OCTOBER 24, 2023

Secure data sharing at scale with AVEVA Data Hub connected community

Todd Brown & Derek Endres

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Leveraging new digital services industrial data

INDUSTRIAL DATA

MORE VALUE

Equipment Suppliers

Service Providers

Partners

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Getting more value out of industrial data, together

"We want a standard sharing approach for the entire world.
We're the experts of the process. We are not the experts of the individual components that are part of our process.
This is why we want to share data."

"We can get added value because we can send the data to the cloud, our service provider subscribes, they do their analysis, and they can notify us if we have a water leak."

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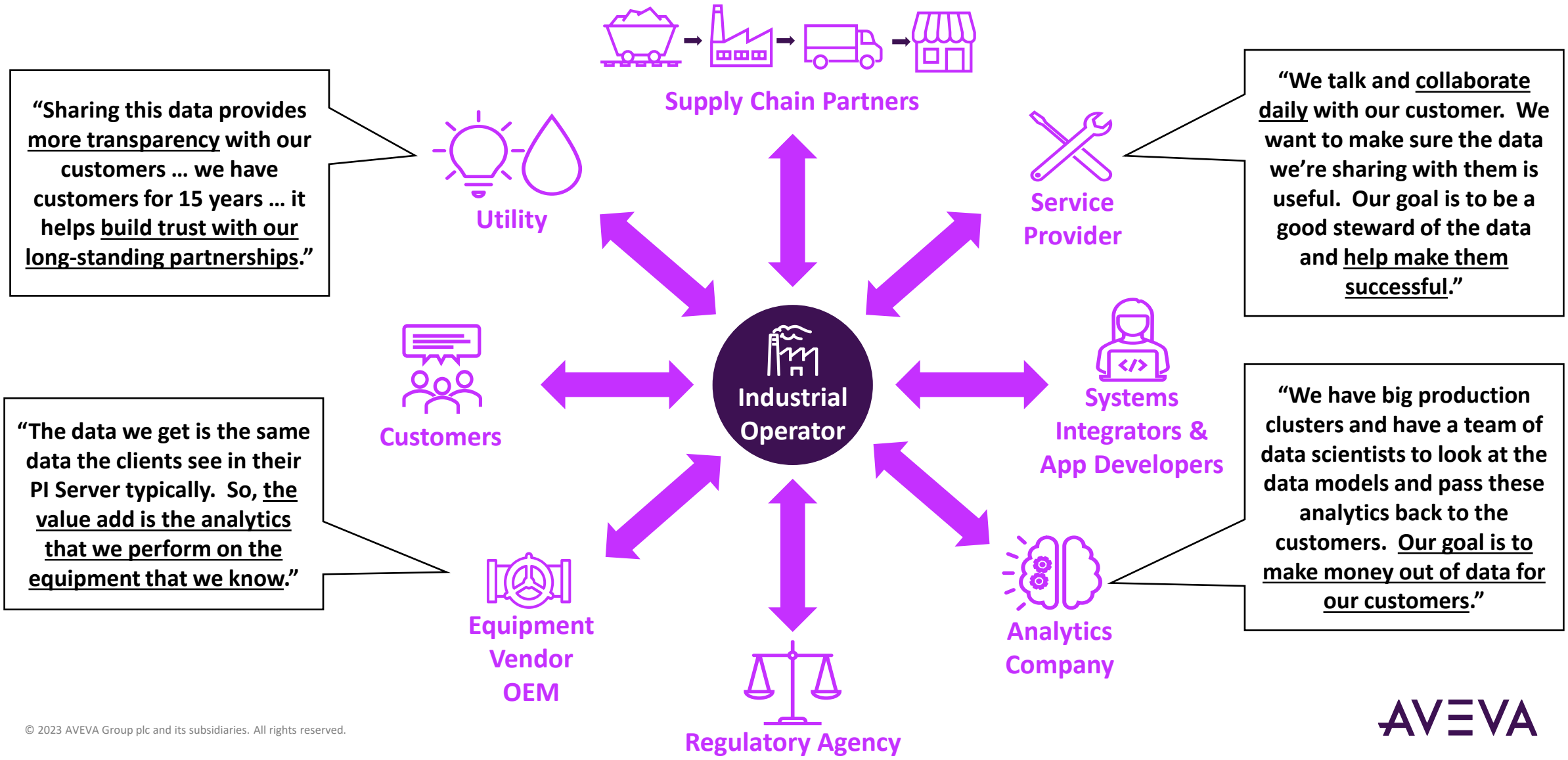
Getting more value out of industrial data, together



"Sharing this data provides more transparency with our customers … we have customers for 15 years … it helps build trust with our long-standing partnerships."

"We talk and collaborate daily with our customer. We want to make sure the data we're sharing with them is useful. Our goal is to be a good steward of the data and help make them successful."

"The data we get is the same data the clients see in their PI Server typically. So, the value add is the analytics that we perform on the equipment that we know."

"We have big production clusters and have a team of data scientists to look at the data models and pass these analytics back to the customers. Our goal is to make money out of data for our customers."

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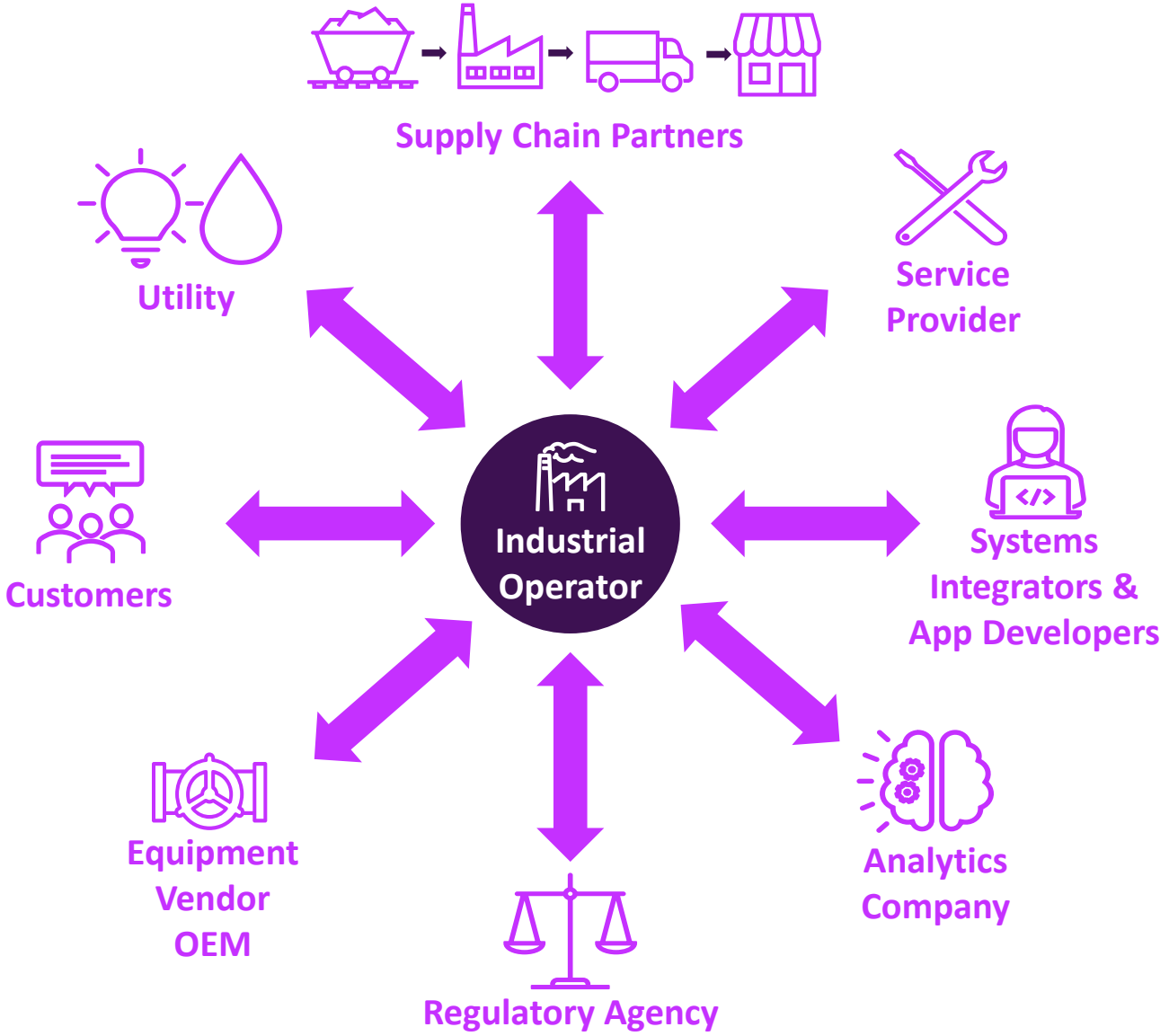
More sharing creates more value in the industrial ecosystem

