
AVEVAWORLD

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APRIL 8, 2025

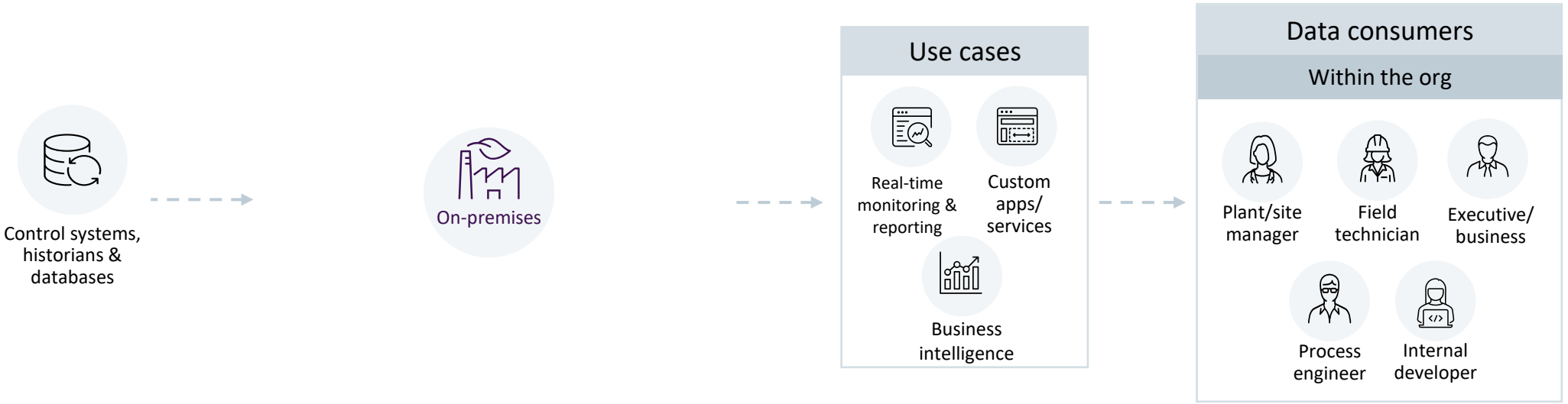
AVEVA™ PI System™ and AVEVA™ PI Data Infrastructure Roadmap

Mana Afshari, PhD – Head of Portfolio, AVEVA PI System

AVEVA

Supporting evolving data needs

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



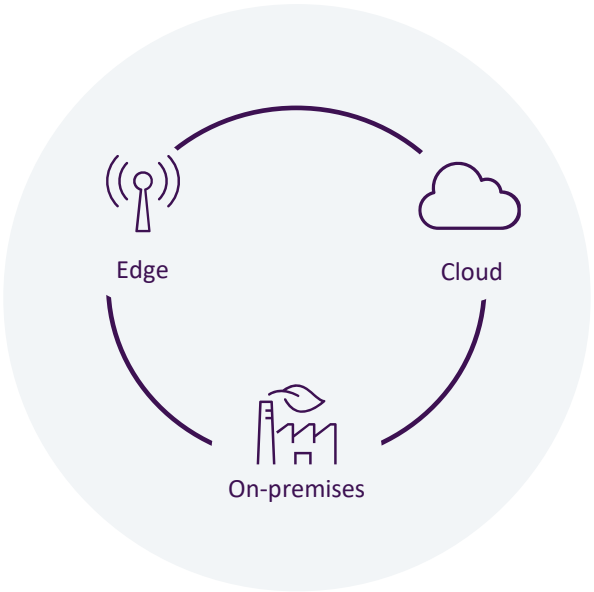
Supporting evolving data needs

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

Remote assets, sensors, IIoT devices

Control systems, historians & databases

Other AVEVA & third-party sources



Use cases

- Real-time monitoring & reporting
- Custom apps/ services
- Business intelligence
- Enterprise visualization
- Data / analytics
- Integrated AI / ML
- Data sharing
- Remote operations

Data consumers

Within the org

- Plant/site manager
- Field technician
- Executive/ business
- Process engineer
- Data scientist/ analyst
- Internal developer

