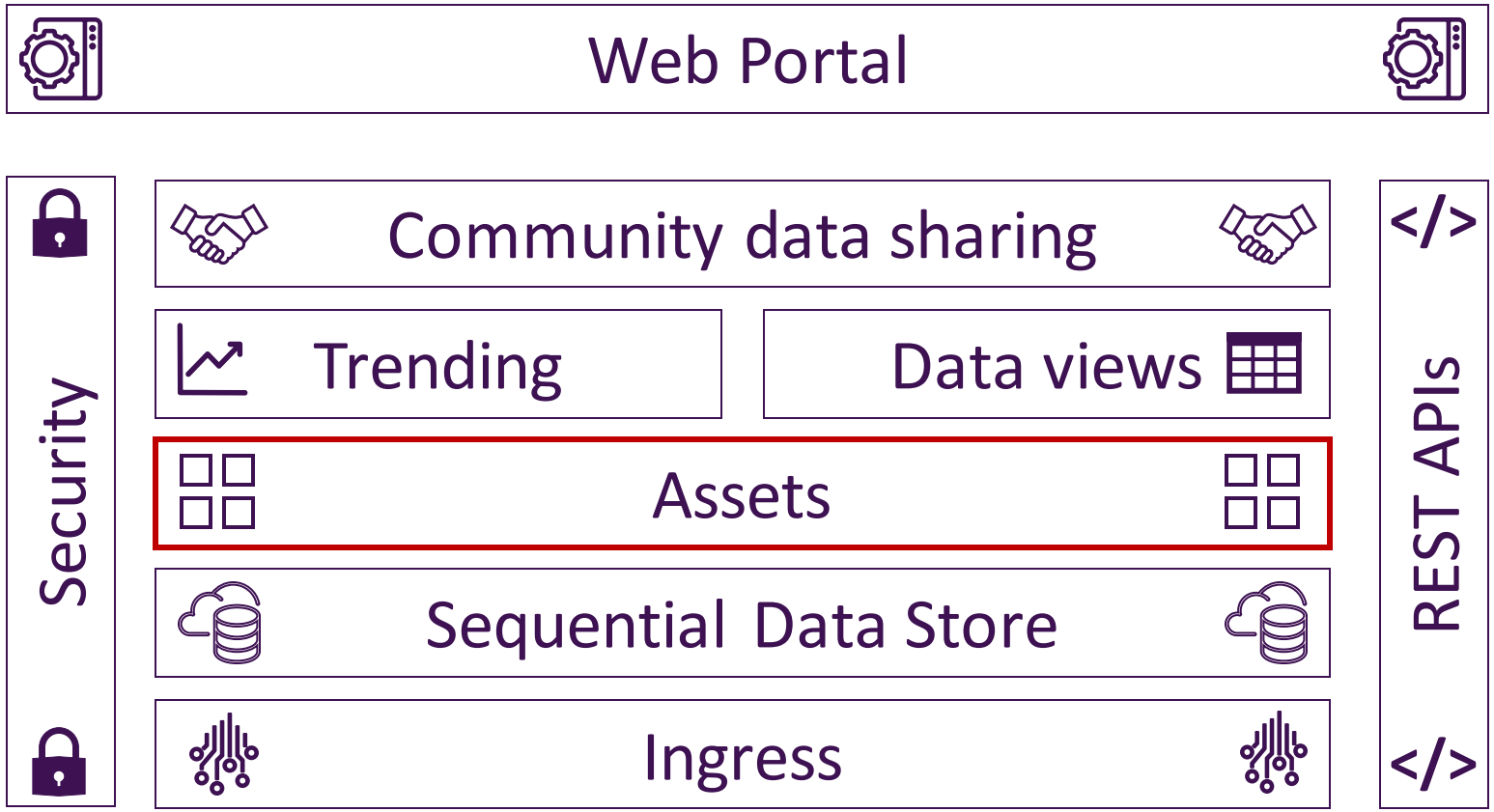




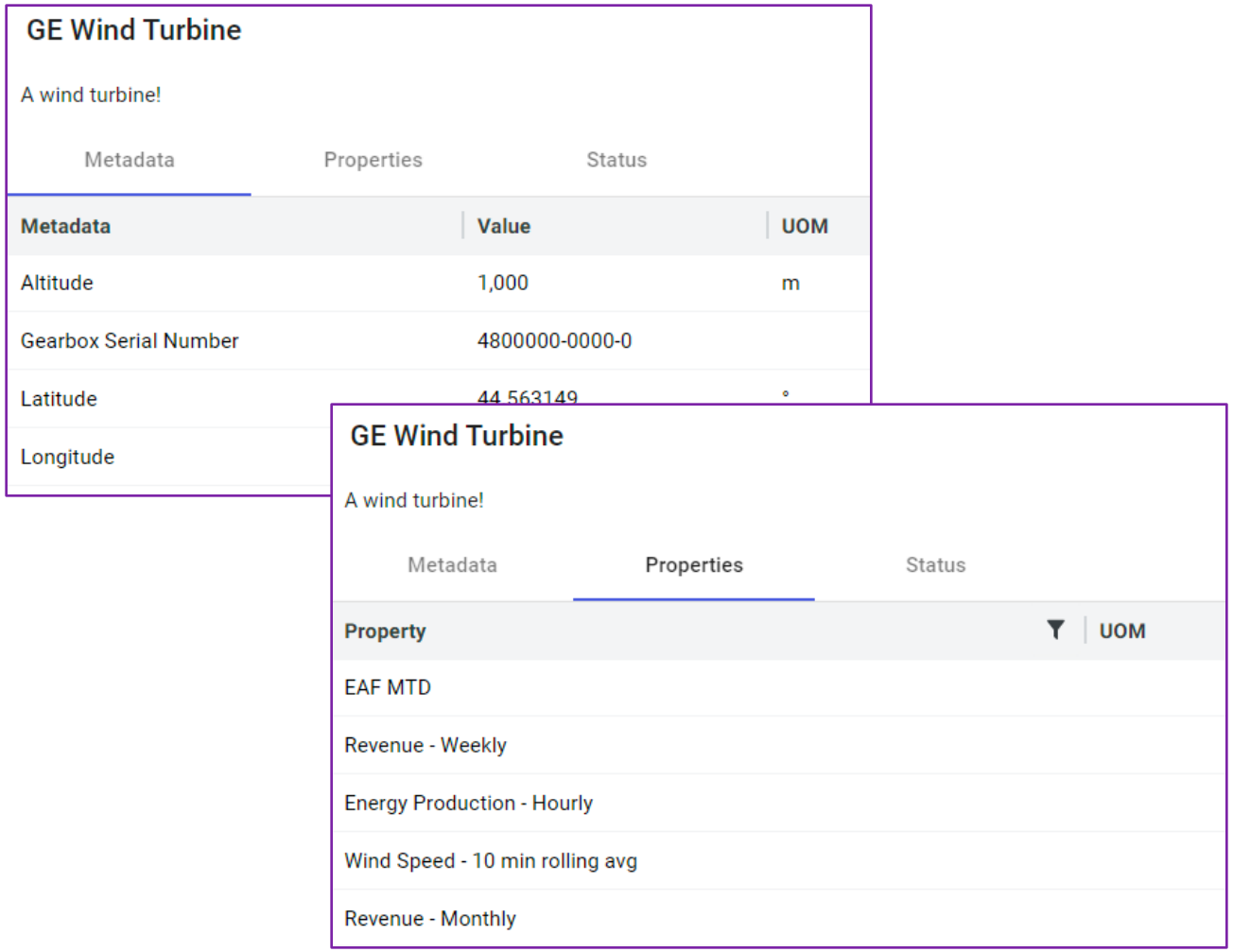
What is AVEVA Data Hub Assets Store?

