

OCTOBER 24, 2023

AVEVA™ PI System™ Roadmap

The continuing evolution to enterprise-wide operations data management

Mana Afshari

Director Portfolio Management – AVEVA PI System

The AVEVA logo is displayed in white, bold, uppercase letters. The letter 'V' is stylized with a horizontal bar through its center.



3x

Number of IoT devices exist in 2030 compared to number in 2020. Data from these devices will grow even faster.

Source: Gartner: Predicts 2022: The distributed enterprise drives computing to the edge.

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



Organizations adopting data hub strategies will achieve outcomes dependent on shared data with at least **60% lower cost.**



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

Connecting your industrial business

Decision-ready operations data is a strong foundation for connection



Enterprise use cases



Sustainability



Production performance



Product quality



Asset health



Safety & resilience

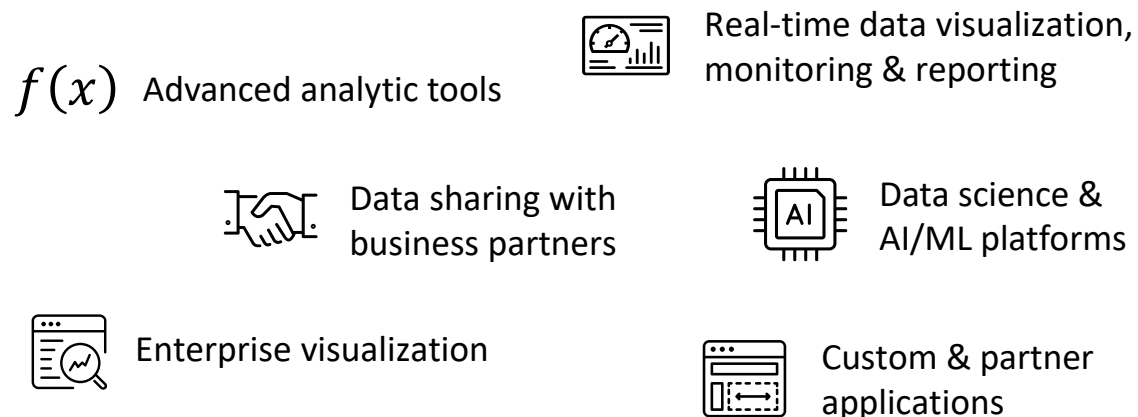


Compliance

Connecting your industrial business

Decision-ready operations data is a strong foundation for connection

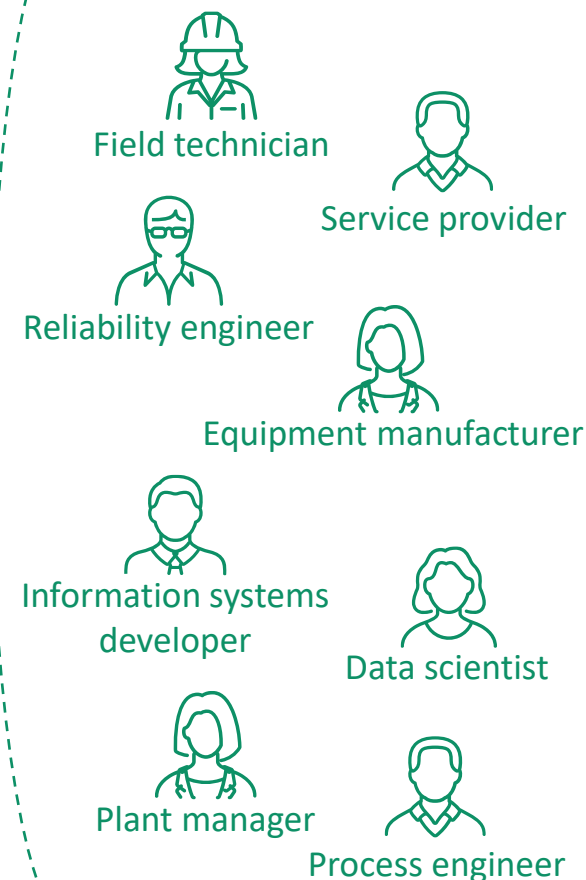
Tools & data needs



Data sources

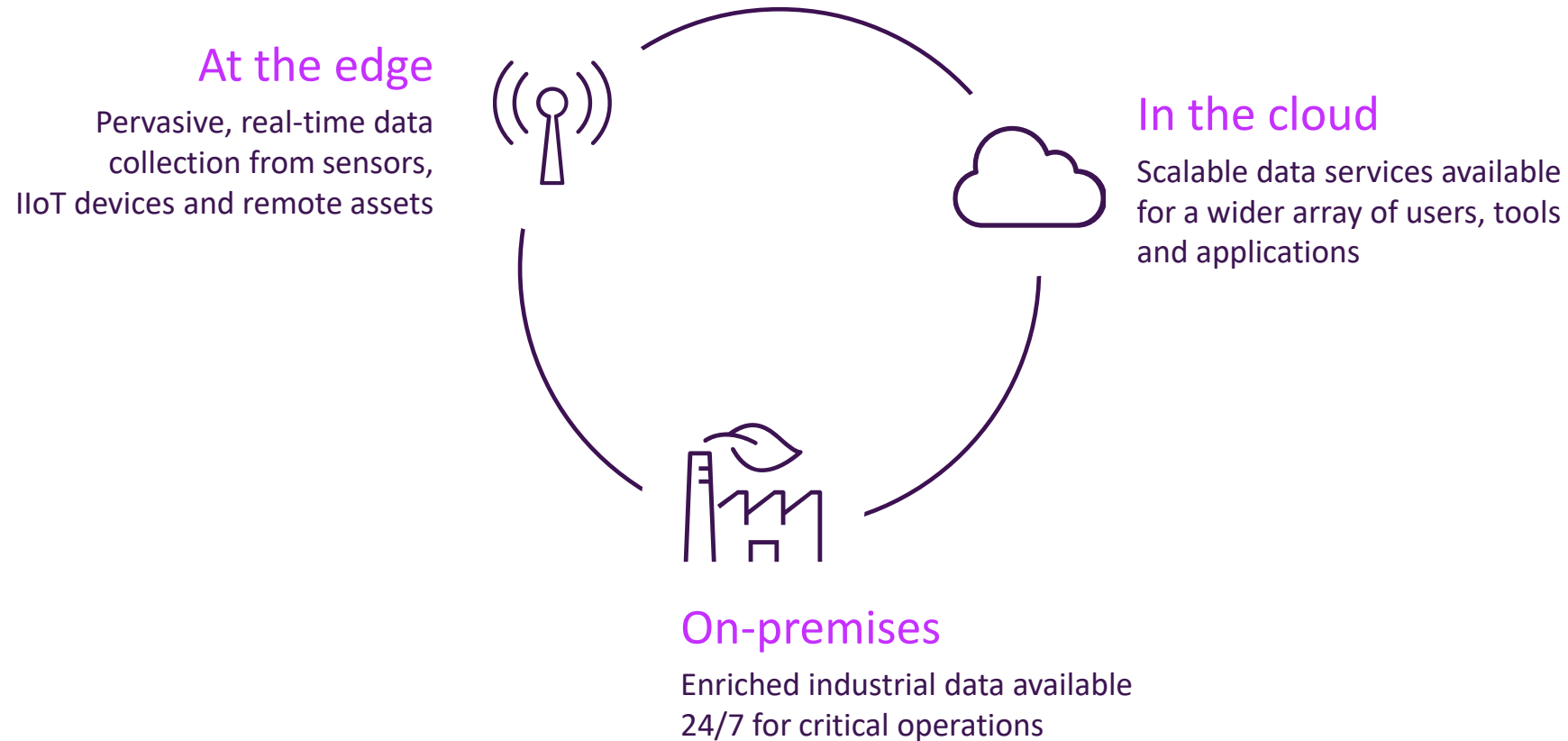


Community

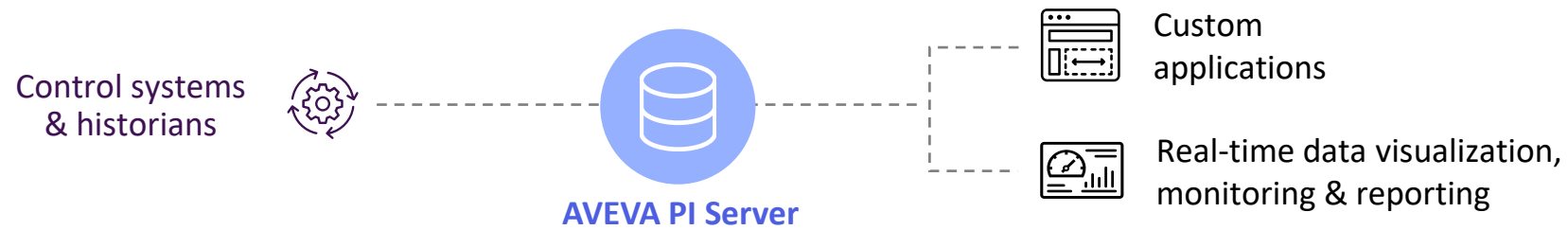


Flexibility needed in today's connected, data-driven industry

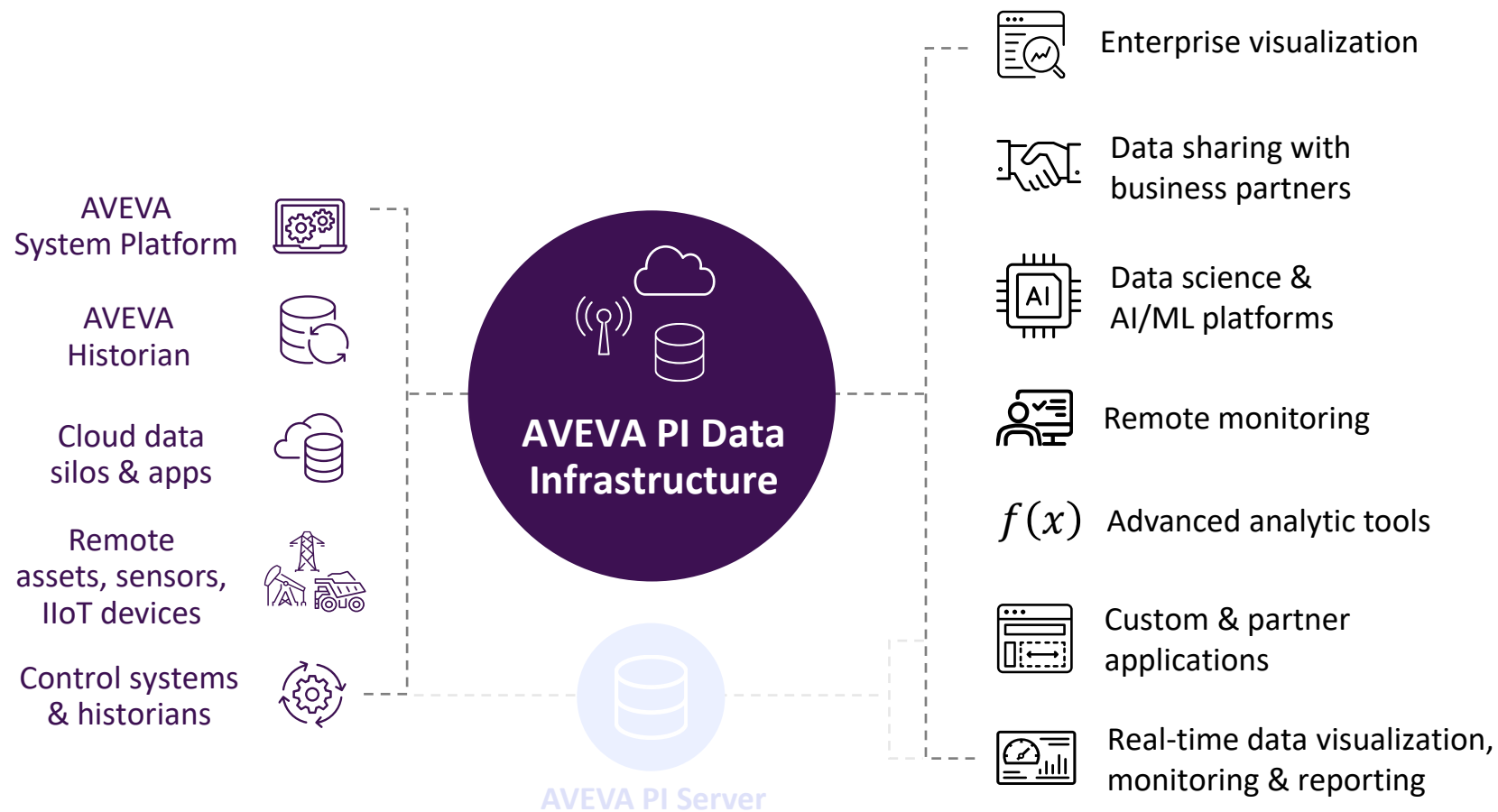
The future is not cloud or edge vs. on-premises; it is the flexible architecture for any use case across the enterprise



