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# Building your data infrastructure with AVEVA™ PI Server

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# Agenda

Delivering greater data agility from  
plant to cloud

Intro: evolving data needs

What's new in AVEVA PI Server 2024

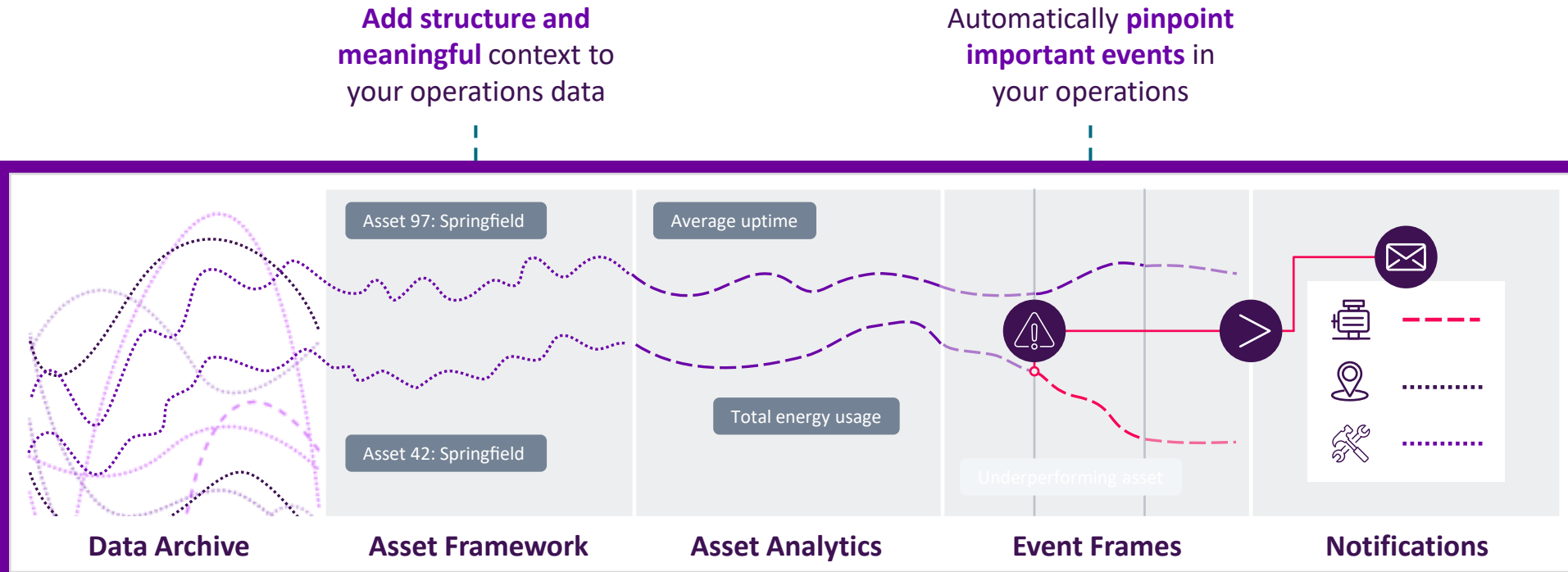
Complementary AVEVA PI Server deployment options

Seamlessly connecting plant to cloud

Upcoming innovations

Wrap up

# AVEVA PI Server – the engine of operations



Add structure and meaningful context to your operations data

Automatically pinpoint important events in your operations

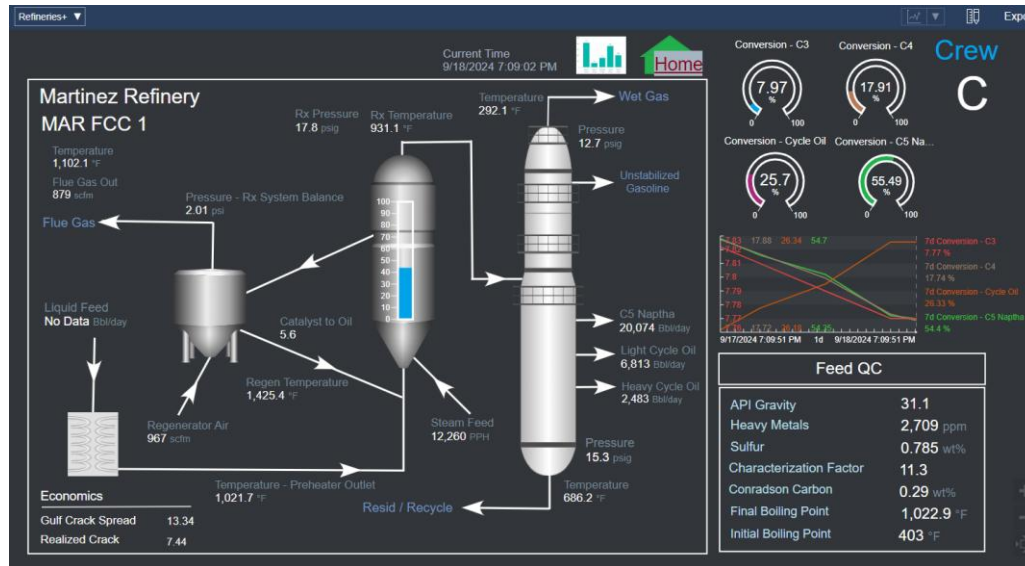
Optimized storage & access to massive volumes of operational data

Transform raw data into actionable KPIs using streaming calculations

Send automatic alerts to the right people with the right information

# Data needs are evolving, demanding greater data agility

- Live data, recent data, displays/reports
- Streaming surface level calculations created one at a time
- Limited set of concurrent consumers
- Data consumers on the operations floor

