

AVEVA

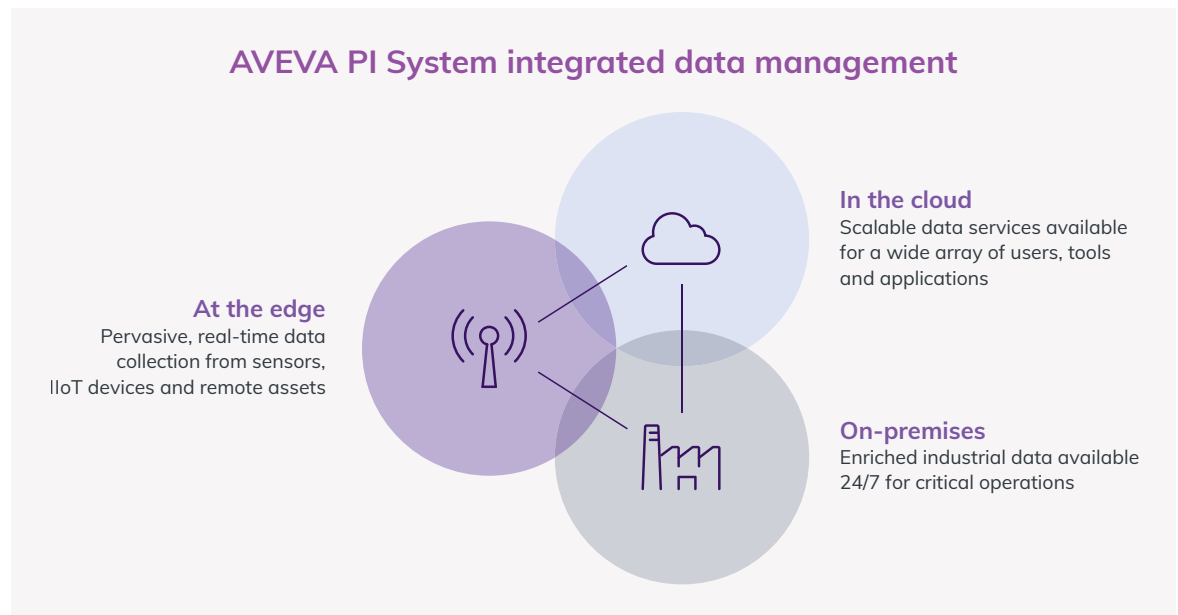
AVEVA™ PI System™

Edge-to-cloud data management
for industrial operations

Imagine what your company can achieve with deeper operational insight, faster analysis of critical data, and expanded visibility of remote assets and IIoT sensors.



With trusted operations data delivered in real time to people, applications, and platforms across your organization, you can unlock new business value and drive efficiency, flexibility, sustainability, and resilience



PI System helps you collect, store, interpret, and share real-time operation data seamlessly from the industrial edge to the plant, and up to the cloud.

AVEVA PI System is a data management platform that is purpose-built to collect, store, and manage sensor and time-series operations data via our integrated edge, on-premises and cloud products.

The seamless edge-to-cloud hybrid architecture of PI System lets you gather critical data anywhere in your operating environment and make it available to engineers, analysts, data scientists, developers, and decision-makers in any location.

On-premises, AVEVA PI System provides users with real-time information for running and optimizing 24/7 on-site operations.

At the industrial edge, AVEVA PI System products expand data collection to remote sites and sensor-enabled assets and devices. And the sky is the limit with AVEVA PI System in the cloud via AVEVA Data Hub (formerly OSIsoft Cloud Services). Take advantage of the scalability and cost-efficiency of the cloud to make data easily available to remote users, advanced analytic tools, business partners, and even customers. Together, the integrated products of AVEVA PI System ensure the integrity and availability of data, at scale, across a distributed enterprise.

Proven in industrial environments

The developers of AVEVA PI System pioneered technology to optimize the capture, storage, tagging, and indexing of massive volumes of sensor and time-series data generated at high-frequency intervals. The company has decades of experience implementing solutions in essential industries, such as oil and gas, energy, utilities, forest and paper products, mining, metals, food and beverages, chemicals, pharmaceuticals, and more.

Thousands of companies – and two-thirds of the industrial Fortune 500 – rely on PI System for:

- Energy, resource, and facilities management
- Asset health and predictive maintenance
- Quality monitoring
- Process efficiency and improvements
- Safety and regulatory compliance
- Digital transformation

Many companies configure PI System for high availability with end-to-end redundancy and immediate failover to support disaster recovery, maintain emergency operations centers, and maximize uptime. You can deploy PI System components in a variety of architectures, including in a DMZ, on virtual machines, and in cloud environments.