AVEVA Data Hub Capabilities



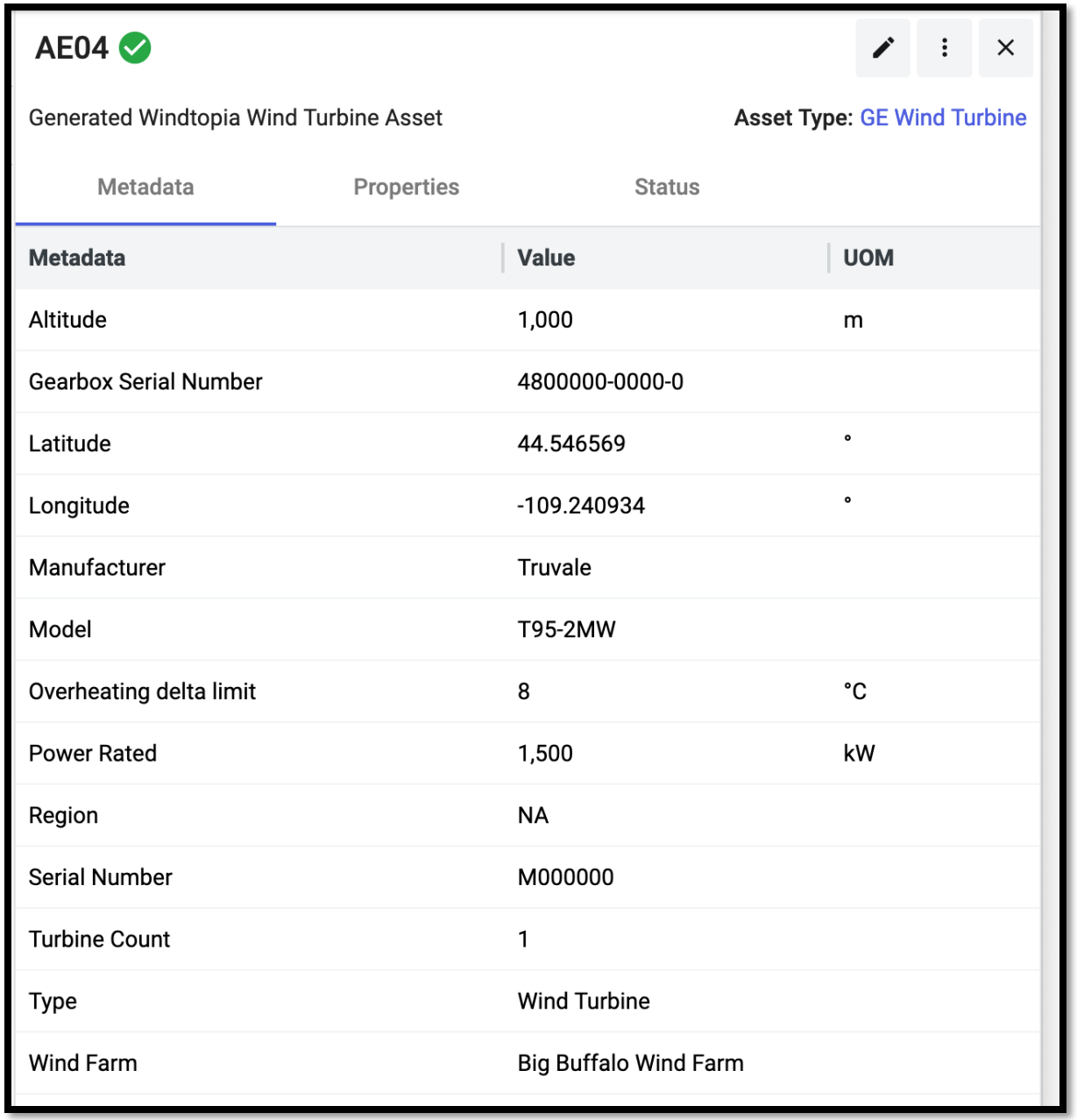
Assets provide context to data streams

- Static metadata
  - (Region: North America, Wind farm: Big Buffalo Wind Farm, Asset Type: GE Wind Turbine, Manufacturer: Truvale, Model: T95-2MW, …)
- Stream reference properties
  - (Active power, expected power, operating state, etc.)
- Asset status
  - (stream property values mapped to status: good, warning, bad)



Data Hub Assets - demo

- Assets
  - Metadata
  - Properties
  - Trend
  - Status
- Asset types
- Searching for Assets
- Asset rules



Metadata	Value	UOM
Altitude	1,000	m
Gearbox Serial Number	4800000-0000-0	
Latitude	44.546569	°
Longitude	-109.240934	°
Manufacturer	Truvale	
Model	T95-2MW	
Overheating delta limit	8	°C
Power Rated	1,500	kW
Region	NA	
Serial Number	M000000	
Turbine Count	1	
Type	Wind Turbine	
Wind Farm	Big Buffalo Wind Farm	

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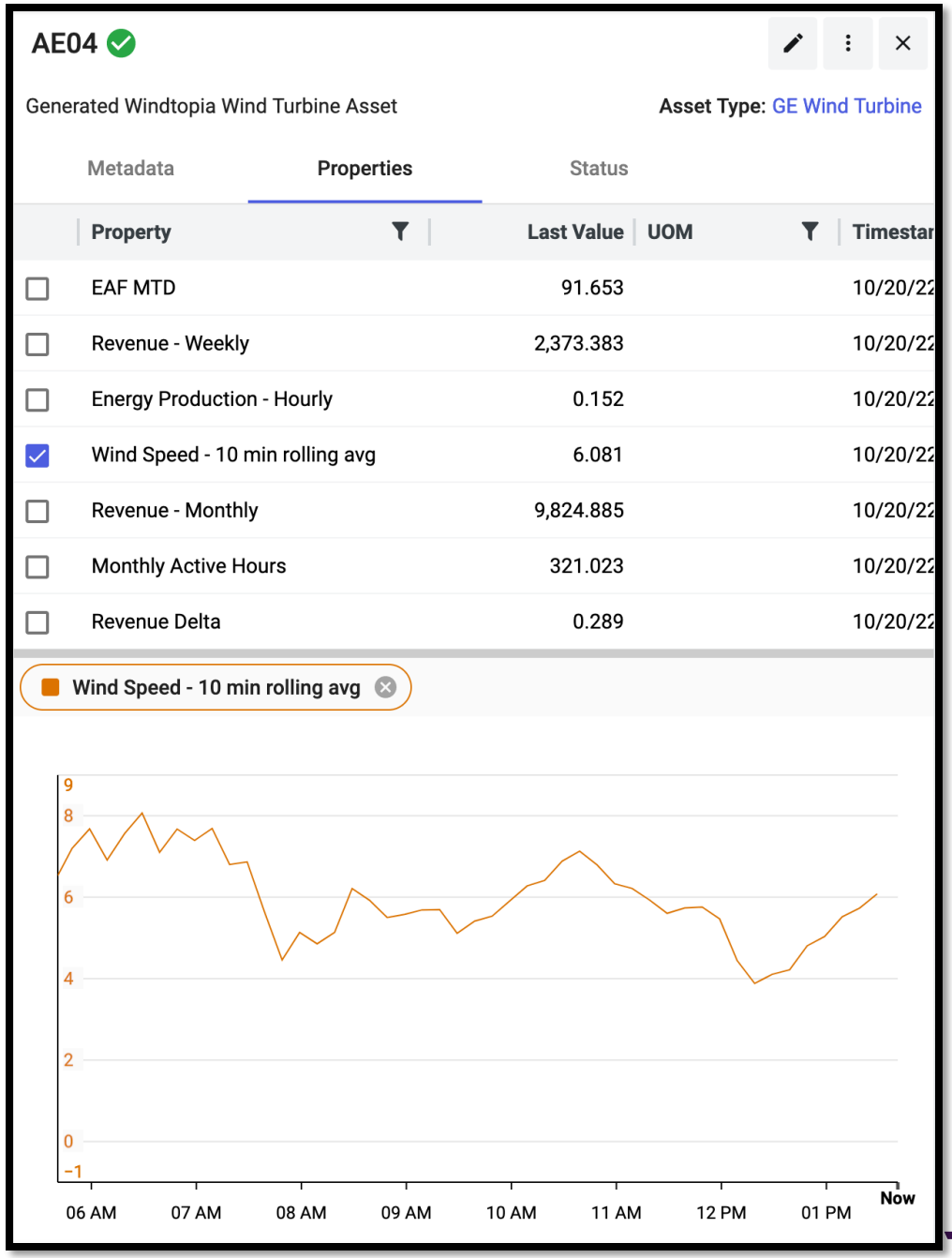

