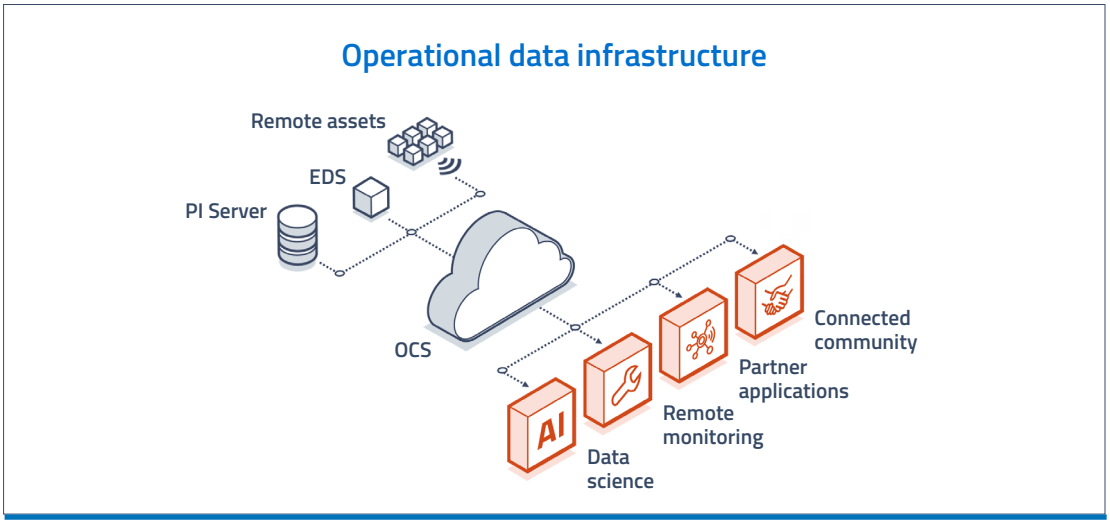
PRODUCT BRIEF

OSIsoft Cloud Services

Cloud data platform for real-time operations

OSIsoft Cloud Services (OCS) is a cloud-native platform for aggregating, storing, and sharing real-time operations data. With OCS, you can make on-premises and edge operations data easily available to new cloud applications and consumers. The platform also lets you add valuable contextual information so that both internal and external audiences immediately understand the data. We fully manage OCS, so there is nothing for you to assemble, nothing to maintain.



OCS is a cloud data management platform built on Microsoft Azure. You can use the platform to aggregate, store, and share all your historical, real-time, and forecasted operations data. OCS enables data science use-cases and helps you monitor your operations remotely.

BENEFITS

- Create a unified, trusted source of operations data in the cloud.
- Run ad hoc queries with no impact to critical operations.
- Create easy access to data for partners and people across your organization.
- Securely share live workspace data streams to get everyone on the same page, quickly.
- Access operations data from both PI Server™ and Edge Data Store (EDS) in the cloud.
- View and share data from anywhere, anytime, with anyone.
- Enable business intelligence and data science use cases, e.g., predictive maintenance.

Operations data challenges

When companies capture industrial operations data at the edge and across plants, they have a golden opportunity to advance their business and to make strategic data-driven decisions. Real-time data helps companies improve operating performance, reduce downtime, lower costs, and create more profitable operations. However, few companies have comprehensive, real-time visibility into their operations, especially across plants. As a result, rather than optimizing globally and managing conditions proactively, employees end up reacting to situations as they unfold, leading to unplanned downtime, increased costs, and lost opportunities.

Plants have traditionally taken a siloed approach to data. But the real value of data often comes from sharing it beyond the immediate team, with different members of an organization who can reap additional value. Aggregating data within and across plants allows you to provide access to partners, suppliers, or others within your organization, leading to new insights as well as better planning and forecasting. However, typical cloud platforms have struggled to handle industrial time-series data; security concerns and a patchwork of legacy and modern protocols, and connectivity issues are common obstacles. Additionally, operations or "OT" data is typically dirty in its raw state and lacks contextualization, which limits the value it can offer without subject matter expert intervention. This is where OCS comes in.

Recent IDC research reveals that 67% of enterprises prioritize increasing their data management capability to enable them to turn internal data into insights. However, 45% of organizations are still at a low level of maturity for data excellence.[1]

OCS was simple for us: Simple to start; Simple to administer; Simple to code against.

Energy Customer,
Senior Automation Engineer, Real Time Operations

The journey to the cloud made simple

OCS is a cloud-native, secure data platform built on Microsoft Azure and fully operated by OSIsoft (SaaS/PaaS). You can use OCS to collect, manage, enhance, and share historical, real-time, and forecasted operations data. OCS complements on-premises PI Servers and can also collect data directly from edge data sources. The cloud platform enables you to easily define, visualize, query, and shape datasets, whether for data science purposes or for use with popular reporting applications, such as Microsoft Power BI.