Industrial ecosystem

- Equipment manufacturer
- Service provider
- App developer

AVEVA PI Data Infrastructure

Fully integrated hybrid

AVEVA Edge Data Store, AVEVA PI Server, CONNECT data services

AVEVA Adapters, PI Connectors, PI Interfaces, PI to CONNECT, CONNECT to PI

Investment protection

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

Hybrid value delivered over time

Leveraging CONNECT

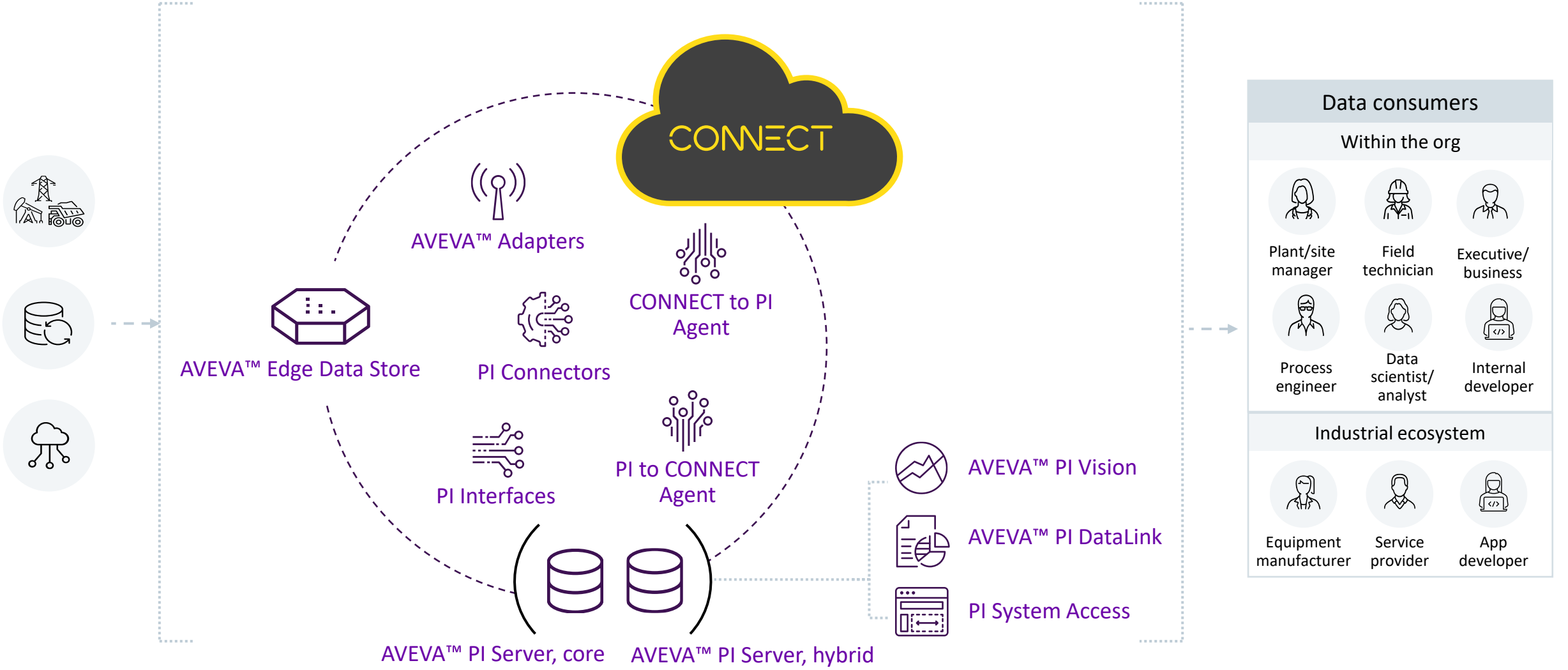
Enterprise-level features

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

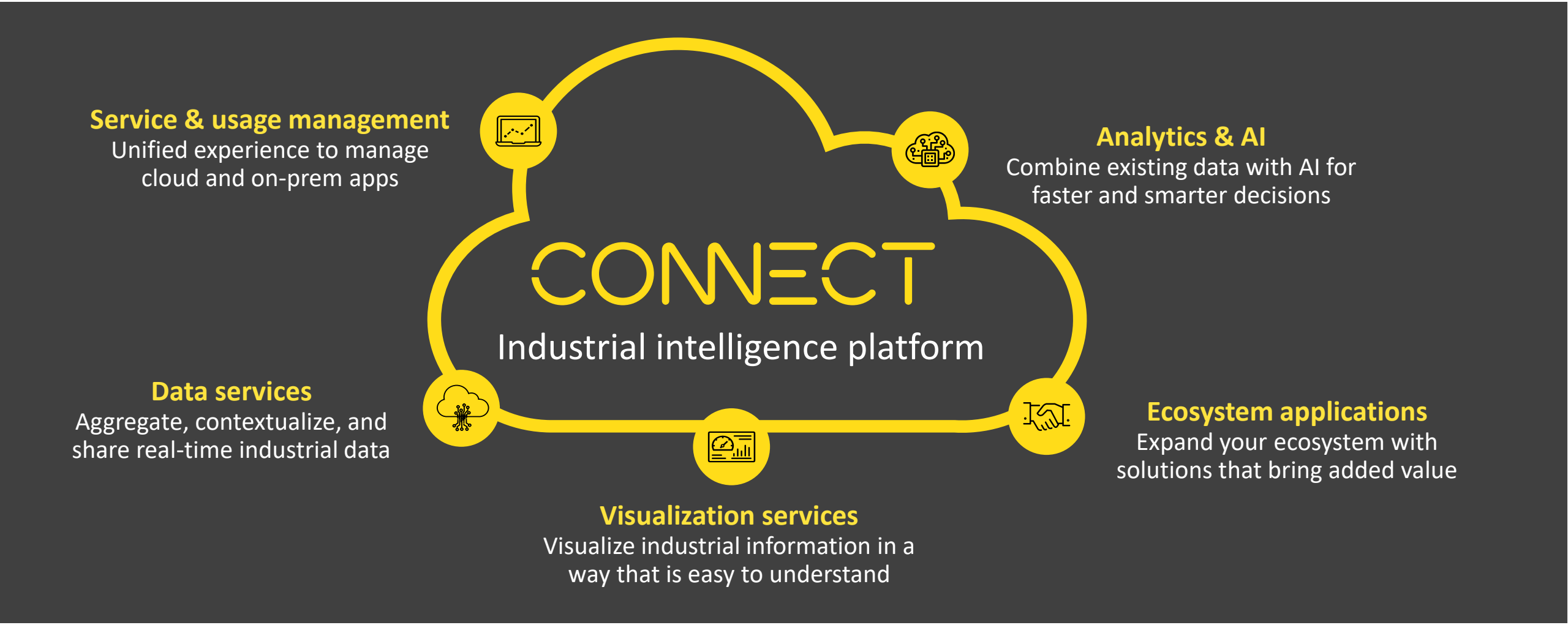
New aggregate tag licensing option

The visual on this slide is not an architecture diagram

Extending the on-premises value with a hybrid offering



Open and neutral, providing rich insights for your unified industrial ecosystem

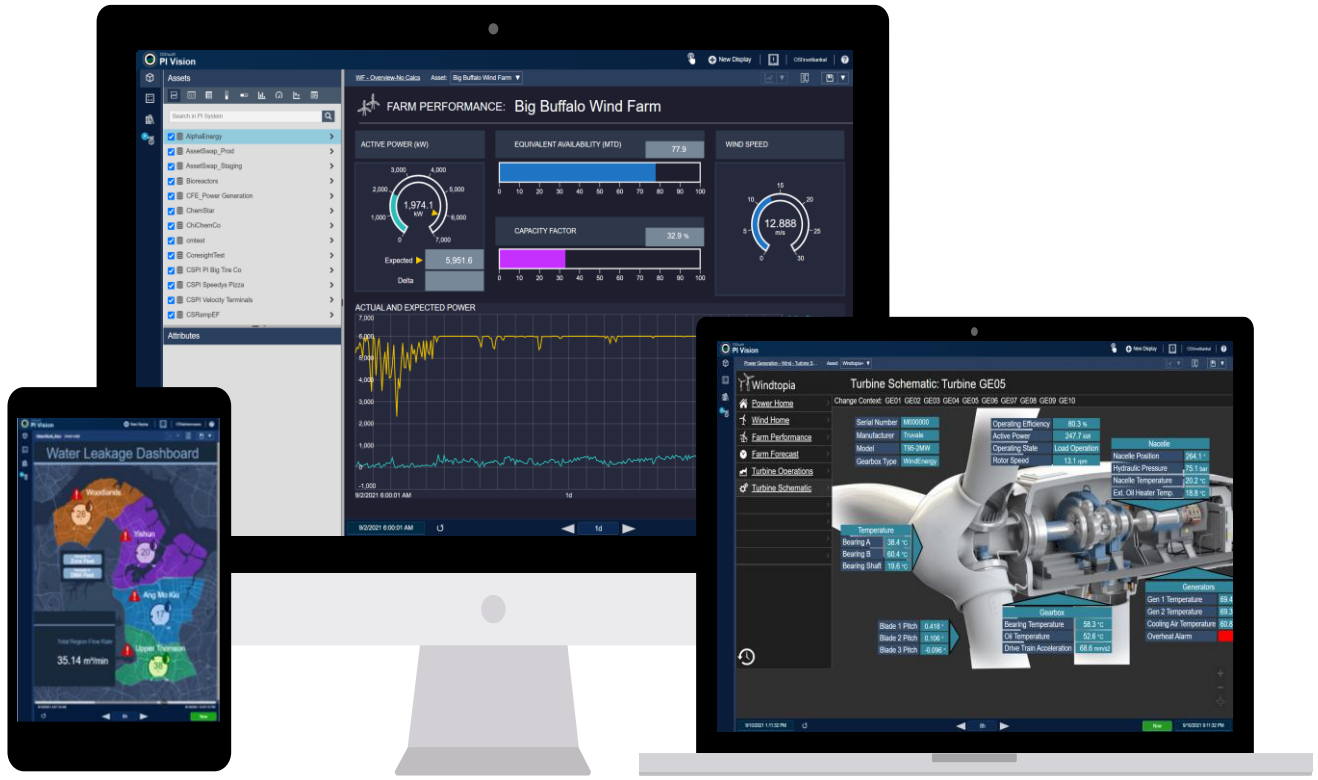


AVEVA

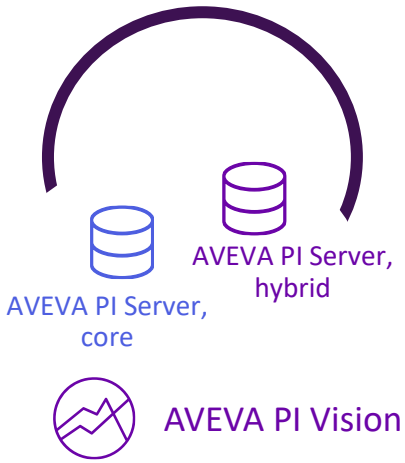
AVEVA™ PI Vision™

Visualize AVEVA PI Server data

- Easy to use, self-service, scalable visualization solution
- Access data from any web browser, including mobile device browsers
- Organize and share displays across organization



Powerful capabilities delivered over time



2020
Tag-based calculations & display usage monitoring

2021
Asset-based calculations & offline display management

2022
Enhanced events analysis & display standardization

2023
Claims-based authentication (main site)

2023 SP1
Claims-based authentication (admin site & display utility)
Advanced Tag Search

2024
Time series table symbol
Bulk edit symbols
Font and font size

2025
In development

New process monitoring and display management capabilities

Supporting end users and PI Admins

AVEVA™ PI Vision™

New Display | OSI\adutta

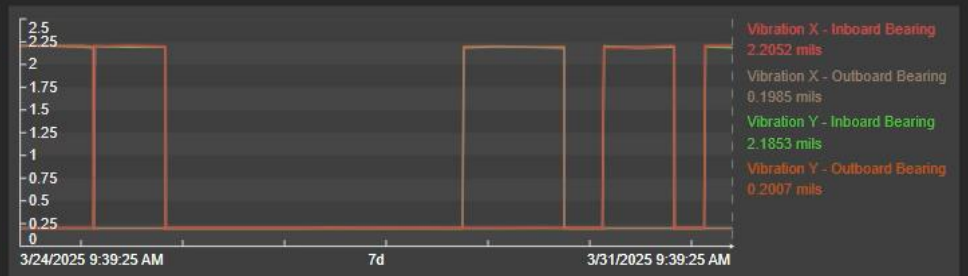
Petrolux DS FCC Pump * *(read-only)* Asset: ANA FCC Pump 1

Petrolux Refining

- Refinery
  - FCC Rollup
  - Dashboard
  - PFD Overview
  - Key Metrics
  - Feed Quality
  - IOW
- Equipment
  - Pumps
  - Exchangers
- Analysis

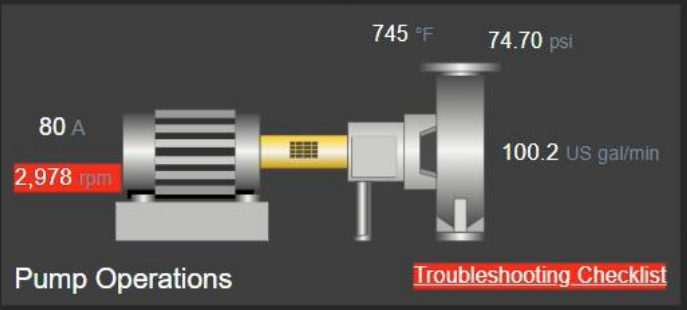
ANA FCC Pump 1

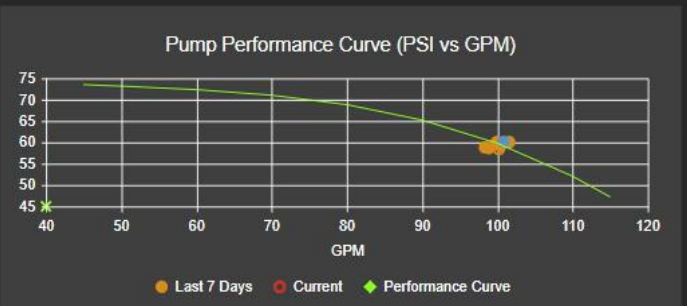
Name	Value
ANA FCC Pump 1|Manufacturer	Federation Pumps
ANA FCC Pump 1|Serial Number	NCC1701A
ANA FCC Pump 1|Asset	ANA FCC Pump 1
ANA FCC Pump 1|FCC	ANA FCC 1
ANA FCC Pump 1|Refinery	Anacortes Refinery
ANA FCC Pump 1|Date - Installed	1/1/2017 1:00:00 AM
ANA FCC Pump 1|Date - Last Service	3/9/2025 9:30:00 AM