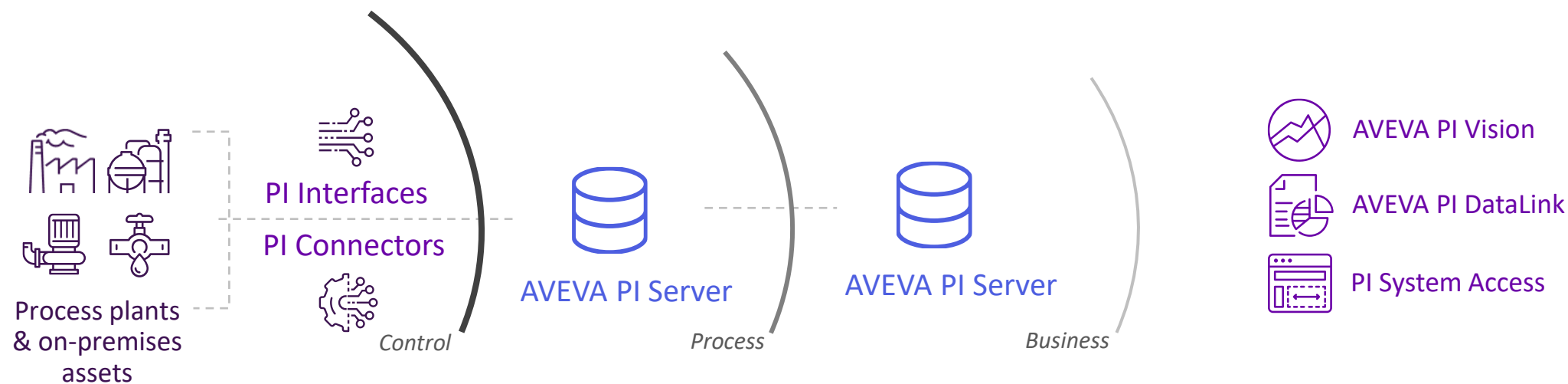
Supporting the traditional data needs



Supporting the evolving data needs

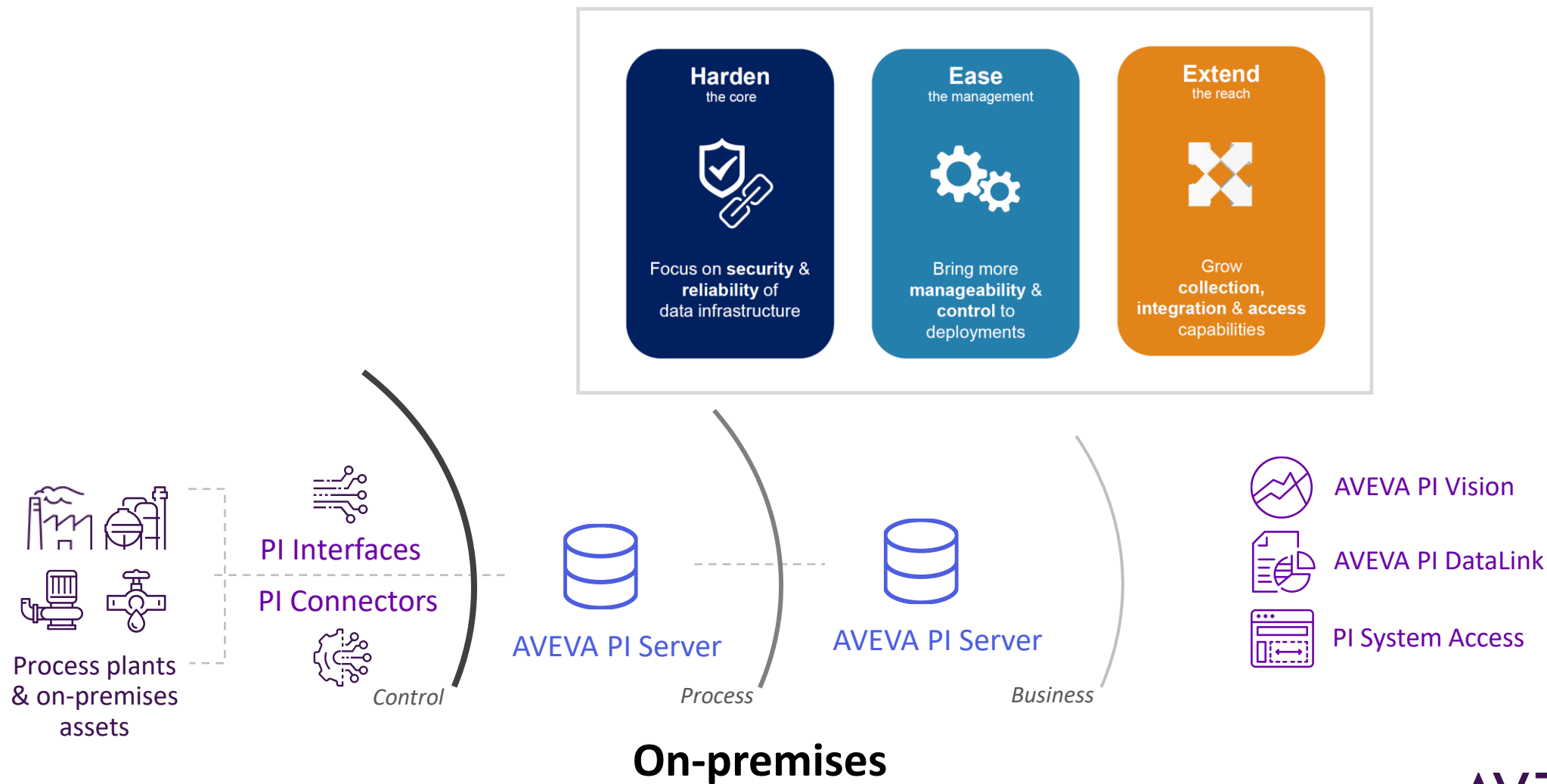


Hardening the core of AVEVA PI System & extending the reach of data

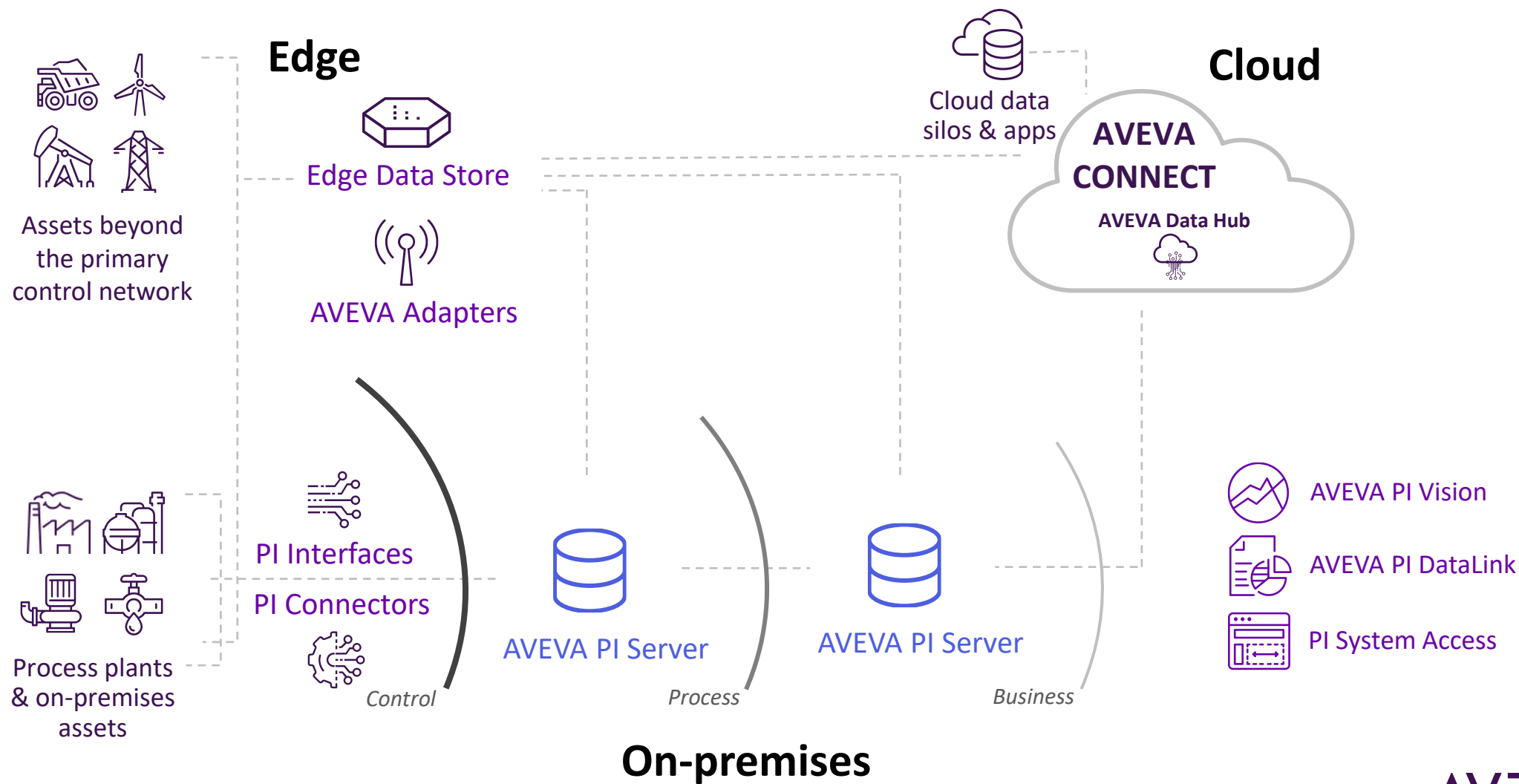


On-premises

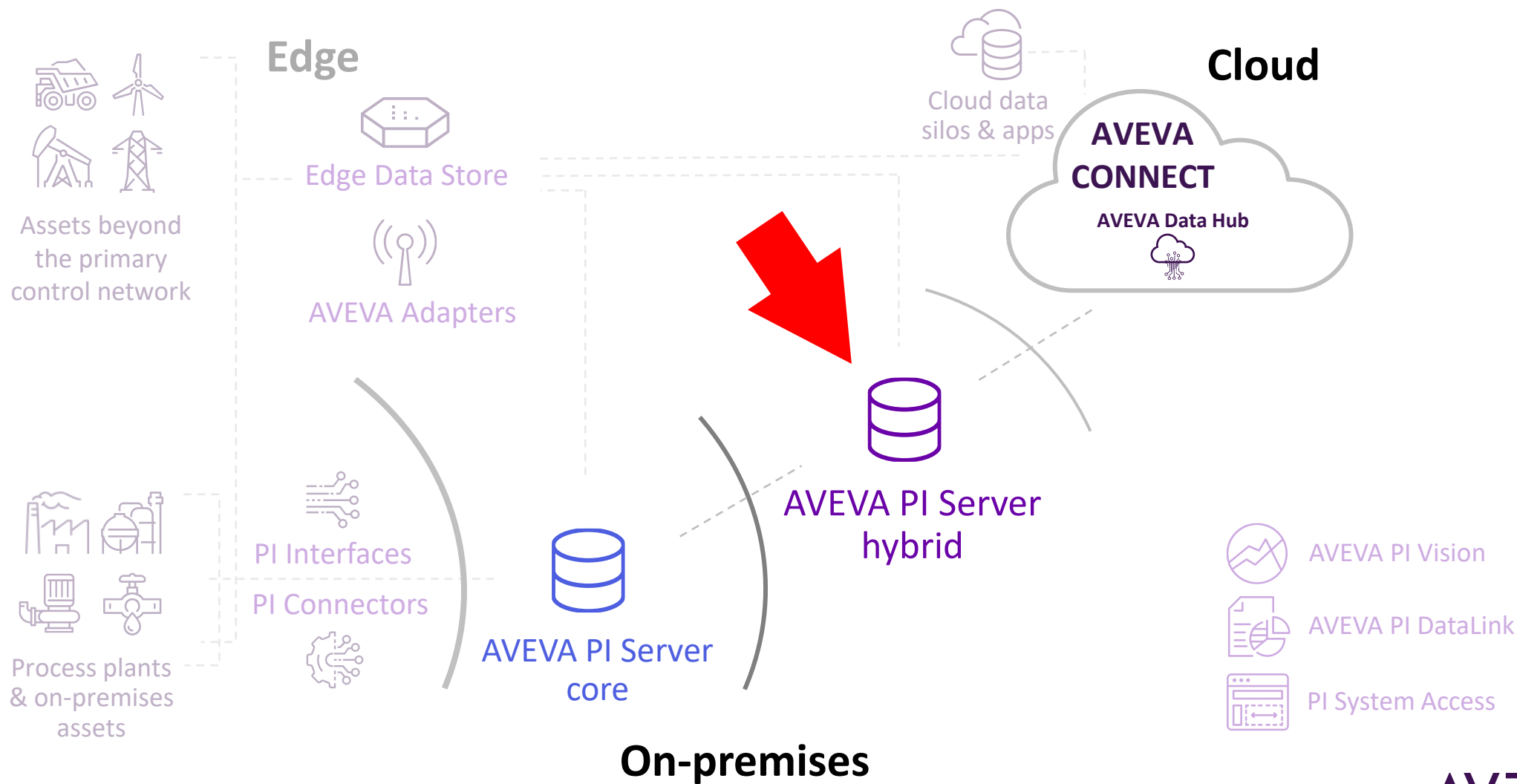
Hardening the core of AVEVA PI System & extending the reach of data