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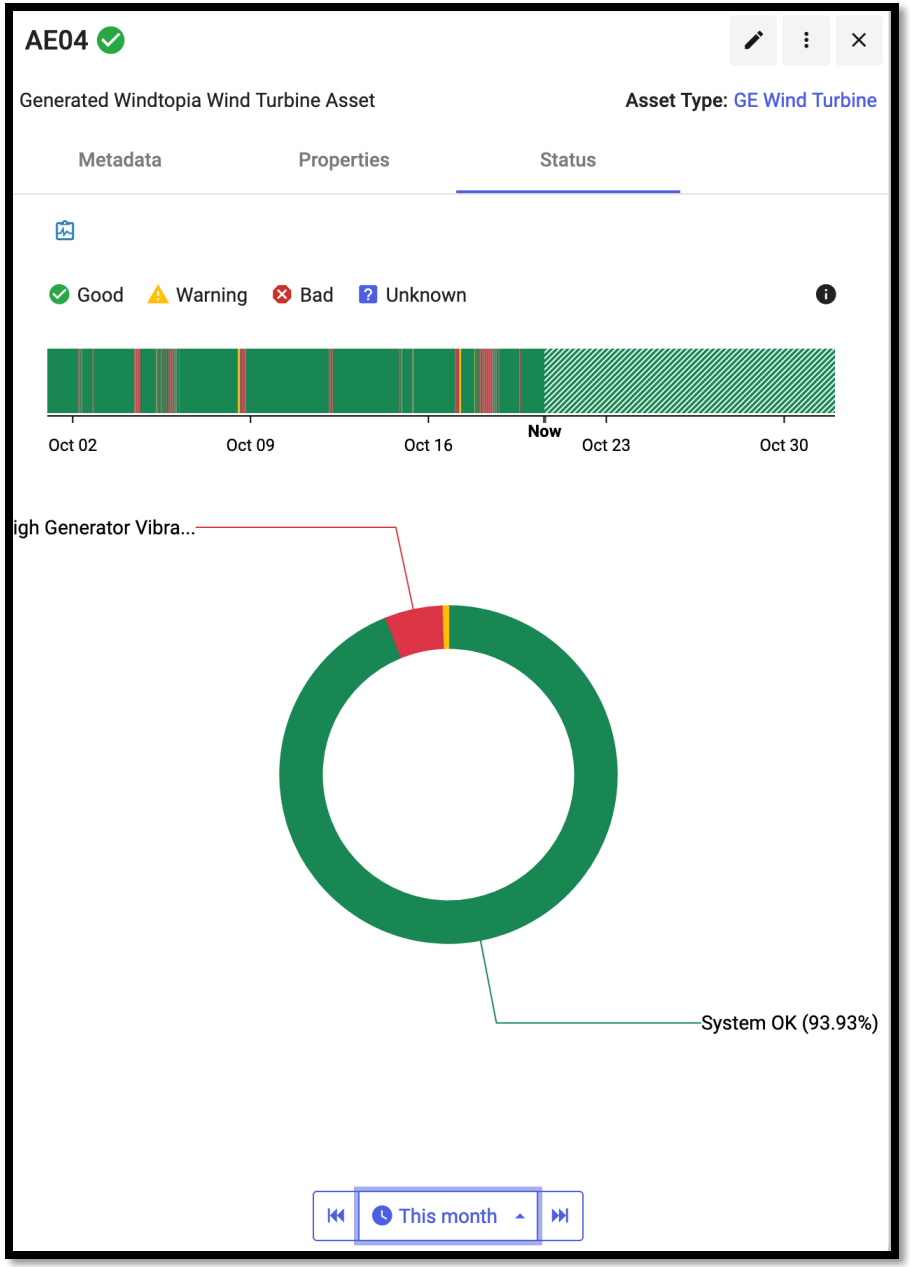

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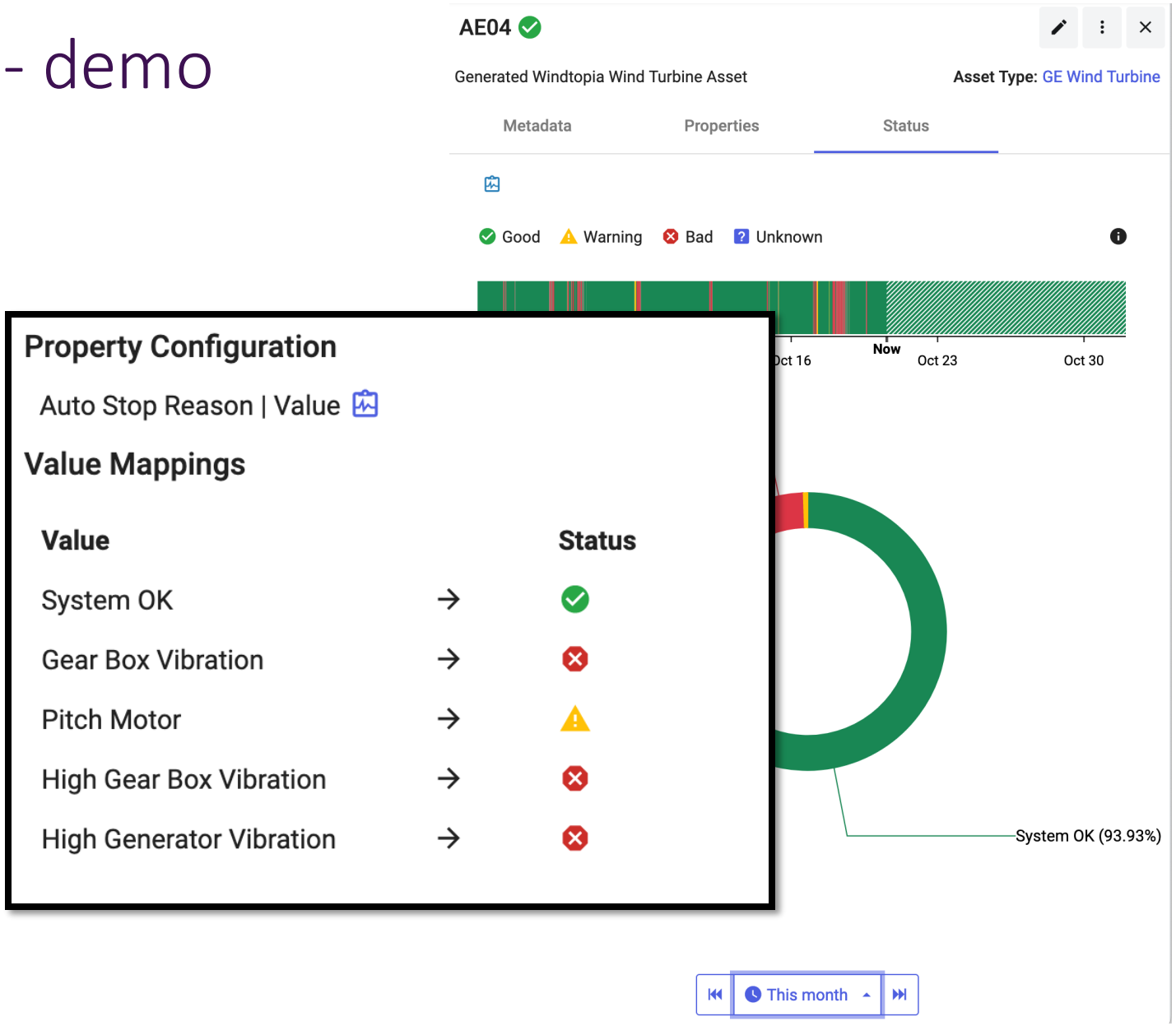

