

AVEVA PI WORLD

Connected Community – Securely Sharing Data with Trusted External Business Partners

OSIsoft Cloud Services

Presented By: Todd Brown & Ryan McErlean

AVEVA

Agenda

Why share industrial data?

Data sharing challenges

Sharing data with Connected Community

DEMO

Customer success stories

Wrap up

OSISOFT CLOUD SERVICES

Why share industrial data?

AVEVA



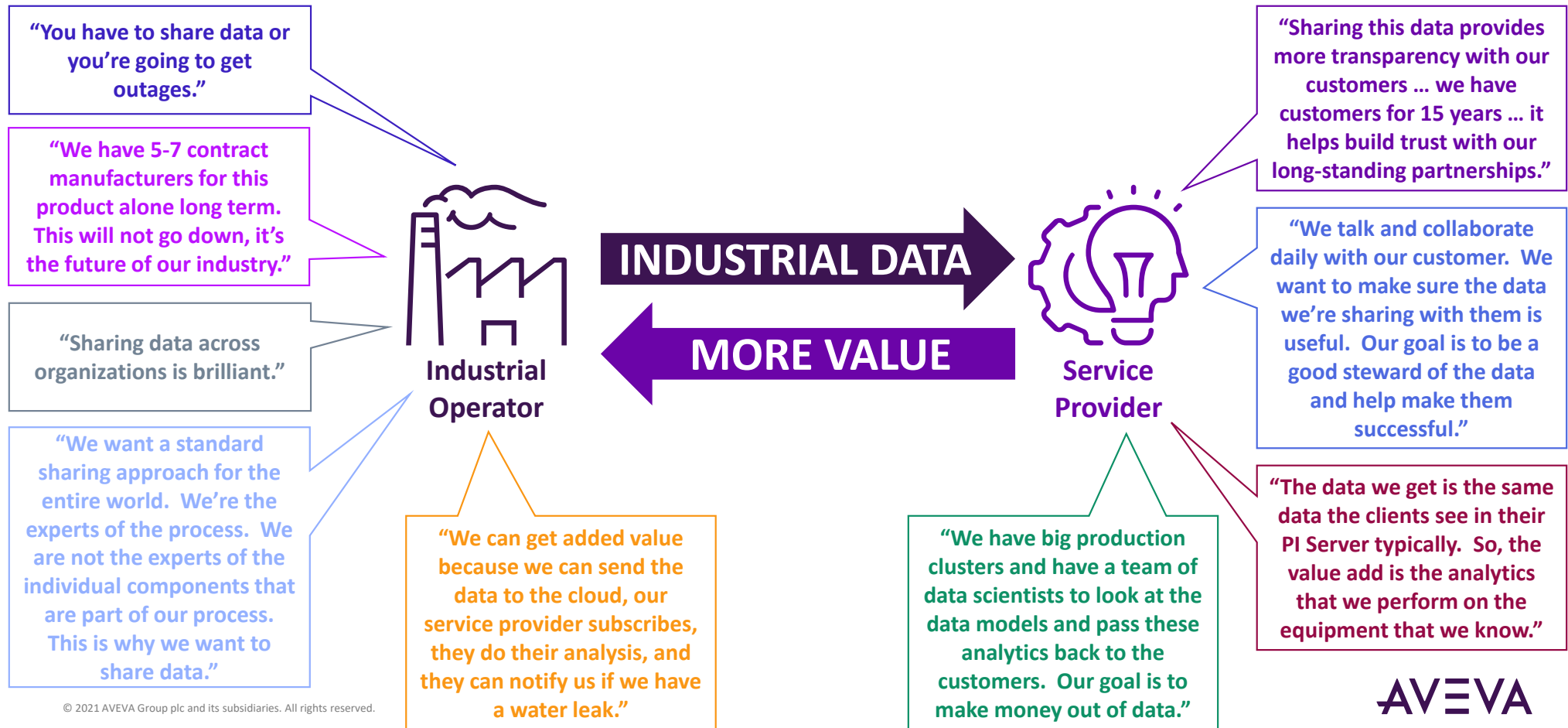
“Operational data is a unique resource. The more people use it, the more valuable it becomes.”

- Dr. J. Patrick Kennedy

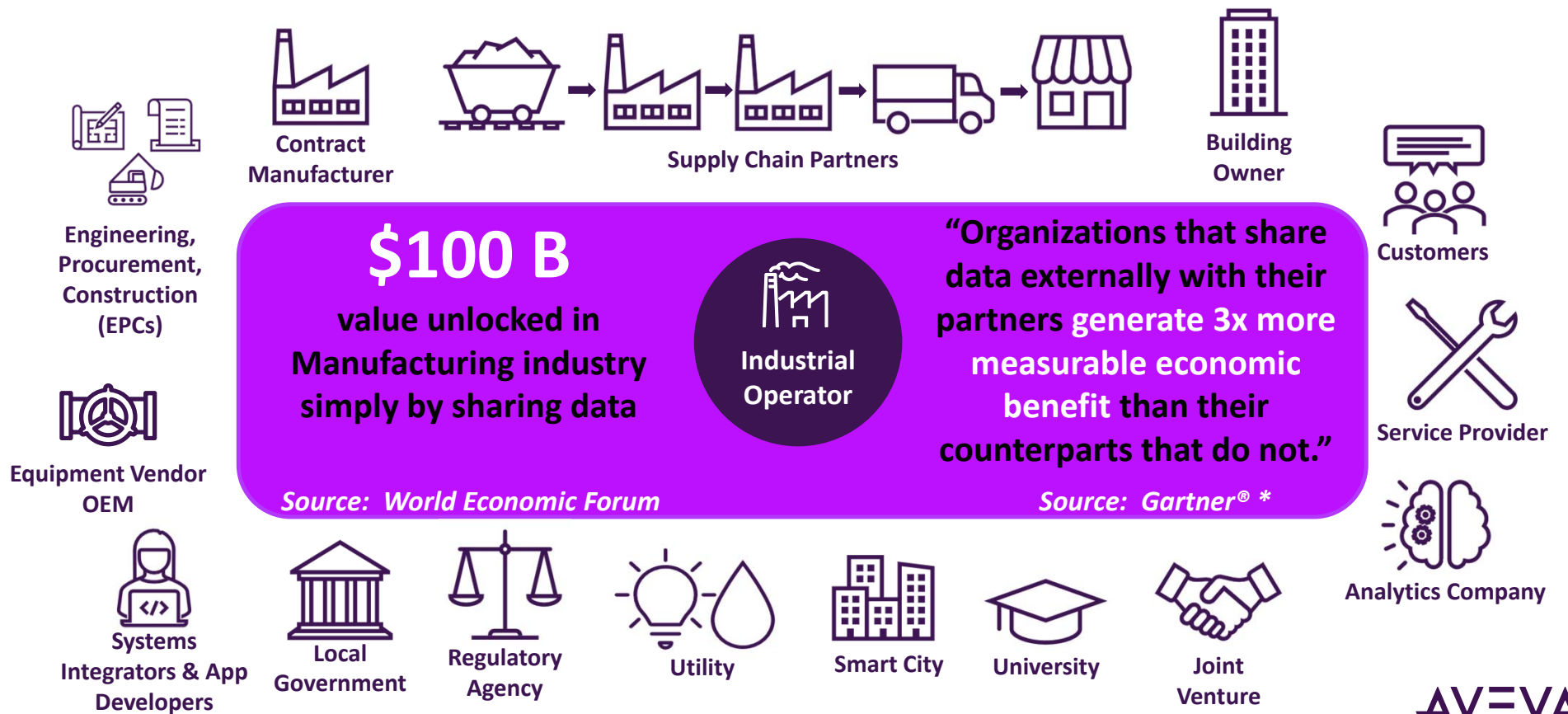
OSIsoft Founder & Chairman Emeritus of AVEVA

AVEVA

Getting more value out of industrial data, together



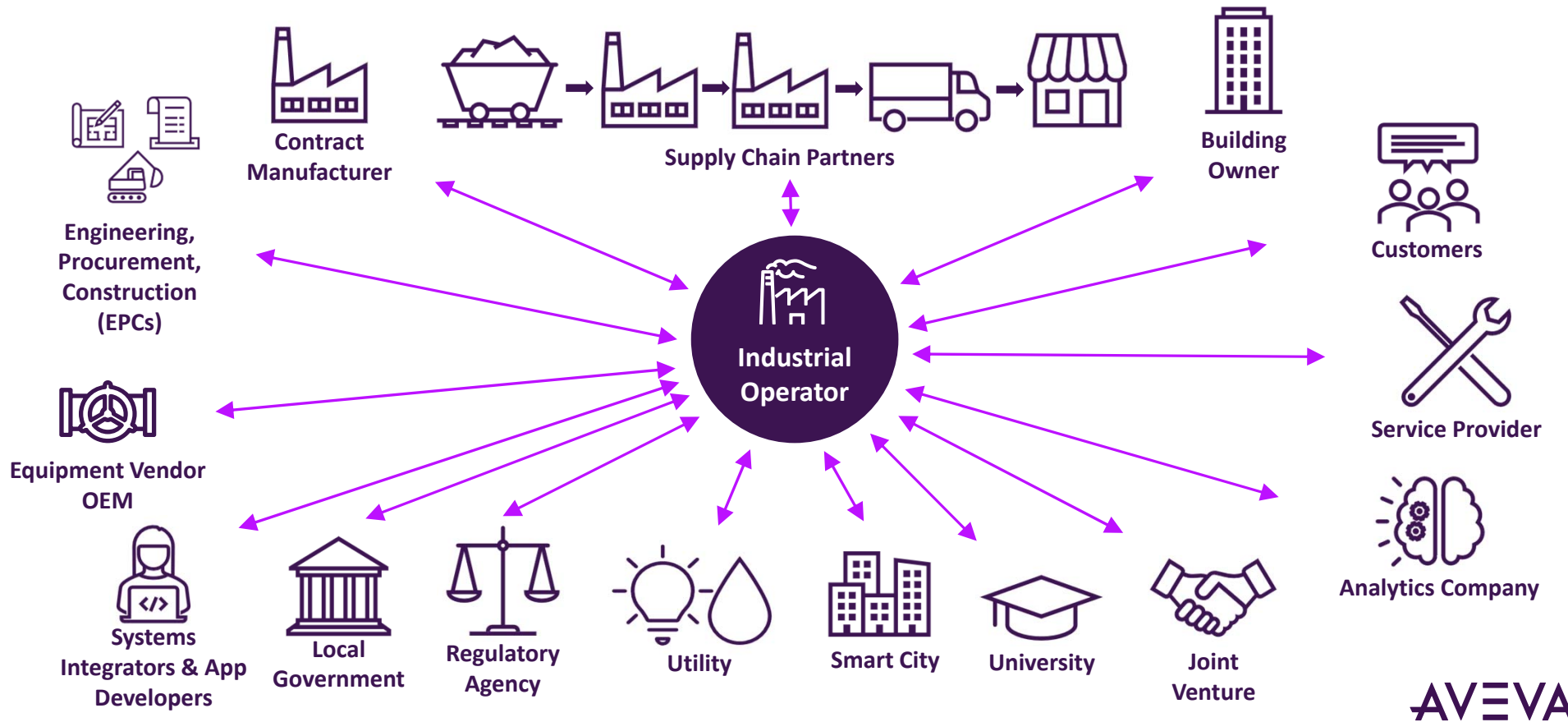
Empowering an ecosystem to deliver customer value