Hours - Run Since Installed
72,271 h

Hours - Run Since Last Service
527.5 h





High Vibration Events

Event Name	Start Time	End Time	Reason	Acknowledged By
ANA FCC Pump 1 Pump Upset 2025-03-31 00:18:07	3/31/2025 3:18:07 AM	In Progress		
ANA FCC Pump 1 Pump Upset 2025-03-30 00:22:07	3/30/2025 3:22:07 AM	3/30/2025 8:00:07 PM		
ANA FCC Pump 1 Pump Upset 2025-03-28 15:17:07	3/28/2025 6:17:07 PM	3/29/2025 6:00:07 PM		
ANA FCC Pump 1 Pump Upset 2025-03-25 00:18:07	3/25/2025 3:18:07 AM	3/25/2025 8:00:07 PM		
ANA FCC Pump 1 Pump Upset 2025-03-24 13:27:07	3/24/2025 4:27:07 PM	3/25/2025 3:00:07 AM		

Bearing Temperature Events

Event Name	Start Time	End Time	Reason	Acknowledged By
ANA FCC Pump 1 Pump Upset 2025-03-31 01:50:07	3/31/2025 4:50:07 AM	In Progress		
ANA FCC Pump 1 Pump Upset 2025-03-30 01:49:07	3/30/2025 4:49:07 AM	3/30/2025 9:00:07 PM		
ANA FCC Pump 1 Pump Upset 2025-03-28 16:49:07	3/28/2025 7:49:07 PM	3/29/2025 7:00:07 PM		

Cavitation Events

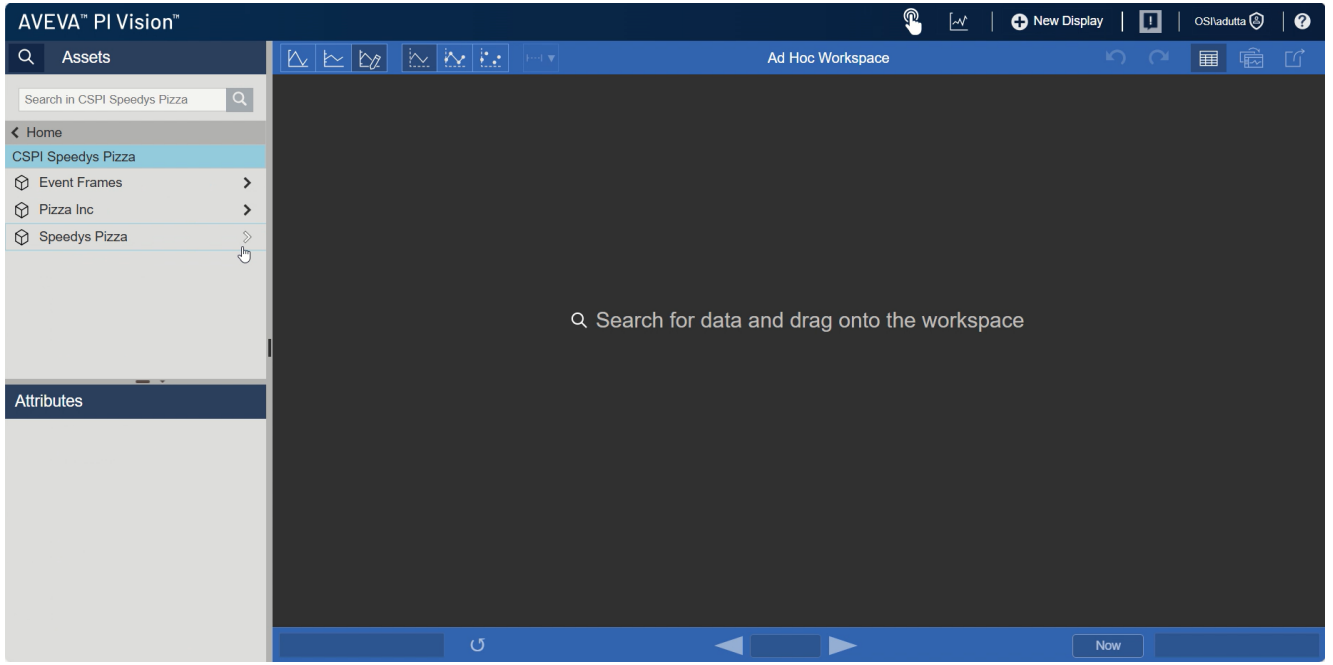
Event Name	Start Time	End Time	Reason	Acknowledged By
ANA FCC Pump 1 Pump Upset 2025-03-30 11:43:07	3/30/2025 2:43:07 PM	In Progress		
ANA FCC Pump 1 Pump Upset 2025-03-28 11:43:07	3/28/2025 2:43:07 PM	3/29/2025 2:00:07 PM		
ANA FCC Pump 1 Pump Upset 2024-11-28 11:44:07	11/28/2024 2:44:07 PM	In Progress		

3/24/2025 9:39:25 AM ↺ ◄ 7d ► Now 3/31/2025 9:39:25 AM

AVEVA

What is coming in AVEVA PI Vision 2025

- Ad hoc workspace improvements
- Support cloud-managed SQL for hosting PI Vision database
- Collection sorting enhancements
- Tooltip configuration
- Trend and table symbol enhancements
- And more…