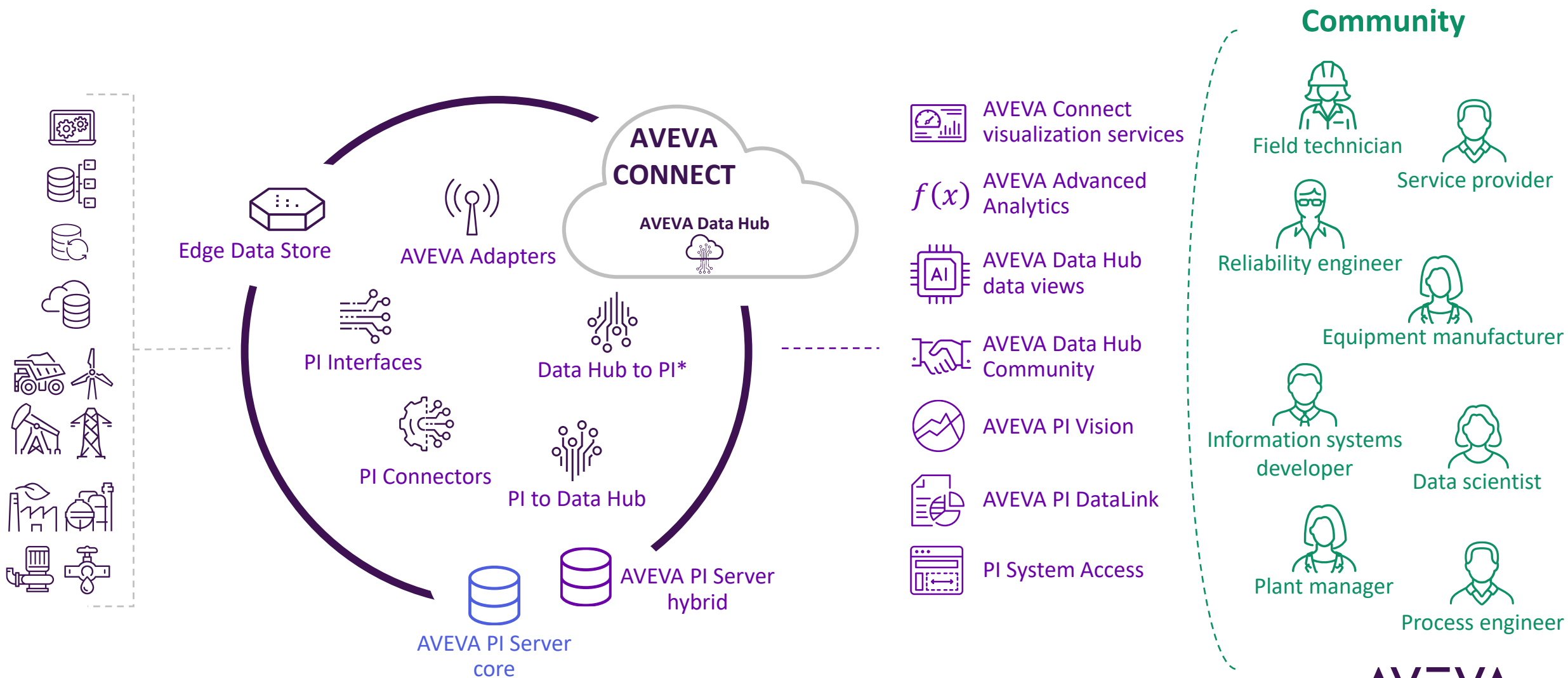
Hardening the core of AVEVA PI System & extending the reach of data



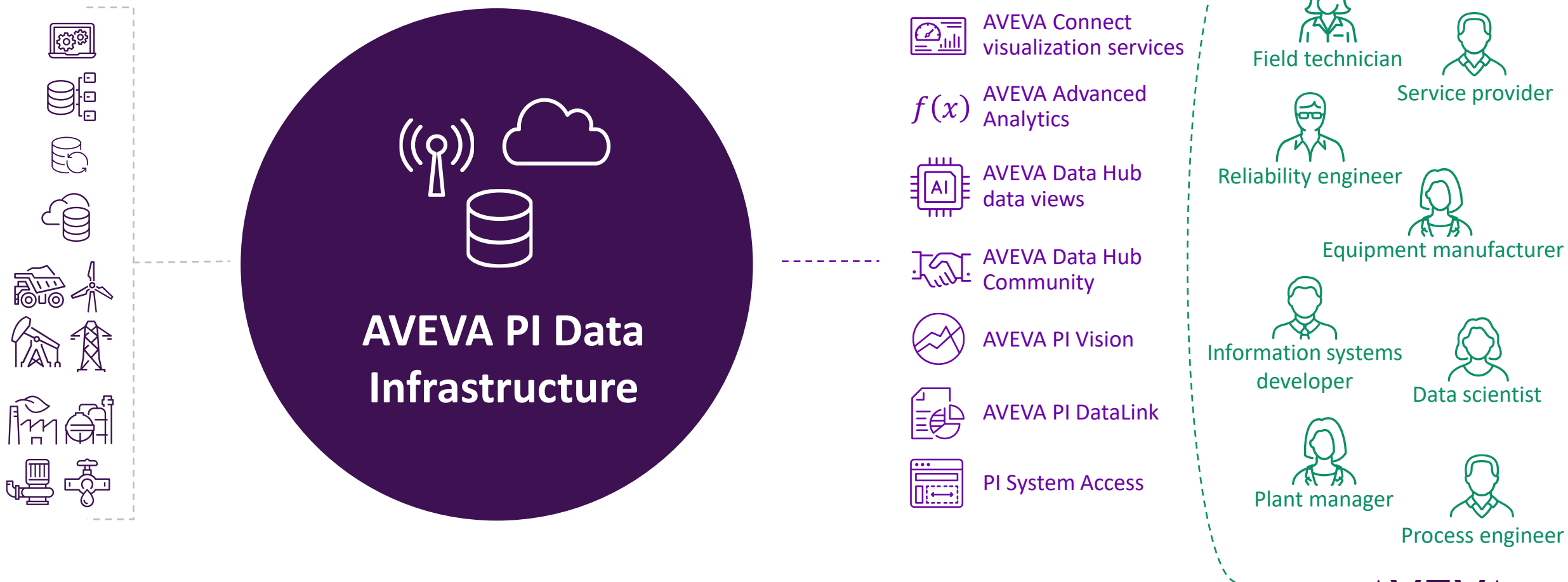
Investing in on-premises and complementing it with cloud and edge



A hybrid data infrastructure from edge to plant to community

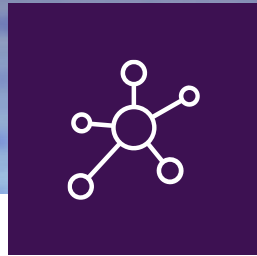


A hybrid data infrastructure from edge to plant to community



AVEVA PI Data Infrastructure

Data without boundaries, from edge to plant to community

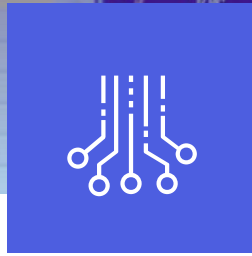


Hybrid cloud offering

Three pillars of
AVEVA Edge Data Store
AVEVA PI Server
AVEVA Data Hub

connecting fabric of
AVEVA Adapters, PI Connectors,
PI Interfaces, PI to Data Hub

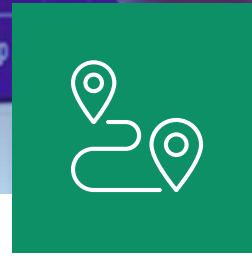
and added value through
Connect visualization services