* Gartner, "Data and Analytics Essentials: Data Sharing", Lydia Clougherty Jones, 24 June 2021. GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally and is used herein with permission

AVEVA

Empowering an ecosystem to deliver customer value



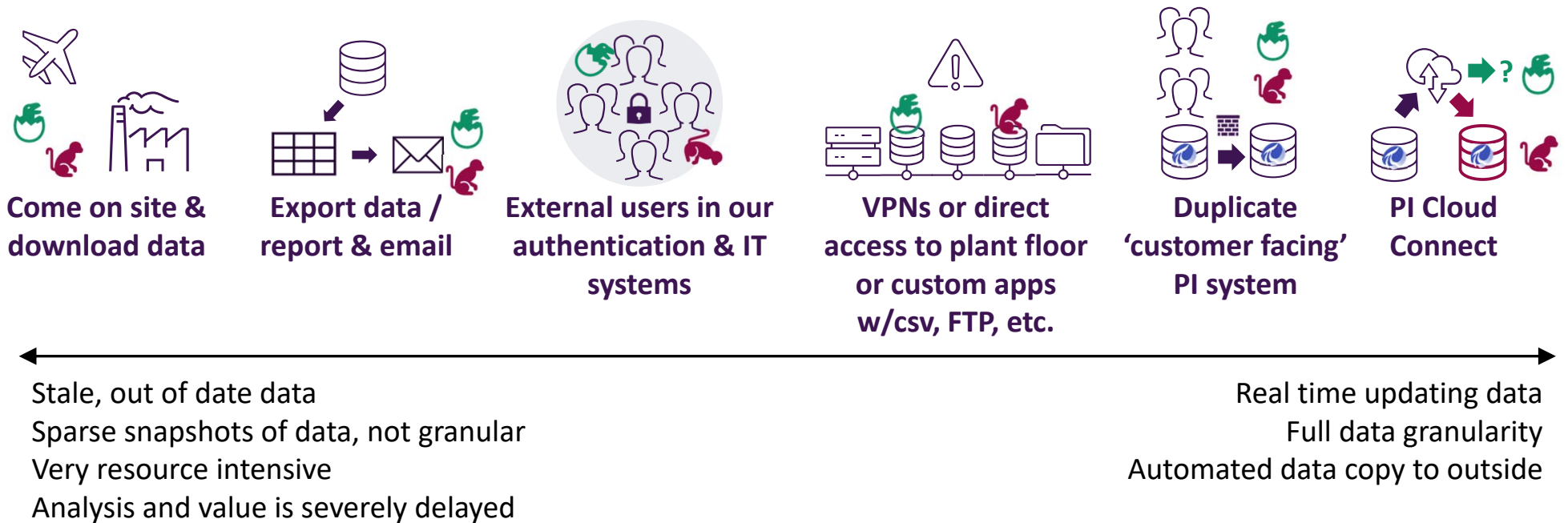
OSISOFT CLOUD SERVICES

Data sharing challenges

AVEVA

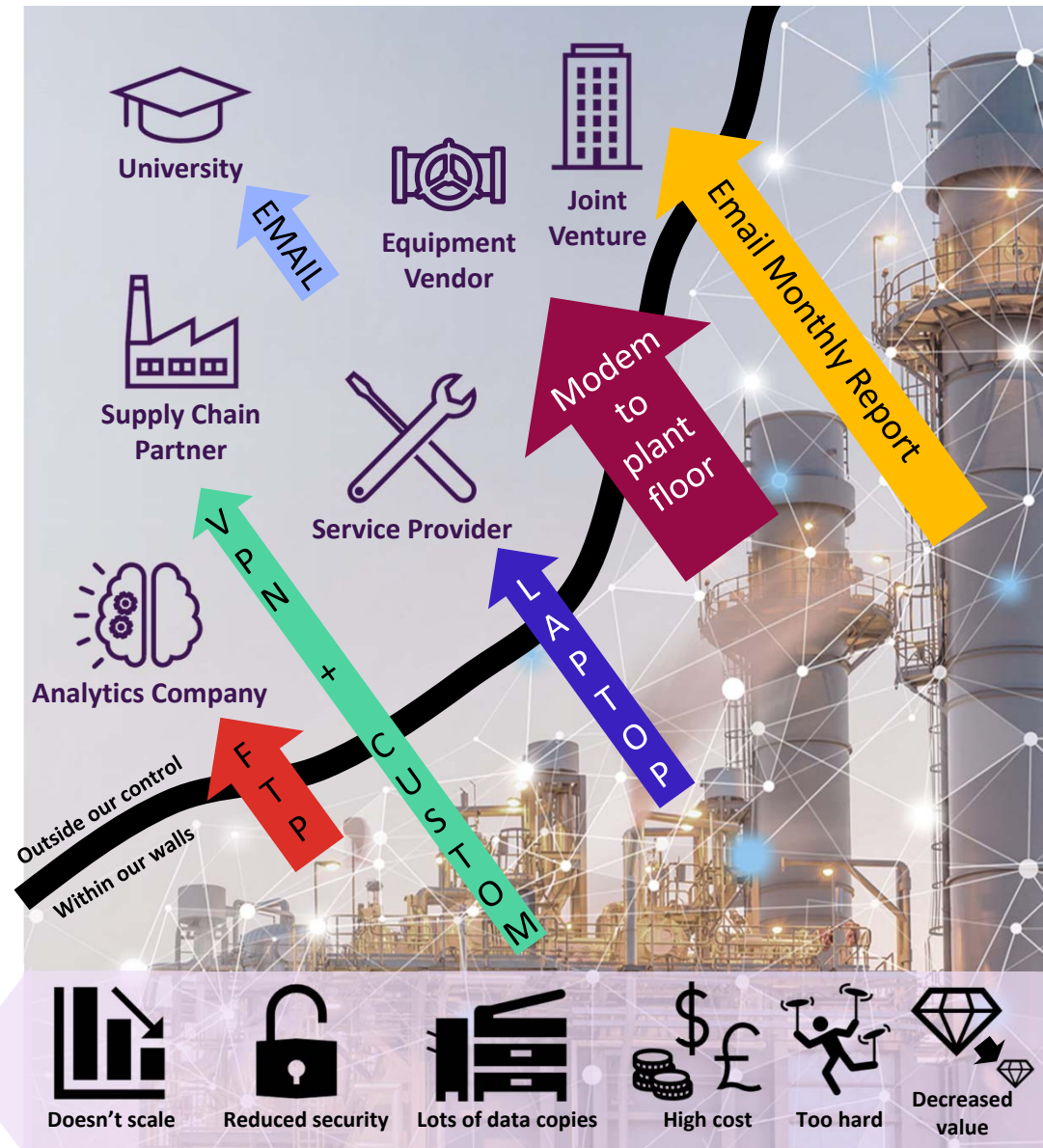
Data sharing today

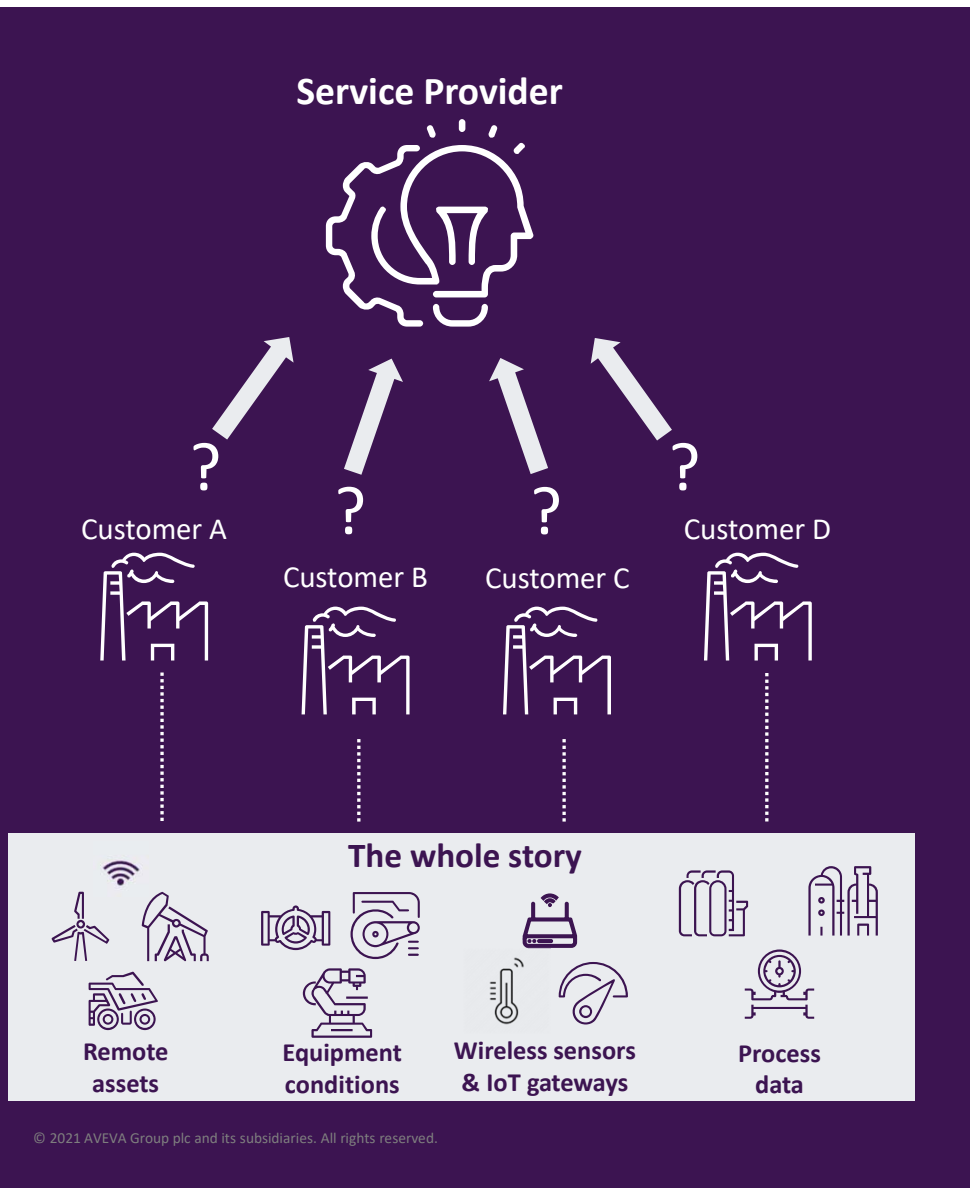
From the age of the dinosaurs & some modern-day monkey business!