352 **PI Vision tooltip configuration**

VOTE

The user would like to have control ov
reference when hovering over a single

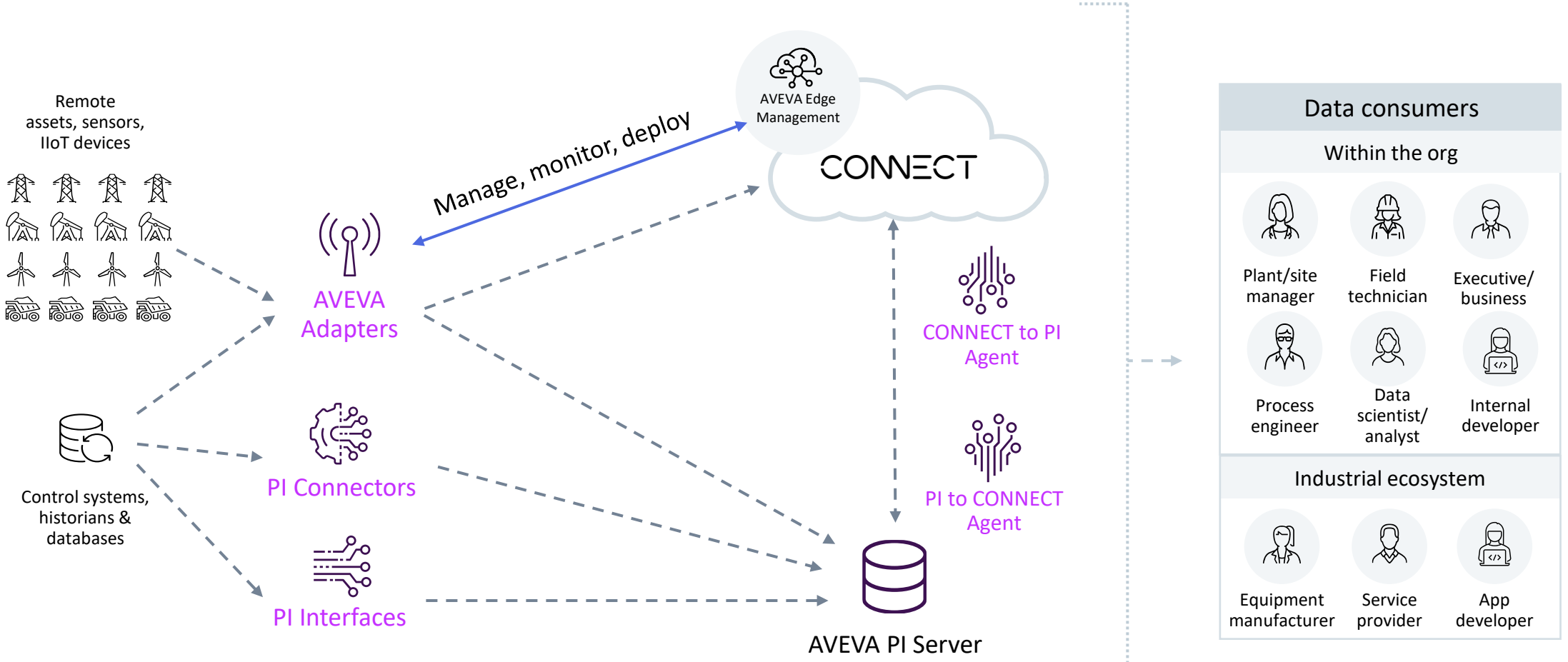
328 **Collection: Sort by**

VOTE

When creati , would like to sc
showi . Would like to be able

https://feedback.aveva.com

Data and associated context available where they are needed

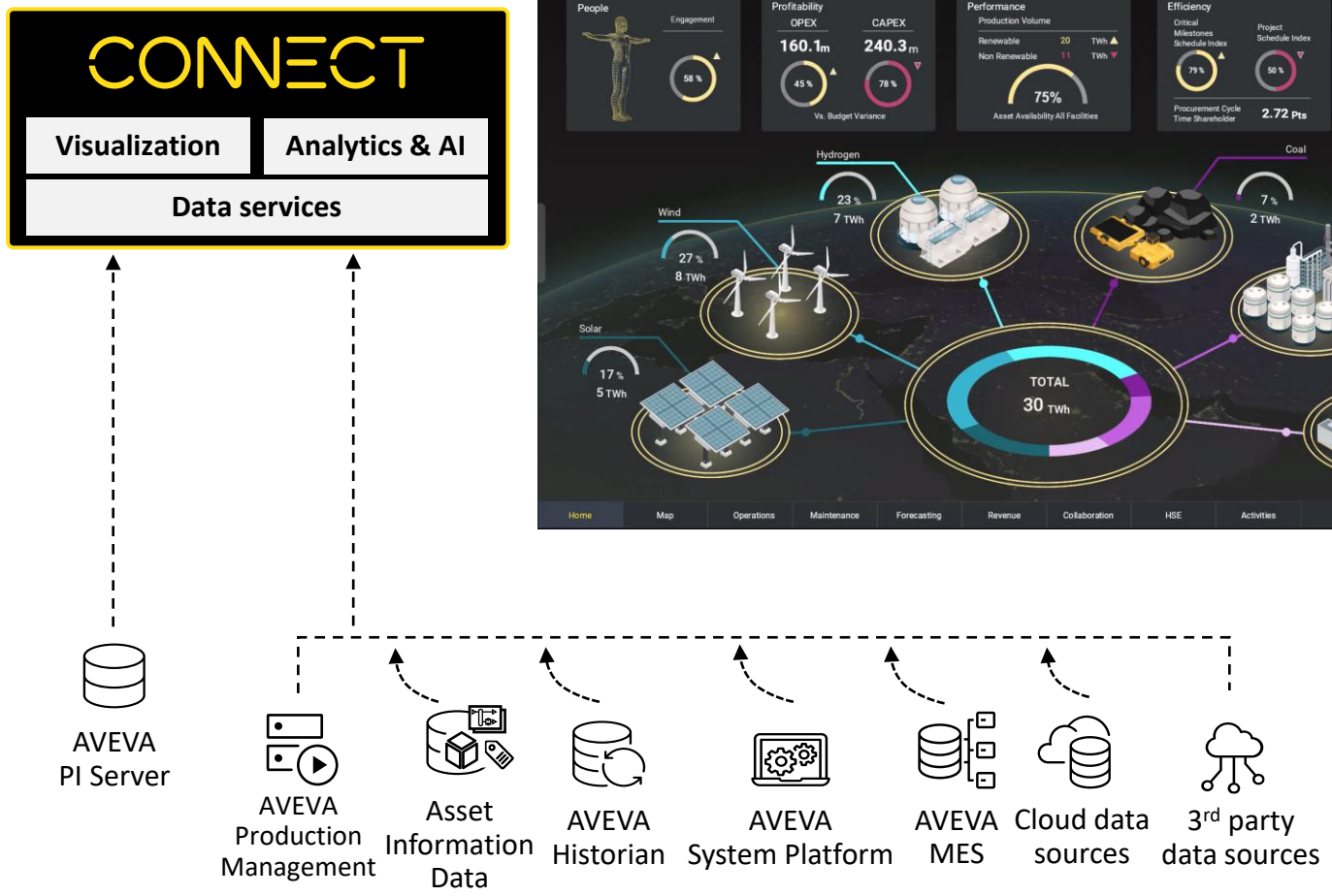


Data collection

Investing in products that fuel your data infrastructure

Technology	Recently Released	In Development
AVEVA Adapters	AVEVA Adapter for OPC UA (Polling) AVEVA Adapter for DNP3 (TLS 1.2 and 1.3) AVEVA Adapter for BACnet AVEVA Adapter for Modbus TCP	AVEVA Adapter for OPC UA (Alarms & Conditions) AVEVA Adapter for SDF AVEVA Adapter for RDBMS AVEVA Adapter for AEH AVEVA Adapter for MQTT
PI Connectors	PI Connector for OPC UA (Gen 2) PI System Connector PI Connector for CygNet	AVEVA PI System Connector Generation 3
PI Interfaces	PI Interfaces for Modbus Ethernet PLC PI Interface for OPC HDA PI Batch Interfaces for Emerson DeltaV PI Interface for Siemens SIMATIC batch	Various protocols: OPC DA, DNP3, RDBMS, UFL, PI to PI, Perfmon, SNMP, TCP Response

Elevate the value of operations data across your enterprise



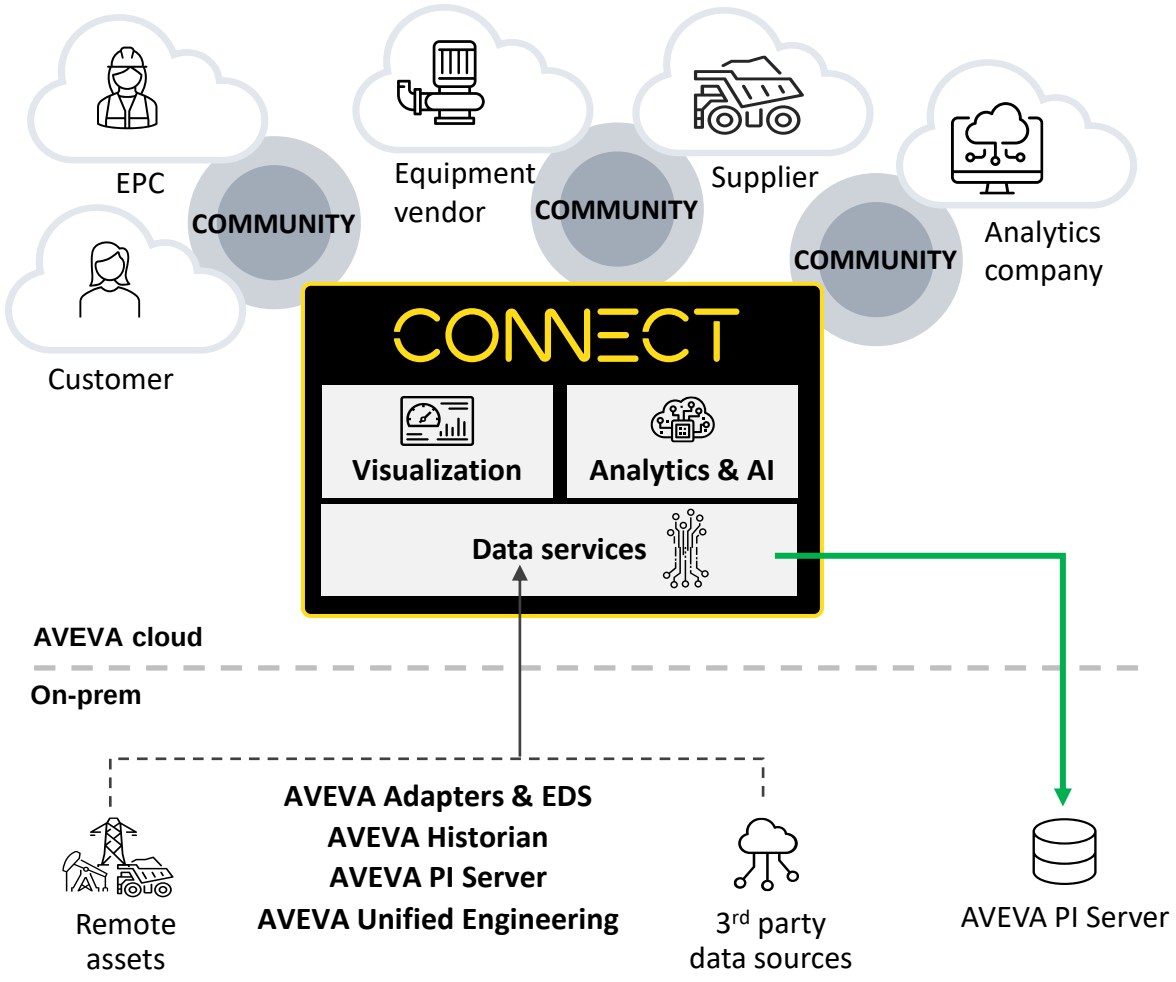
Centralize important data and view at scale from a single portal

Aggregate data from many sources across the enterprise

A single pane of glass to visualize all enterprise data

Perform advanced analytics and apply AI/ML models on operations data

Secure data sharing with trusted business partners



Enables collaboration among stakeholders, sharing information and creating mutual business value