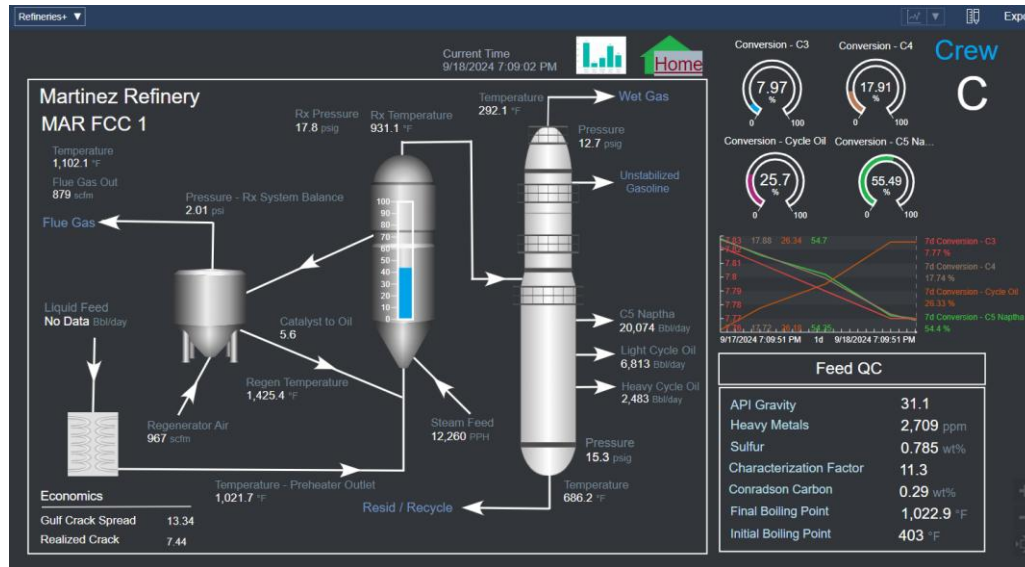


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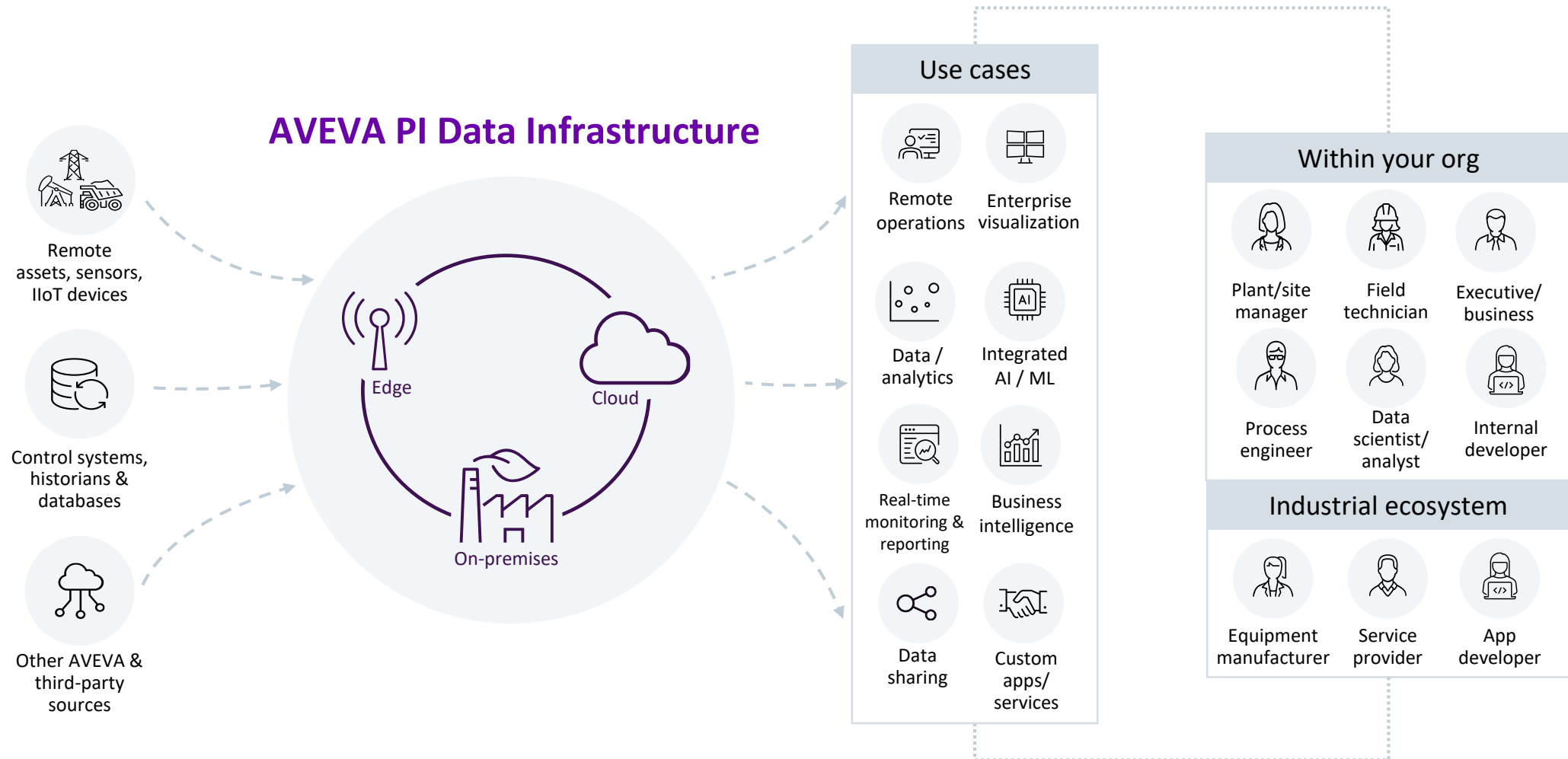


- Live, historical and forecast data, context-driven displays, BI reporting
- Multi-level calcs, streaming with historical backfills
- More concurrent data consumers, more stakeholders
- More intensive analytics in the cloud
- Secure, near instantaneous data sharing