Sharing operations data externally

- **No standard scalable way to share:** Sharing operations data through multiple technical methods for multiple stakeholders
- **Increased security risk:** Each communication method introduces its own security risks and having many different solutions increases the overall security attack surface for our company
 - Some methods may expose the process control network
- **Our data is copied all over the place:** most sharing methods involve copying data outside of our walls, we don't have control over it
- **High level of control & confidentiality:** We need a way to share specific sets of data with specific business partners with confidentiality
- **High IT cost:** Each request consumes IT resources, it's a new conversation & custom project every time
- **High overhead costs:** Maintaining vendors within our company's internal identity & authentication systems is not sustainable.
- **Not everyone has PI:** Some of our business partners have PI and PI Cloud Connect works great for that, but many don't have PI. We need a solution that works for everyone.
- **Not maximizing value:** All these challenges mean we're not getting as much value as we could out of our industrial & operational data. It's too painful.





Service provider challenges

Getting access to customer's operations data

- **Data from vendor devices alone may not tell the whole story**
- **Getting data from customer's plant site**
 - Onsite installation & configure hardware and software at plant, 3-5 days onsite
 - Setup dedicated VPN connection between companies, maintained on both sides
 - Ongoing configuration & maintenance of local hardware & software (+ some custom software databases)
- **Writing data management software is not a strength or our core expertise / business**
- **Potentially need to share results data back to the customer**
- **How to deliver my value & expertise at scale for many customers?**

The pain of sharing data externally today

In the words of our customers ...

"We don't share with anyone because it's such a pain today: VPNs, linking IT systems, opening up our SCADA systems. We don't want cyber security events, so no thanks."



"We don't want to give them direct access, so we give them a locked down laptop that remote VPNs into our network. This is a horrible solution to be honest."



"Today the data is copied all over the place. The main issue we have is many ways of communicating outside from our PI Systems via firewall openings. Not all these connections are really that secure."



"We are transporting data around to different places and some data is taking strange routes with four or five systems along the way. It gets way out of your responsibility & is impossible to troubleshoot."



"PI Cloud Connect works great for our customers that have a PI System. But 50-60% of our customers don't have a PI System."



OSISOFT CLOUD SERVICES

Sharing data with Connected Community

AVEVA



Connected Community

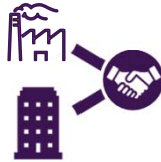
Enables simple & secure operational data sharing across organizations



More secure way of sharing your data



Manage your own users in your OCS tenant



Easily connect to your trusted business partners in an OCS community



Control over your shared data



optional

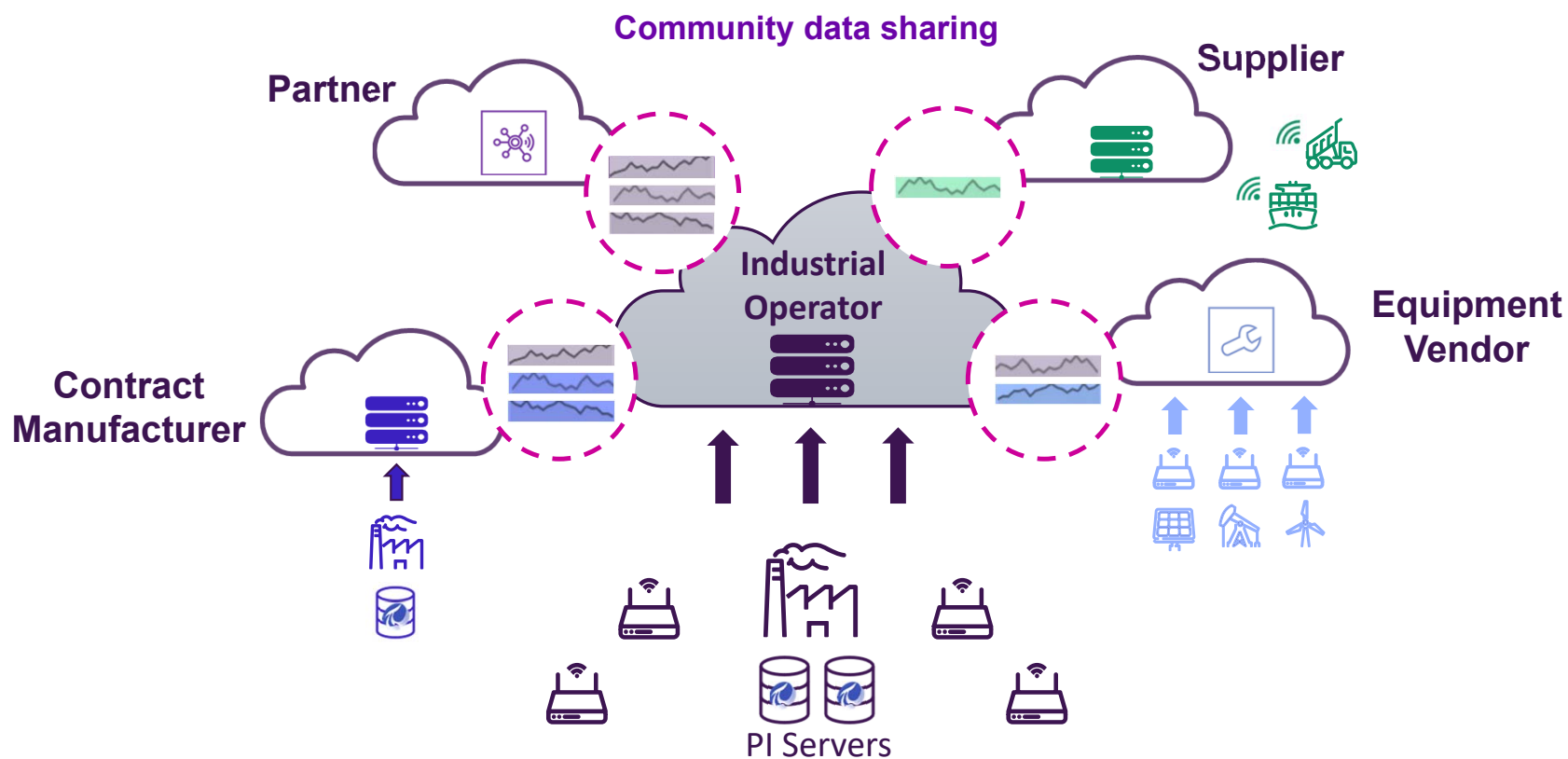
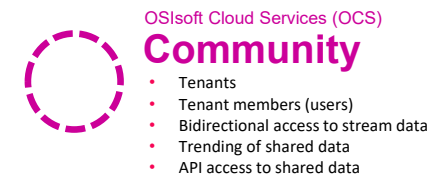
Works great with a PI Server (but not required)



Sharing that scales to many business partners

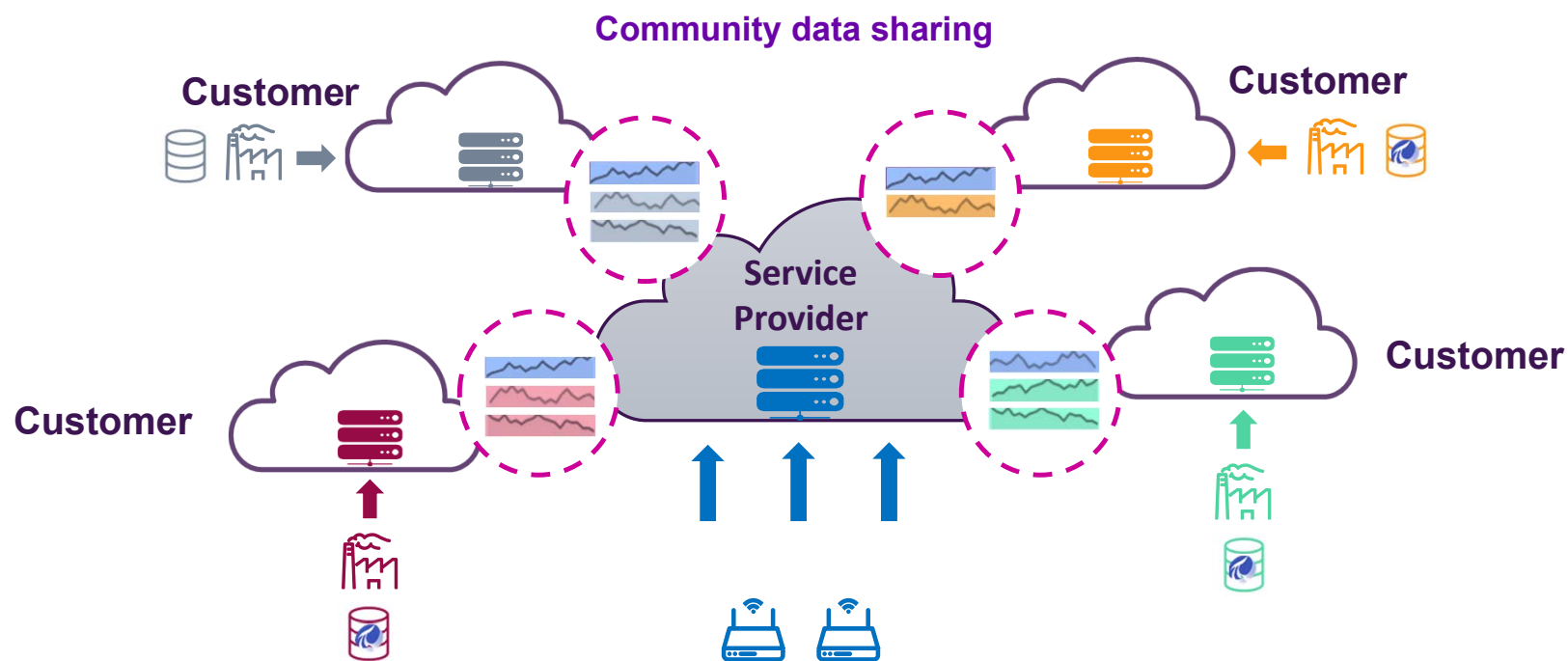
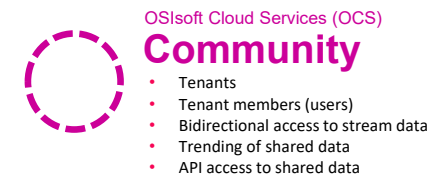