$100 B

value unlocked in the manufacturing industry simply by sharing data*

*World Economic Forum



*"Organizations that share data externally with their partners **generate 3x more measurable economic benefit** than their counterparts that do not."***

**Gartner, "Data and Analytics Essentials: Data Sharing", Lydia Clougherty Jones, 24 June 2021.

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Data sharing challenges

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A spectrum of data sharing challenges exist today

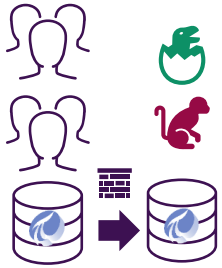
From the age of the dinosaurs & some modern-day monkey business!

Come on site & download data

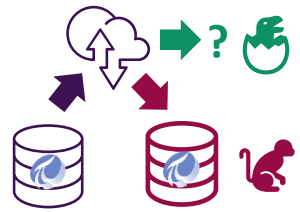
Export data / report & email

External users in our authentication & IT systems

VPNs or direct access to plant floor or custom apps w/csv, FTP, etc.



Duplicate 'customer facing' PI system



PI Cloud Connect

Stale, out of date data
Sparse snapshots of data, not granular
Very resource intensive
Analysis and value is severely delayed

Real time updating data
Full data granularity
Automated data copy to outside

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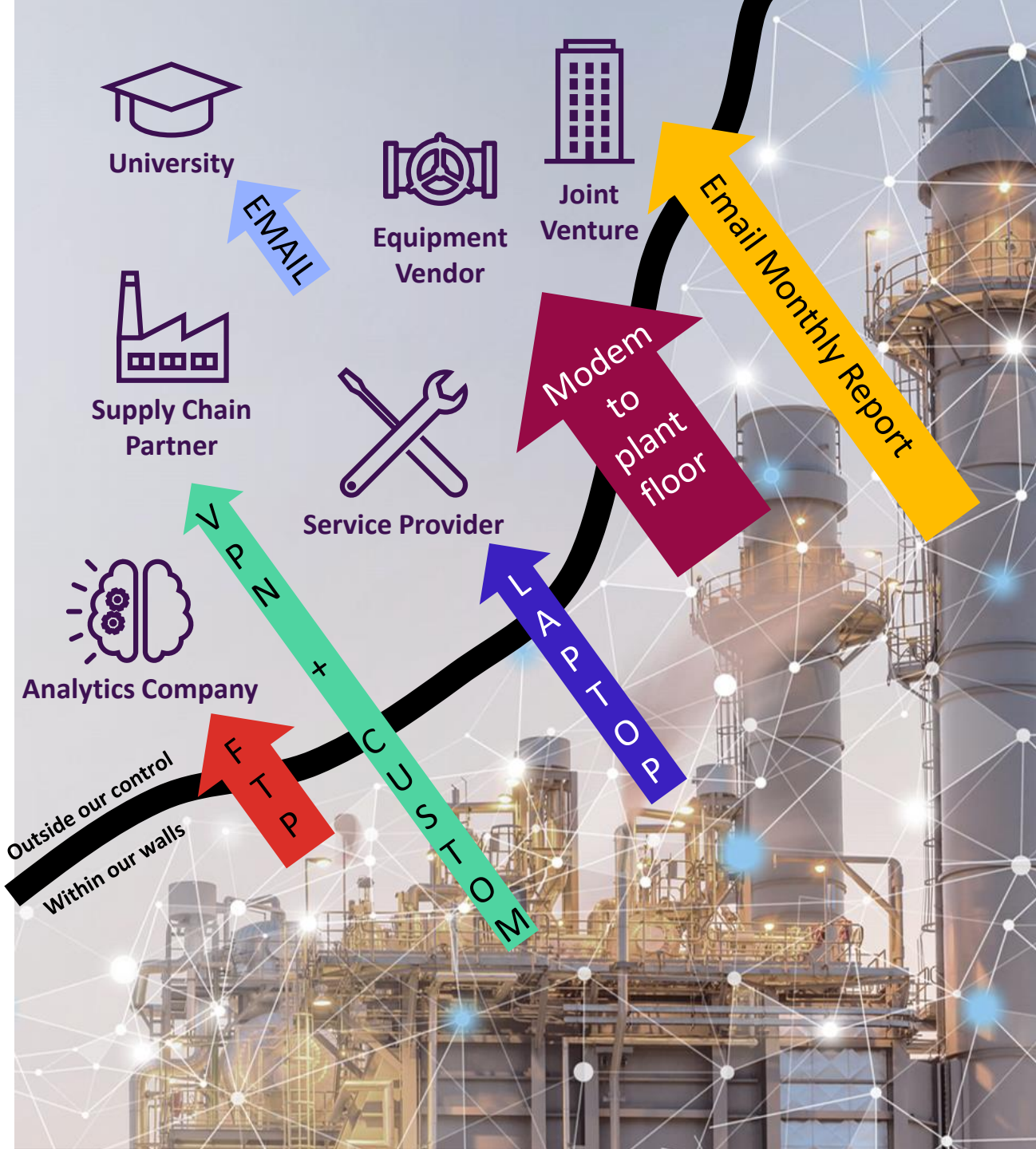
Industrial operator challenges

Sharing operations data externally

- × No standard scalable way to share
- × Increased security risk
- × Data is copied all over the place
- × Maintaining control & confidentiality
- × High IT cost
- × High overhead cost
- × Not everyone has PI
- × Not maximizing value