Most companies new to the cloud start small with a specific business objective. Starting small helps de-risk their investments and allows companies to easily adopt complementary cloud services and avoid costly "lift and shift" approaches. For existing PI System customers, OCS makes starting your journey to the cloud easy with a hybrid approach that extends on-premises or private cloud PI System deployments so that you can take advantage of new cloud capabilities without impacting existing operations. As you advance in your cloud journey, OCS scales to make more data from more sites available to more people.

OCS gives you the ability to share operations data both internally and with trusted partners or vendors. IT and BI groups can now use formatted and contextualized OT data across cloud providers (such as Azure, AWS, and Google's Cloud Platform) and with other enterprise applications. Operations data within OCS is formatted so that it's shaped and ready for advanced analytics. And with OCS, there are no microservices to assemble or manage. All that's required is a browser and simple configuration. The easy-to-use platform enables organizations to gain real-time insights into the overall health of their operations, and they can compare and analyze operations data over time, quickly and painlessly.

OCS supports multiple initiatives

Data science and enabling business intelligence

Making sense of time-series data is difficult unless you are already intimately familiar with the particular asset and maintenance history. Operations data is often too raw and dirty for data scientists and business users to use. There's a better way. We developed OCS with data science and flexibility in mind. OCS's data management platform provides data scientists and business users with access to curated and contextualized operations data.

According to a 2020 Anaconda data science survey, respondents reported that they spend roughly 45% of their time on data preparation (figure 1), including acquiring and cleansing datasets before they can perform any data exploration or data modeling.[2] This process repeats itself as models are re-trained to improve predictions, new data sources are added, or new equipment is installed.

OCS solves this challenge by handling the cleansing, contextualizing, and ongoing management of continuous operations data so that business users can integrate trustworthy data into their workflows and create models immediately. Using the OCS API, getting operations data into your tool of choice has never been easier. Data scientists, IT, operations teams, and even finance can access data for their projections and write predictive data back to OCS to share it with others.

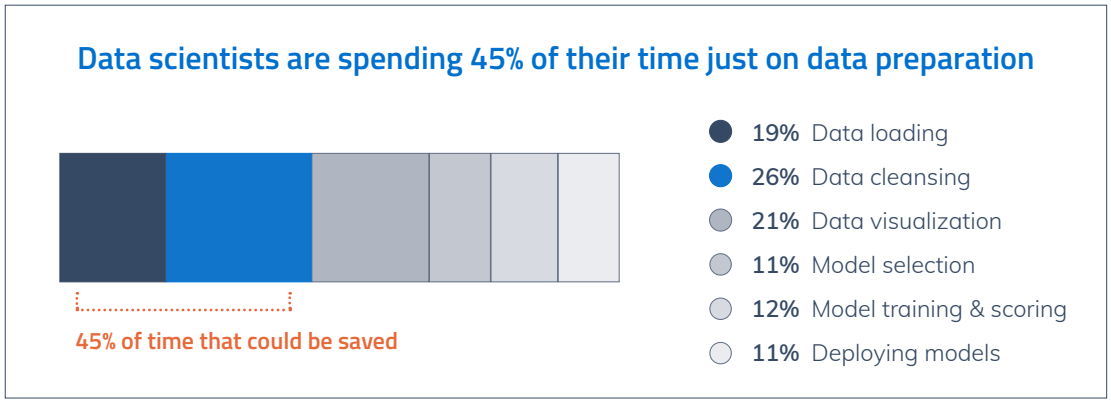


Figure 1, Anaconda 2020 Data Science Survey

Data quality might very well be the single most important component of a data pipeline. If you can't trust the reliability of your data, the dashboard and analyses you generate from it will be useless.[3]

You can also share this predictive data with other applications, like ERP systems, planning, and forecasting tools.

Predictive maintenance machine-learning algorithms can now use a comprehensive set of plant, enterprise, and external data sources to create robust models that help you reduce unplanned downtime. The engineers and operators who ultimately operationalize the predictive maintenance activities trust the model results because the model is based on data that they themselves curated and trust. And the faster models are trusted and operationalized, the easier it becomes to create change within an organization. OCS delivers better data to create better algorithms, driving better outcomes.

Remote monitoring and partner services

OCS enables remote operations monitoring by making asset and process data available in the cloud through real-time trending, all from a browser. Users can securely share their data workspaces with just a simple hyperlink. Getting everyone on the same page quickly, regardless of their location or network, provides a powerful set of capabilities that extends to the plant and beyond.