# Hybrid data infrastructure

from edge to plant to community





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# PI Server 2024

Delivering greater data agility  
from plant to cloud

**Data Archive enhancements** - improved performance & throughput at scale

**Hosting PIFD on Azure SQL DB** – offload DB admin tasks

**Automated TLS certificate renewal** - reduce admin for claims-based authN  
Client-side

**File-based Known Server Table** - maintain uninterrupted, reliable connections

**Localization** - no more language kits MUI kits

# Improved performance & throughput at scale for PI Server

Data Archive Enhancements | meeting increasing volumes of data, analytics, and data agility



**SIGNIFICANT INCREASES IN  
PERFORMANCE AND AGILITY AT SCALE!**



**AVEVA PI Server 2024**

✓ **Out-of-order event handling improvements**

✓ **Update Manager enhancements**

✓ **Implement efficiencies**

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AVEVA PI Server 2024

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AVEVA PI Server 2024

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AVEVA PI Server 2024

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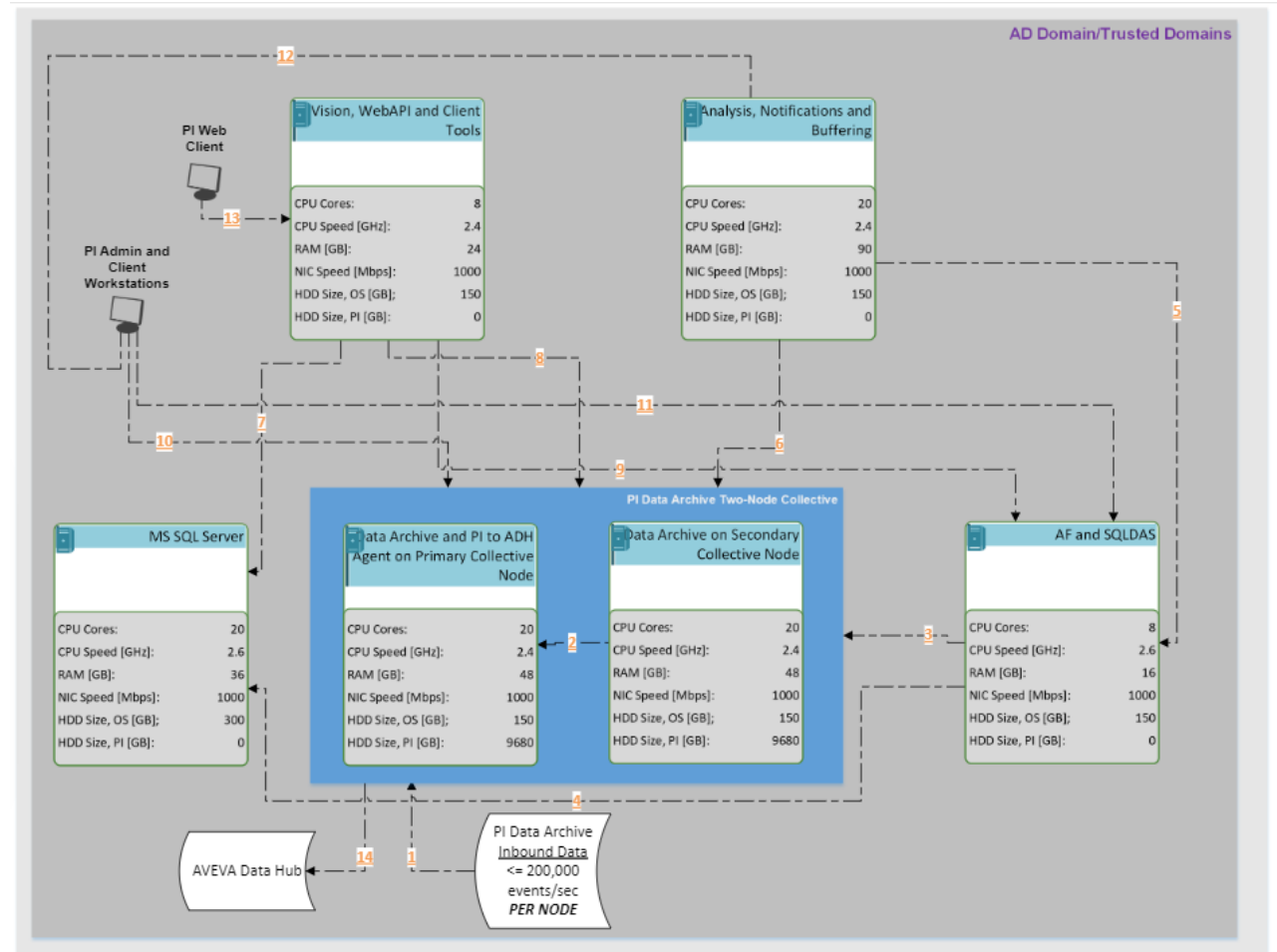
✓ **Implement efficiencies** to remove identified bottlenecks – increase throughput of the archive subsystem for large and heavily loaded systems

# Rearchitecting to meet ever-growing data needs

## Do 2X more with less

- Deployment recommendations for PI System based on a particular topology: <https://docs.aveva.com/bundle/pi-server-f-topologies>
- Network diagrams, hardware specs., recommended configurations, performance envelope

Topology performance metric	Max. value
Inbound data rate (events/s)	200,000
Analysis evaluation rate (evals/s)	30,000
EF gen. rate (EFs/day)	10,000
PI Vision simultaneous conns.	200
AF SDK recorded data rate (events/s)	2,250,000