Investment protection

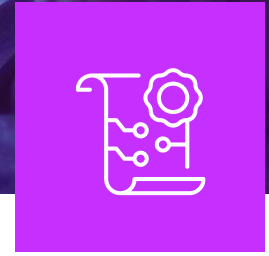
A seamless data infrastructure
relying on hybrid capabilities
delivered over time

Investing in the on-premises
PI System and complementing
it with cloud and edge



Enterprise features

A flexible hybrid offering
that meets the data
needs across the
enterprise and beyond



Easier scaling

New aggregate tag
licensing option

More flexibility for
scaling data usage in
large, multi-site
deployments

Aggregate tag licensing option

Challenge

Customers with large deployments

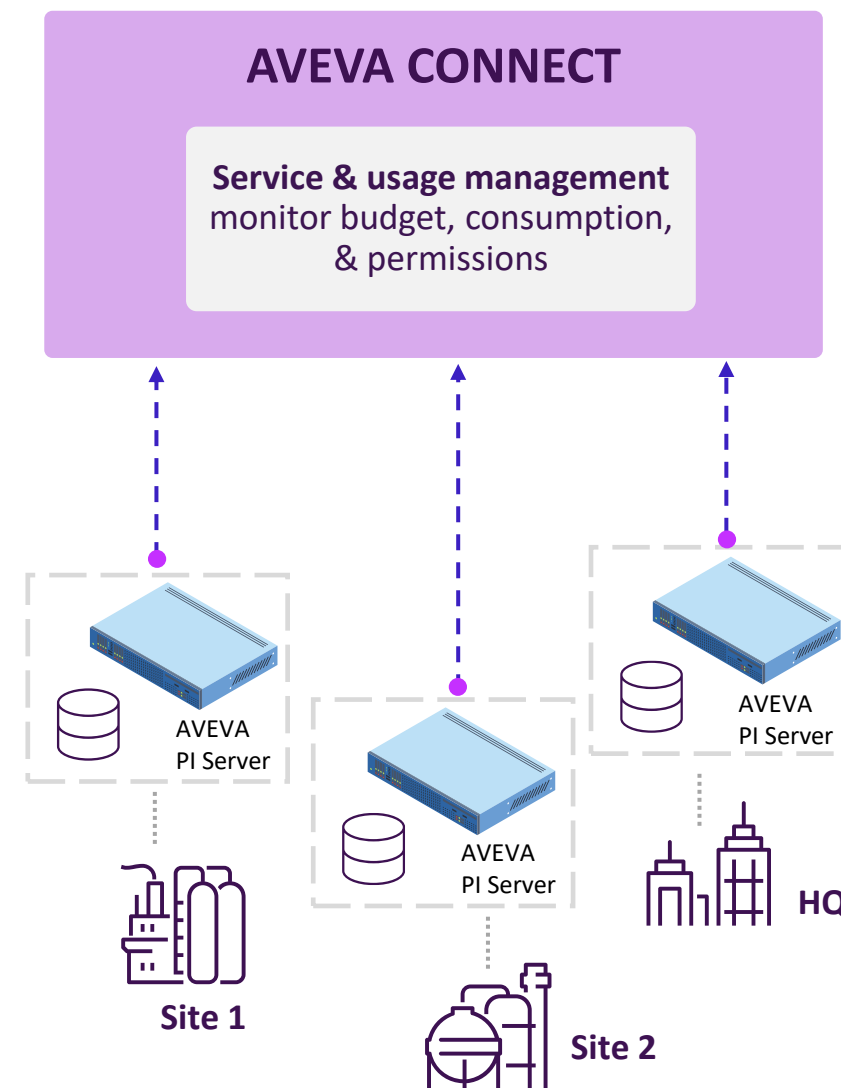
- Must estimate initial and future tag usage for each PI Server
- Need to go through new license purchase every time to increase tag counts or request additional PI Servers

Solution

- Spread tags across PI Server deployments as needed
- Centrally monitor tag usage in AVEVA Connect

Results

- Deploy new PI Servers without the need to make an additional purchase
- On-ramp to share operations data in AVEVA Data Hub



Our roadmap themes

AVEVA PI System & AVEVA PI Data Infrastructure

Seamless infrastructure from edge to cloud

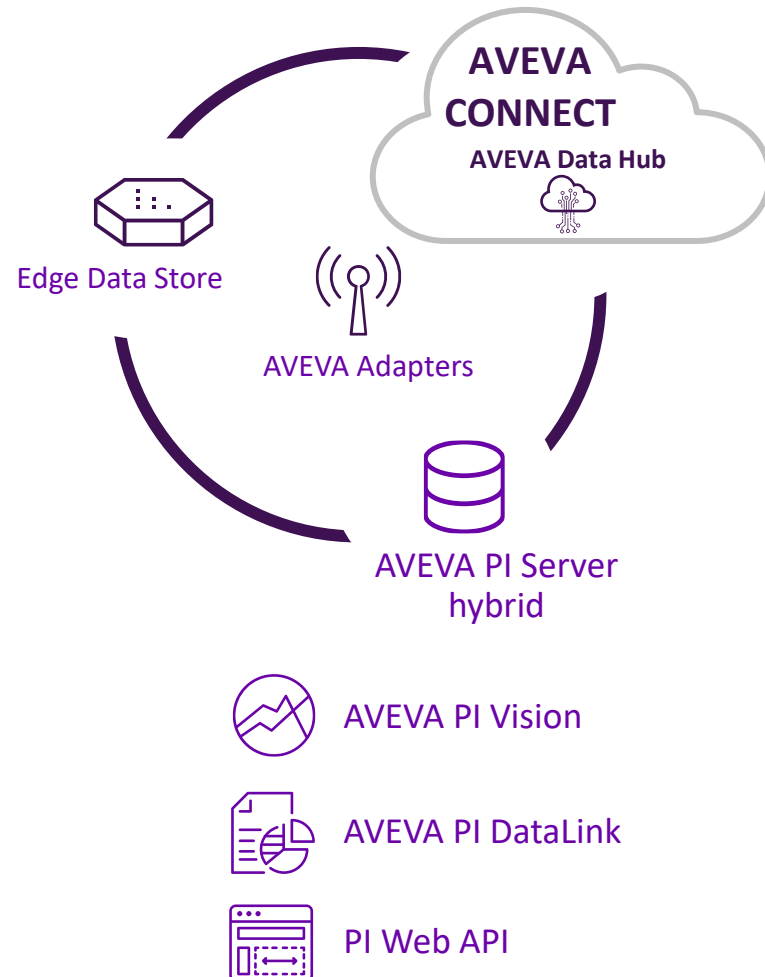
Manageable software and systems

Increased value and scope of data



Enabling single sign-on across AVEVA PI System

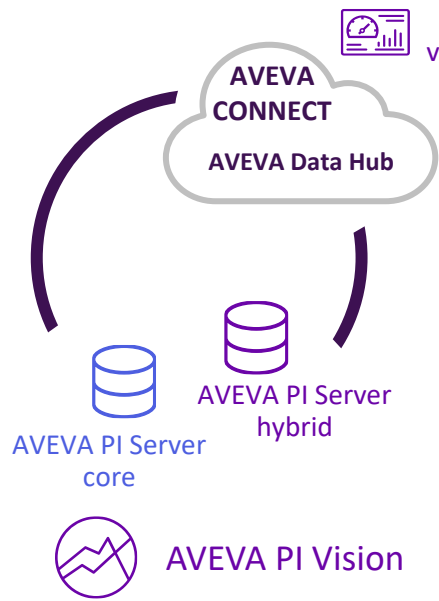
Reducing IT effort and enabling single sign-on (SSO)



- OpenID Connect (OIDC) in support of claims-based authentication
- Leverage AVEVA Identity Manager and AVEVA Connect
- Integrate with your enterprise identity provider
- First release of AVEVA PI Server - hybrid (version 2023) in support of enterprise needs

AVEVA PI Vision

The fastest, easiest way to visualize AVEVA PI Server data



Claims-based authentication via OpenID Connect (admin site & display utility)

Advanced Tag Search

In development

2023 SP1

2023

Claims-based authentication via OpenID Connect (main site)