Create secure data communities and share data with external stakeholders

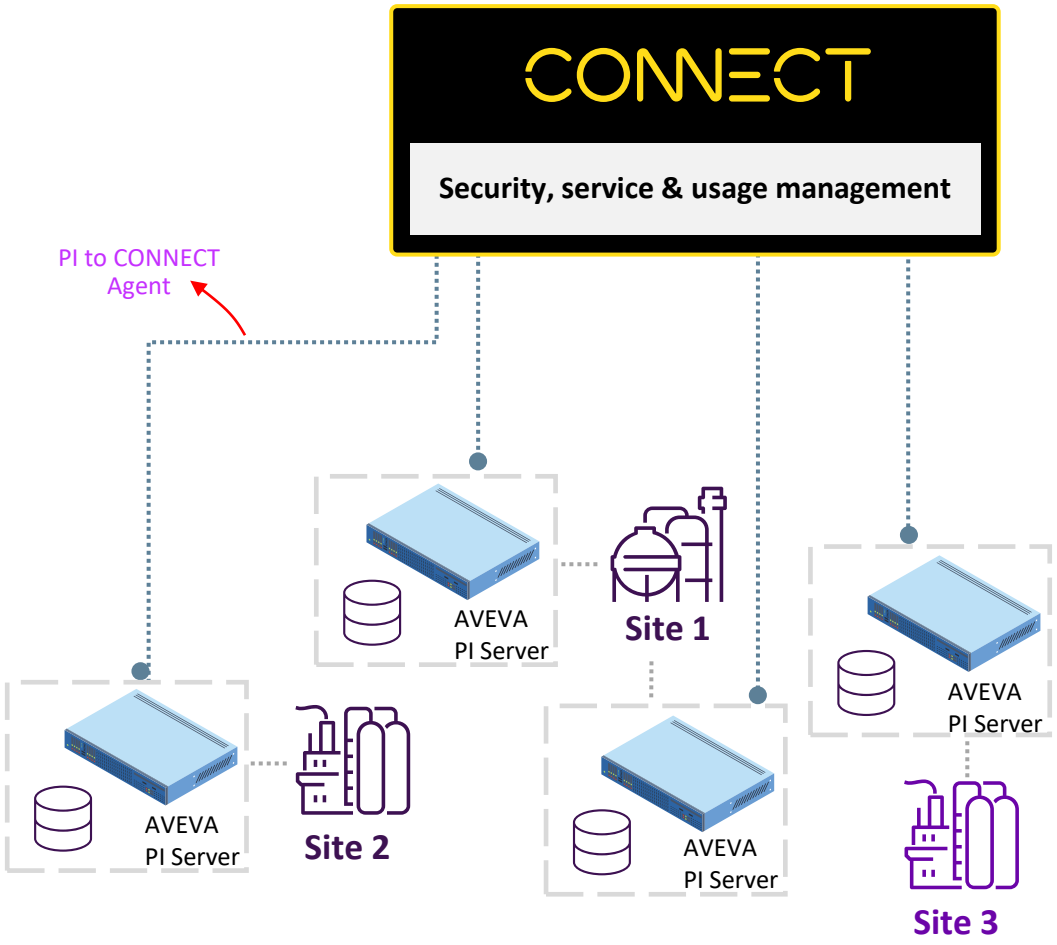
No transfer of data, access is granular and can be revoked at any time by the data owner

Data is always up to date

Transfer CONNECT data streams to PI Server tags

Aggregate tag licensing

Faster, more flexible way to meet changing business needs



Flexible architecture in support of enterprise needs

Automatic reporting of PI Server tag usage

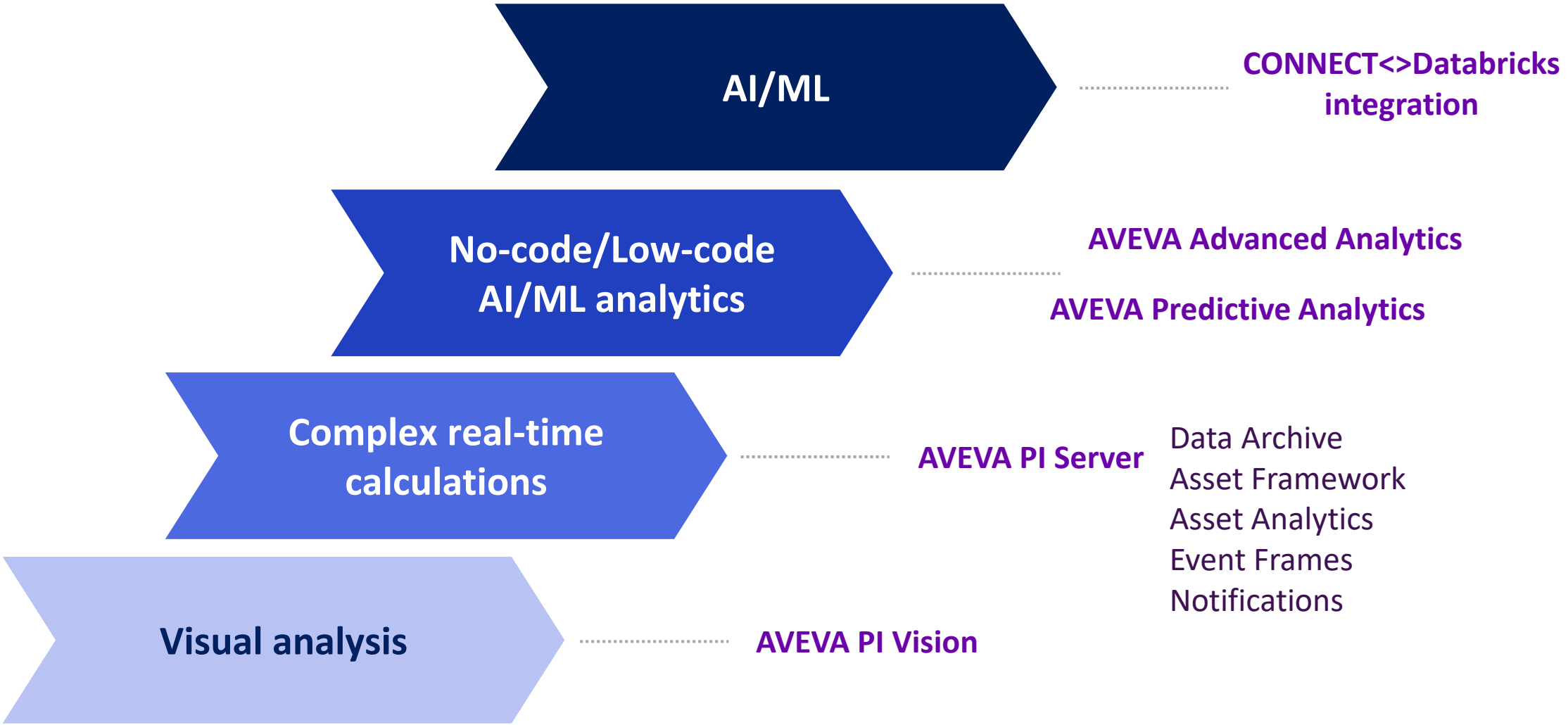
Central monitoring of tag usage in CONNECT

Spread tags across multiple PI Servers and flexibly architect deployments

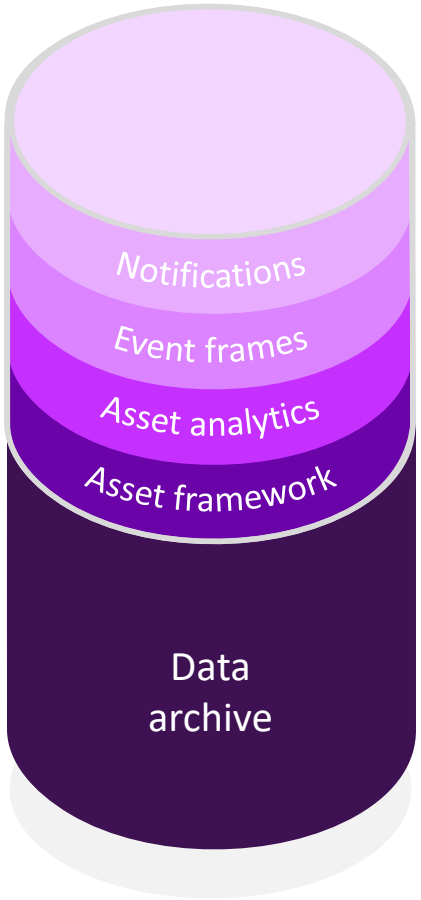
Deploy new PI Servers without any additional purchase