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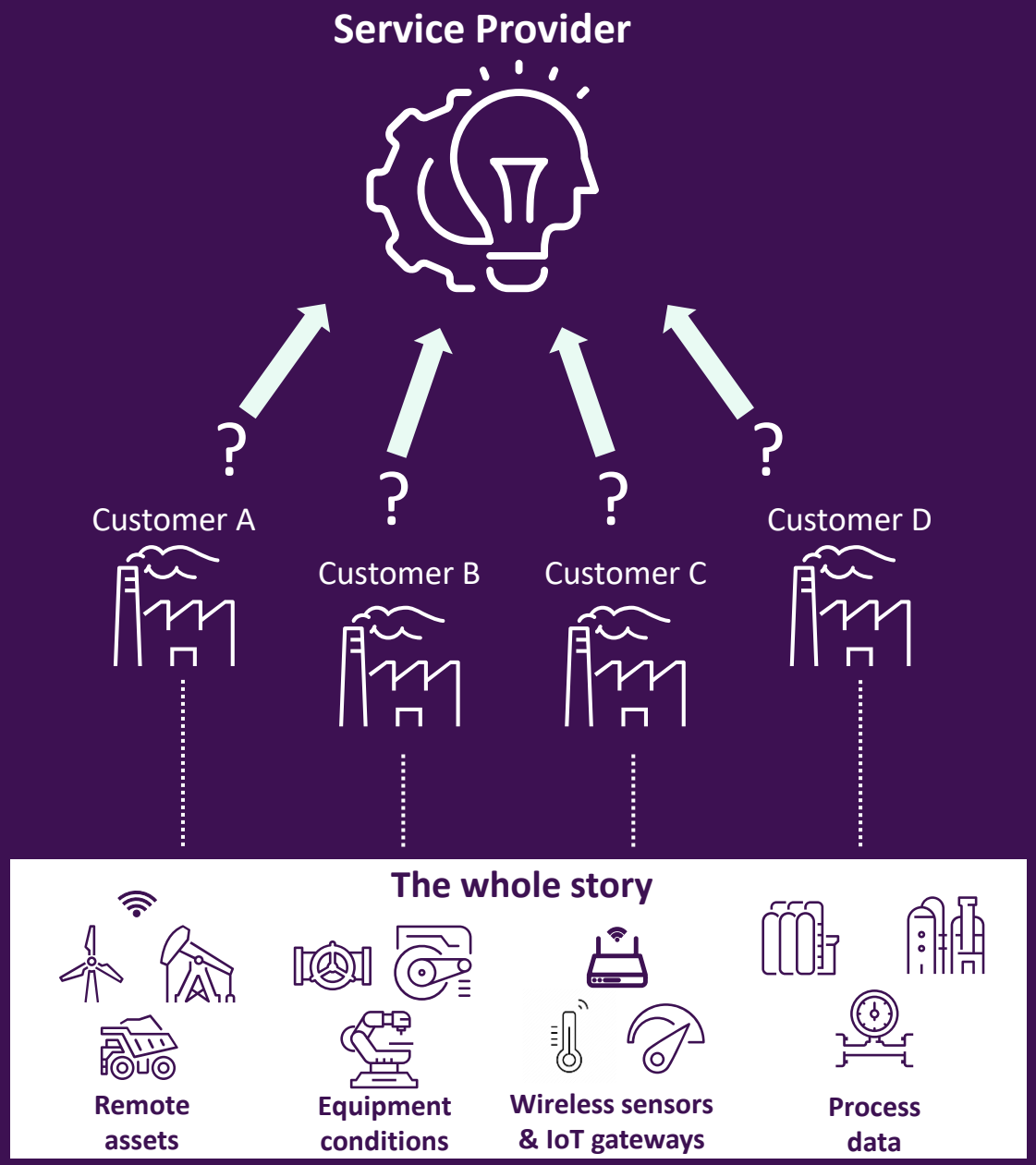

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Service provider challenges

Getting access to customer's operations data

- **Data from vendor devices alone may not tell the whole story**
- **Getting data from customer's plant site**
  - Onsite installation & configure hardware and software at plant, 3-5 days onsite
  - Setup dedicated VPN connection between companies, maintained on both sides
  - Ongoing configuration & maintenance of local hardware & software (+ some custom software databases)
- **Writing data management software is not a strength or our core expertise / business**
- **Potentially need to share results data back to the customer**
- **How to deliver my value & expertise at scale for many customers?**

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AVEVA™ Data Hub connected community

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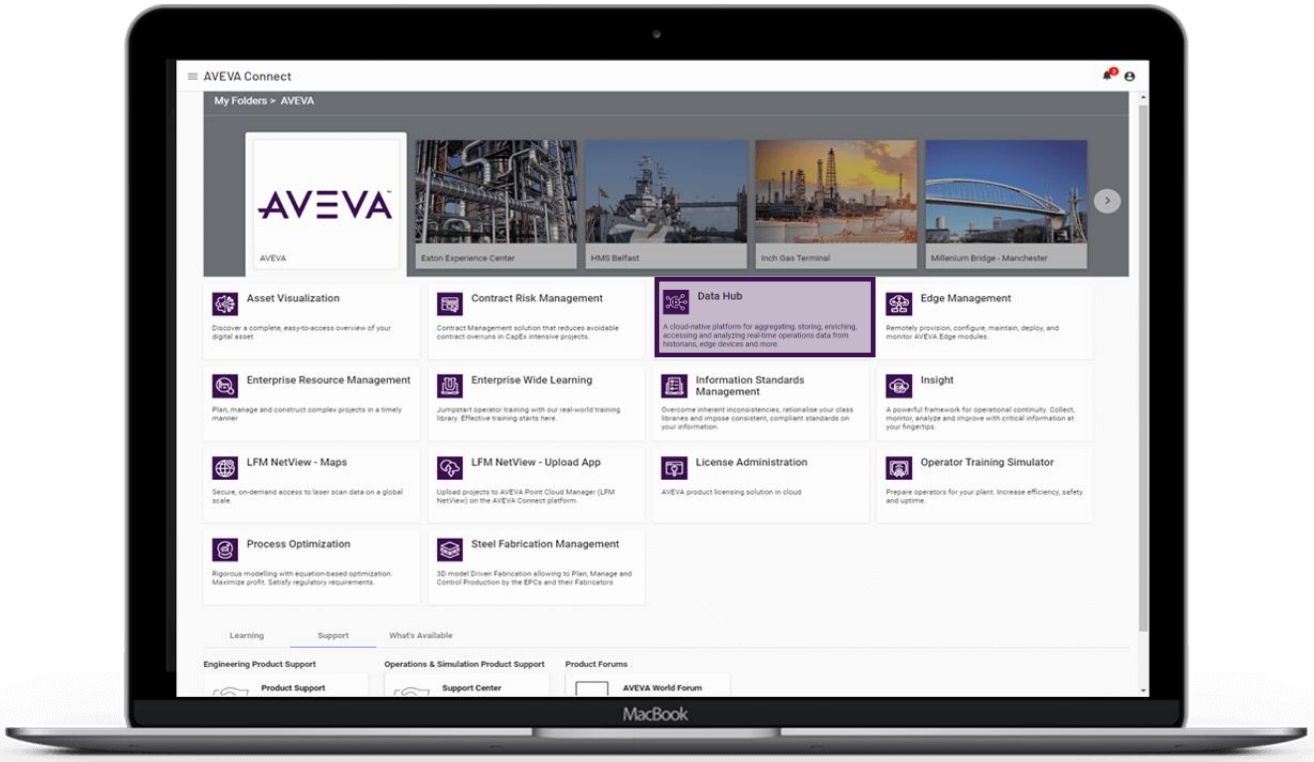
AVEVA™ Connect: Our industrial cloud platform

Our industrial cloud platform is your digital transformation hub



- ✓ Transform faster
- ✓ Enable new ways of work
- ✓ Connect and collaborate
- ✓ One single source of truth
- ✓ Move from CapEx to OpEx
- ✓ Lower dependency on IT
- ✓ Always the latest and greatest features
- ✓ Easily scale up and down
- ✓ Built with security, resiliency, high-availability