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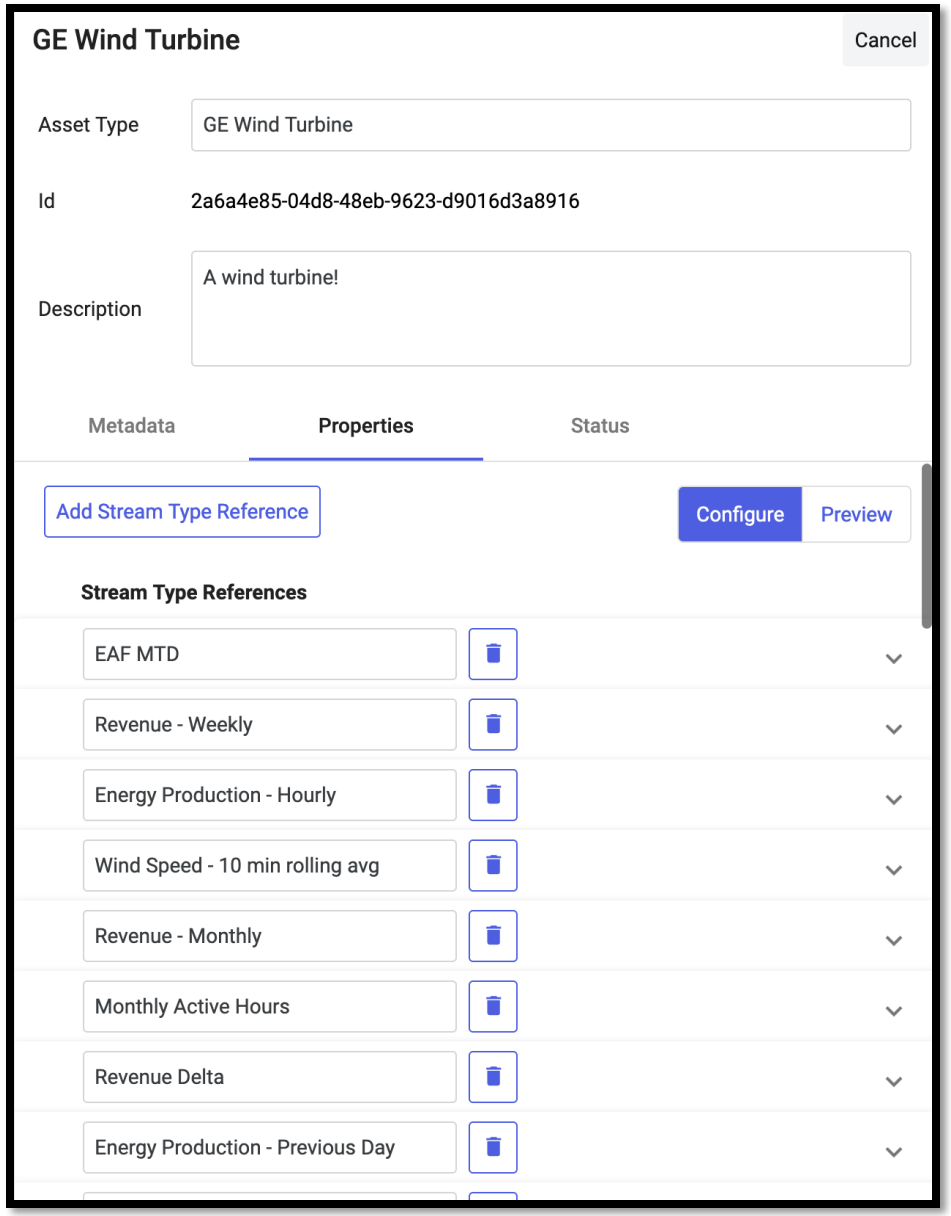

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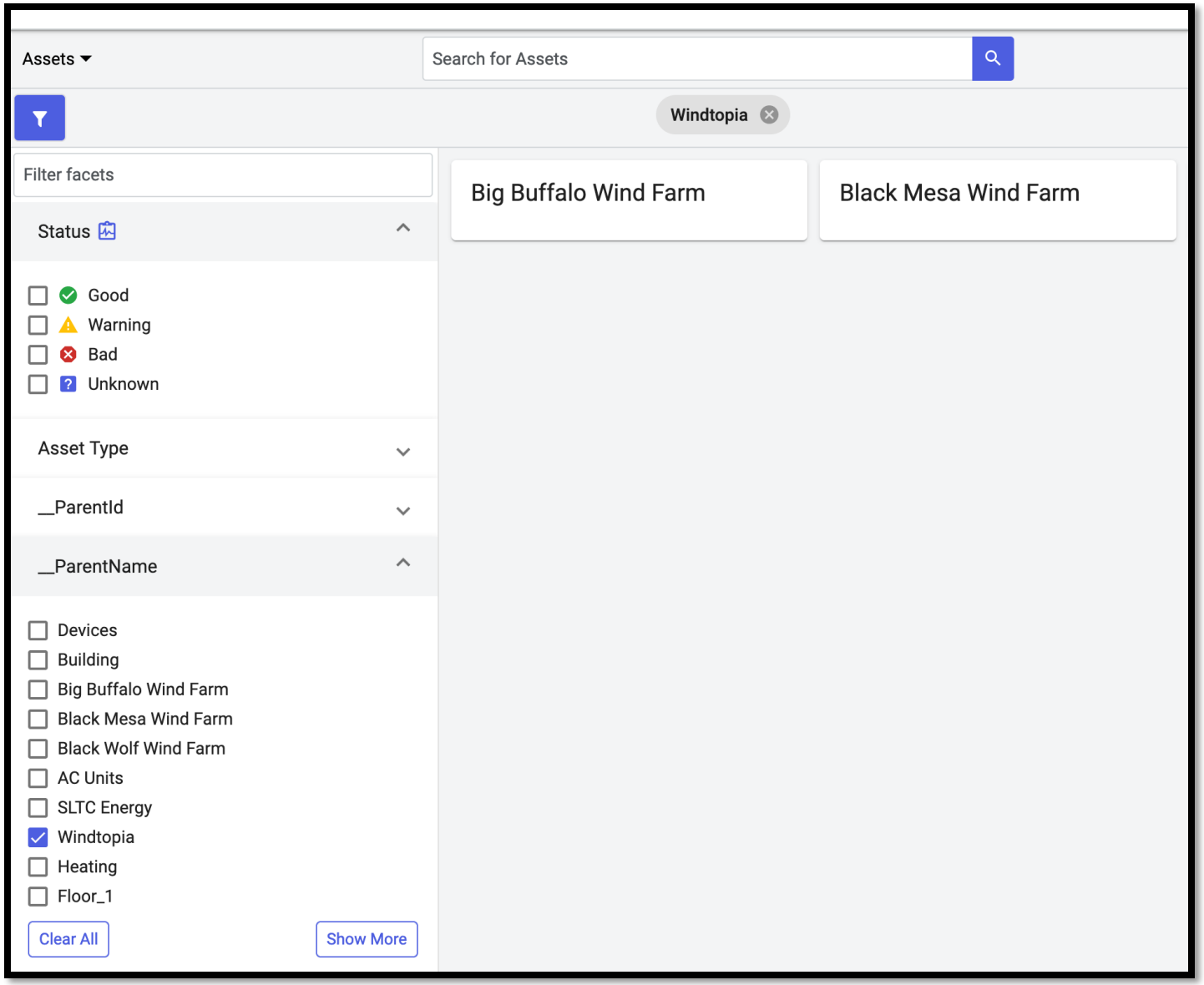