Available today

2022

Enhanced events analysis & display standardization

2021

Asset based calculations & offline display management

2020

Tag based calculations & display usage monitoring

2024

Process monitoring and display management capabilities

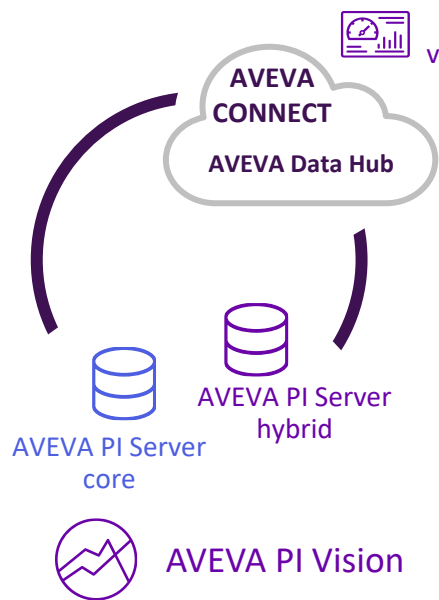
More display editing capabilities

More process monitoring capabilities

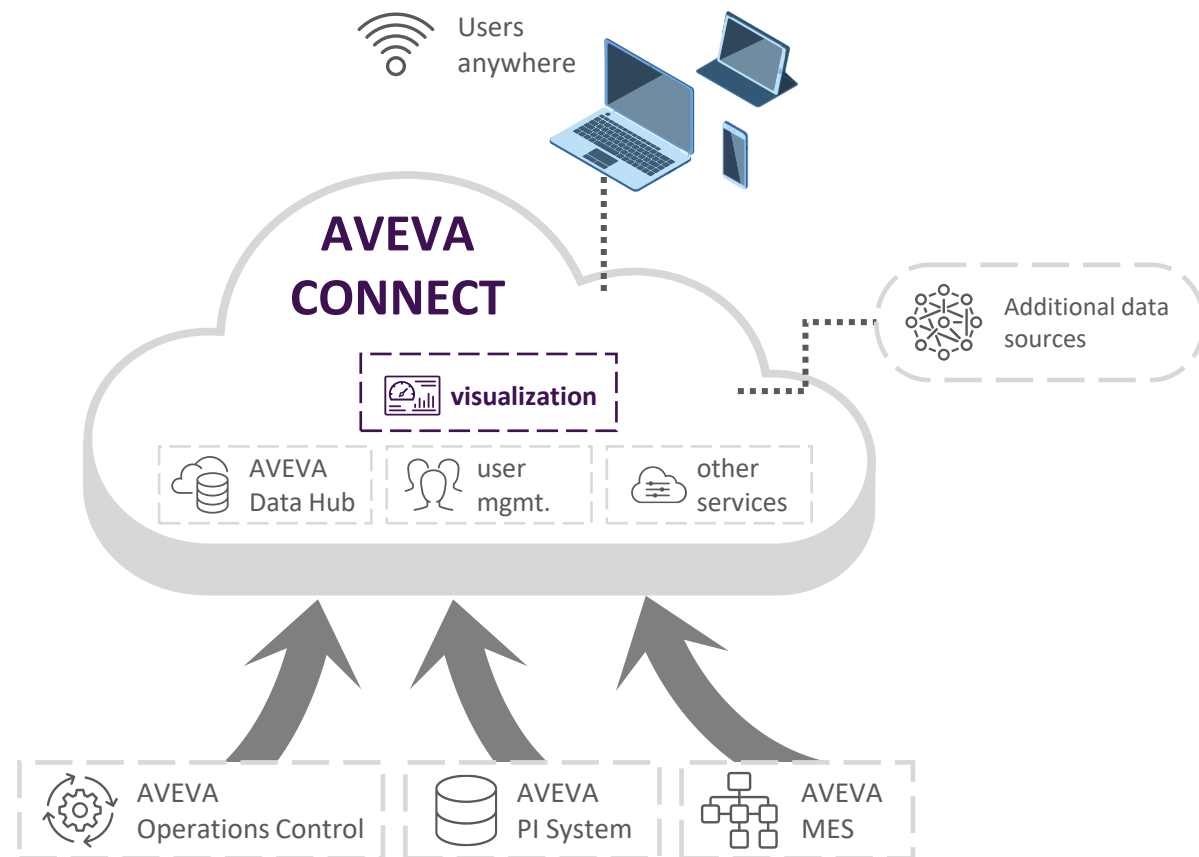
More display and user management capabilities

Enterprise visualization – Connect visualization services

Composable dashboards for visualizing AVEVA Data Hub and other data sources



- Self-service
- Data from Connect and AVEVA Data Hub
- Display sharing with experts outside the organization



Supporting the analytics needs on different levels

Visual correlations & ad-hoc calculations



Inspect total power consumption of different assets to identify any abnormal behavior

Simple or more advanced streaming analytics

Name	Expression
BOW	IF Weekday('*') = 1 THEN 't' ELSE 't' - 86400 *
AvgWTD	TagAvg('Feed Rate', BOW, '*')
MaxDif	IF Weekday('*') = 1 AND '*' = Bod('*') THEN 0 EI
TarWTD	Roundfrac(Convert(Convert('Daily Target' * Weekl
ActWTD	Roundfrac(Convert(Convert(Int(TagTot('Feed Rate
CurDif	Abs(TarWTD-ActWTD)

Unit % uptime, the overall efficiency, total power

Data science & advanced analytics

AVEVA™ Data Hub ▶ Data Views

Name	Description	Description...	Data View Shape
Wind Turbine Analysis			

Filter Fields... + Add Edit

X Remove ↑ ↓

Index Field

Timestamp

Index

Grouping Fields

Name

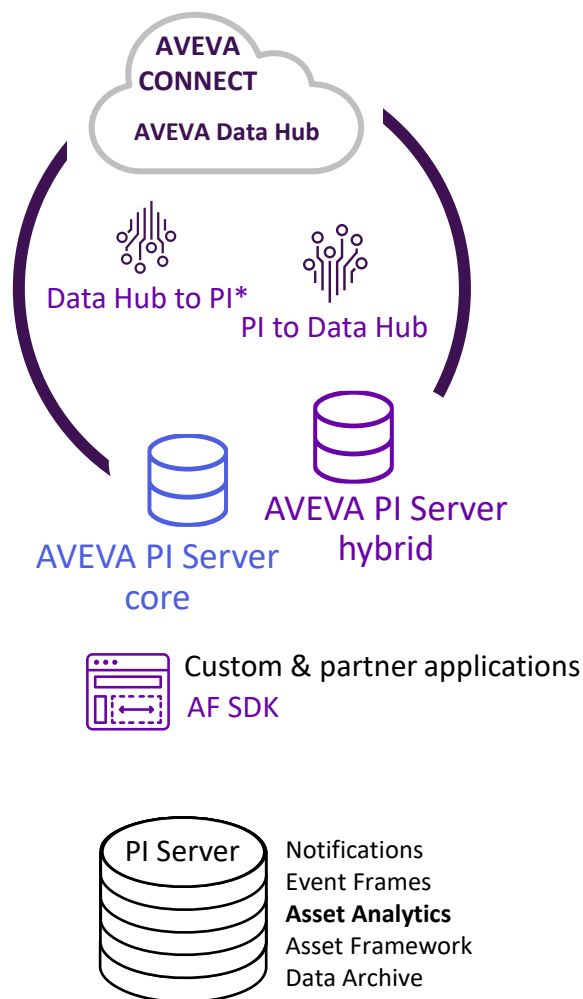
Add a Grouping Field

Query1 AVEVA Assets

Timestamp	Name	Turbine Name	Rotor Speed Value
Oct 18, 2022, 12:00:00 AM	Wind Turbine 01	WTG	12.065339659452141
Oct 18, 2022, 1:00:00 AM	Wind Turbine 01	WTG	12.173735265638864
Oct 18, 2022, 2:00:00 AM	Wind Turbine 01	WTG	12.615554143718393
Oct 18, 2022, 3:00:00 AM	Wind Turbine 01	WTG	8.111737703558182
Oct 18, 2022, 4:00:00 AM	Wind Turbine 01	WTG	13.222879141151453
Oct 18, 2022, 5:00:00 AM	Wind Turbine 01	WTG	12.025364649177864
Oct 18, 2022, 6:00:00 AM	Wind Turbine 01	WTG	11.58120830274004
Oct 18, 2022, 7:00:00 AM	Wind Turbine 01	WTG	13.188860061406111
Oct 18, 2022, 8:00:00 AM	Wind Turbine 01	WTG	13.421918409665953
Oct 18, 2022, 9:00:00 AM	Wind Turbine 01	WTG	13.389239639778693