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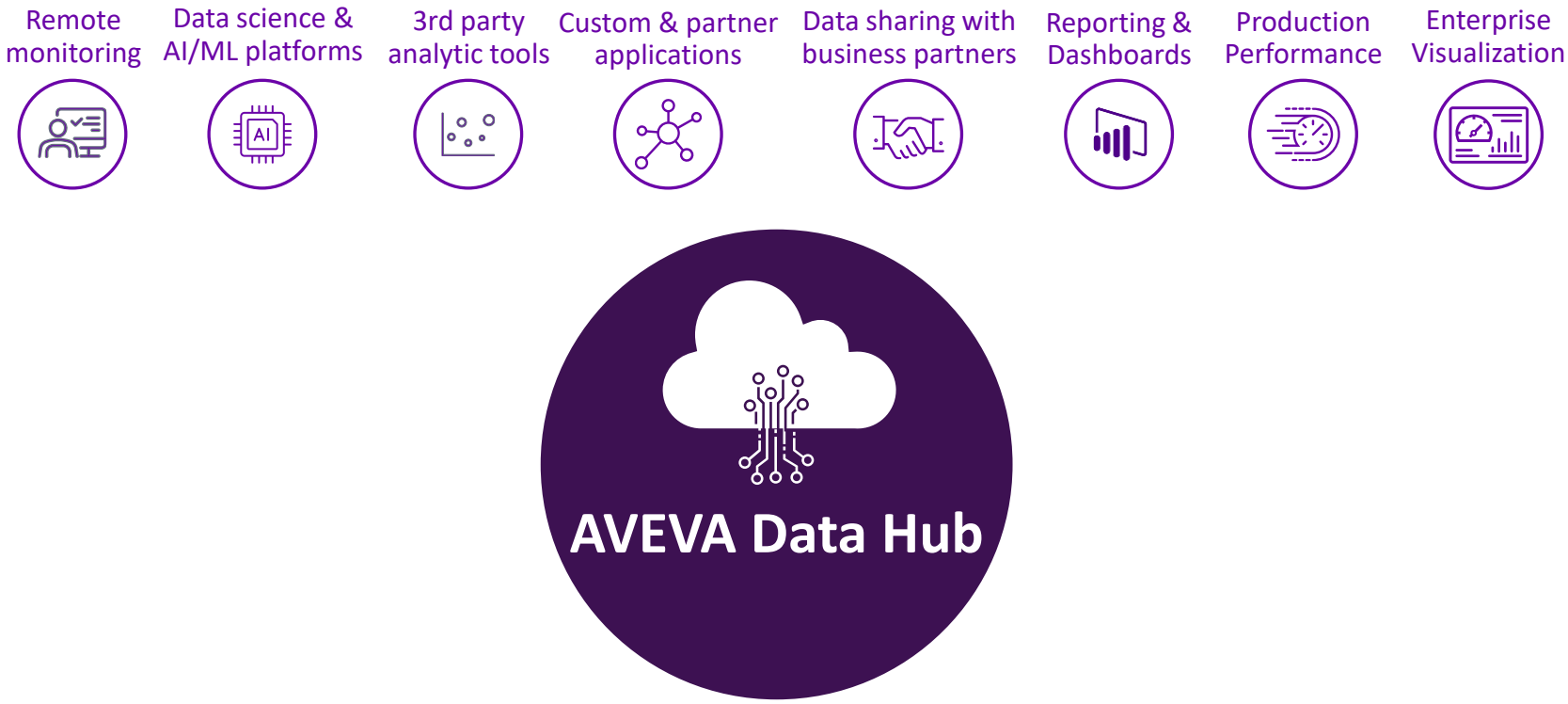
AVEVA™ Data Hub



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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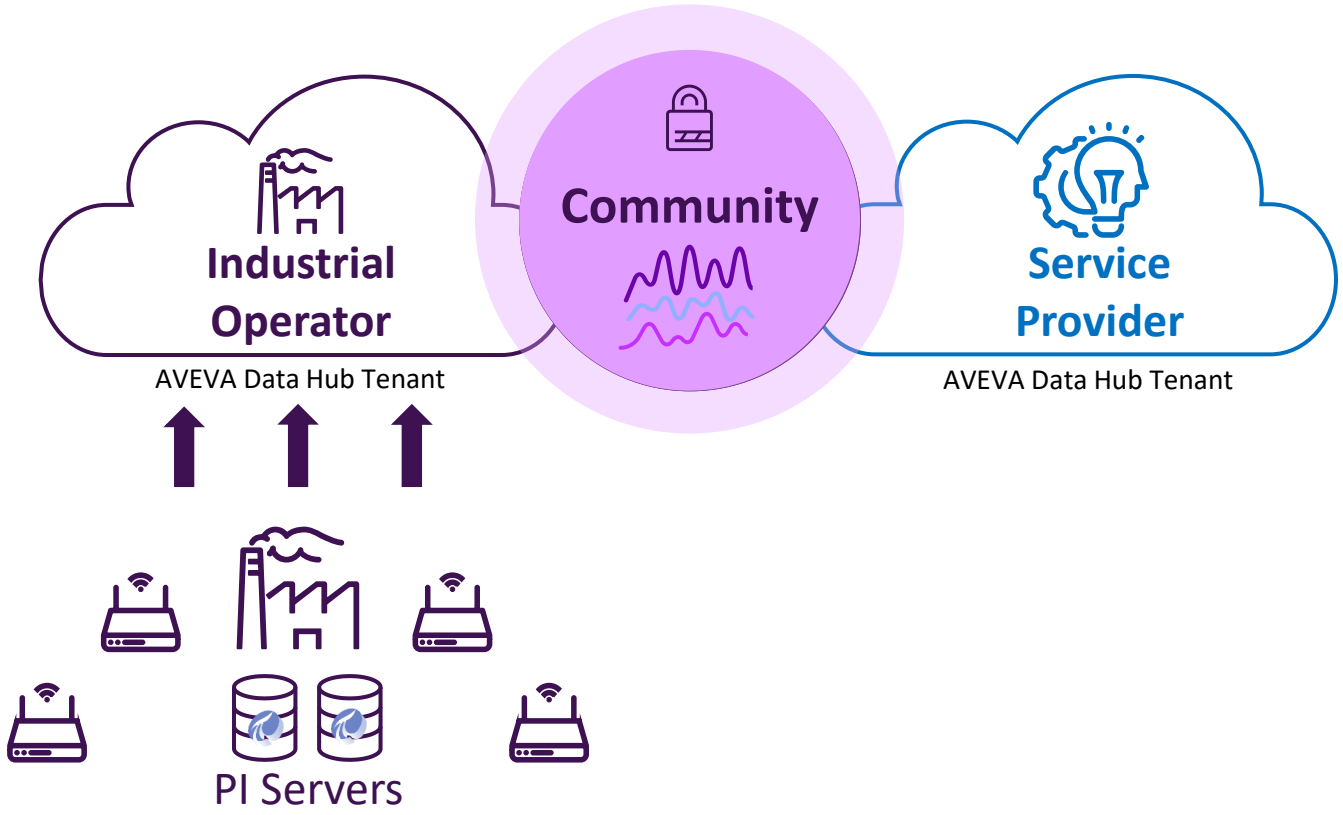
A more secure way to share operational data



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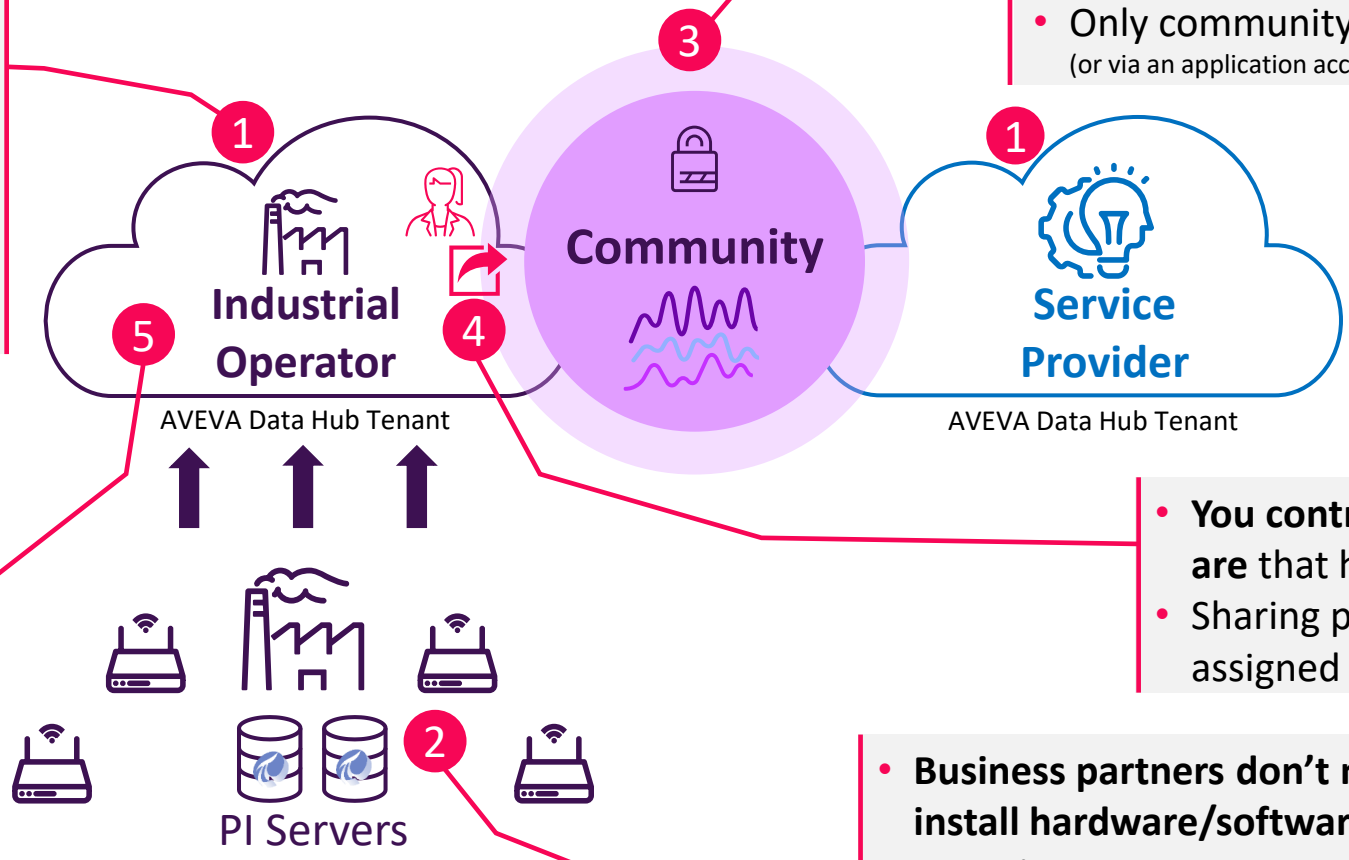
A more secure way to share operational data