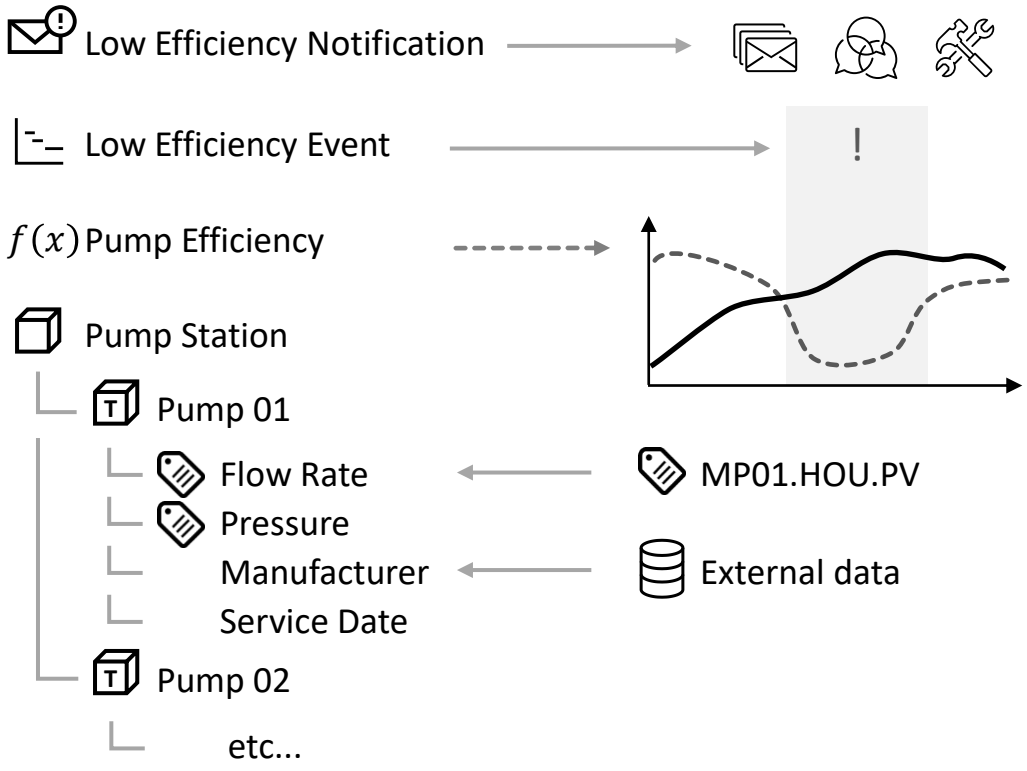
Tag count reporting using PI to CONNECT Agent