Connected Community – Industrial Operators





Connected Community – Service Providers

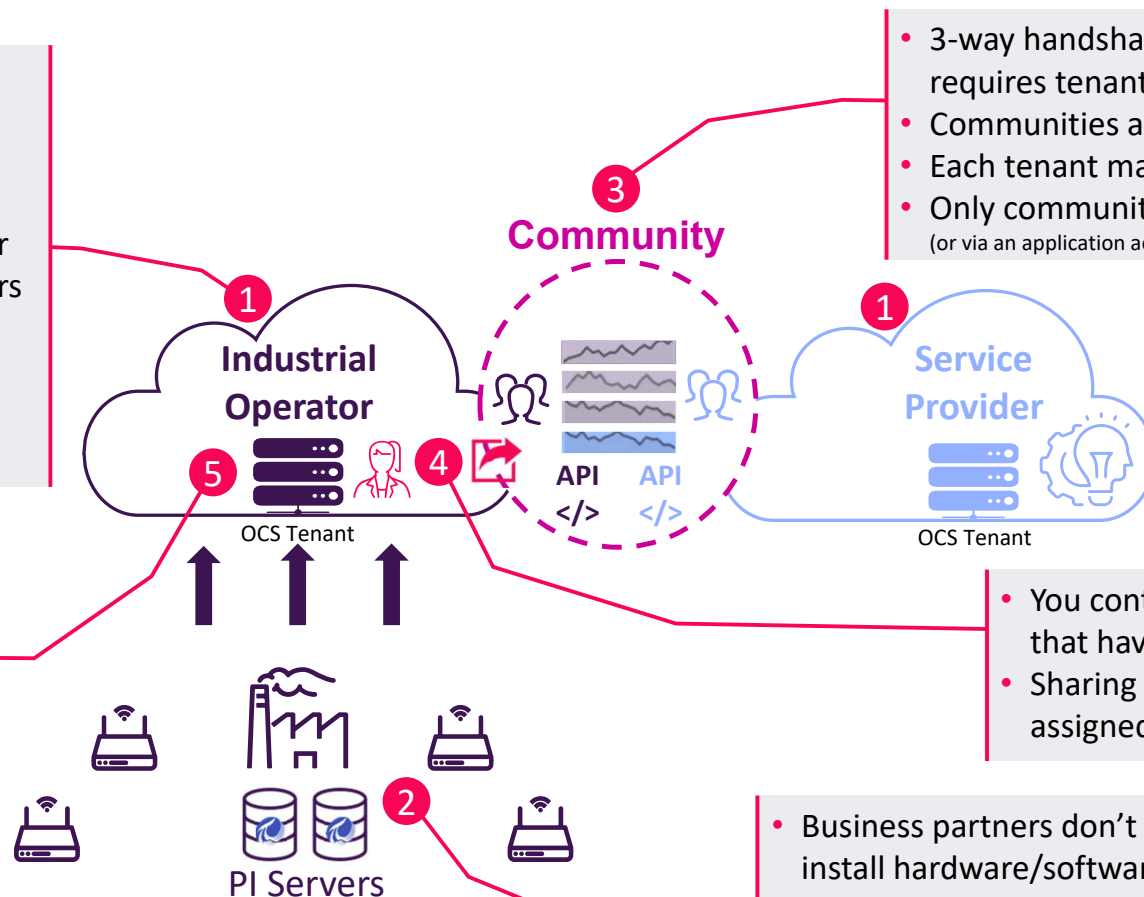




A more secure way to share operational data

- True multi-tenant system
- Natural separation of authentication, users, and data
- Each tenant manages their own authentication & users
- No external users logging directly into your tenant
- Better protection of Intellectual Property (IP)

- Sharing provides *access* to data stored in your tenant
- Data is not copied outside of your tenant by OCS



- 3-way handshake for Community formation & requires tenant admin approval
- Communities are private
- Each tenant manages their community members
- Only community members can read shared data (or via an application accessing data via API)

- You control who your “data stewards” are that have resource sharing privileges
- Sharing privilege must be explicitly assigned (even to tenant admins)

- Business partners don’t need to install hardware/software within your site to get access to data



Data sharing that puts you in control of your data

- ✓ Each tenant has control of what they share
- ✓ Sharing privileges explicitly assigned to your “data stewards”
- ✓ Sharing is providing *access*, not copying data outside your tenant
- ✓ Pause data sharing
- ✓ Unshare data
- ✓ Leaving community removes external access

OSIsoft Cloud Services Sequential Data Store

Streams

Search for Streams...

+ Add Stream

OSIsoft Events | OSIsoft, LLC

Id	Name	Description	Type Id	Tenant Name	
☐	WeatherData-Scottsdale	Scottsdale Weather Station	WeatherData-v2	OSIsoft, LLC	
☐	WeatherData-Philadelphia2	Downingtown Weather Sta...	WeatherData-v1	OSIsoft, LLC	
☐	PL_DFPIServerPrd.osisoft...	GE01_T_GEN_1	Turbine 01 Generator 1 Te...	PI-Float32	OSIsoft Events
☐	PL_DFPIServerPrd.osisoft...	GE01_T_GEN_2	Turbine 01 Generator 2 Te...	PI-Float32	OSIsoft Events
☒	PL_PISRV01_102	GE01_OS_PV	Turbine 01 Operating State	PI-Digital	OSIsoft Events
☐	PL_PISRV01_104	GE01_PACT_PV	Turbine 01 Power	PI-Float32	OSIsoft Events
☐	PL_PISRV01_106	GE01_V.WIN_PV	Turbine 01 Wind Speed	PI-Float32	OSIsoft Events
☐	PL_DFPIServerPrd.osisoft...	GE02_T_GEN_1	Turbine 02 Generator 1 Te...	PI-Float32	OSIsoft Events
☐	PL_DFPIServerPrd.osisoft...	GE02_T_GEN_2	Turbine 02 Generator 2 Te...	PI-Float32	OSIsoft Events
☐	PL_PISRV01_111	GE02_OS_PV	Turbine 02 Operating State	PI-Digital	OSIsoft Events
☐	PL_PISRV01_113	GE02_PACT_PV	Turbine 02 Power	PI-Float32	OSIsoft Events
☐	PL_PISRV01_115	GE02_V.WIN_PV	Turbine 02 Wind Speed	PI-Float32	OSIsoft Events
☐	PL_DFPIServerPrd.osisoft...	GE03_T_GEN_1	Turbine 03 Generator 1 Te...	PI-Float32	OSIsoft Events
☐	PL_DFPIServerPrd.osisoft...	GE03_T_GEN_2	Turbine 03 Generator 2 Te...	PI-Float32	OSIsoft Events
☐	PL_PISRV01_120	GE03_OS_PV	Turbine 03 Operating State	PI-Digital	OSIsoft Events
☐	PL_PISRV01_122	GE03_PACT_PV	Turbine 03 Power	PI-Float32	OSIsoft Events

Showing 1 - 17 of 17

Items per page: 200

1

2

3

4

Community Name

Community Description

Program Management Test

Program Management Test

TBRO Wind Turbine Demo

Community for sharing Wind Turbin...

Where is this stream shared to?

What data is shared with me and who is sharing it?

What data am I sharing into this community?



See where you're sharing your data, in one place

- Community details
 - Tenants
 - My Users, # of users for other tenants
 - My Clients for headless application API access, # Clients for other tenants
 - Streams shared by each participating tenant

OSIssoft Cloud Services > Communities

Filter Communities... [+ Add Community](#)

Community Name	Tenants	Date Created	Sharing Status
Program Management SLTC Events SLTC Data sharing between program management team and osisoft events	2	May 10, 2021	Sharing Active
Program Management Test Program Management Test	2	May 10, 2021	Sharing Active
TBRO Wind Turbine Demo Community for sharing Wind Turbine data	2	May 10, 2021	Sharing Active
Test d	1	Aug 31, 2021	Sharing Active

OSIssoft Cloud Services > Communities

← Back to Communities

TBRO Wind Turbine Demo
cd038ad2-dba2-4a39-a7bf-7e7f510abcbd
Community for sharing Wind Turbine data
Sharing Active
Created May 10, 2021

Tenants **My Users** My Clients

Filter tenants... [View Streams](#)

Community Owner

Name ↑	Status	Users	Clients	Streams
☐ Totals	All Tenants Active	16	1	17
☐ OSIssoft Events	Active	8	1	15
☐ OSIssoft, LLC	Active	8	0	2

Showing 1 - 2 of 2 Items per page: 50

- Communities my tenant participates in



Provides access to shared operational data

- Example: Get data from a community shared stream in another tenant between a start time and end time