- True multi-tenant system
- **Natural separation of authentication, users, and data**
- Each tenant manages their own authentication & users
- No external users logging directly into your tenant
- Better protection of Intellectual Property (IP)

- **3-way handshake for Community formation** & requires tenant admin approval
- Communities are private
- Each tenant manages their community members
- Only community members can read shared data (or via an application accessing data via API)



- Sharing provides *access* to data stored in your tenant
- **Data is not copied outside of your tenant** by AVEVA Data Hub

- **You control who your "data stewards" are** that have resource sharing privileges
- Sharing privilege must be explicitly assigned

- **Business partners don't need to install hardware/software** within your site to get access to your data

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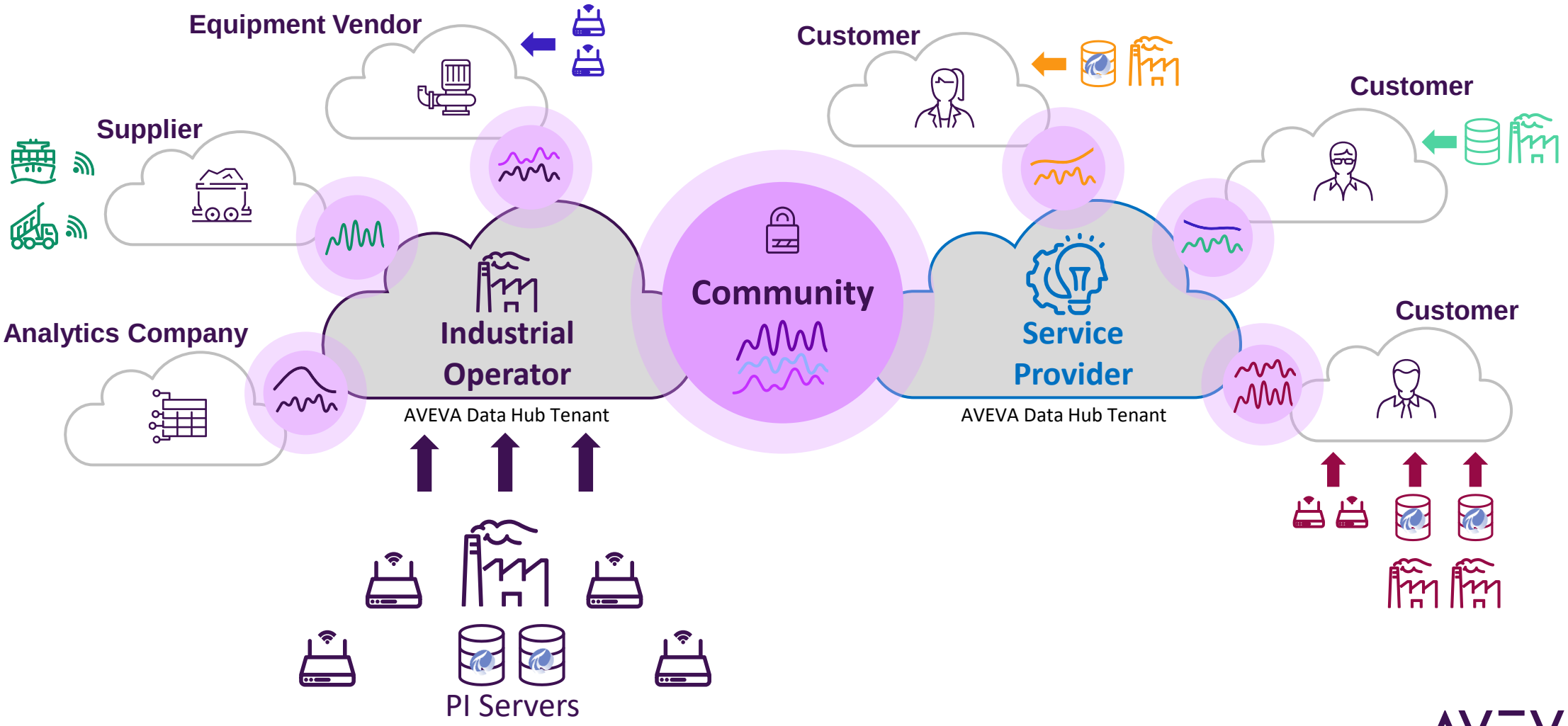
Connected community: Powering your industrial ecosystem



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AVEVA™ Data Hub connected community

Enables simple & secure operational data sharing across organizations

Achieve a more secure way of sharing your data

Manage users in your AVEVA Connect account

Easily connect to your trusted business partners in an AVEVA Data Hub community

Gain control and transparency over your shared data

Works great with AVEVA PI Server & AVEVA Historian

(but not required)

Scale your sharing to many business partners

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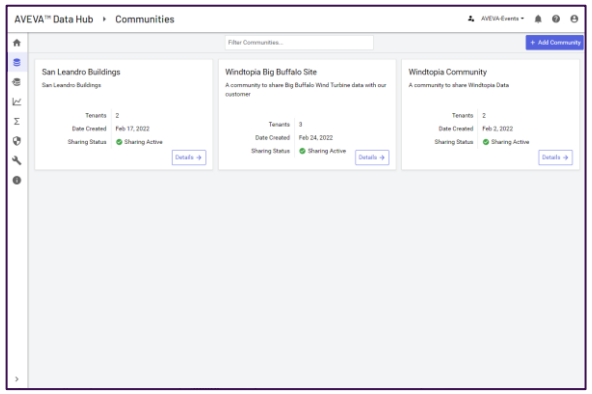
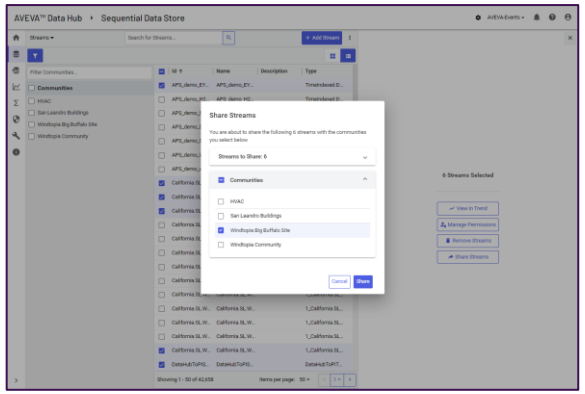
What can you do with AVEVA™ Data Hub connected community today?