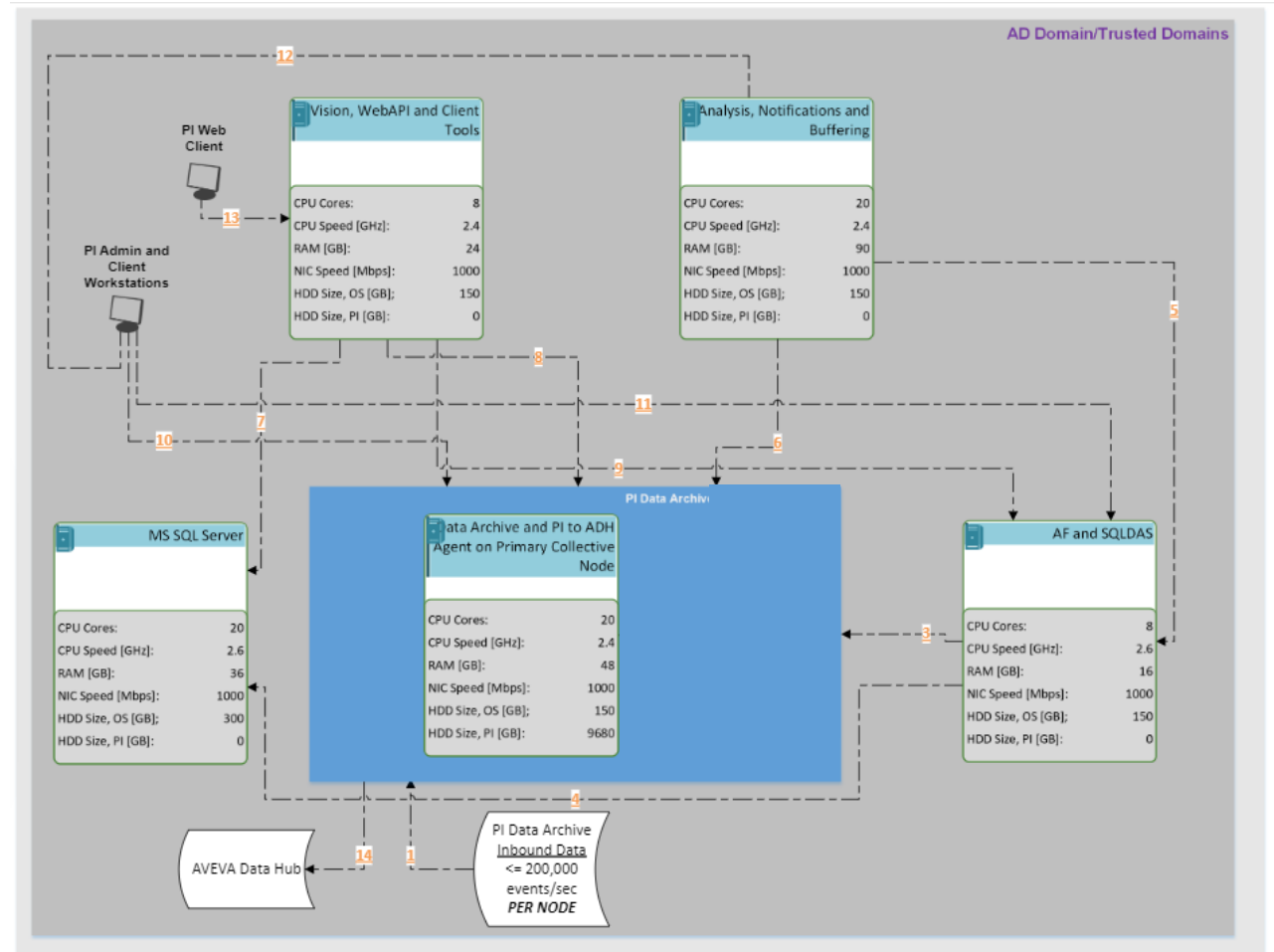
\*2 Update Manager processes are required to handle the system load

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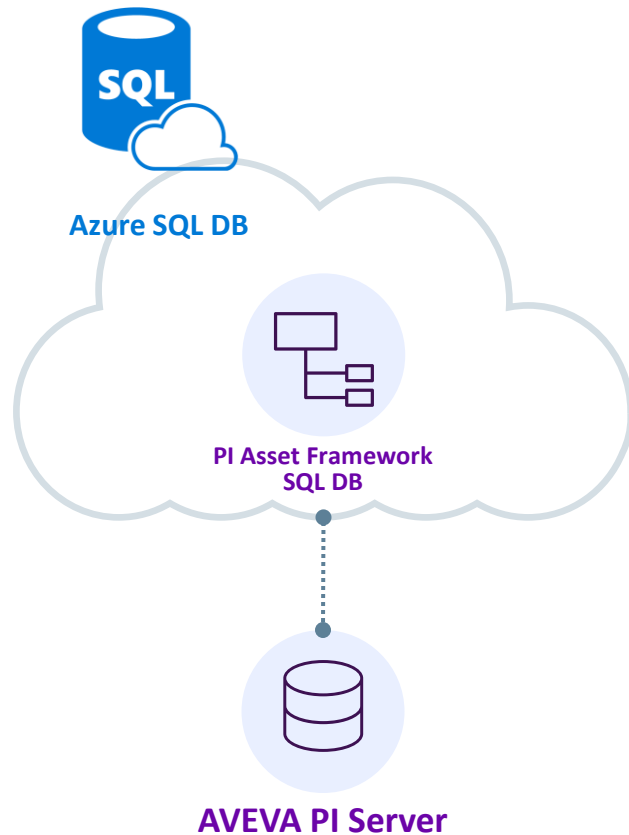
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# Host PI Asset Framework SQL database on cloud DaaS

Decrease admin work so staff can focus on operations data value



- ✓ **Host PI Asset Framework SQL database on Azure SQL DB** – no longer require Microsoft SQL server editions
- ✓ Ease cloud migration and offload AF SQL admin tasks (like updates/patches, backups, HA) to Microsoft Azure
- ✓ Take advantage of lower shared costs and on-demand usage with more automation



# Ability to manage certificate rotation for TLS communication

## Reduce admin overhead for claims-based authN



✓ **Automatic TLS certificate rotation**, leveraging more capabilities of AVEVA Platform Common Services

✓ **Automated renewal of certificates** for PI System-related services to lower admin effort of claims-based authentication introduced in PI Server 2023.