Predict blockages in fuel mills before they cause outages

AVEVA PI Server; the core of on-premises analytics



Diagnostics for Asset Analytics Available today

- Displaying the performance and health of calculations

Increase Asset Analytics performance In development

Out of Order Events Improvements

- Enabling large writes and reads at the same time

Update Manager Improvements

- Ability to quickly serve consumers after an outage or change

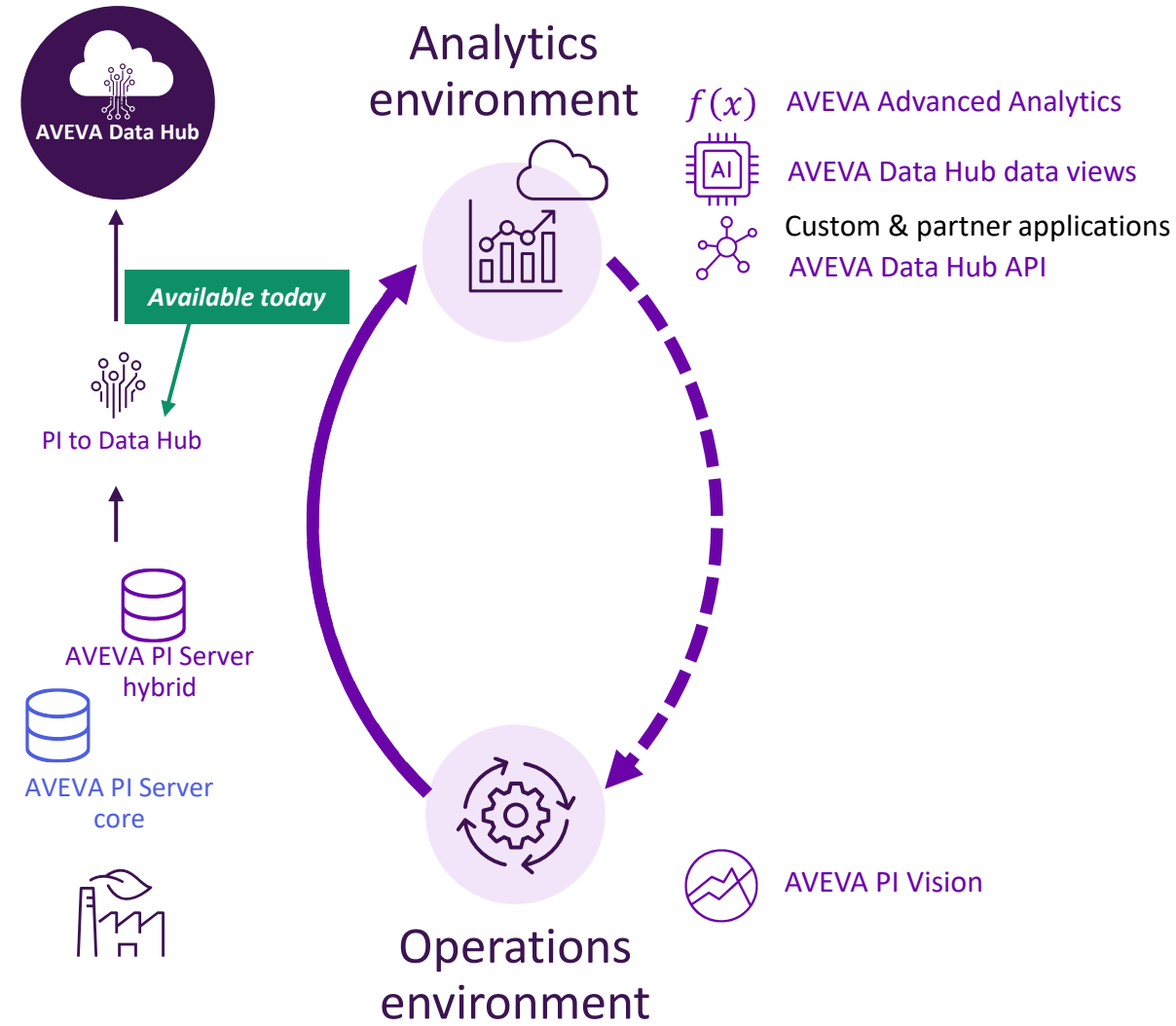
More PI Data Archive Efficiencies

- Implement efficiencies to remove identified bottlenecks

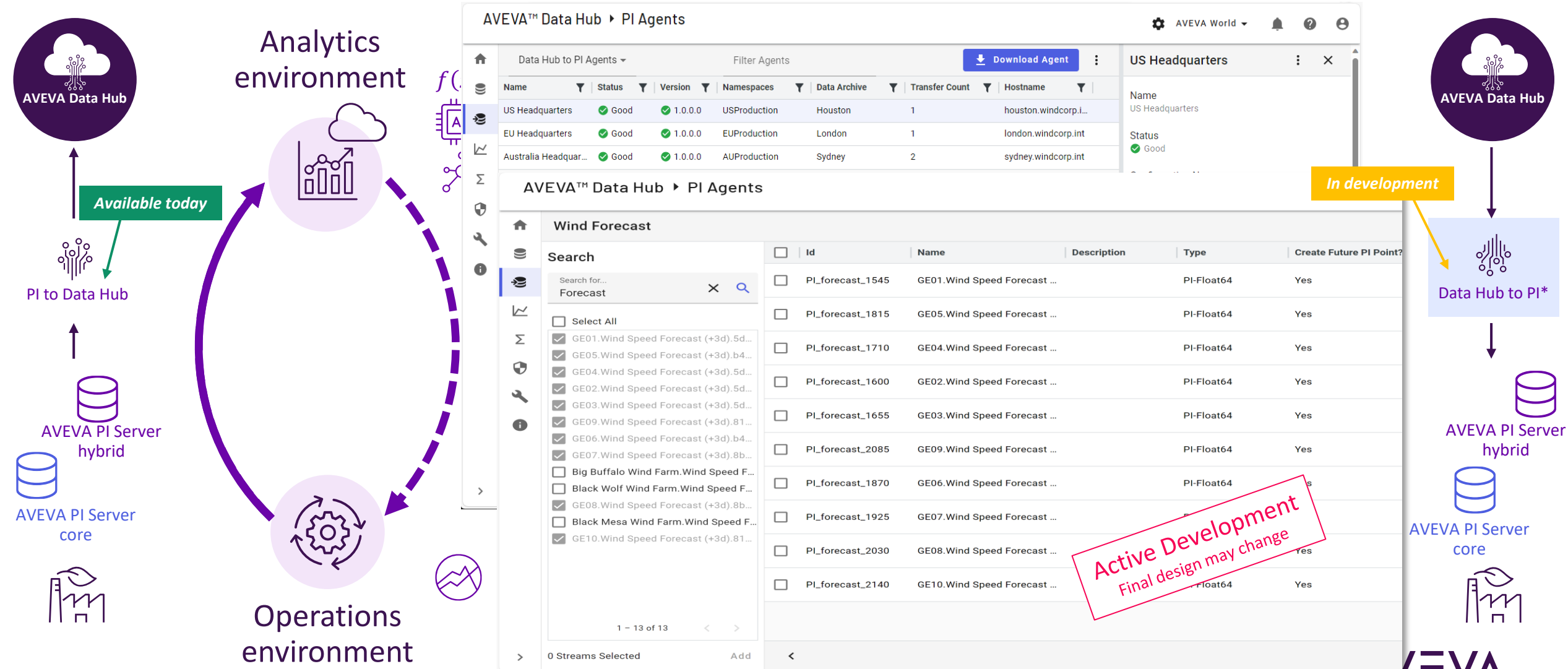
.NET Standard AF SDK In development

- New AF SDK version so PI System data can be more easily consumed by modern applications

Connect your operations domain experts and data scientists



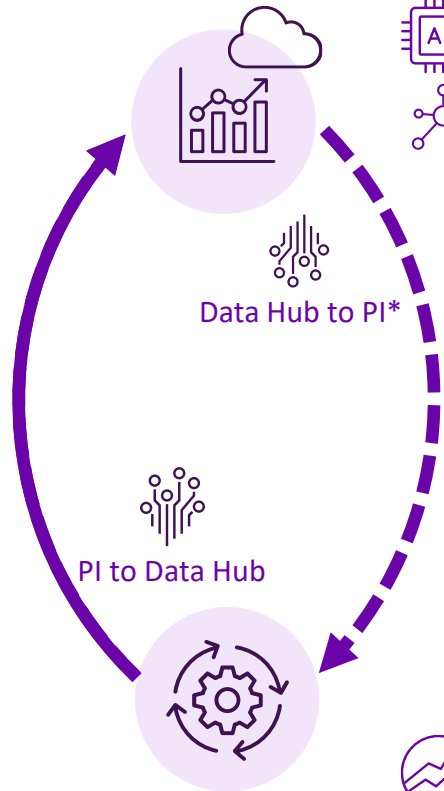
Connect your operations domain experts and data scientists