Data Hub Assets - demo

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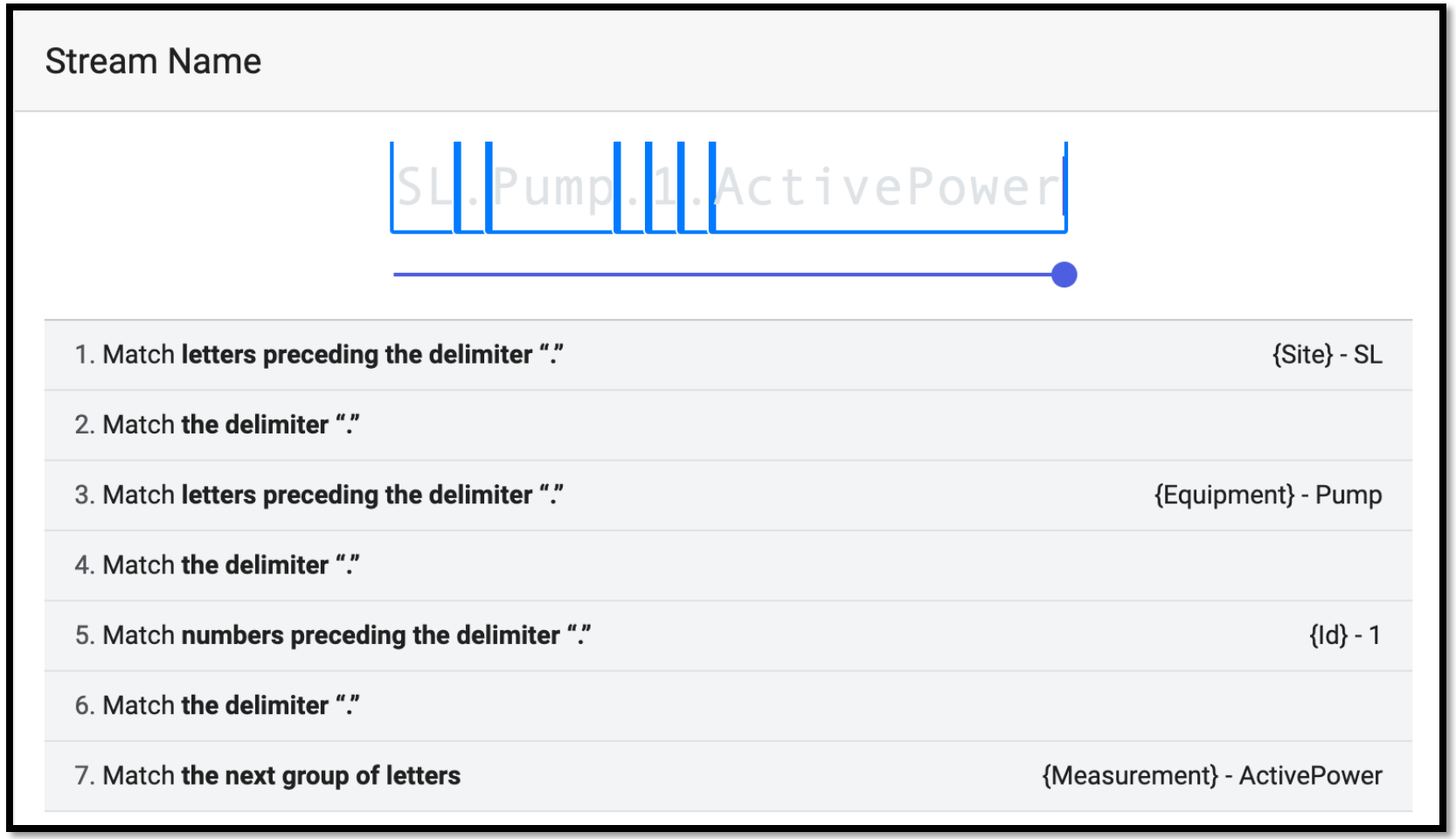
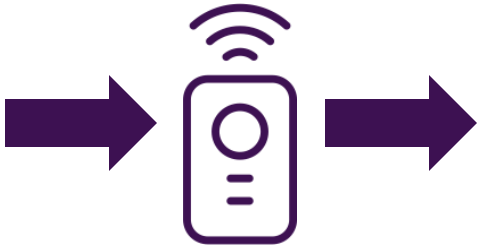
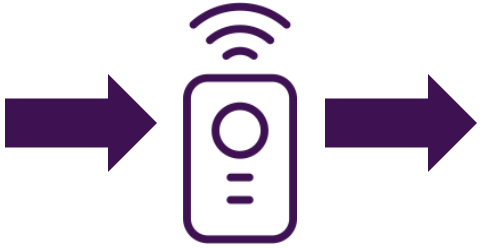
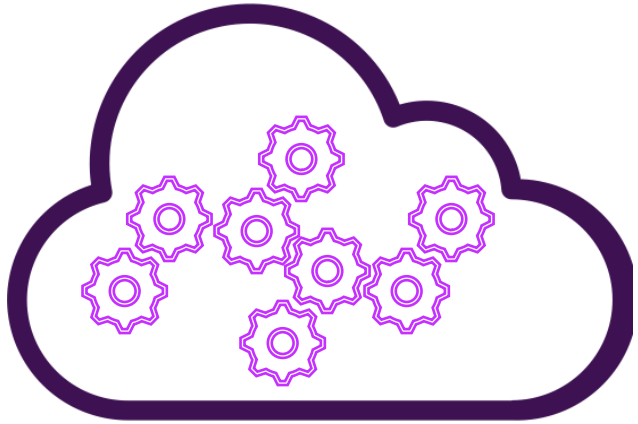