PI System partners have been able to provide high-value maintenance services to their clients by leveraging the OCS platform as a service (PaaS). These service providers use OCS to provision new client accounts and start monitoring their assets or operations within hours, rather than weeks or

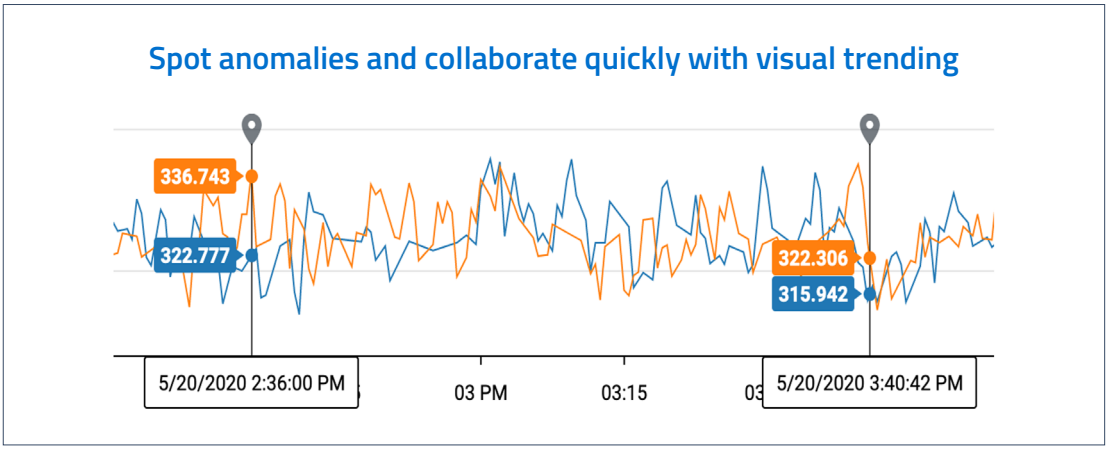
Unplanned downtime costs industrial manufacturers an estimated $50 billion annually.[4]

months. Equipment vendors can embed PI System edge technology in their offerings and natively aggregate asset data in OCS to deliver after-market services and reduce unplanned downtime for clients worldwide. The variety of remote monitoring use cases highlights the inherent flexibility of OCS's cloud-native platform which companies can offer as a managed service to create new revenue streams.

OCS is a powerful addition to any company seeking to improve their situational awareness and monitoring capabilities for themselves or their end customers.

Data sharing

OCS is a robust data platform for sharing operations data with other applications. For example, one energy company empowered its field engineers



Visual trending in OCS improves situational awareness and enables real-time anomaly detection. Stream workspaces can be securely shared with colleagues inside or outside the plant, as well as with partners and vendors.

OCS extends the range of possible applications and use cases of [the PI System's] data infrastructure by giving end users and third-party software developers the ability to unify complex operations data from distributed PI System servers and other sources and share it with IT, data scientists, executives, service providers, and other employees and partners in rapid, intuitive manner.[5]

with real-time operations data from OCS to improve response times to maintenance service requests. The company made data available within its field-based applications as engineers conducted daily remote equipment inspections. From there, engineers could strategically prioritize maintenance schedules across fleets to improve efficiencies and performance.

Having this data aggregated into a common cloud platform was instrumental in improving efficiencies and lowering response times to complete maintenance. Furthermore, the energy company was able to provide its engineers with live data streams, which led to cost savings, all without having to build or maintain their own servers and databases. In the end, the company found it easy to use the OCS REST API to integrate and share data within its field service portal application.

Connected community

For companies with connected partner value chains, OCS drives alignment by enabling secure data sharing with a simple click of the mouse.

Vendors and partners gain real-time visibility into equipment status and performance so that they can proactively schedule maintenance or order replacement parts, delivering a superior customer experience and significant cost savings to the company. The company can coordinate with local utilities and agencies to take advantage of lower rates or rebates for shifting resource consumption. A connected community powered by OCS eliminates the need for third parties to install their own local software. As always, there's nothing to build or maintain with OCS, so you can focus on your core business.

Fast-track new cloud opportunities

OCS is specifically designed to meet the needs of critical operations while also making curated decision-ready data available to business users and partners within and beyond the enterprise. Native integration with PI Server and the PI System's edge products allows you to maximize any existing investments while also giving you a scalable platform to support your expanding on-premises operations today and cloud strategy into the future.

Ready to fast-track your journey to the cloud? Go to cloud.osisoft.com.

1. Dan Vesset et. al. - IDC - IDC FutureScape: Worldwide Data, Integration, and Analytics 2020 Predictions
2. State of Data Science in 2020: Anaconda Data Science Survey, 2020
3. Towards Data Science, Jan. 2019: https://towardsdatascience.com/a-deep-dive-into-data-quality-c1d1ee576046
4. IndustryWeek in collaboration with Emerson, Wall Street Journal post, Jul 24, 2018
5. Arc Advisory Group – Sept 2019