<https://cloud.osisoft.com/api/v1-preview/communities/{{CommunityID}}/tenants/{{TenantID}}/namespaces/Drilling/streams/WeatherData-Philadelphia2/data?startIndex=7/1/2021&endIndex=7/22/2021>

```
1 [{"TimeStamp": "2021-07-01T00:01:00Z",
2   "WindDirection": 109.0,
3   "MaxDailyGust": 11.4,
4   "Temperature": 85.8,
5   "MonthlyRain": 10.398,
6   "TotalRain": 115.65,
7   "BarometricPressureRelative": 29.297,
8   "BarometricPressureAbsolute": 29.448,
9   "Humidity": 71.0,
10  "IndoorTemperature": 80.1,
11  "IndoorHumidity": 42.0,
12  "SolarRadiation": 7.34,
13  "TemperatureFeelsLike": 95.01,
14  "DewPoint": 75.28
15 },
16
17 {"TimeStamp": "2021-07-01T00:03:00Z",
18   "WindDirection": 113.0,
19   "MaxDailyGust": 11.4,
20   "Temperature": 85.6,
21   "MonthlyRain": 10.398,
22   "TotalRain": 115.65,
23   "BarometricPressureRelative": 29.303,
24   "BarometricPressureAbsolute": 29.454,
25   "Humidity": 72.0,
26   "IndoorTemperature": 80.1,
27   "IndoorHumidity": 41.0,
28   "SolarRadiation": 6.85,
29   "TemperatureFeelsLike": 94.94,
30   "DewPoint": 75.51
31 },
32
33 }
```

1 Community API Access

IN PREVIEW

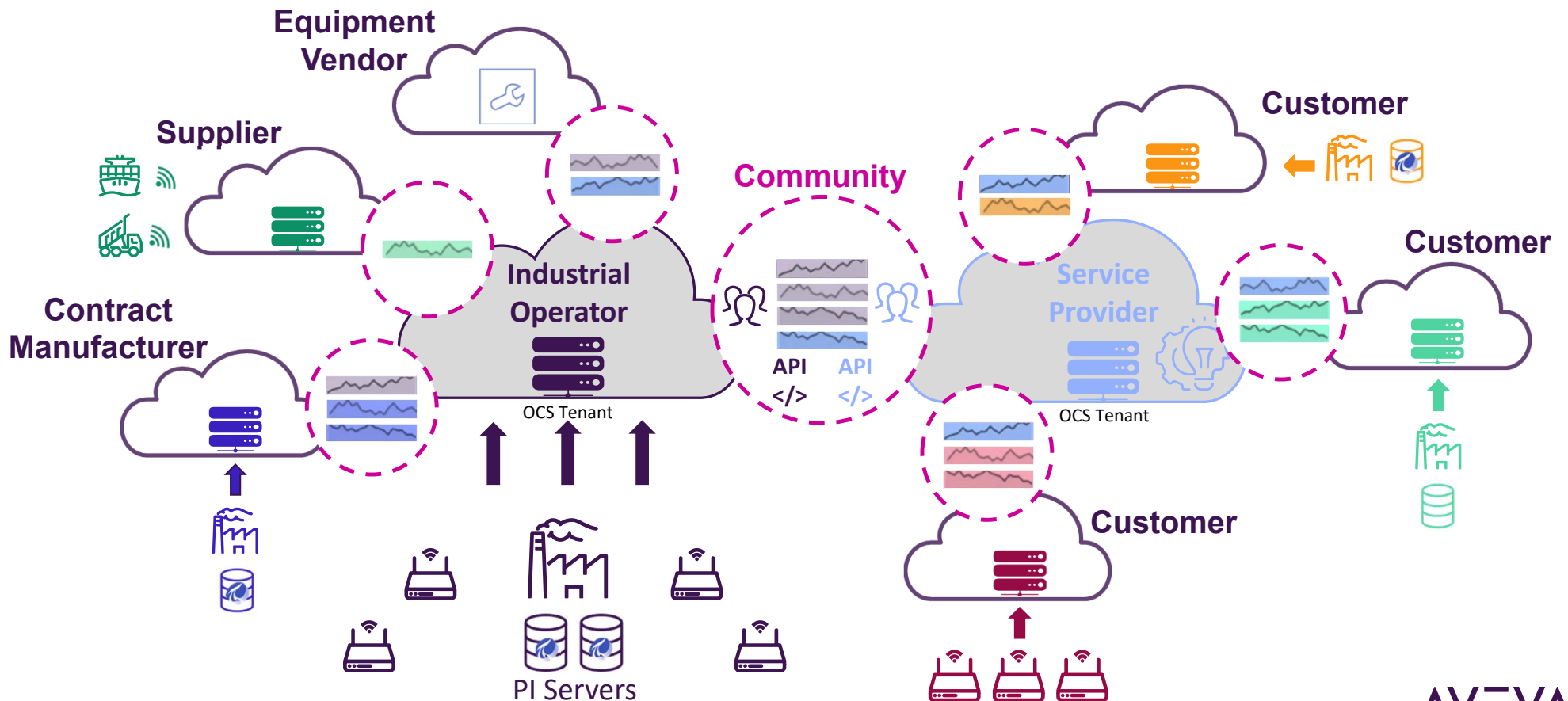


2 Community Trending

IN DEVELOPMENT



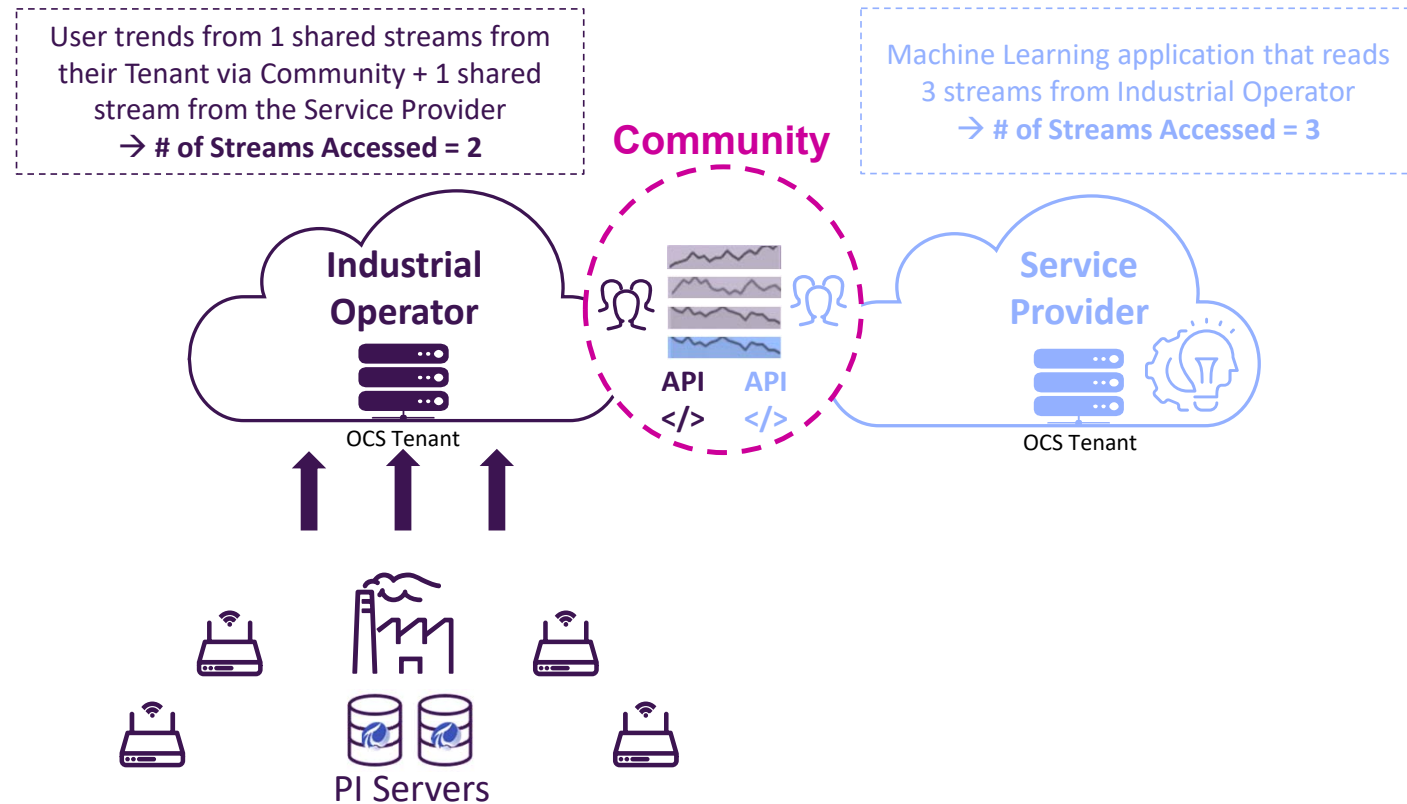
Easily scales to all your partners, even those without PI





Commercial approach

- **Consumption metric: # of streams accessed**
- Each tenant pays for their own consumption
- Access of data through a community counts as additional consumption for that stream
- Integration with AVEVA Connect cloud platform in progress



OSISOFT CLOUD SERVICES

Connected Community DEMO

AVEVA



DEMO

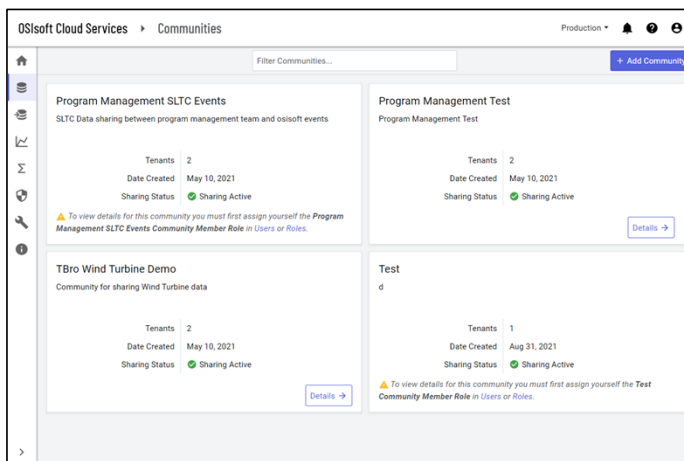
© 2021 AVEVA Group plc and its subsidiaries. All rights reserved.

AVEVA



Connected Community – where are we today?