✓ **TLS 1.3 now supported** – OS dependent. Automatically used with TLS on WIN Server 2022 (and later), WIN 11 (or later)

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# Client-side



# New file-based Known Server Table (KST)

Maintain uninterrupted, reliable connections | More easily view & troubleshoot server connections

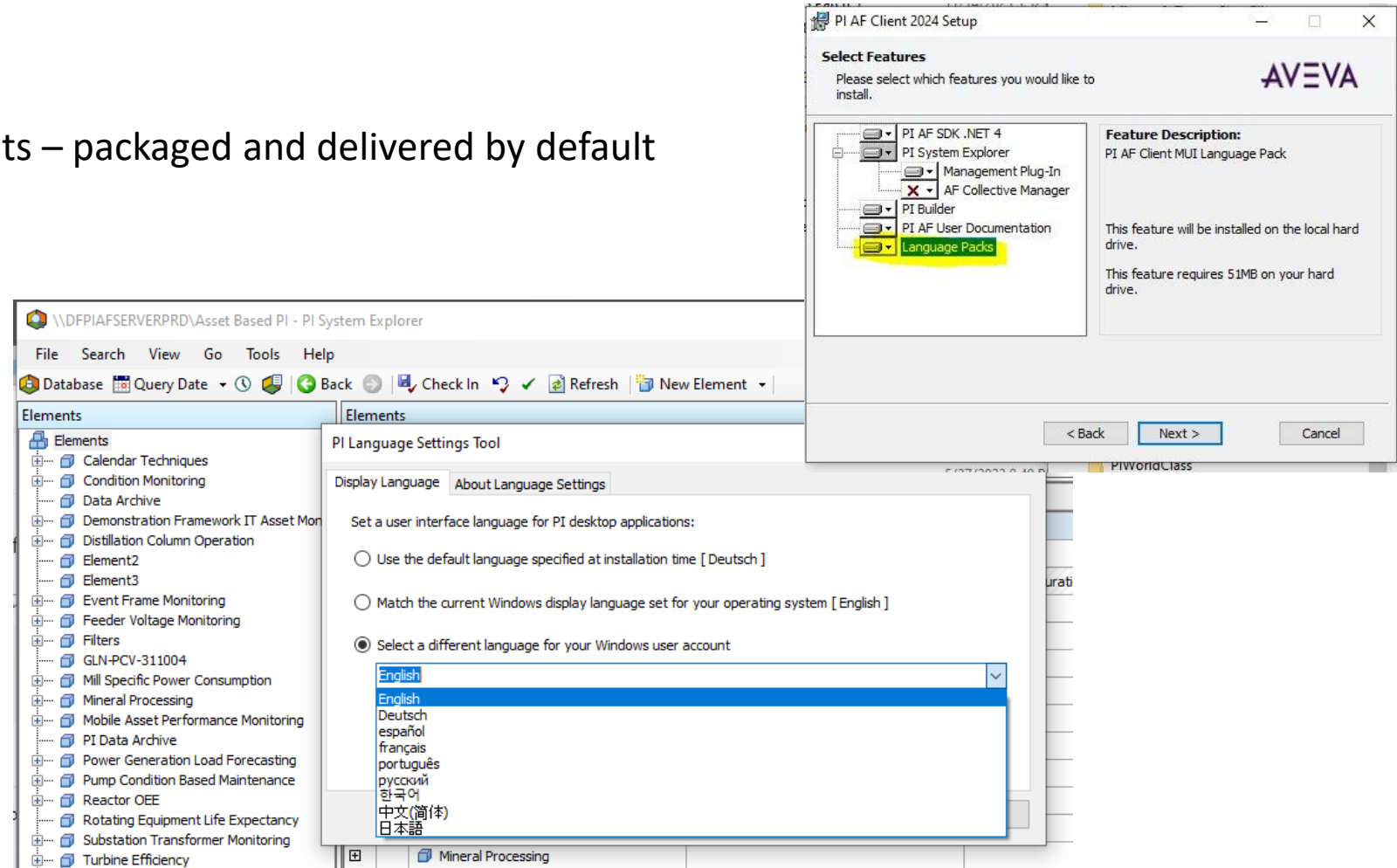


- ✓ **New file-based KST for AF SDK applications\*** PI SDK apps will continue to use the registry  
\*Generally available through AF Client
- ✓ Sync tool will run on install of AF Client 2024 if no file is present. Option for a user-specific KST.
- ✓ Eliminate issues that can arise with MS updates and connections, when installer with PI DataLink 2023 SP1

# Localization is now sim-shipped with PI AF Client

## No more language kits MUI kits

- No more language kits MUI kits – packaged and delivered by default
- View > Language Settings



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# PI Server 2024

Delivering greater data agility  
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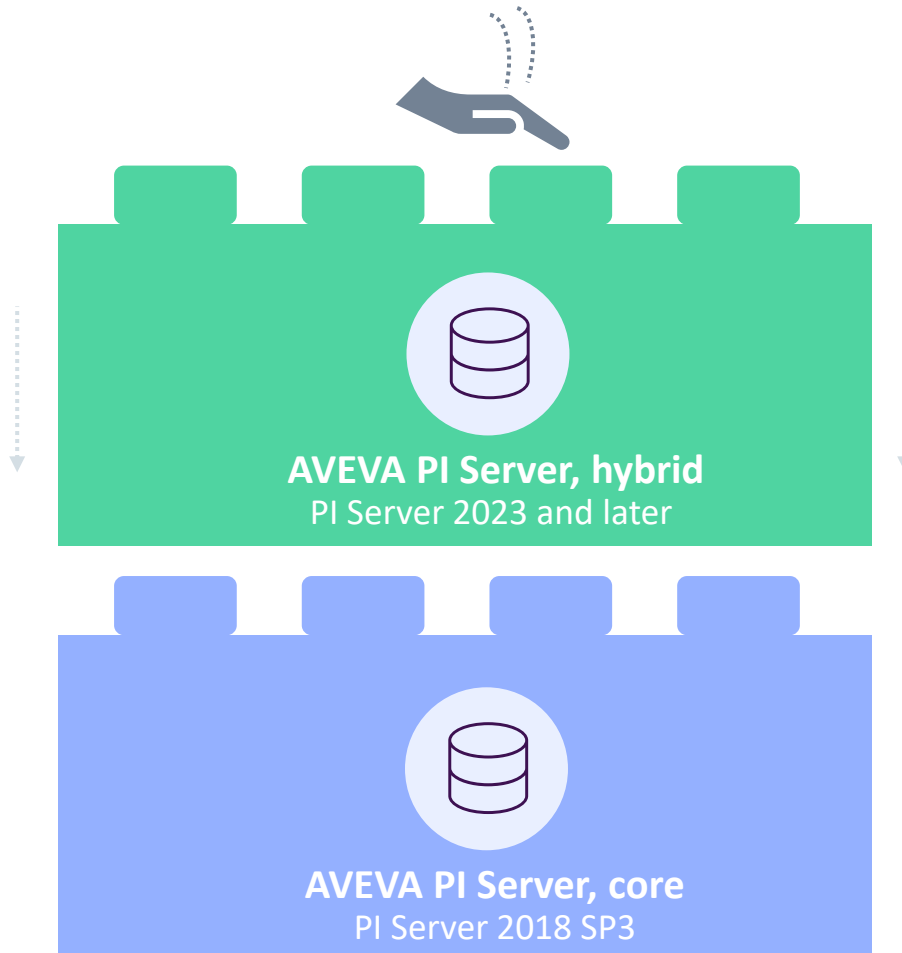
# Complementary AVEVA PI Server deployment options