AVEVA PI System

Three integrated product portfolios turn operations data into valuable insight.

AVEVA PI System on-premises: Collect, store, enhance, and deliver sensor and time-based data from critical operations to people, platforms, and applications on-premises.

AVEVA PI System, edge: Expand data collection to remote locations and sensor-enabled equipment outside your on-premises control system. Expand data access to field technicians.

AVEVA PI System, cloud: Expand data storage and enable broader data access using cloud-based operations data management services.

Benefits for operations

- Single system of record for consistent decision making
- Add context and meaning to data without programming
- Easy, self-service access and visualization of real-time data

Benefits for business

- Full security across all domains
- Data aggregation in distributed environment
- Rapid integration with analytic tools, enterprise applications, and decision-support systems

AVEVA PI System maintains a system of record for operational data collected from diverse sources for use by engineers and analysts across your organization

Collect data from every valuable source

The key to developing valuable and accurate insight begins with capturing data from every relevant source. Operating environments contain a diverse set of assets, from proprietary and industry-specific systems and equipment that is no longer sold, to remote, mobile, and smart industrial IoT devices. PI System lets you capture data automatically from any source, to ensure full integrity and liberate your employees from tedious manual collection.

Operating sites and plants

On-premises at operating sites and plants, AVEVA PI System products pull real-time data from complex industrial systems such as programmable logic controllers (PLCs), distributed control systems (DCSs), SCADA, instrumentation, laboratory information management systems (LIMS), and others. Legacy equipment is no problem. We've developed over 450 native interfaces and 20+ smart connectors across vertical segments that work out-of-the-box to collect data and centralize it in a common data archive.

Remote assets and IIoT devices

As a result of digitalization, many industrial companies now have hundreds, or even thousands, of sensor-enabled devices located beyond their on-premises operating facilities. Edge solutions in the AVEVA PI System allow you to collect, locally store, and access operations data from sensors and assets outside your primary control network. Some companies even use data from equipment deployed at client sites as the foundation for new service offerings. PI System, edge, lets you tap into:

- Smart IoT devices
- Mobile assets with intermittent connectivity
- Assets in rugged environments
- Assets deployed in environments without technical support
- Assets deployed at customer sites





Manage and enhance data to increase value

Once the data has been gathered, PI System software helps you transform, refine, calculate, and contextualize data, making it easier to uncover operational and business insights.

Single source of truth

PI System maintains a system of record for operations data used by engineers in different domains and by analysts at the enterprise level. This architecture eliminates data silos and gives everyone access to a single source of truth. With PI System, you can store millions of data points and decades of history to support trending, benchmarking, and predictive analysis. New data is seamlessly integrated as it arrives in real time, whether that is once every hour, minute, or fraction of second.

Metadata and data context

Operations data arrives in massive volumes, and it can be hard to interpret thousands or even millions of data streams. PI System products let operators and engineers define metadata to help those using the data understand the bigger picture.

Additionally, AVEVA PI System on-premises lets your team easily create reusable data structures to aggregate and organize data in meaningful ways. With this feature, you can view data by asset type, location, process, or any other useful category. Being able to see data in context helps new employees identify anomalies and trends, just like more experienced engineers.

Analytics and event tracking

PI System products provide analytic tools you can use to track key performance indicators. Compute simple averages and unit conversions, as well as more sophisticated calculations like total energy usage or the days of raw material remaining. You can also define key events in your production process to trigger data collection and compare data to similar events. If performance degrades and action is needed, PI System lets you send automatic email notifications in real time to appropriate team members.



PI System is a cost-effective choice for companies deciding whether to buy or build an operational data store to support analysts and data scientists

Deliver data securely and efficiently

In operations, the more widely you share data, the more valuable it becomes. PI System products ensure the safe and fast delivery of high-quality operations data across your enterprise, to the people, analytic tools, and applications that turn data into insight.