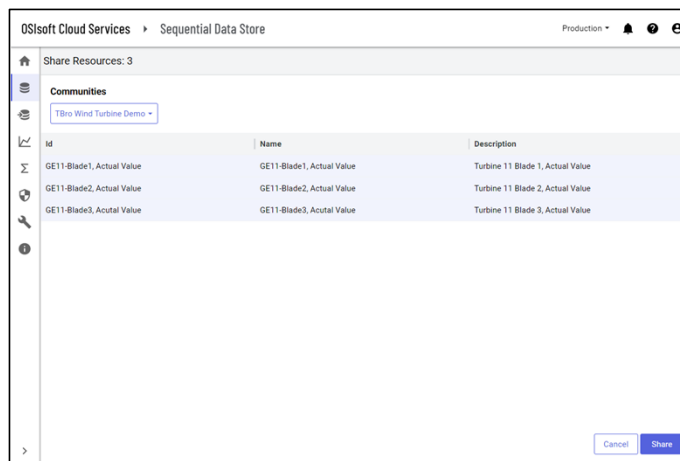
Community management



Ability to form a community, invite other OCS tenants to join, and manage users

IN PREVIEW / LIGHTHOUSE

Stream data sharing



Ability to share streams into a community & access the data via REST API

IN PREVIEW / LIGHTHOUSE

Trend shared data



Trend community shared data alongside data stored in your OCS tenant

IN DEVELOPMENT

AVEVA

OSISOFT CLOUD SERVICES

Looking ahead

Data Sharing

AVEVA



Connected Community – future roadmap considerations

Asset sharing

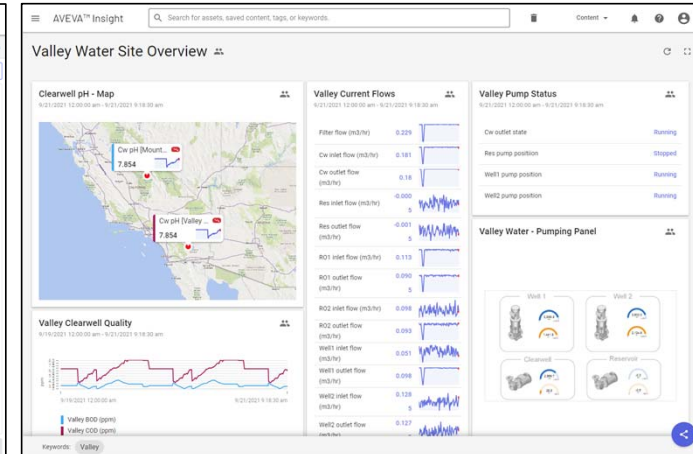
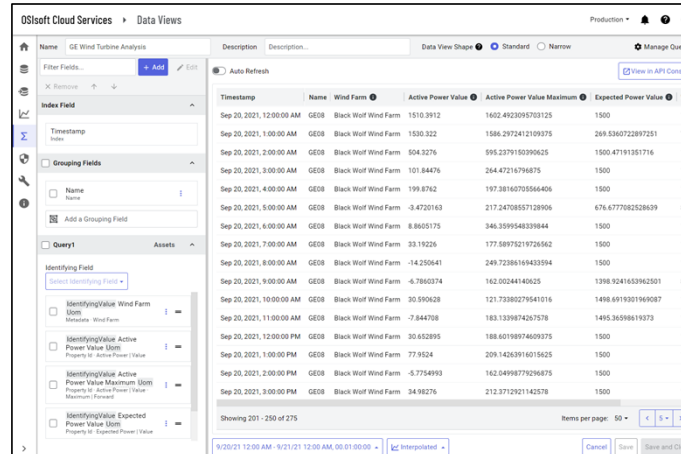
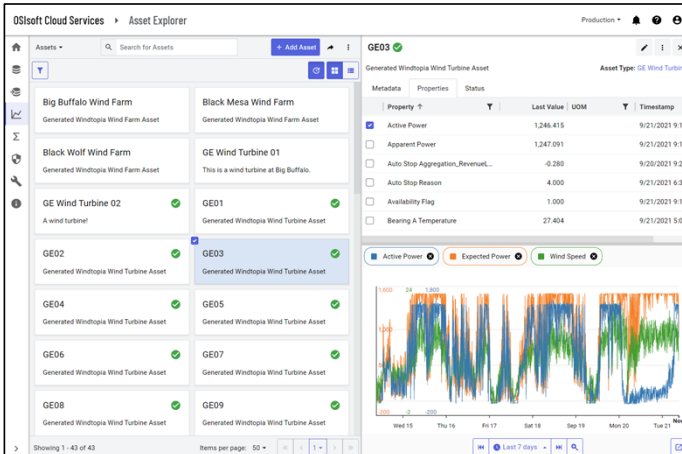
*Sharing Assets properties into a Community
Referencing shared data in existing Assets*

Data View sharing

*Sharing Data Views into a Community
Creating Data Views from shared data*

Display sharing

*Sharing Displays into a Community
Creating Displays from shared data*



Data Constraints

*Constrain shared data by fixed time windows,
moving time windows, etc.*

Sharing Engineering & Project Data

*Expanding Community to broader AVEVA data
sets beyond just Operations data*

Customer Feedback: VOTE!

<https://feedback.osisoft.com/forums/597811-osisoft-cloud-services>

AVEVA

OSISOFT CLOUD SERVICES

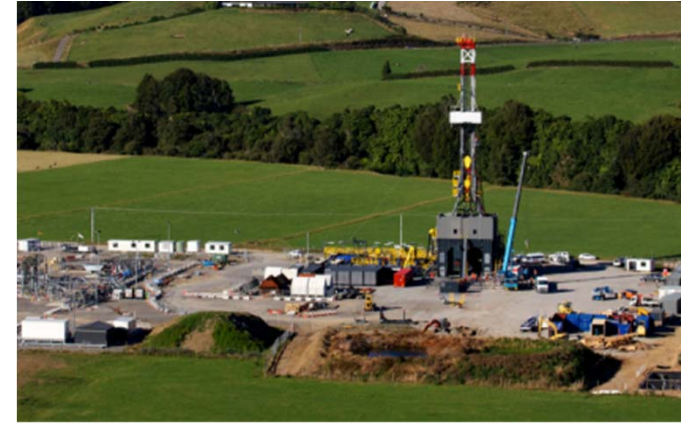
Customer success stories

Data Sharing

AVEVA

OCS for data sharing and reducing cyber-security risk

Energy Company



Challenge

- Eliminate contractor access to on-premise data systems to reduce cybersecurity risk
- Sought new methods to reduce costs/overhead in procuring/distributing laptops for engineering contractors
- Wanted to identify methods to reduce level of effort by corporate IT staff

Solution

- Enabled Production Operations, Well and Engineering staff to share production and equipment data with external vendors, securely
- Access to trending data streams for analysis and to get everyone on the same page, quickly
- Enabled customized data access using Data Views and REST API.

Benefits

- **Reduced cybersecurity risk by eliminating access to corporate network**
- **Reduced the level of effort required by corporate IT staff by 5 person-hours per contractor account**
- **Simplified and streamlined process to enable contractor access**

Renewable Energy Group (REG) and Allied Reliability

Accelerating the Transition to Clean Energy



REG® and Renewable Energy Group® are registered trademarks of Renewable Energy Group, Inc. and used with permission.

Challenge

- Centrifuges used in the biodiesel industry can have a high number of recurring faults
- Downtime of critical equipment could shut down an entire plant or reduce plant capacity
- Downtime is disruptive to the business, including high maintenance costs to repair centrifuges

Solution

- OCS was used by REG to securely share centrifuge data with their partner, Allied Reliability
- Data was used by Allied Reliability to analyze and reduce/eliminate centrifuge downtime
- Share data selectively, securely, and simply with external stakeholders
- After SmartCBM® performance analysis, the data results were made available in OCS (via REST API) and subsequently pushed into REG's OSIsoft PI System of record

Benefits

- Accelerates the market opportunity for various products
- Reduces centrifuge downtime
- Integration of PI System data into Allied Reliability SmartCBM® solution enables a holistic view of asset performance
- An estimated 90% reduction in downtime is possible as a result

DATA MANAGEMENT & DATA SHARING

Enabling data collaboration across farms, grower's groups, and agricultural value chains



Challenge

- Improve crop rotation planning (spray applications, identifying resistance issues, yield performance, soil testing) by sharing historical farm records with soil, weather, and yield data within a grower's group.
- Make farmer water data available to fire services to help prevent widespread fires in remote and rural areas.
- Fighting food fraud in wagyu beef value chain. ~3x Australian beef is sold in China than is *shipped* to China. Demonstrate the integrity of their product with supply chain data.
- Issues around data ownership, possession and control are significant barriers to adoption;
- No easy way to collaborate and share data

Solution

- All farm records, production data and device data is ingested and stored within the OCS portal;
- Data ownership, possession and control across all data sets are maintained at an individual farm or business level;
- On ingestion, data is standardised to a uniform data model (industry or global standard);
- Visualisation and analysis of data across all data sets from a single farm or multiple farms or businesses;
- Leverage OCS Community features to securely share farm data with other farms participating in grower's groups, or supply chains.
- Users can conduct their own research and analysis to gain farm or operation-specific insights;
- User-controlled data collaboration and sharing at a group, grower group or supply chain level.