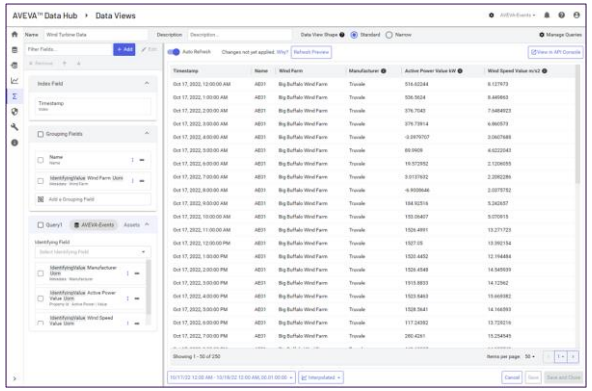
Community management



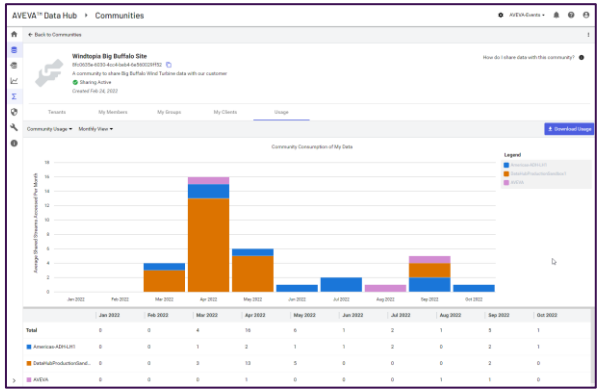
Stream data sharing



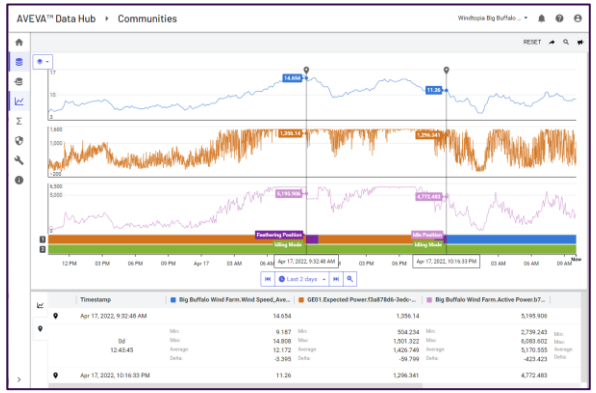
Data views with shared data



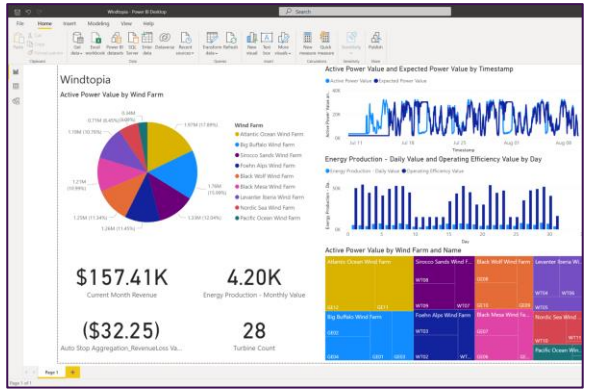
Transparent community usage



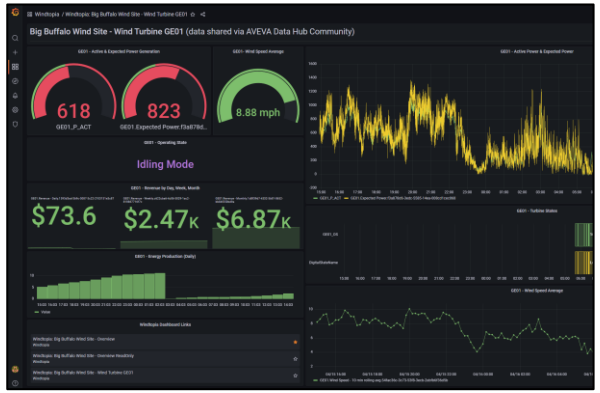
Trending with shared data



Power BI with shared data



Access via REST API / Integration



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AVEVA™ DATA HUB

Customer examples

Connected Communities

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SPECIALITY CHEMICALS | ITALY

AVEVA™ Data Hub enables huge improvements on reliable data sharing for critical equipment

Challenge

Air Preheaters are a critical piece of equipment in the Carbon Black production process, as they increase the yield of the process. Due to high temperatures of the fluid streams, they operate close to the application temperatures of the materials of construction.

Equipment downtime can shut down the entire plant. ARVOS needed a way to get timely information from Cabot's on-premises system to avoid such faults. Prior to this solution, data sharing was a manual process with inefficiencies and potential for error.

Solution

AVEVA Data Hub was used in conjunction with Data Historian (AspenTech IP21) and the partner's analysis tools to provide a near real-time sharing solution for both raw data and analytics results.

Results

Simple, secure data sharing gives ARVOS access to real-time and historical data from Cabot's Air Preheater to predict failures via the Zero.One® Data Analytics Engine.

The solution using AVEVA Data Hub for data sharing can contribute indirectly to an overall reduction in downtime for key equipment at one of Cabot's European Carbon Black plants in Ravenna, Italy.

> *"The AVEVA Adapter for OPC UA provides easy connectivity to replicate data from Cabot's existing AspenTech IP21 Enterprise Historian to AVEVA Data Hub to share data reliably with our equipment provider ARVOS Group to do analytics on our most critical equipment at our Carbon Black plant located in Ravenna, Italy.*
>
> *Nicolas Chevaldonnet, Digital Manufacturing Director, Cabot Corporation*

Learn more

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AVEVA™ DATA HUB

Demo

Connected Communities

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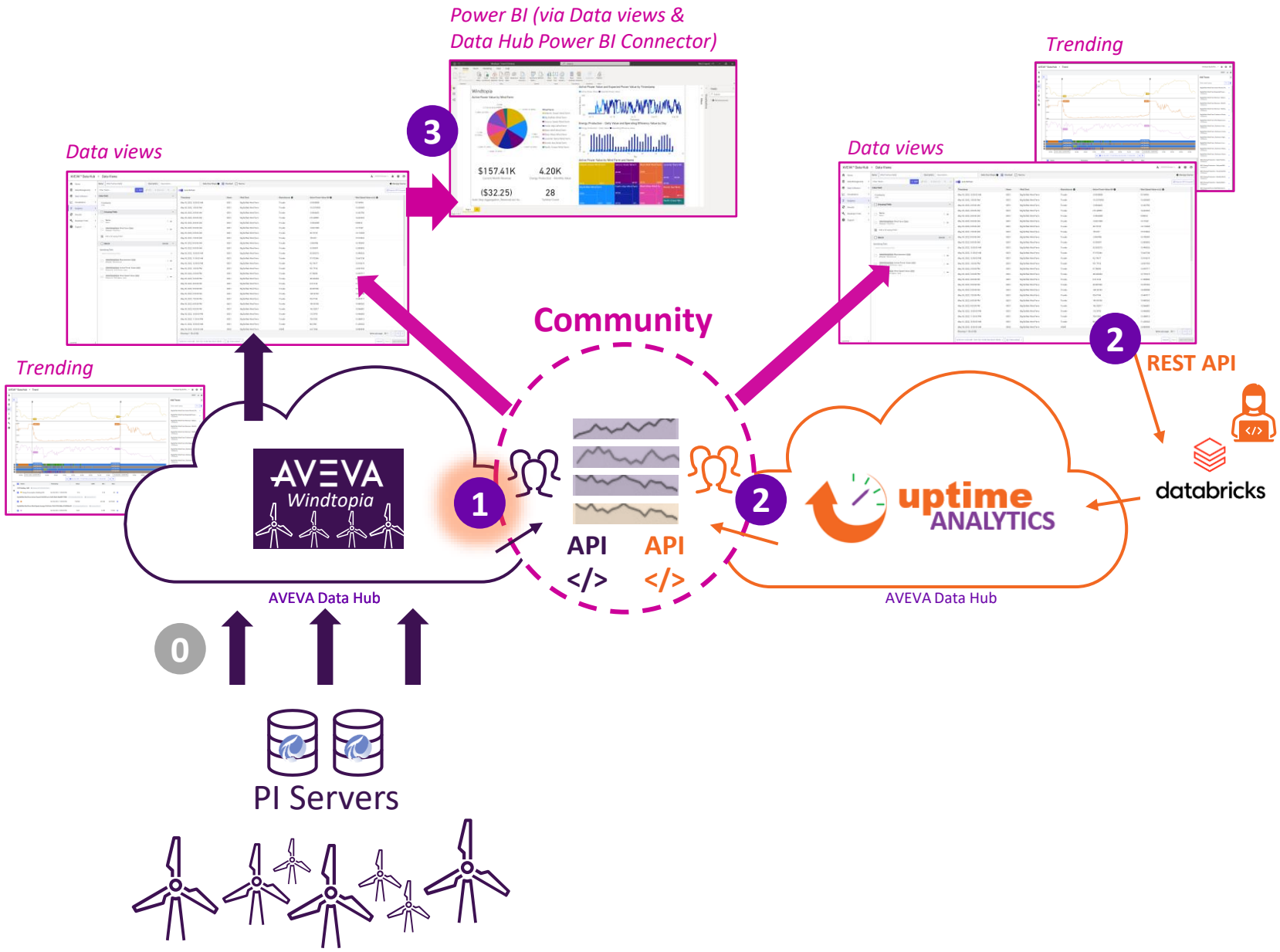
AVEVA™ Data Hub
Demo Outline