Customer Examples

Cobre Panama

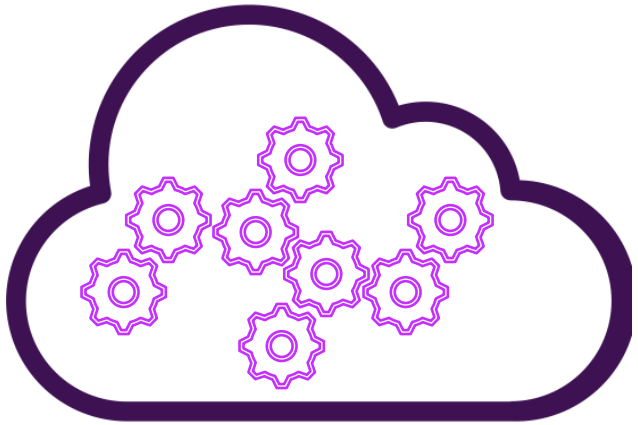






AVEVA Data Hub

California Water Service



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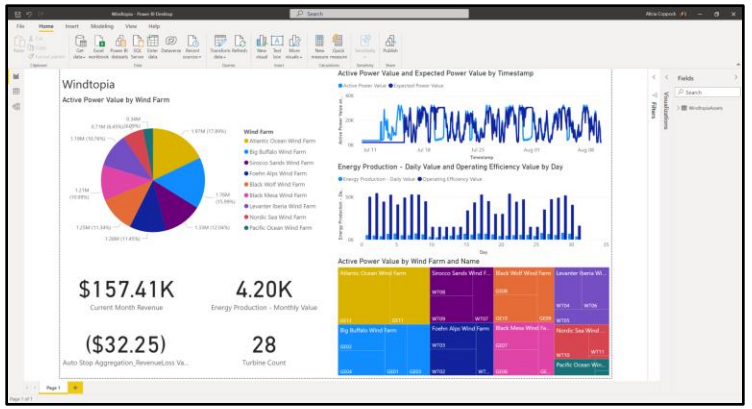
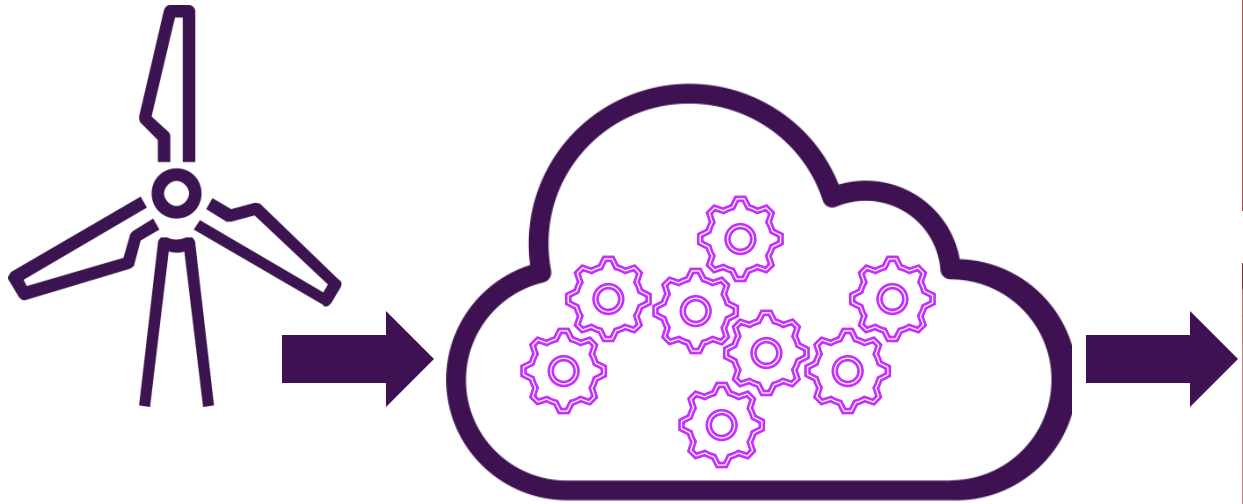