AVEVA's commitment to PI Server core & PI Server hybrid



# Complementary AVEVA PI Server deployment options

## Important building blocks for an industrial data infrastructure



✓ **PI Server, hybrid branch** option for enterprise-wide data management capabilities tightly integrated with other AVEVA products and services.

✓ **PI Server, core branch** for less frequent major updates in environments with low tolerance for software changes.

✓ Leverage hybrid data management in areas tolerant of frequent innovation and new use cases in expanding, distributed enterprises.

✓ Maintain reliable and secure data management in parts of environment sensitive areas subject to regulations & validation

# AVEVA PI Server 2018 SP3 Patch 6

Continuing our commitment  
to core PI Server capabilities

- Incorporating high-priority fixes
- This is the start of this branch
- We will continue to do what is right





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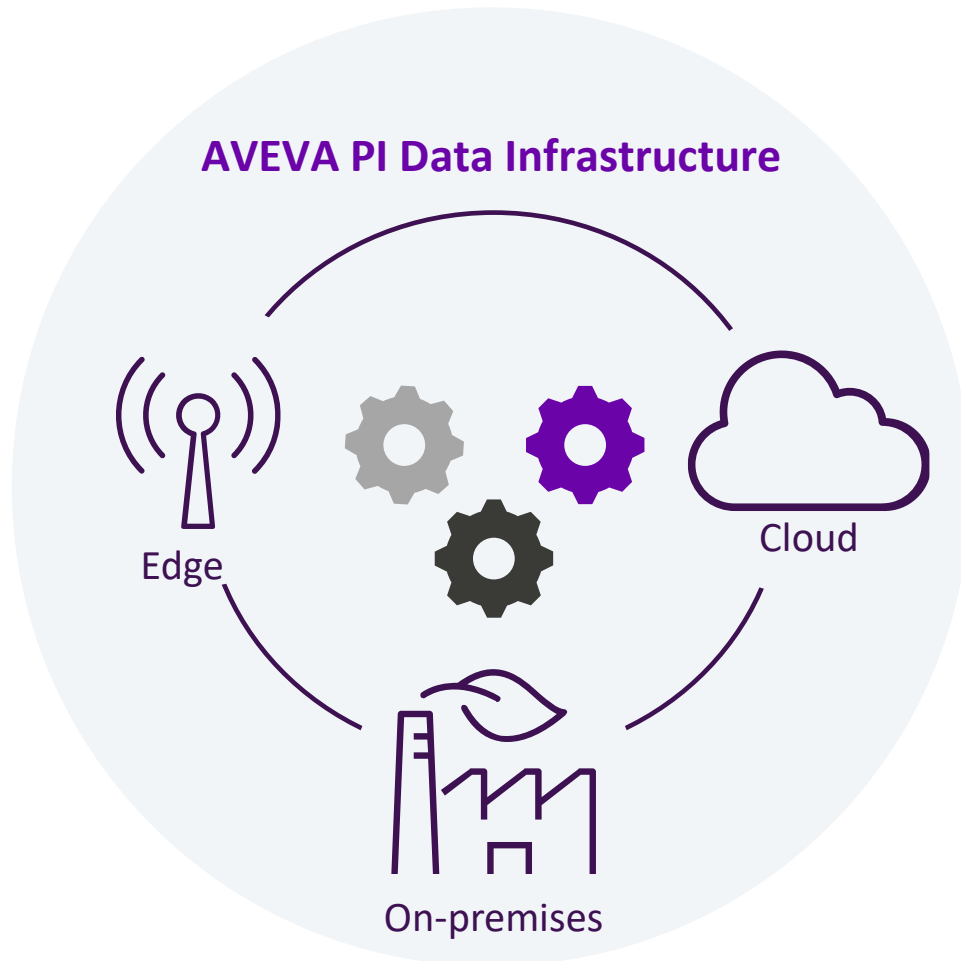
# Seamlessly connecting plant and cloud

Plant floor to emerging use cases in the cloud

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# Moving data and insights seamlessly from plant to cloud

## Greasing the wheels



✓ **Move data between operations environments and enterprise** – connect operations data with more stakeholders and consumers. **CONNECT to PI Agent** closes the loop

✓ **Right tools for the right use cases** – removing bottlenecks on-prem and talking advantage of rich cloud-native capabilities

✓ **Stream, asset and event handling across PI Data Infrastructure** – elevate use for enterprise use cases