A holistic approach to supporting your analytics needs

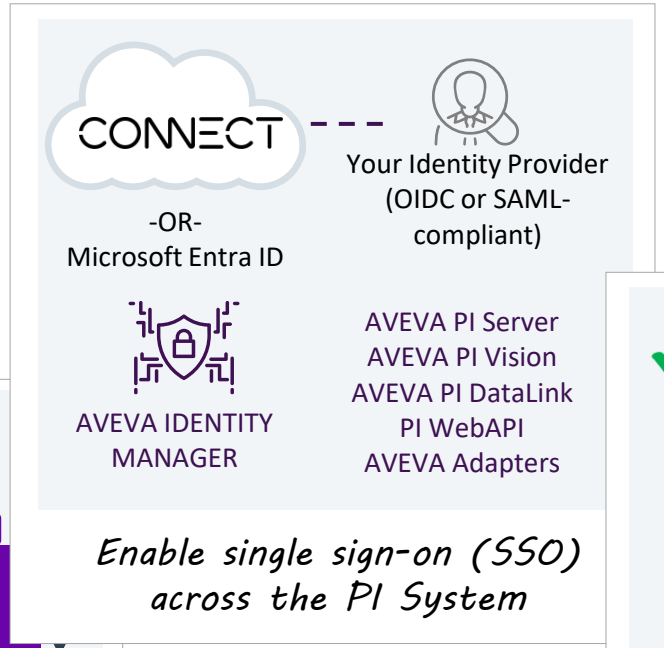


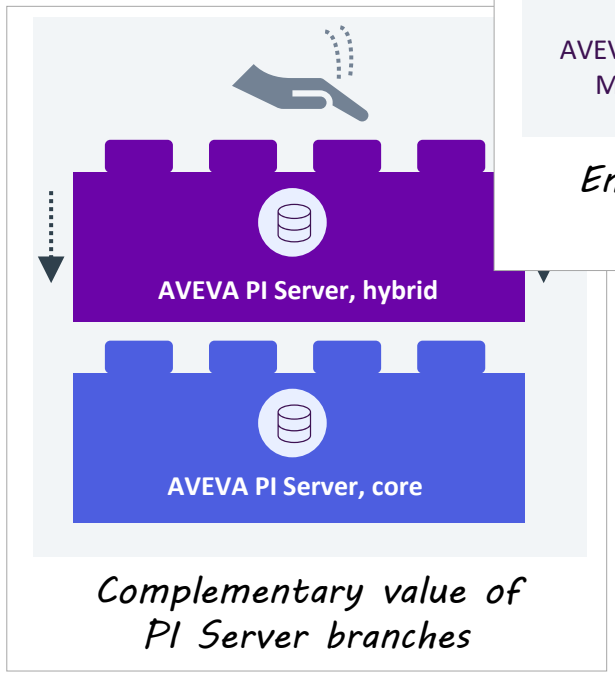
AVEVA PI Server

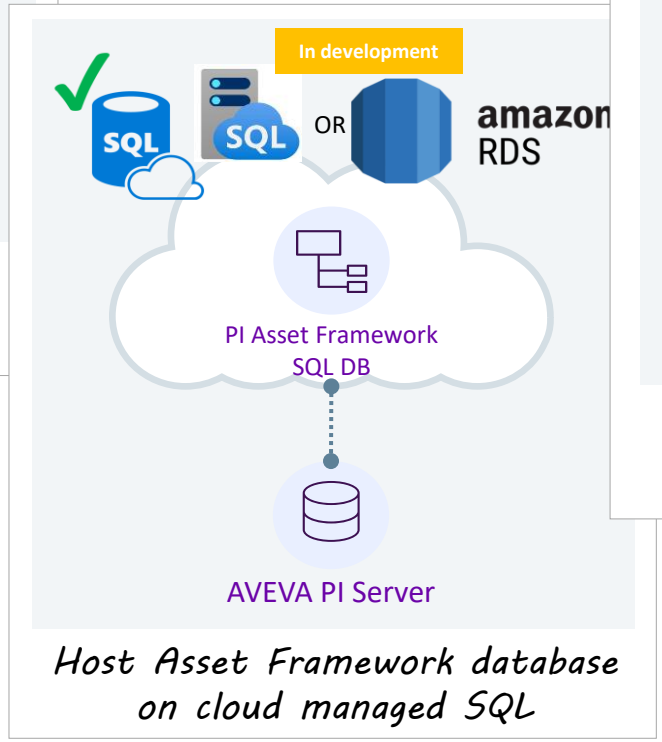


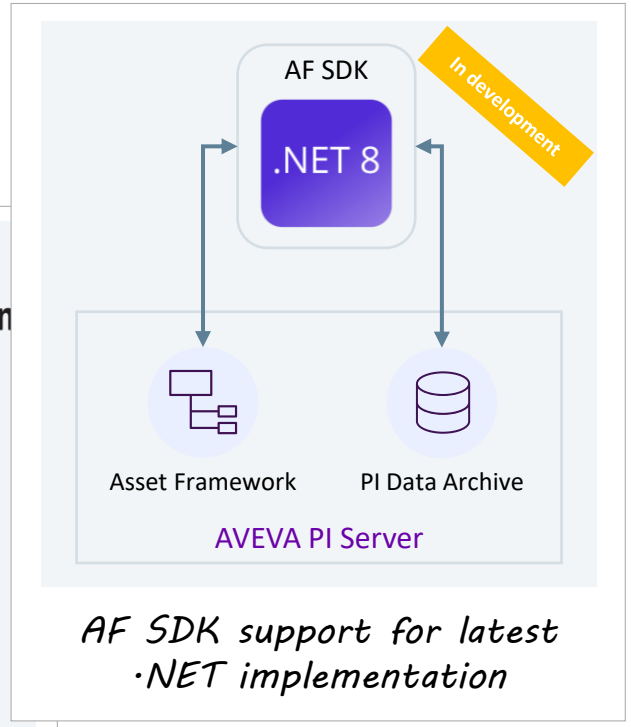


Lower total cost of ownership & align with modern IT landscapes



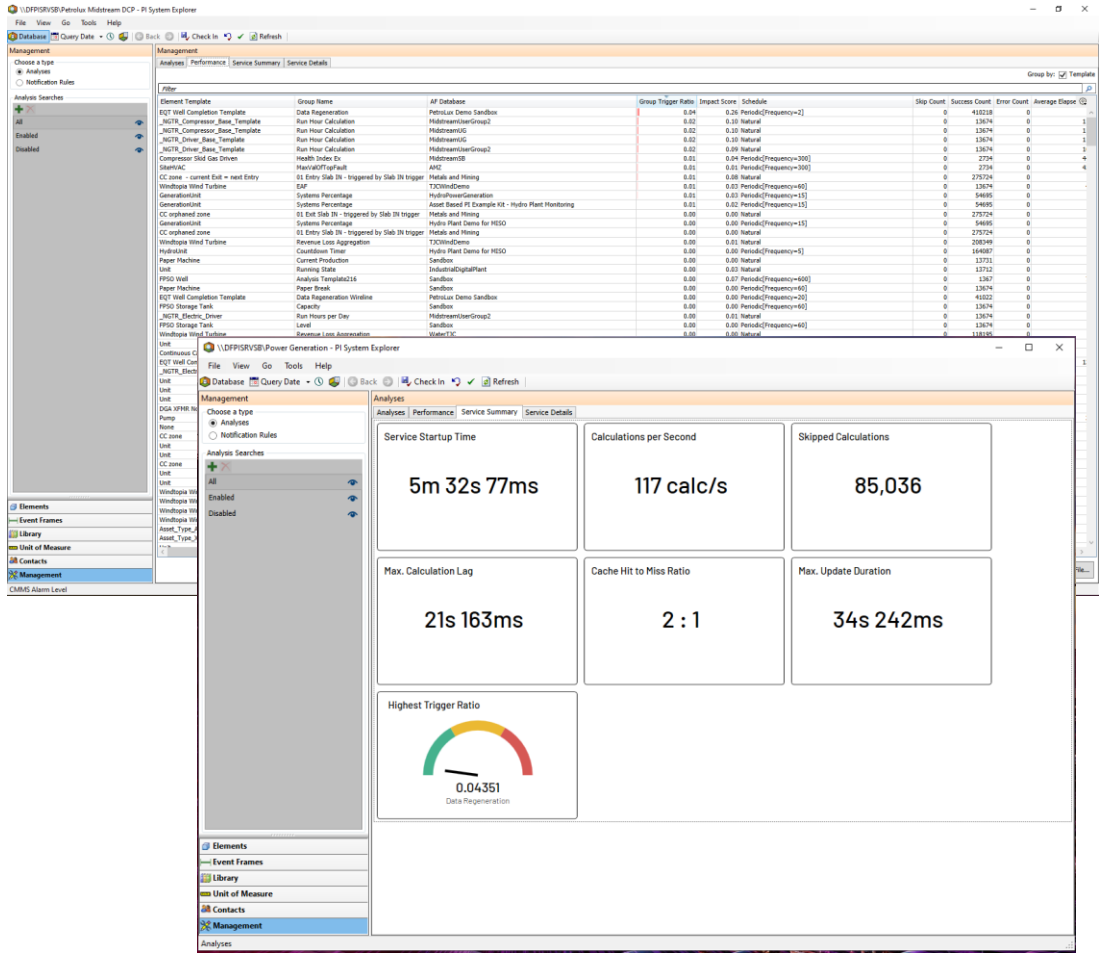






AVEVA PI Server: recent updates in support of analytics needs

Asset analytics health <> Identify problematic analyses



SIGNIFICANT PERFORMANCE INCREASE

AVEVA PI Server 2024

Increase the number of analyses without additional computing resources

Make larger scale recalculations with less performance impact

More quickly serve consumers after an outage or large-scale changes

Proven business outcome

Asset health

DCP Midstream saved
$20-25 million
in first year

Energy efficiency

Air Liquide achieved
10x ROI
in operational savings in first 8 months

Process optimization

ArcelorMittal expanded production by
10M additional tons
for $120M in added revenue

Quality tracking

Deschutes postponed
$8 million
capital upgrade

Compliance & sustainability

TasWater sped up response time by
13 hours
and saved the local oysters

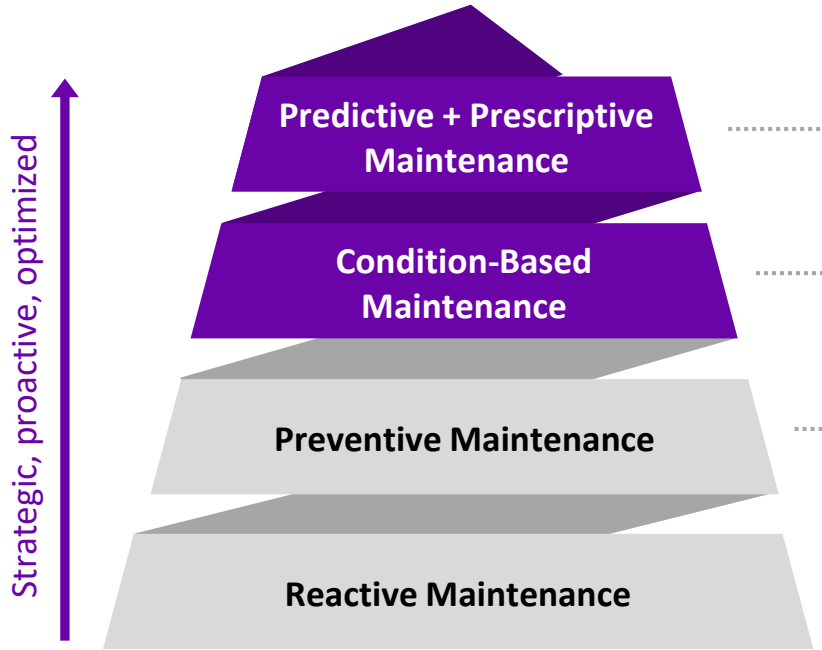
Safety & resilience

Qatar Power operated over
3,452 days
without lost-time accidents

Optimize your asset management strategy

Leverage AVEVA Predictive Analytics with PI Server data for AI and ML insights

Asset



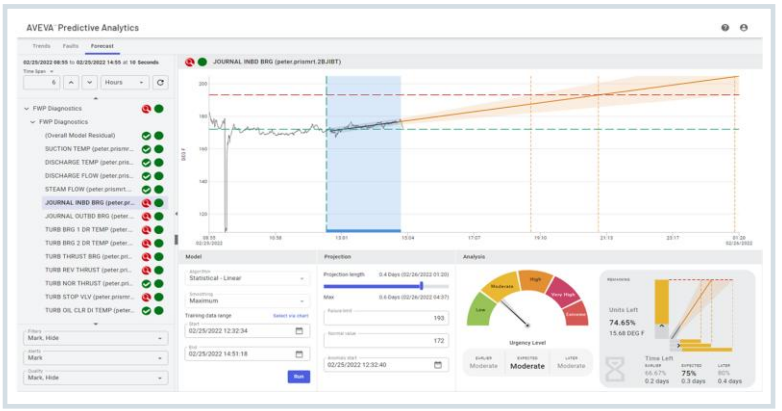
Diagnostics to predict impending failure

Rules-based logic using sensor data

Planned based on time or usage statistics

Run to failure

AVEVA Predictive Analytics



- ✓ Reduce downtime
- ✓ Minimize maintenance costs
- ✓ Prevent asset failure
- ✓ Extend asset/equipment life
- ✓ Improve safety

POWER GENERATION| CANADA

Ontario Power Generation (OPG) delivers safe, reliable, and sustainable power with AVEVA

Challenges

- Needed to optimize operations and maintenance of critical nuclear facilities.
- High-risk operating environment makes changes to operating procedures fraught with risk.
- Shifting from reactive to predictive operating models requires behavioral change.

Solution

- Deployed AVEVA™ PI System™ and AVEVA™ Predictive Analytics™ across its renewable and nuclear fleet, thereby enabling AI-infused condition-based maintenance.

Results

- **Up to $4 million (USD) efficiency savings achieved within the first 24 months of implementation and value accelerating.**
- **Reduced risk and increased operational efficiency throughout the fleet – reduction of 3,000 annual maintenance hours can be redirected to higher value corrective tasks.**
- **$400,000 (USD) saved in a single nuclear predictive analytics catch; $200,000 (USD) saved in a single HydroElectric (HEP) early warning catch.**

Learn more

Quality optimization, energy efficiency, and process optimization

AVEVA Advanced Analytics and AVEVA PI Data Infrastructure

Energy

Process

Quality

AVEVA Advanced Analytics

Anomaly Score
564.8

Alert Status
Normal

CONNECT

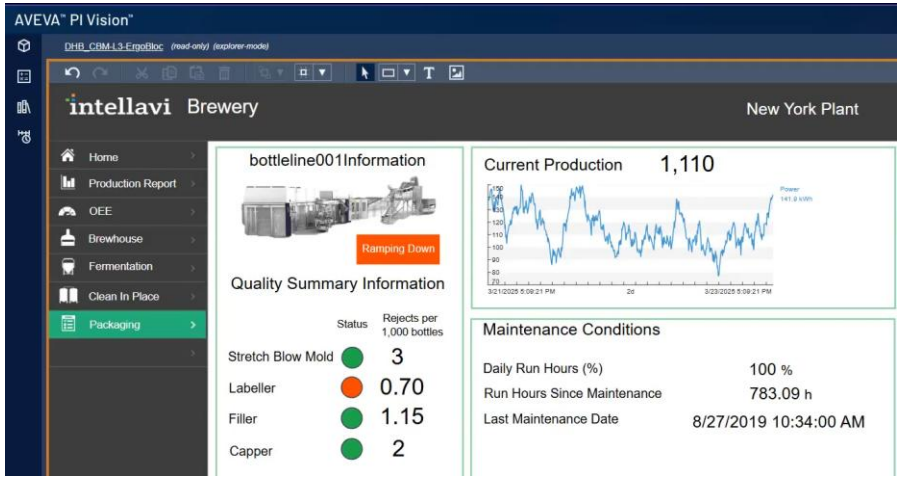
Analytics & AI

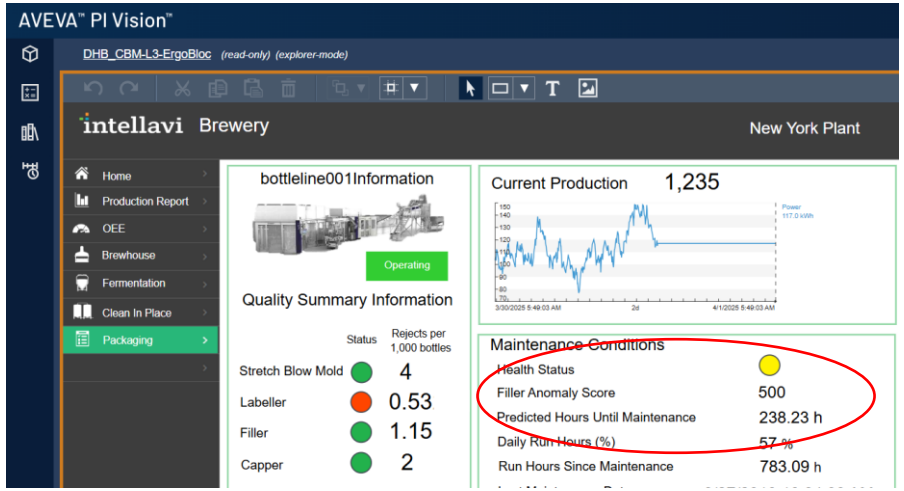
Data services

CONNECT to PI Agent

PI to CONNECT Agent

AVEVA PI Server





PHARMACEUTICALS & LIFE SCIENCES | SWITZERLAND, GLOBAL

F. Hoffmann-La Roche requires a reliable cloud-based data platform

Challenges

- Availability of relevant data for ROCHE's business analysts
- Terabytes in the AVEVA™ PI System™ become petabytes in a commercial datalake
- Complex server landscape to aggregate data at global scale
- Need of experts with high skill set to work with data
- Demonstration of project results in less than 3 months