Operations engineers and management

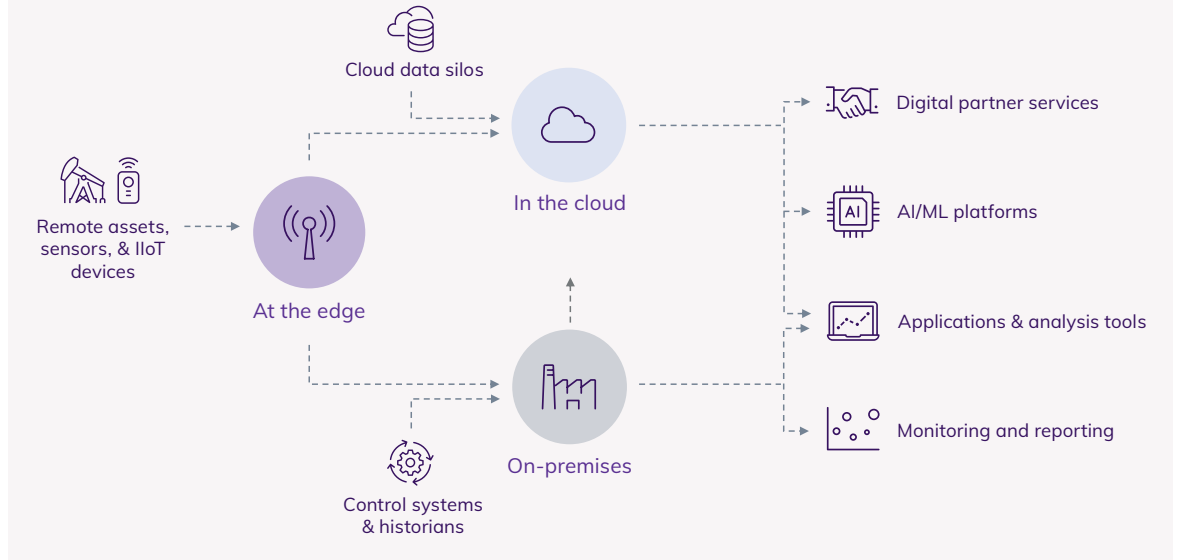
The heart of the AVEVA PI System runs on-premises in critical operating environments. These products empower operators and engineers with easy, self-service data access tools to drill down and view relevant data without the need for programming skills.

Plant managers can pull data into familiar Excel spreadsheets to see data trends and create regulatory reports. Process engineers can view data in mobile-friendly dashboards or process displays.

Data scientists and analysts

Operations data can also be a gold mine for business analysts, data scientists, and leaders of digital transformation. PI System includes products to shape and format operations data for fast and secure transfer to business and scientific platforms used for deeper analysis.

AVEVA PI System supports OT, IT and IIoT use cases



AVEVA PI System enables data collection throughout a distributed enterprise and business ecosystem.

Integration products provide out-of-the-box data delivery to popular enterprise applications and platforms such as Apache Hadoop, Microsoft Power BI, SAP HANA, Seeq, TrendMiner, and more.

PI System is a cost-effective choice for companies deciding whether to buy or build an operational data store to support data scientists. PI System handles all the complexity associated with defining, integrating, enhancing, and maintaining operations data, and offers programmatic access to data through standard REST APIs. This means data scientists spend less time on data hygiene and preparation, freeing them to focus on analysis and next steps.

Secure data sharing

Digital transformation is expanding interest in operations data beyond the enterprise to a growing network of third-party service providers and supply chain partners. The integrated PI System now includes AVEVA Data Hub (formerly OSIsoft Cloud Services), a cloud-native operations data platform-as-a-service that removes the barriers to data sharing using the scale and flexibility of the cloud. With faster and easier access to operations data in a collaborative environment, your teams will find new ways to advance operational excellence and sustainability. And being able to share real-time data with your trusted suppliers helps them provide you with customized services and analytics to reduce unplanned downtime. For example, an oil and gas exploration venture can share drilling data among its authorized users in any location, for instant collaboration.

Summary

AVEVA PI System is an edge-to-cloud data management system that provides trusted operational data for data-driven decision-making and digital transformation in a distributed enterprise. AVEVA PI System supports pervasive data collection from operating sites, assets, and sensor-enabled devices. It enhances data streams with useful contextual information. And, AVEVA PI System delivers cleansed and formatted data to analysis tools, data science, and AI/ML platforms, and applications.

The seamless integration of AVEVA PI System products across the operations core, edge, and in the cloud ensures data integrity and allows data to be shared securely outside the industrial control network. AVEVA PI System empowers employees across and beyond the organization with ready access to a rich set of operations data to visualize trends, reveal relationships, and support new business opportunities.



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