0 Seamless connectivity from AVEVA PI System to AVEVA Data Hub

1 Community stream sharing

2 Shared data in Databricks, share predictions back

3 Power BI dashboard, control & transparency for your data

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AVEVA Connect | Data Hub

https://datahub.connect.aveva.com/tenant/b5b83eaa-a674-4a0b-9acd-e343dbb1b6d8/communities/53250926-f7cf-4b34-b193-698663638dc7/tenants

AVEVA™ Data Hub ▸ Communities

AVEVA Datahub

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

COLLAPSE

← Back to Communities

Uptime Analytics

53250926-f7cf-4b34-b193-698663638dc7

Uptime Analytics

Sharing Active

Created Oct 13, 2022

How do I share data with this community?

Tenants | My Members | My Groups | My Clients | Usage

Filter tenants...

+ Invite Tenant

Administrative Tenant

Name	Status	Users	Clients	Streams
Totals	**All Tenants Active**	**2**	**0**	**0**
Uptime Analytics	Active	0	0	
AVEVA	Active	2	0	0

Showing 1 - 2 of 2

Items per page: 50

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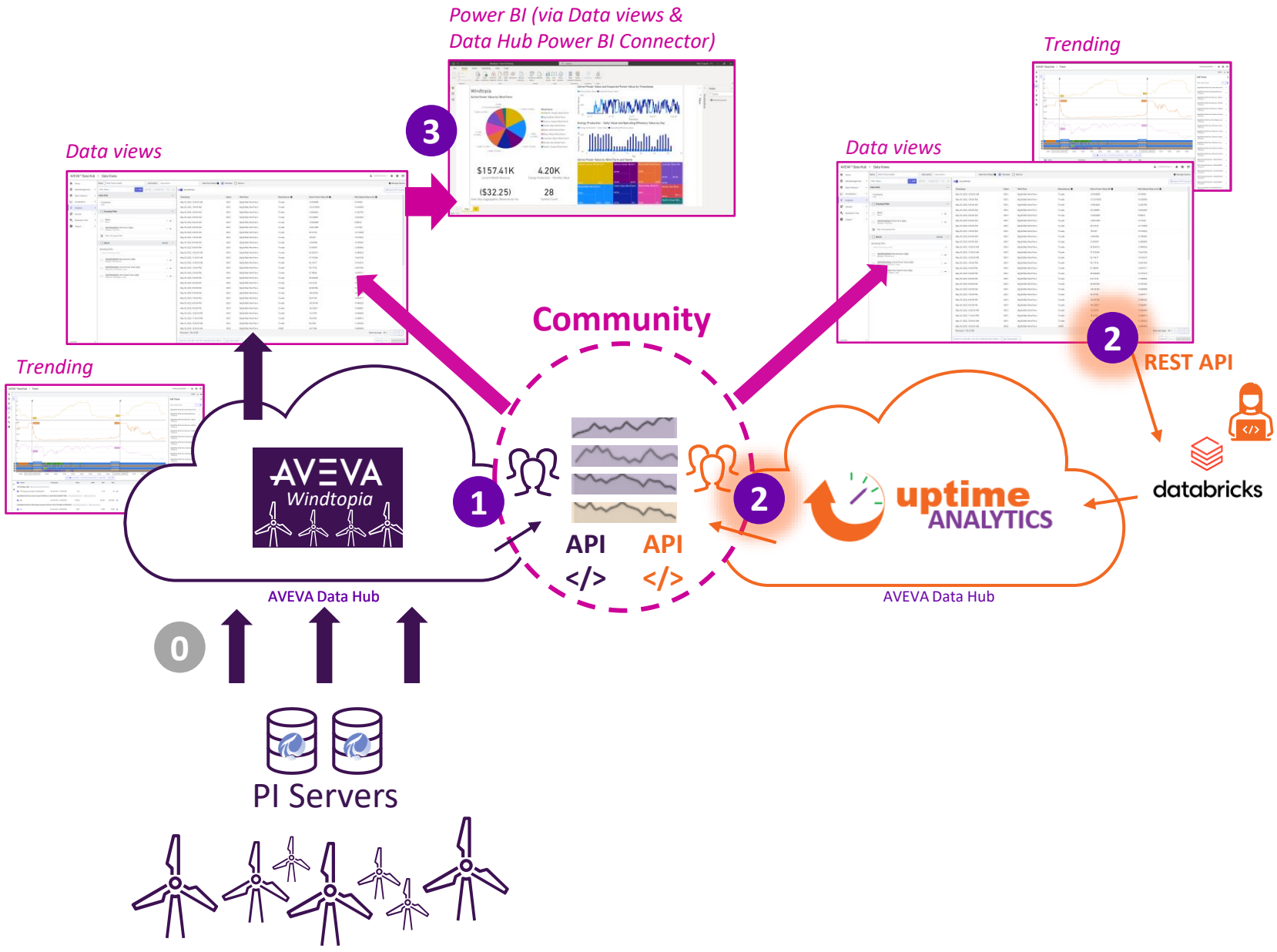
AVEVA™ Data Hub
Community Demo



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Home
Data Management
Data Collection
Visualization
Analytics
Security
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Support

← Back to Communities

AVEVA Windtopia *(Uptime Analytics)*
53250926-f7cf-4b34-b193-698663638dc7
Uptime Analytics
Sharing Active
Created Oct 13, 2022

How do I share data with this community?

Tenants | My Members | My Groups | My Clients | Usage

Filter tenants...