Solution

- Deployed CONNECT™ data services as industrial data enablement infrastructure, and leveraged AVEVA™ Advanced Analytics for rapid implementation of self-service data analytics

Results

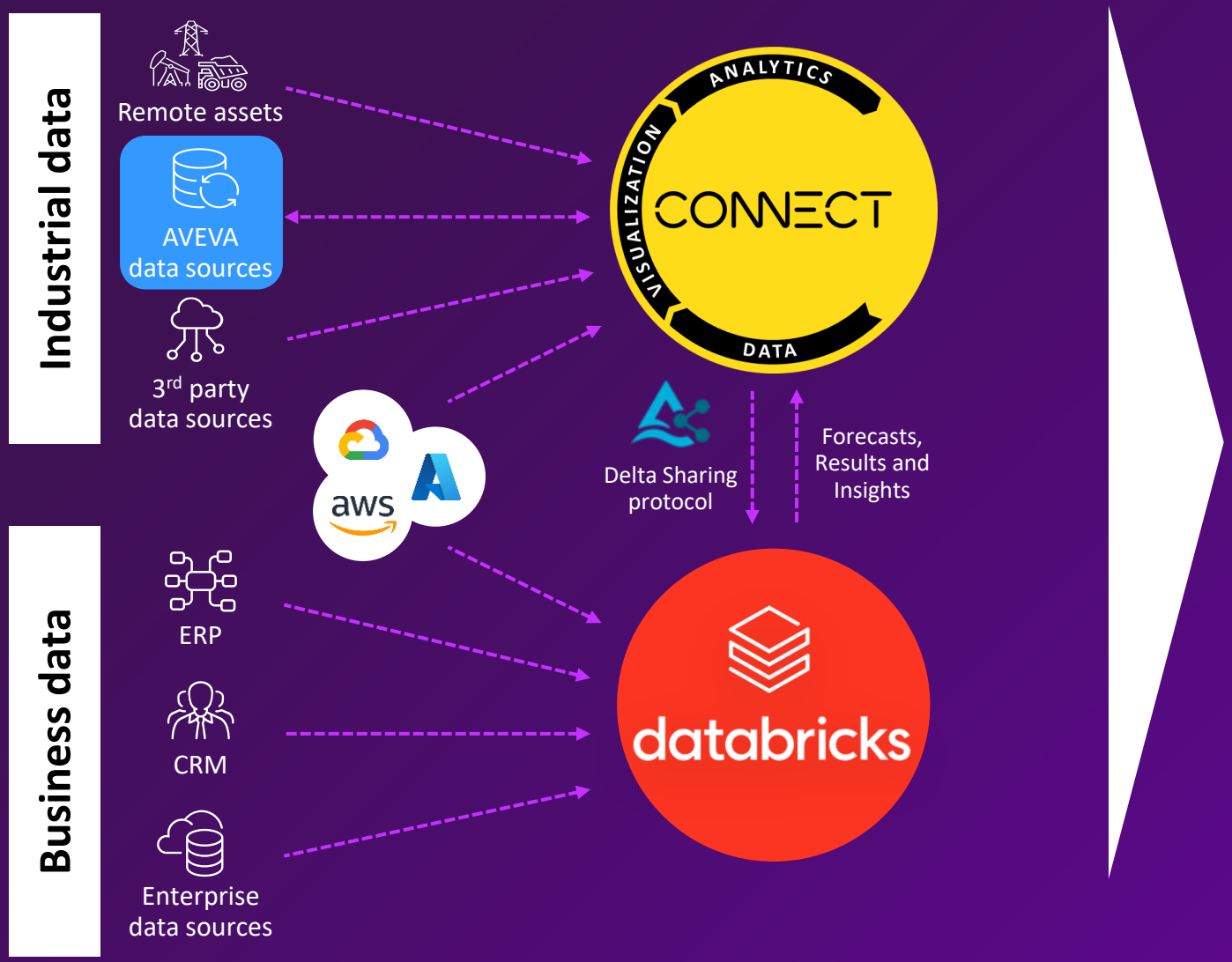
- **End-to-End data availability**
- **Major reduction of data consumption cost from petabytes to terabytes**
- **Potential reduction by approx. up to 70 servers within the entire system landscape**
- **Accelerated time-to-market for industrial data-products**

"We didn't expect to have tangible results within such a short time frame. CONNECT data services supported by a strong partner (Capgemini), accelerates the time-to-value of a cloud-based data infrastructure significantly."

- Heiko Trefzger, Product Manager Data & Insights, ROCHE

Learn more

Converging OT and IT



Unified Operation Center

Advanced Industrial Analytics

Industrial Control Rooms

Remote Notifications

Production Reports and Dashboards

Data science & AI/ML

Streaming

Business Intelligence

Data Warehouse

Orchestration

MINING, METALS & MINERALS | CANADA

Integrating CONNECT data services and Databricks should improve haul truck analytics

Challenge

- Lack of integration between data sets limits the opportunity for haul truck analytics related to asset health, operator performance and lowering emissions
- Secure data integration needs to be easier and faster
- Creating a scalable data infrastructure across OT and IT is an enabler

Solution

- Deploy an end-to-end solution, from operational data using AVEVA PI System to the cloud via CONNECT data services, efficiently enabling use cases within Databricks.

Results

- **Framework to operationalize solutions involving time series data and other relational data sets**
- **Internal development of analytical and predictive models that will scale to multiple sites**
- **Potential for 3% truck efficiency and 1% operator lower costs with improved asset health and lower carbon emissions**

"Leveraging CONNECT data services to seamlessly query time series data in the Databricks environment, will open the door to many use cases where disparate data sets exist."

- Metallurgy Subject Matter Expert, Mining Company

Learn more

AVEVA

Start of a hybrid journey

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

Available today

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

Diagnostics for Asset Analytics

Displaying the performance and health of calculations in PI System Explorer

Support the analytics needs across the enterprise

Increase performance of Asset Analytics
Leverage CONNECT advanced analytics capabilities

Data connectivity

Edge Data Store and AVEVA Adapter Edge Modules

AVEVA Adapter failover

Support claims-based authentication in PI Vision

Writeback of streams from CONNECT to PI Server tags

CONNECT to PI Agent

Support hybrid architectures

Azure SQL Database as host for AF database

In development

AF SDK support for .NET 8

New AF SDK version for modern applications

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

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

Support hybrid architectures

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

Expand data connectivity capabilities

Remote software management, more edge modules, expand Adapter failover
AVEVA Adapter for OPC UA - Alarms & Conditions
AVEVA PI System Connector Generation 3

Influence the future considerations

https://feedback.aveva.com

Let us know your use cases and product needs!

Recommended Sessions

Visualizing your operations data with AVEVA™ PI Vision™
Tuesday @ 1:15 pm
Room 2005-2007

Fueling your data infrastructure with AVEVA connectivity
Tuesday @ 2:00 pm
Room 2005-2007

Establishing your modern data infrastructure with AVEVA™ PI Server™
Tuesday @ 4:30 pm
Room 2001-2003

Operations on-ramp to AI and advanced industrial analytics
Wednesday @ 11:15 am
Room 2009-2011

Bayer: Driving manufacturing excellence with standardized AVEVA PI System data and AI
Wednesday @ 11:45 am
Room 2009-2011

Saudi Aramco: Accelerating sustainability - Digital advisory platform for power optimization and cogeneration efficiency
Wednesday @ 3:15 pm
Room 2009-2011

Methanex: Unlocking AI's Potential with PI System Data & CONNECT: A Simplified, Scalable Approach
Tuesday @ 4:00 pm
Room 2006

Mana Afshari, PhD

Head of Portfolio, 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!

This presentation may include predictions, estimates, intentions, beliefs and other statements that are or may be construed as being forward-looking. While these forward-looking statements represent our current judgment on what the future holds, they are subject to risks and uncertainties that could result in actual outcomes differing materially from those projected in these statements. No statement contained herein constitutes a commitment by AVEVA to perform any particular action or to deliver any particular product or product features. Readers are cautioned not to place undue reliance on these forward-looking statements, which reflect our opinions only as of the date of this presentation.

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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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