IN DEVELOPMENT

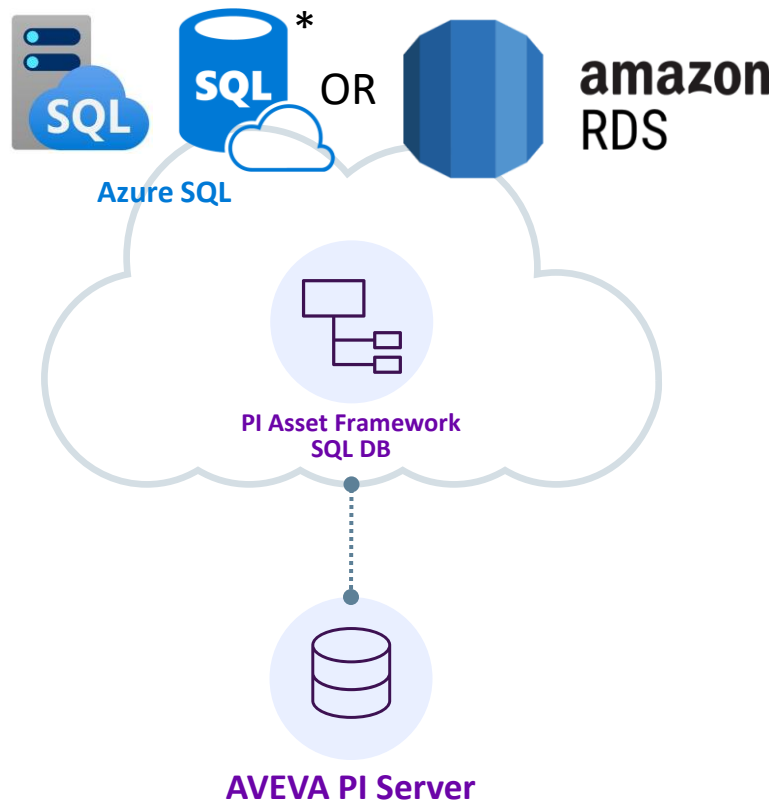
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# Upcoming innovations

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# Host PI Asset Framework SQL database on cloud DaaS

Decrease admin work and take advantage of lower shared cost



✓ **More options for hosting PI Asset Framework SQL database** in cloud managed services, support for RTQP Engine

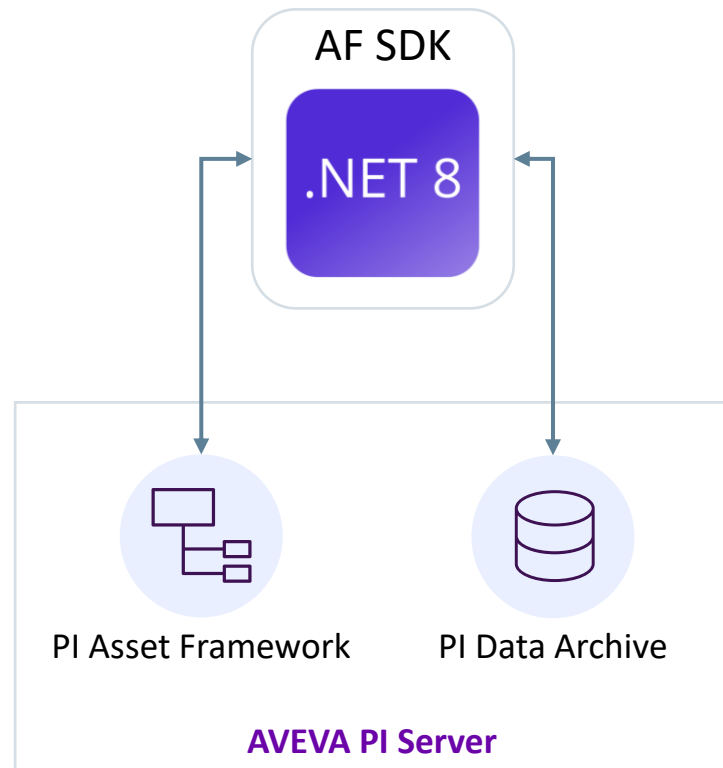
✓ Ease cloud migration and offload AF SQL admin tasks to cloud provider - lower shared costs and on-demand usage with more automation.

✓ Take advantage of lower shared costs and on-demand usage with more automation.

\*Will be released in PI Server 2024

# AF SDK support for latest .NET implementation

Enable your modern applications to more easily consume AVEVA PI System data



✓ **AF SDK .NET 8.0, support latest version of .NET\*** optimized for modern applications and developer workflows.

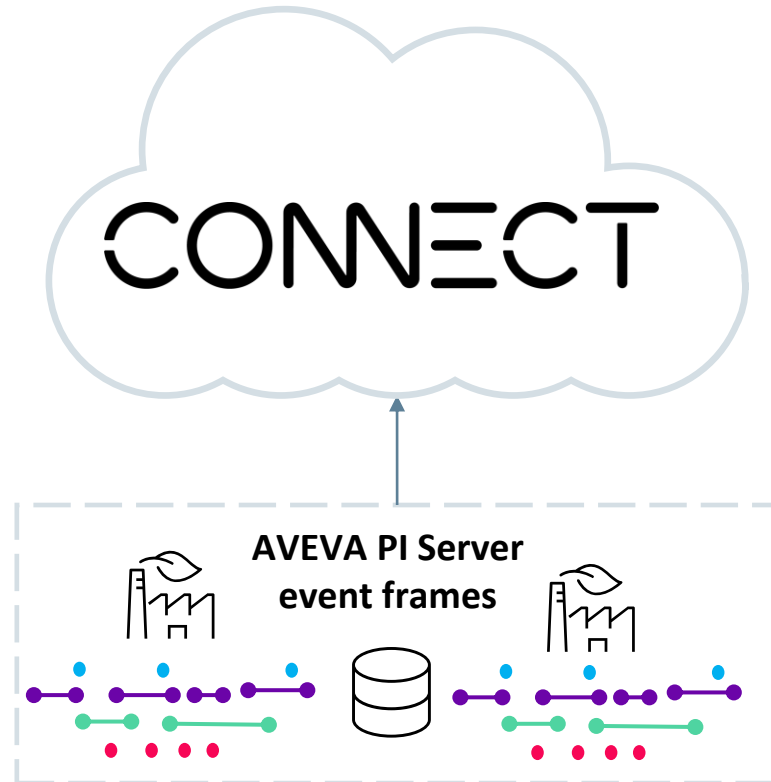
✓ Build custom PI System applications on modern technology stack.