Anticipated Benefits

** (Lighthouse project in progress)*

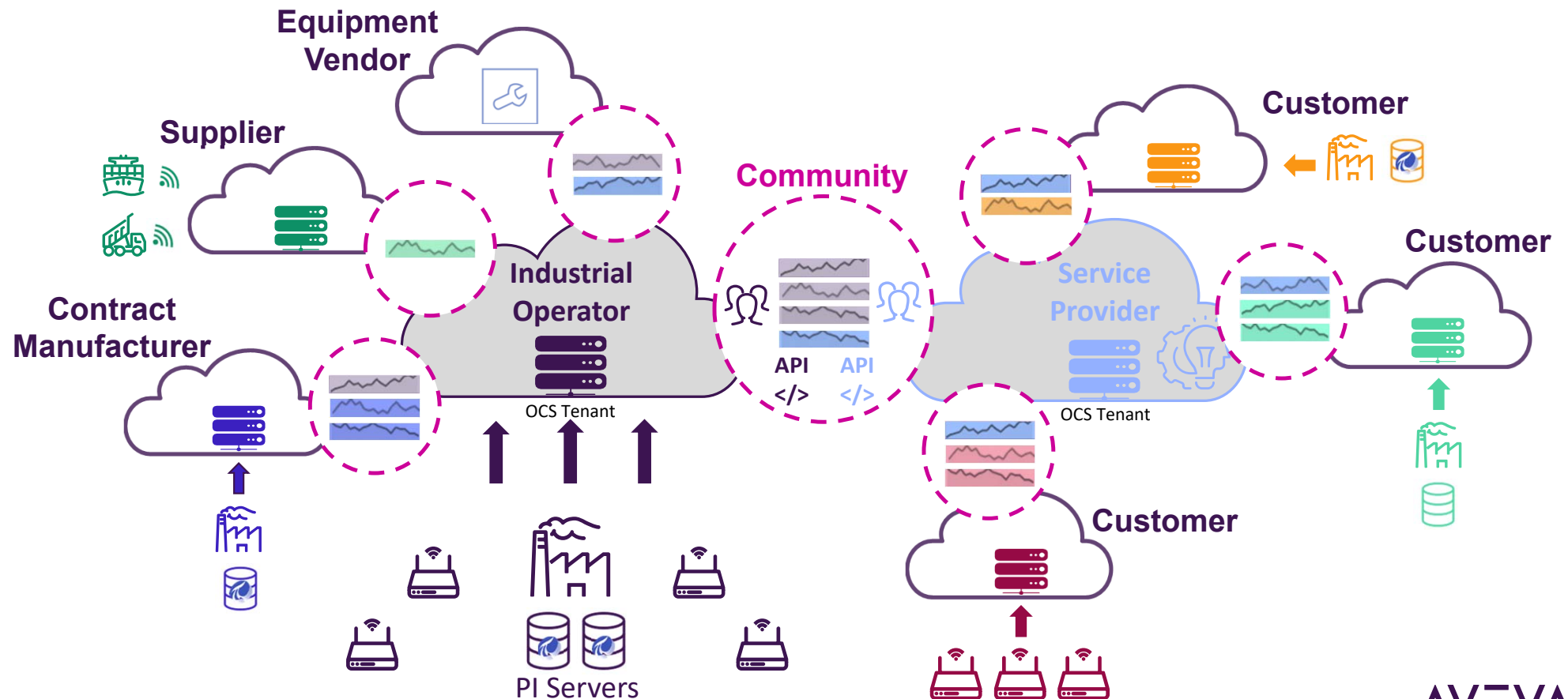
- **Ability to improve crop rotation planning across entire grower's groups increasing yield and productivity for all participating farms.**
- **Cost savings in spray applications.**
- **Minimize impact of fires in rural communities through data sharing of water resources across farm properties.**
- **Increased integrity of wagyu beef products and protection of brand using shared data across the value chain (grower, feed lot, processor, distributor, retailer, consumer). Reduction of food fraud.**
- **Improved animal welfare sustainability practices**
- **Increased collaboration within the agricultural industry and across farms.**

OSISOFT CLOUD SERVICES

Wrap up

AVEVA

Connected Community: Powering your industrial ecosystem





© 2021 AVEVA Group plc and its subsidiaries. All rights reserved.

AVEVA Lighthouse Program

Join us in a Lighthouse Project to prove & shape the value of new technology for your business scenarios!

- AVEVA provides:
 - AVEVA pre-released software
 - Installation & configuration support
 - Technical R&D support
 - Program management
- Participating customer provides:
 - Viable scenario
 - Resources to use AVEVA pre-released software for your scenario
 - Product feedback on use of software for scenario
 - Willingness to document a success story and participate in a future AVEVA public presentation

Email us at lighthouse@osisoft.com to engage with our team!

AVEVA

Where to find more information

OSIsoft Cloud Services (OCS)

- **AVEVA PI World Digital 2021**

- **Day 1: AVEVA Product Talks**

- AVEVA's cloud vision and strategy
- Your Roadmap to Operational Excellence
- PI System & OCS Roadmap
- Pervasive Data Collection
- OCS: OSIsoft Cloud Services

- **Day 2: Customer Presentations**

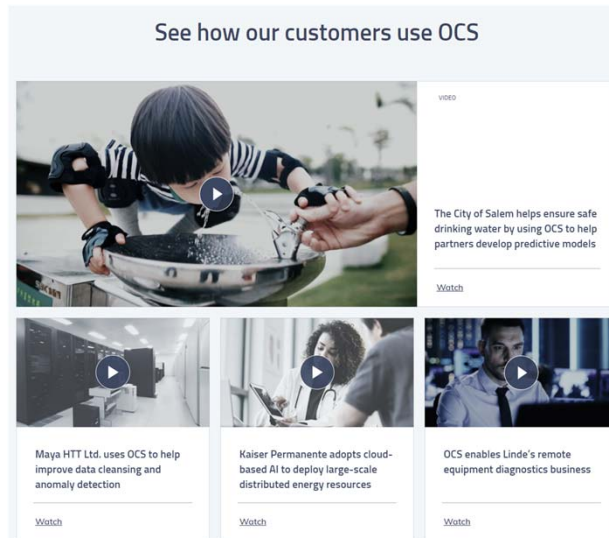
- AxisTech: Making agricultural data fair and FAIR
- SDG&E: Data-driven community-based approach to attain grid reliability and sustainability

- **Day 3: AVEVA Deeper Dives**

- OCS Communities [this talk]
- Remote operations monitoring in OCS
- OCS Data science enablement

- **Overview**

See how our customers use OCS



The City of Salem helps ensure safe drinking water by using OCS to help partners develop predictive models

Watch

Maya HTT Ltd. uses OCS to help improve data cleansing and anomaly detection

Watch

Kaiser Permanente adopts cloud-based AI to deploy large-scale distributed energy resources

Watch

OCS enables Linde's remote equipment diagnostics business

Watch



<https://www.osisoft.com/pi-system/pi-cloud/osisoft-cloud-services>

- **Security & Trust Center**

OSIsoft Cloud Services · Trust Center

Overview

Identities

Development & Operating Procedures

Validation & Audit

Third Parties

Data Privacy

Data Ownership

CSA CAIQ-Lite Responses

Letter of Attestation

Overview

OSIsoft Cloud Services (OCS) provides a comprehensive and secure cloud native set of offerings for capturing, processing, and analyzing data, including security controls, practices, and terminology. Each section also includes a list of links to related content.

Security by Design

Because OSIsoft products and services support companies with critical infrastructure missions that require a high level of security, we have designed our products and services with security in mind. Our security by design approach includes:

1. high-quality software
2. operational security assurance
3. clear communication about attendant risk and responsibility

OSIsoft follows the Microsoft Security Development Lifecycle methodology and OWASP practices for secure Web applications.

Transparency

OSIsoft's Ethical Disclosure Policy addresses transparency for issues affecting OSIsoft products and services that may impact our customers.

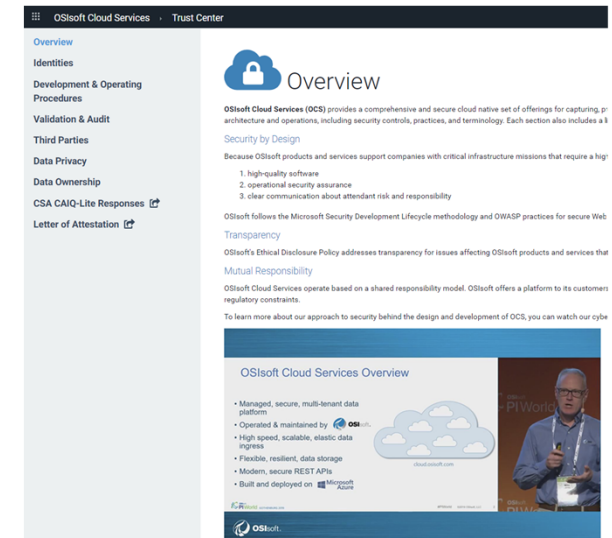
Mutual Responsibility

OSIsoft Cloud Services operate based on a shared responsibility model. OSIsoft offers a platform to its customers regulatory constraints.

To learn more about our approach to security behind the design and development of OCS, you can watch our cyber security video.

OSIsoft Cloud Services Overview

- Managed, secure, multi-tenant data platform
- Operated & maintained by OSIsoft
- High speed, scalable, elastic data ingress
- Flexible, resilient, data storage
- Modern, secure REST APIs
- Built and deployed on Microsoft Azure