View Streams

Administrative Tenant

Name	Status	Users	Clients	Streams
Totals	All Tenants Active	3	0	
Uptime Analytics	Active	1	0	
AVEVA	Active	2	0	

Showing 1 - 2 of 2

Items per page: 50

COLLAPSE

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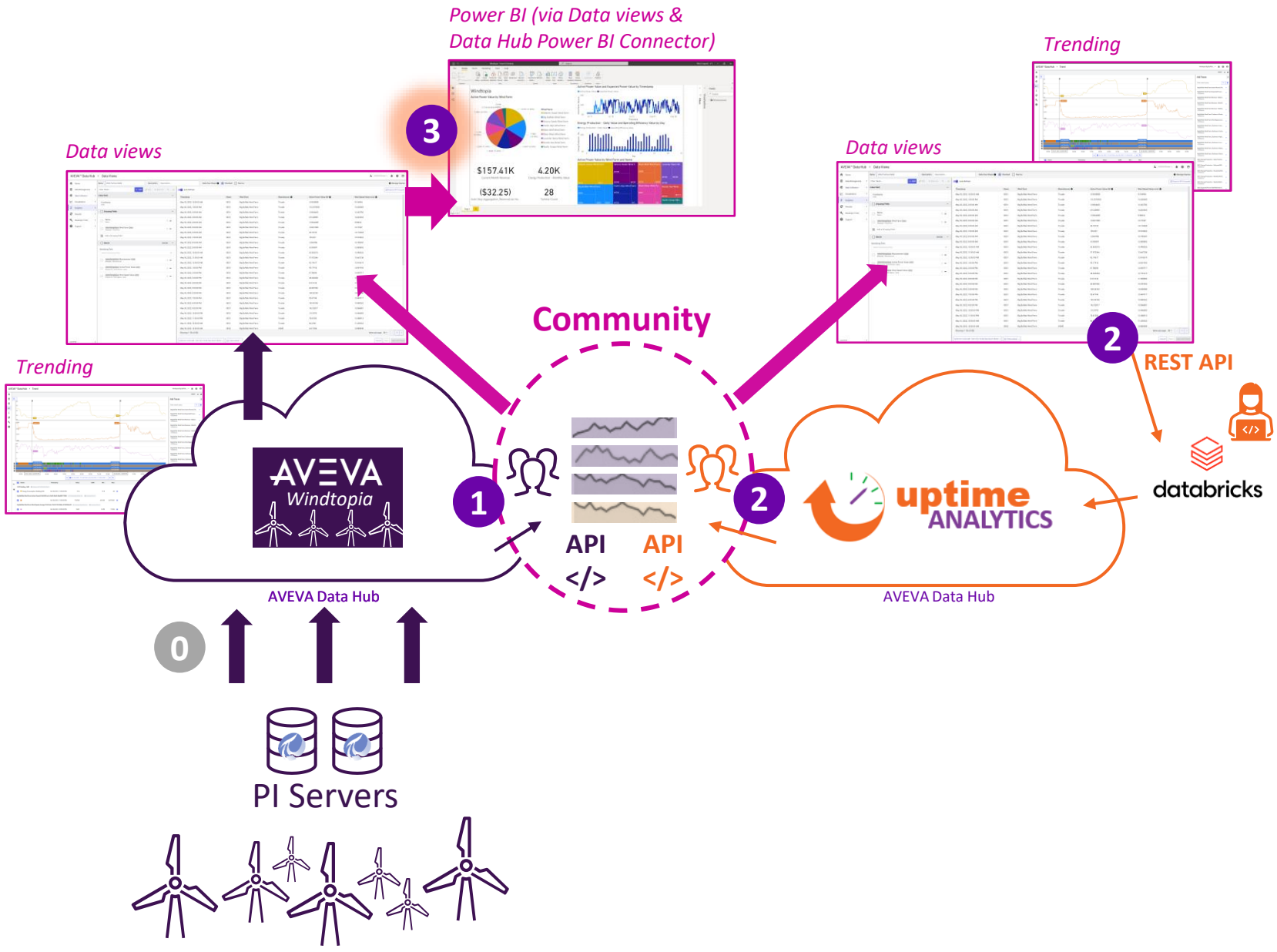
AVEVA™ Data Hub
Community Demo



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AVEVA Connect | Data Hub

https://datahub.connect.aveva.com/tenant/b5b83eaa-a674-4a0b-9acd-e343dbb1b6d8/communities

AVEVA™ Data Hub ▸ Communities

Uptime Analytics

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

COLLAPSE

Filter communities...

+ Add Community

Golden Batch Analytics

Golden Batch Analytics

Tenants	1
Date Created	Jul 11, 2022
Sharing Status	Sharing Active

Details →

Predictive Analytics

Predictive Analytics

Tenants	2
Date Created	Oct 4, 2022
Sharing Status	Sharing Active

Details →

Uptime Analytics

Uptime Analytics

Tenants	2
Date Created	Oct 13, 2022
Sharing Status	Sharing Active

Details →

Windtopia Big Buffalo Site

A community to share Big Buffalo Wind Turbine data with our customer

Tenants	3
Date Created	Feb 24, 2022
Sharing Status	Sharing Active

Details →

Showing 1 - 4 of 4

Items per page: 50

1

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AVEVA DATA HUB

Wrap Up

Connected Communities

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AVEVA™ Data Hub connected community

Enables simple & secure operational data sharing across organizations

Achieve a more secure way of sharing your data

Manage users in your AVEVA Connect account

Easily connect to your trusted business partners in an AVEVA Data Hub community

Gain control and transparency over your shared data

Works great with AVEVA PI Server & AVEVA Historian

(but not required)

Scale your sharing to many business partners

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Build your data ecosystem

With AVEVA™ Data Hub

- Open connectivity for ample and easy ingress and egress of data
- No development needed, deliver value in hours
- Manage any type of sequential data, including time-series
- Securely share data for collaboration inside or outside your organization
- Cloud-native, fully managed by AVEVA, eliminating the need for CAPEX, maintenance and IT support

AVEVA™ Data Hub accelerates successful ecosystem creation

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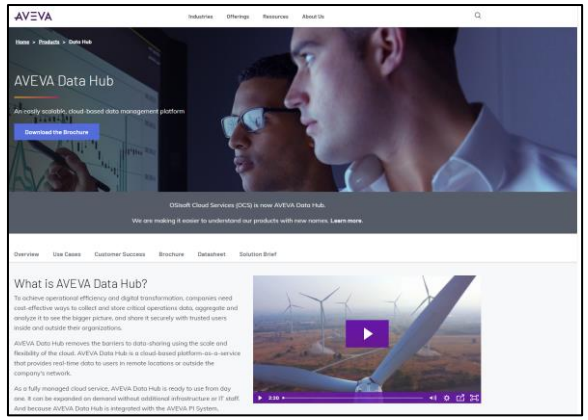
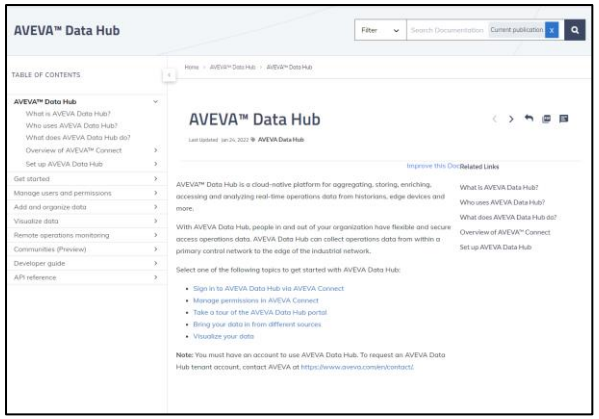
Where to find more information on AVEVA™ Data Hub

Overview & Resources



https://www.aveva.com/en/products/data-hub/

Documentation

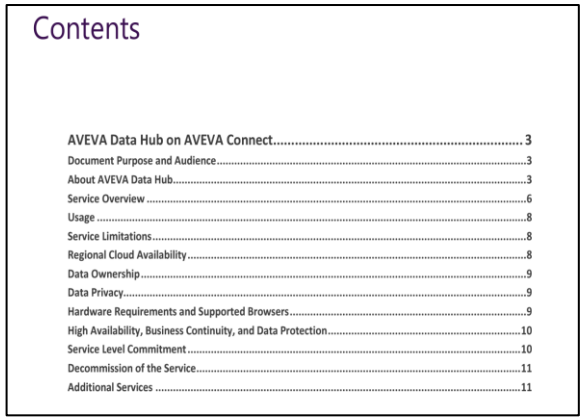


https://docs.aveva.com/bundle/data-hub/page/adh-content-portal-overview.html

Security & Trust Center

https://www.aveva.com/en/legal/trust/

Service Description



https://www.aveva.com/content/dam/aveva/documents/datasheets/AVEVA_Data_Hub_on_AVEVA_Connect_v1_1.pdf

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ABOUT AVEVA

AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

Named as one of the world's most innovative companies, AVEVA supports customers with open solutions and the expertise of more than 6,400 employees, 5,000 partners and 5,700 certified developers. The company is headquartered in Cambridge, UK.

Learn more at www.aveva.com

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