✓ Decrease development time and platform dependencies. Increase applications' life cycle, performance, and compliance.

\* Not targeting Linux in first release

# PI Event Frames to CONNECT

Elevate AVEVA PI Server's event frames for expanded enterprise use cases



✓ **Transfer PI Server's event frames to CONNECT** - centrally historize events at cloud-scale and apply AI/ML models on event data

✓ **Rich contextual search GraphQL API** for searching and retrieving events in CONNECT data services

✓ **Event widgets for displaying event frames in CONNECT visualization** - converge event frames with other industrial information



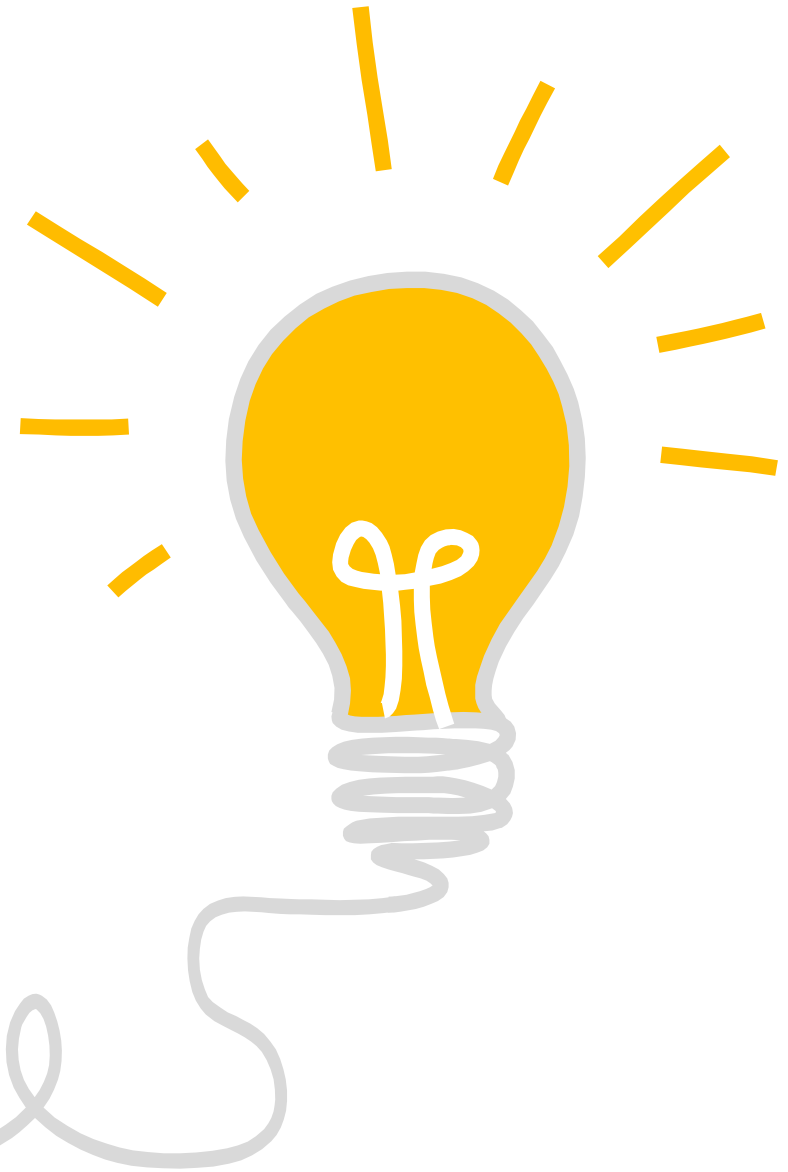
## Future considerations

- **Asset and event handling across PI Data Infrastructure:** Extend PI System to use asset and events for cloud-based dashboarding, reporting, data science, BI, etc. with collection storage and transfer of asset metadata and event data with AVEVA Edge Data Store, AVEVA Adapters, PI to CONNECT Agent and CONNECT to PI Agent.
- **PI System health monitoring in CONNECT:** Make deployment and health data of PI System available in CONNECT where it can be easily and securely accessed by partners and service providers.
- **Support enterprise sustainability initiatives:** Leverage industry-specific library of asset framework templates and centrally manage and publish across enterprise.
- **Redundancy for Platform Common Services:** enable PI Server to support redundant AIM servers
- **High-value remediations:** Continuing our commitment to the security, scalability, and reliability of AVEVA PI Server, core branch, releasing fixes through patches on as needed basis.

# Influence the AVEVA product roadmaps

<https://feedback.aveva.com>

Let us know your product feedback!





Watch recent AVEVA World presentations to learn more about PI System portfolio developments



**Product update sessions:** total of 120 minutes (4 30-minute sessions)

- AVEVA™ PI System™ and AVEVA™ PI Data Infrastructure Roadmap [\(link\)](#)
- Visualizing your operations data with AVEVA PI Vision [\(link\)](#)
- Building your data infrastructure with AVEVA™ PI Server (link pending)
- Fueling your Data Infrastructure with AVEVA connectivity [\(link\)](#)

**Technical/ PI Geek sessions:** total of 150 minutes (5 30-min sessions)

- Operations on-ramp to AI and advanced industrial analytics [\(link\)](#)
- Operations data analytics at cloud-scale: Seamless integration of PI Server data with CONNECT [\(link\)](#)
- Easily deploy AVEVA™ Adapters to remotely collect operations data at scale [\(link\)](#)
- Hosting PI Asset Framework's SQL database in the cloud with Azure SQL DB [\(link\)](#)
- Support expanding needs with AVEVA PI Vision 2024 [\(link\)](#)

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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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