Results in the hands of domain experts, using familiar tools

Analytics environment

- $f(x)$ AVEVA Advanced Analytics
- AI AVEVA Data Hub data views
- Custom & partner applications
- AVEVA Data Hub API

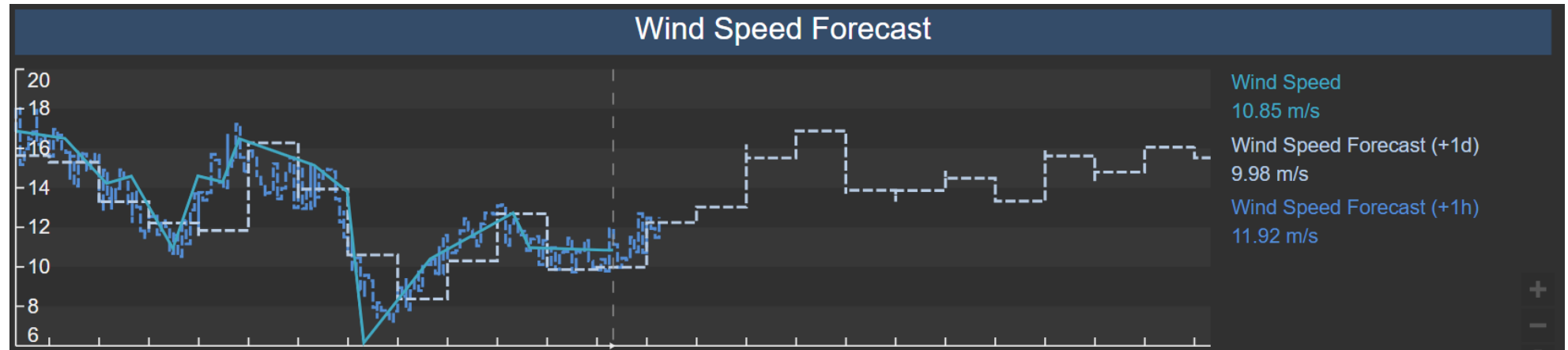


Data Hub to PI*

PI to Data Hub

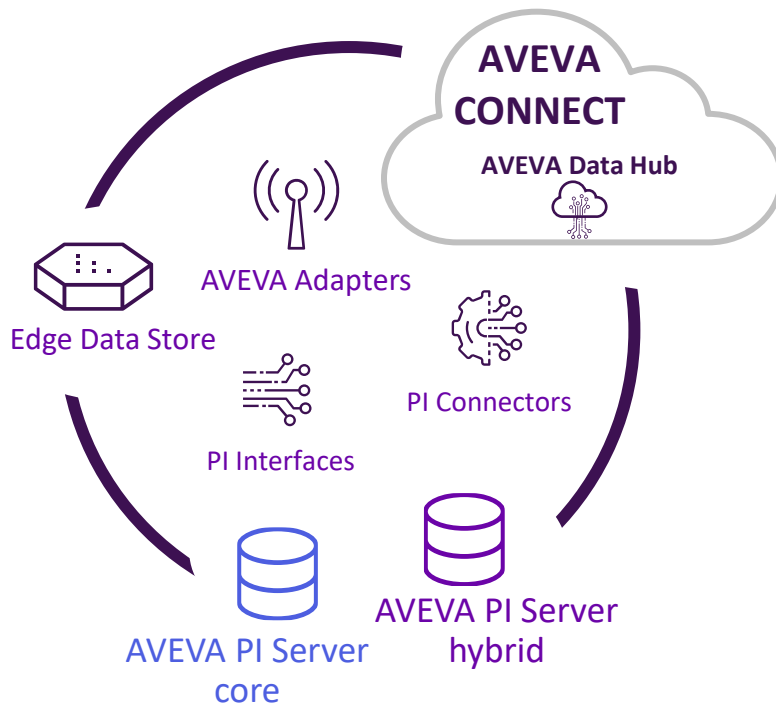
Operations environment

- AVEVA PI Vision



Data connectivity

No matter where your data resides, AVEVA has the technologies to collect & store it



Available today

Remote device management

- Install & monitor edge modules using AVEVA Edge Management

Edge Data Store and AVEVA Adapter Edge Modules

- Docker images that support remote device management; includes OPC UA & MQTT

AVEVA Adapter failover

- Available with OPC UA and MQTT Adapters

Stability, performance, and security updates

- PI System Connector
- Batch, PitoPI, OPC DA, OPC A&E Interfaces

In development

Remote software management

- Configure & monitor edge modules using AVEVA Data Hub

More edge modules

- Release more AVEVA Adapters as edge modules to configure and monitor via AVEVA Edge Management

Extend failover to more AVEVA Adapters

- Release more Adapters with failover capability

Continued Support and Investment

- Connectors: Relay, PI System, OPC UA
- Various Interfaces

Start of a hybrid journey

Investing in the on-premises and complementing it with unparalleled capabilities of cloud and edge

Reduce IT effort by enabling single sign-on (SSO)

Across AVEVA PI Server hybrid, AVEVA PI Vision, AVEVA PI DataLink, PI Web API, AVEVA Adapters

Focusing on stability, security and reliability

Prioritizing the must-haves and doing what is right for AVEVA PI Server core

Diagnostics for Asset Analytics

Displaying the performance and health of calculations in PI System Explorer

Data connectivity

Edge Data Store and AVEVA Adapter Edge Modules
AVEVA Adapter failover



Available Today

Support the analytics needs across the enterprise

Increase performance of Asset Analytics
Leverage Data Hub advanced analytics capabilities
Write the results back from Data Hub to PI Server

.NET Standard AF SDK

New AF SDK version for modern applications

Support claims-based authentication in PI Vision

Support a domainless architecture

Advanced tag search in PI Vision

Expand data connectivity capabilities

Remote software management, More edge modules,
Expand Adapter failover

In Development



Use cases we are researching

Support the enterprise sustainability initiatives

Leverage the industry-specific library of templates
Publish to AF across the enterprise

Support hybrid architectures

Azure SQL Database and Azure SQL Managed Instance as host for AF database and PI Vision database

Enable partners to provide service offering for monitoring health of the PI System deployments

Make deployment and health data of PI System available in AVEVA Data Hub where it can be easily and securely accessed by partners

Accelerate support of process monitoring and display management needs in PI Vision

More display editing capabilities
More process monitoring capabilities
More display and user management capabilities

Assets handling across PI Data Infrastructure

Collection, storage, and transfer of asset metadata (Edge, Adapters, Data Hub to PI)

Event handling across PI Data Infrastructure

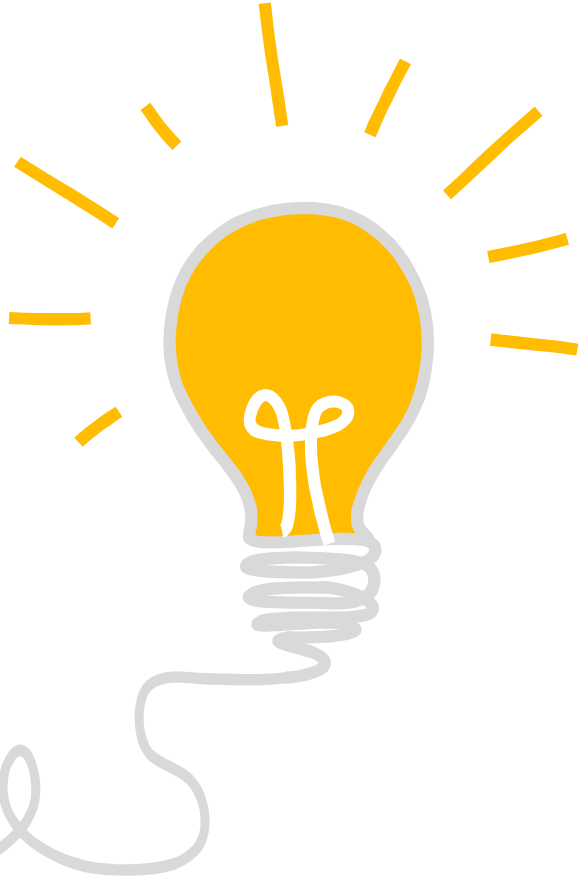
Collection, storage, and transfer of event data (Edge, Adapters, PI to Data Hub)



Future Considerations



Influence the AVEVA PI System roadmap



<https://feedback.aveva.com>

Let us know your product feedback!



Mana Afshari, PhD

Director, Portfolio Management – AVEVA PI System

- AVEVA
- mana.afshari@aveva.com

Questions?

Please wait for the microphone.
State your name and company.



Please remember to...

Navigate to this session in the mobile app to complete the survey.



Thank you!

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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.

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