AGL



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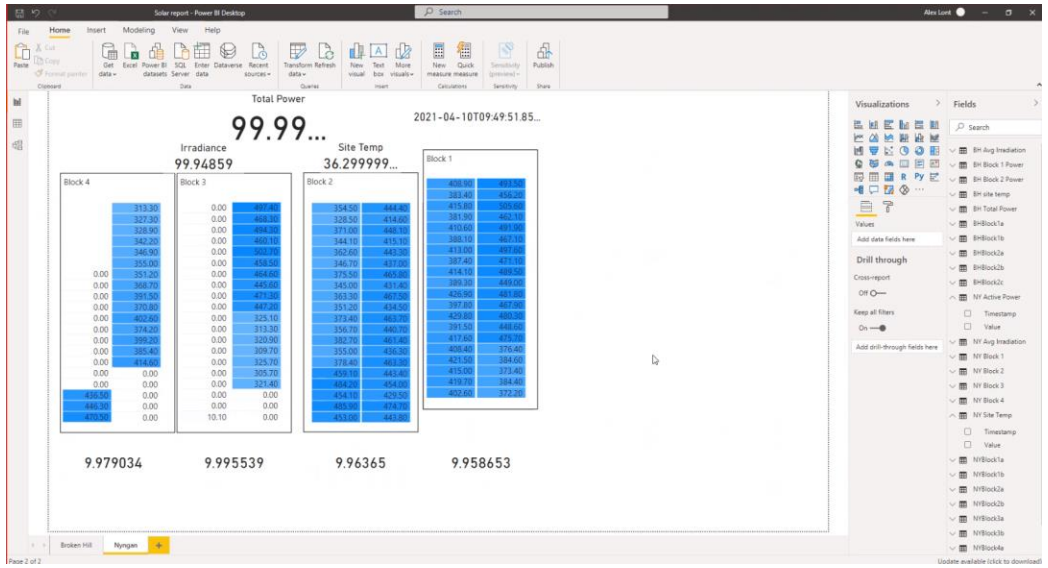
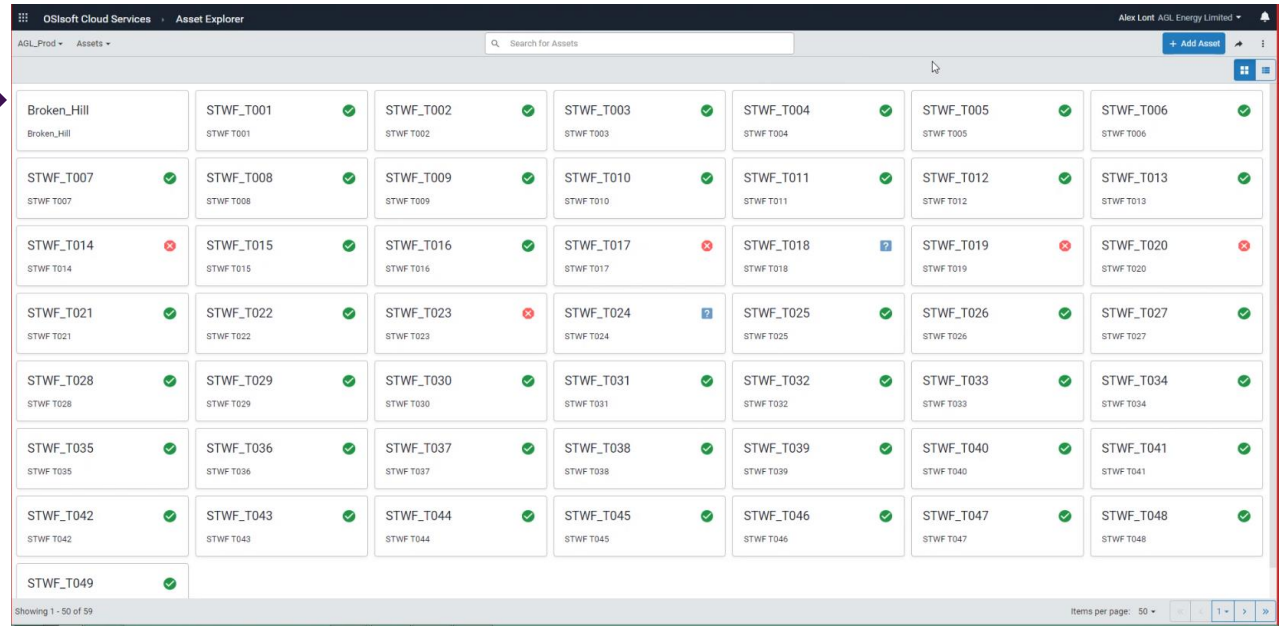
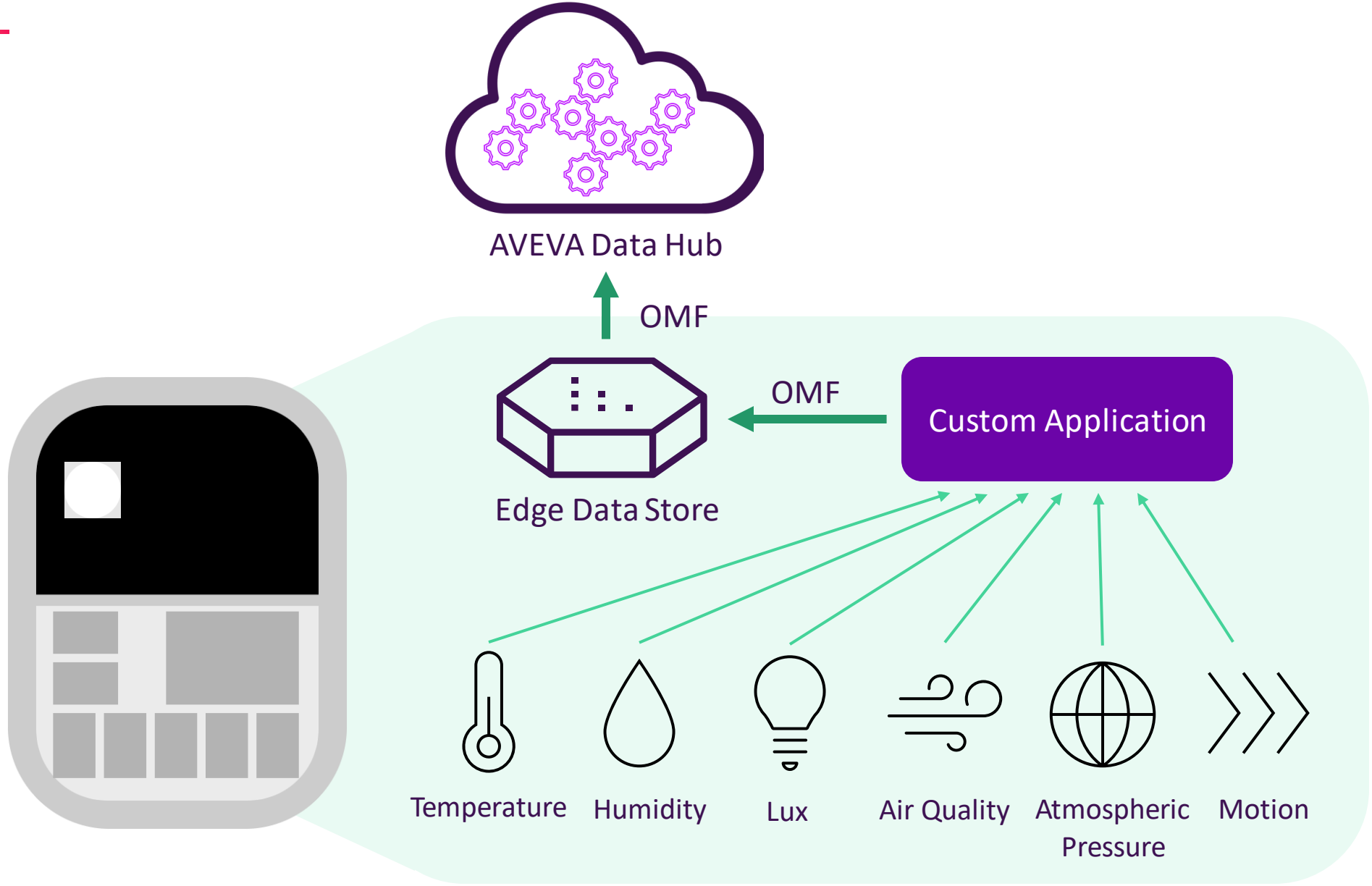


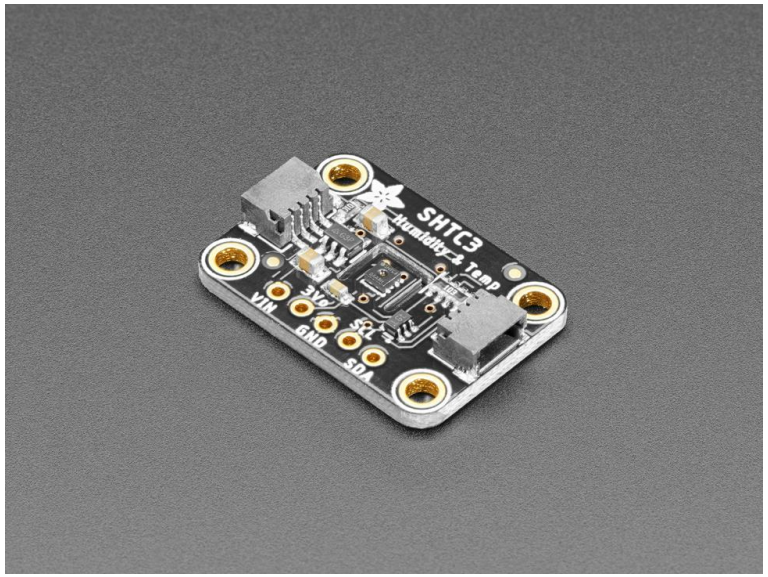


Edge to Cloud – How to get the most out of SDS and assets

Our problem – Air quality monitoring



Temperature and humidity



Id

SensorSHTC3

Name

Sensor SHTC3

Description

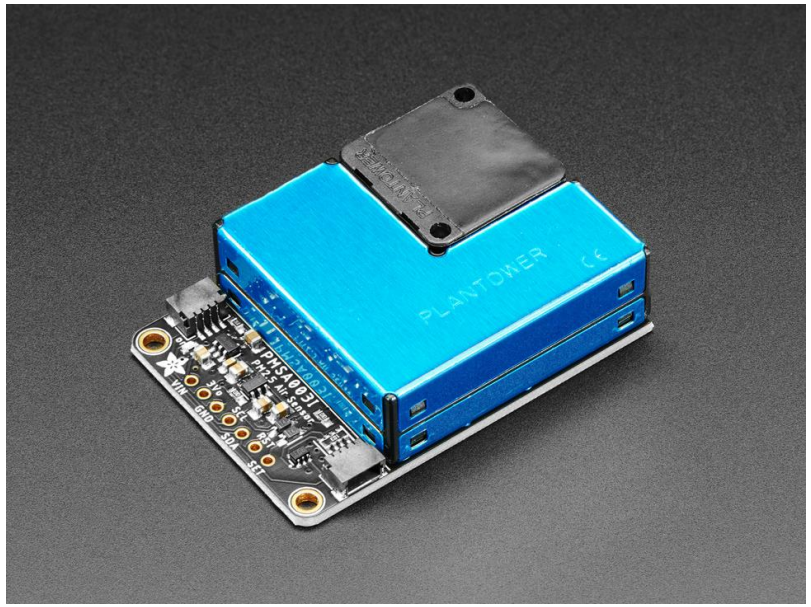
A type for a relative humidity and temperature sensor

Base Type

Properties (3)

Key Id	Name	Type	UOM
Timestamp	Timestamp	DateTime	
Temperature	Temperature	Double	°C
RelativeHumidity	RelativeHumidity	Double	%

Air Quality



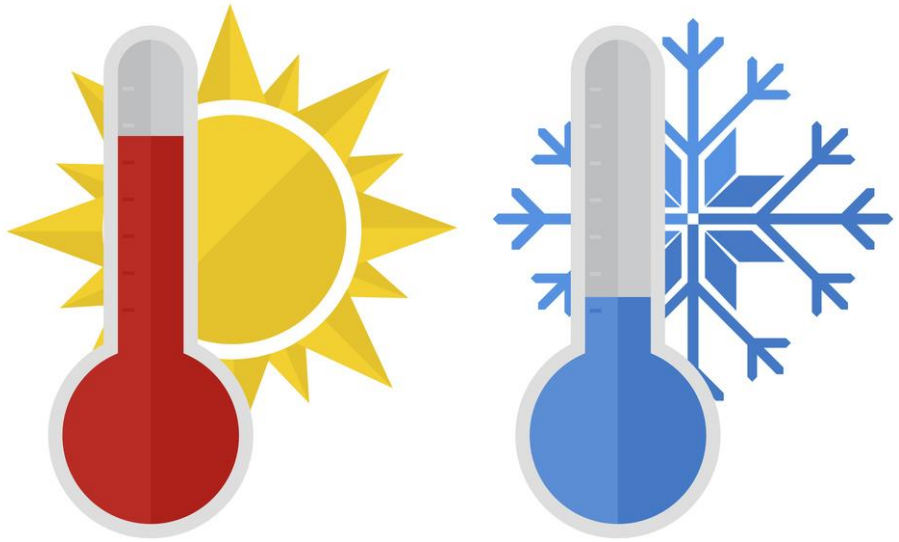
Id	Name
SensorPM25	Sensor PM25

Description	Base Type
A type for an air quality sensor	

Properties (13)

Key	Id	Name	Type	UOM
☑	Timestamp	Timestamp	DateTime	
☐	ParticleCount0.3	ParticleCount0.3	Int32	count
☐	ParticleCount0.5	ParticleCount0.5	Int32	count
☐	ParticleCount1.0	ParticleCount1.0	Int32	count
☐	ParticleCount2.5	ParticleCount2.5	Int32	count
☐	ParticleCount5.0	ParticleCount5.0	Int32	count
☐	ParticleCount10.0	ParticleCount10.0	Int32	count
☐	PM1.0S	PM1.0S	Int32	count
☐	PM1.0E	PM1.0E	Int32	count
☐	PM2.5S	PM2.5S	Int32	count
☐	PM2.5E	PM2.5E	Int32	count
☐	PM10S	PM10S	Int32	count
☐	PM10E	PM10E	Int32	count

Environment scoring analytic




Trash
thinclient_drives
15:38
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Rolling it out

AVEVA Connect | Data Hub

datahub.connect.aveva.com/tenant/cee3a3fd-aeb2-4950-80f5-4b72c77322b1/dashboard

AVEVA™ Data Hub

AVEVA-Events-SaaS

- Home
- Data Management
- Data Collection
- Visualization
- Analytics
- Security
- Developer Tools
- Support

COLLAPSE

Customize

Latest Service Updates

New code samples for Grafana and "Data Hub to PI"

Sep 2, 2022, 3:19:33 PM

AVEVA is pleased to announce the release of two new code samples on GitHub! The first is a new Grafana plugin for Data Hub that uses the latest plugin framework and adds new features such as Grafana Alerting and the ability to use a user's OAuth token to authenticate against Data Hub.
The second sample is a Data Hub to PI utility that can be used to transfer data from Data Hub to a PI Data Archive. This sample sends OMF messages to a PI Web API server to automatically create corresponding PI points and to replicate data in your PI Data Archive.

More involved samples demonstrating various aspects of Data Hub can be found on the main AVEVA Data Hub GitHub samples repository, and as always

Quick Links

- View API documentation
- Explore working code samples provided in multiple programming languages
- View service blog
- Manage Users And User Access For Your Organization
- Manage clients and secrets for securely accessing your data
- Experiment with the REST API console

Yesterday's Resource Usage

Oct 16, 2022

Streams Stored	Streams Accessed	Shared Streams Accessed
57,767	42,378	0

System Health

Ok

PI to Data Hub Agents

10
Total Agents

7	0	3	0
Good	Warning	Bad	Stopped

Edge Systems

26
Total Systems

16	6	4	0
Good	Warning	Bad	Inactive

Learn more about AVEVA Connect & AVEVA Data Hub

Industrial Cloud Platform @ AVEVA PI World 2022 – San Francisco

Day 1: Industrial Cloud Platform

- AVEVA: AVEVA Connect, Industrial Cloud Platform – Vision, roadmap, and starting your operations and engineering digital twin journey [14:00]
- AVEVA: Power your secure industrial ecosystem of data, applications, and partners with AVEVA Data Hub connected communities [14:40]
- AVEVA: Accelerate Your Time to Value with Analytics and Applications Fueled by AVEVA Data Hub [15:40]
- AVEVA: On your marks, get set, Unleash your Operational Data in the Cloud! [16:20]
- AVEVA: Aggregating Engineering Content, Data and Documents and Real-Time Data into a Common User Experience [17:00]

Day 2: Customer Presentations

- IGI: The International Group: Lityx, use AVEVA™ Data Hub to implement AI-based analytics, improving yields and generating millions in additional profit at a 20x ROI [10:55]
- First Quantum Minerals: Mixed Mobile Machinery Fleet Streaming Data to AVEVA Data Hub at First Quantum Minerals [14:00]
- Industrial Parts Depot: Real-Time Fleet Monitoring with OCS at Industrial Parts Depot [14:00]

Day 3: Industrial Cloud Platform

- AVEVA: Four Imperatives of a Trusted Information Infrastructure [10:45]
- AVEVA: Deploy Edge Data Store and Adapters in minutes with AVEVA Edge Management [11:25]
- AVEVA: Visualizing the Digital Twin, an Independent Service on the Industrial Cloud Platform [13:30]
- AVEVA: Uniting the connected community through secure and transparent industrial data sharing [14:25]
- AVEVA: Harnessing the power of Sequential Data Store (Sds) and Assets for developers and partners [this talk]
- AVEVA: Aggregating data with Data Hub asset rules and data views for analytics and applications [16:25]

Chad Chisholm

VP R&D Program Management, Cloud Platform

- AVEVA
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