Watch



<https://cloud.osisoft.com/trust-center>



Communicate with Product Managers

<https://feedback.osisoft.com>

Share your ideas, vote on others



Todd Brown

Staff Strategic Product Manager

- AVEVA
- todd.brown@aveva.com



Ryan McErlean

Sr. Technical Product Manager

- AVEVA
- ryan.mcerlean@aveva.com

THANK YOU

謝謝

DZIĘKUJĘ CI

NGIYABONGA

TEŞEKKÜR EDERİM

DANKIE

TERIMA KASIH

GRACIES

WHAKAWHETAI KOE

DANKON

TANK

TAPADH LEAT

SALAMAT

KÖSZÖNÖM

СПАСИБО

GRAZIE

MATUR NUWUN

ХВАЛА ВАМ

MULTUMESC

PAKMET CIZGE

고맙습니다

GRAZIE

شكرا

FAAFETAI

GO RAIBH MAITH AGAT

BLAГOДAPЯ

GRACIAS

MAHADSANID

TI BΛAΓOΔAPAM

TAK DANKE

MAHALO IĀ 'OE

TAKK SKAL DU HA

RAHMAT

MERCI

GRAZZI

PAKKA PÉR

ありがとうございました

DI OU MÈSI

ĎAKUJEM

HVALA

ESKERRIK ASKO

HVALA

TEŞEKKÜR EDERİM

OBRIGADO

MERCI

DI OU MÈSI

ĎAKUJEM

SIPAS JI WERE

TERIMA KASIH

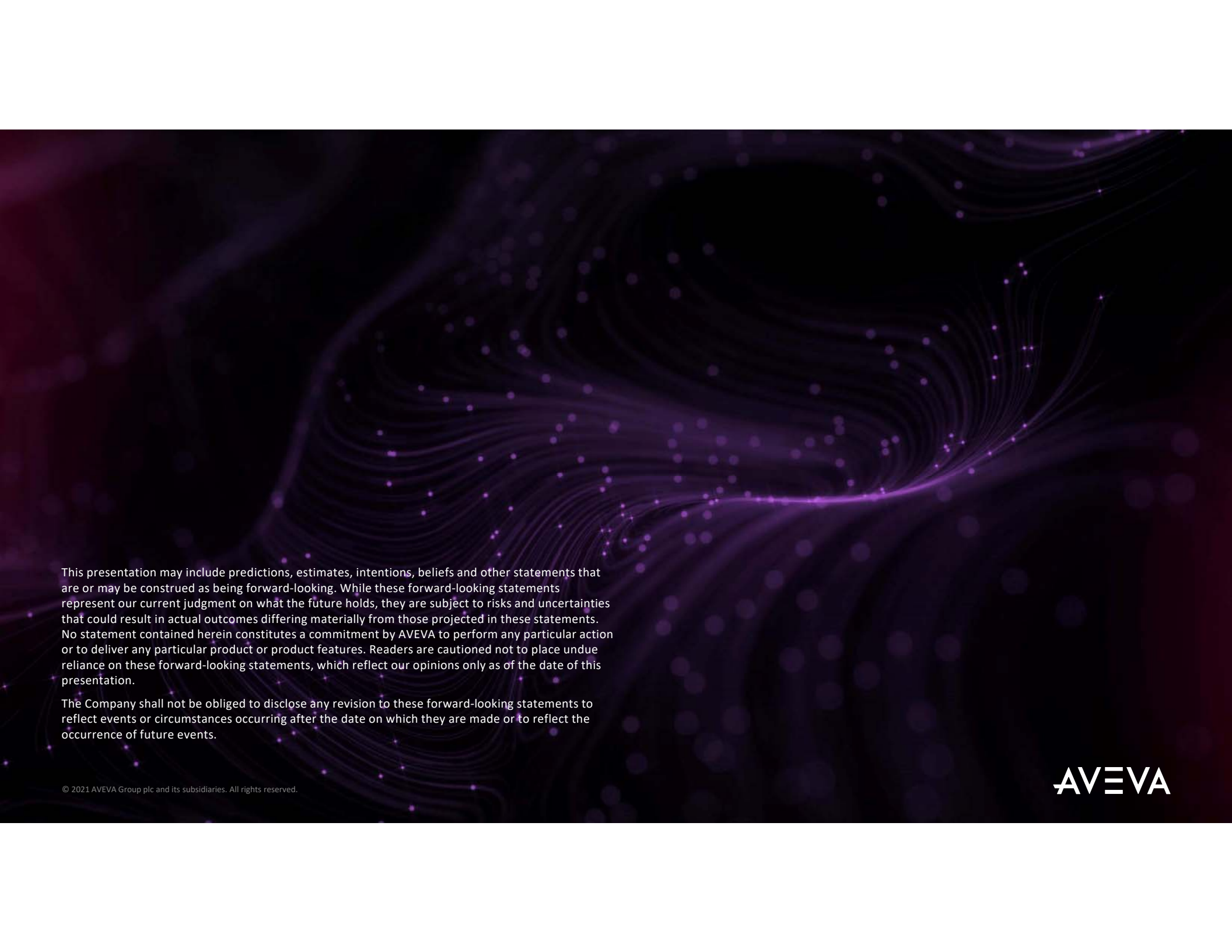
UA TSAUG RAU KOJ

TI BΛAΓOΔAPAM

СИПОС

WAZVIITA

FALEMINDERIT



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.

The Company shall not be obliged to disclose any revision to these forward-looking statements to reflect events or circumstances occurring after the date on which they are made or to reflect the occurrence of future events.

 [linkedin.com/company/aveva](https://www.linkedin.com/company/aveva)

 [@avevagroup](https://twitter.com/avevagroup)

ABOUT AVEVA

AVEVA, a global leader in industrial software, drives digital transformation for industrial organizations managing complex operational processes. Through Performance Intelligence, AVEVA connects the power of information and artificial intelligence (AI) with human insight, to enable faster and more precise decision making, helping industries to boost operational delivery and sustainability. Our cloud-enabled data platform, combined with software that spans design, engineering and operations, asset performance, monitoring and control solutions delivers proven business value and outcomes to over 20,000 customers worldwide, supported by the largest industrial software ecosystem, including 5,500 partners and 5,700 certified developers. AVEVA is headquartered in Cambridge, UK, with over 6,000 employees at 90 locations in more than 40 countries. For more details visit: www.aveva.com

© 2021 AVEVA Group plc and its subsidiaries. All rights reserved.

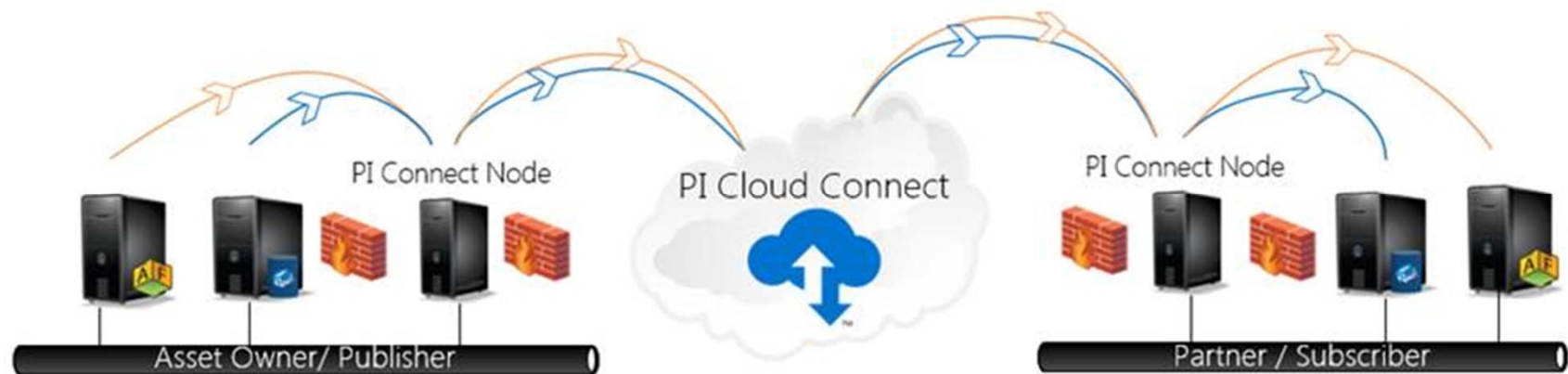
AVEVA



BACKUP / ATTIC

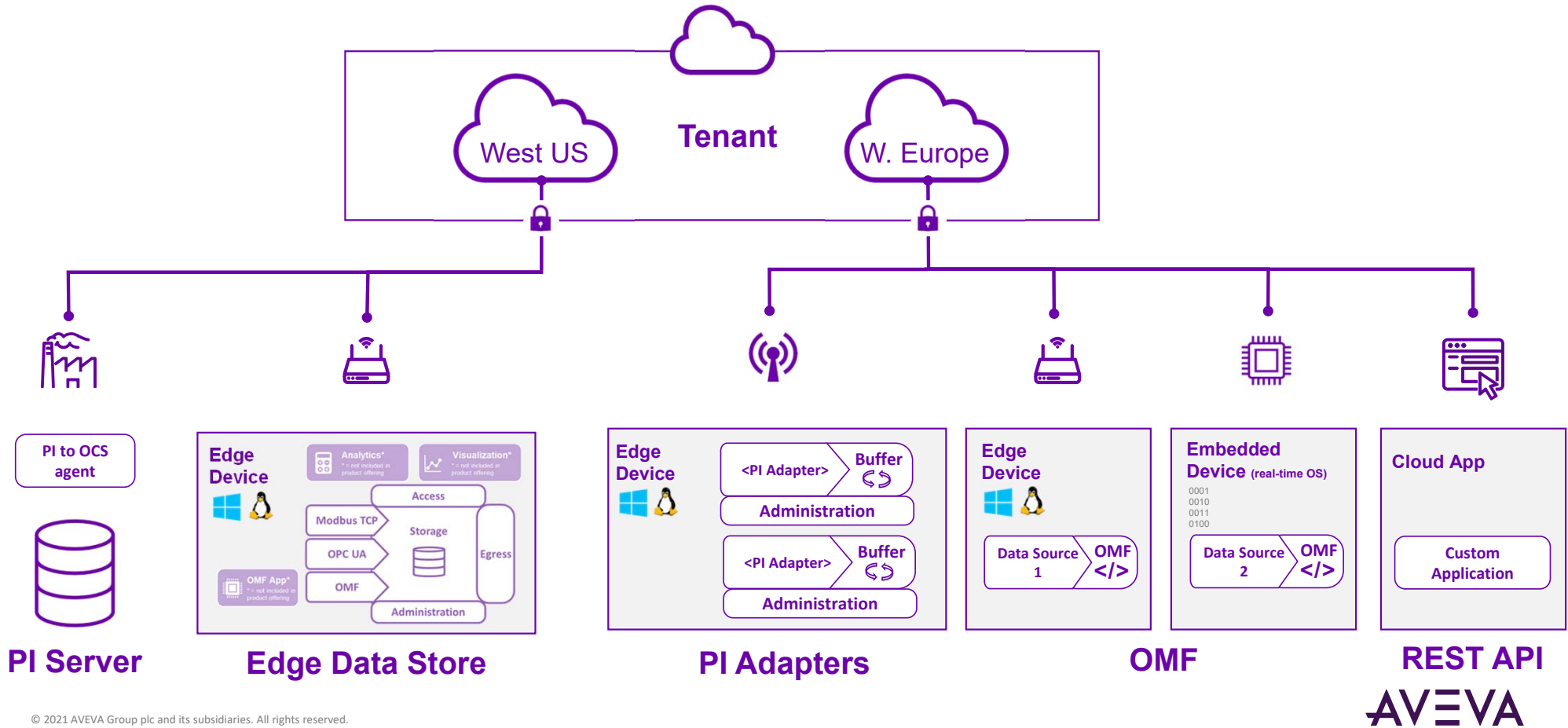
AVEVA

PI Cloud Connect: our first offering to share data between Enterprises that both have PI Systems



- Data Sharing between Enterprises that both have PI Systems
- Does not require a VPN between Enterprises; data transferred over HTTPS Port 443
- Publication & subscription model that transfers AF Elements & Data Archive tag data in real time
- Data is copied (duplicated) from one PI System to another PI System (across organizations)
- Automatic software upgrades
- Subscription pricing based on # of Subscriptions you have.

Flexible ingress for different data collection patterns

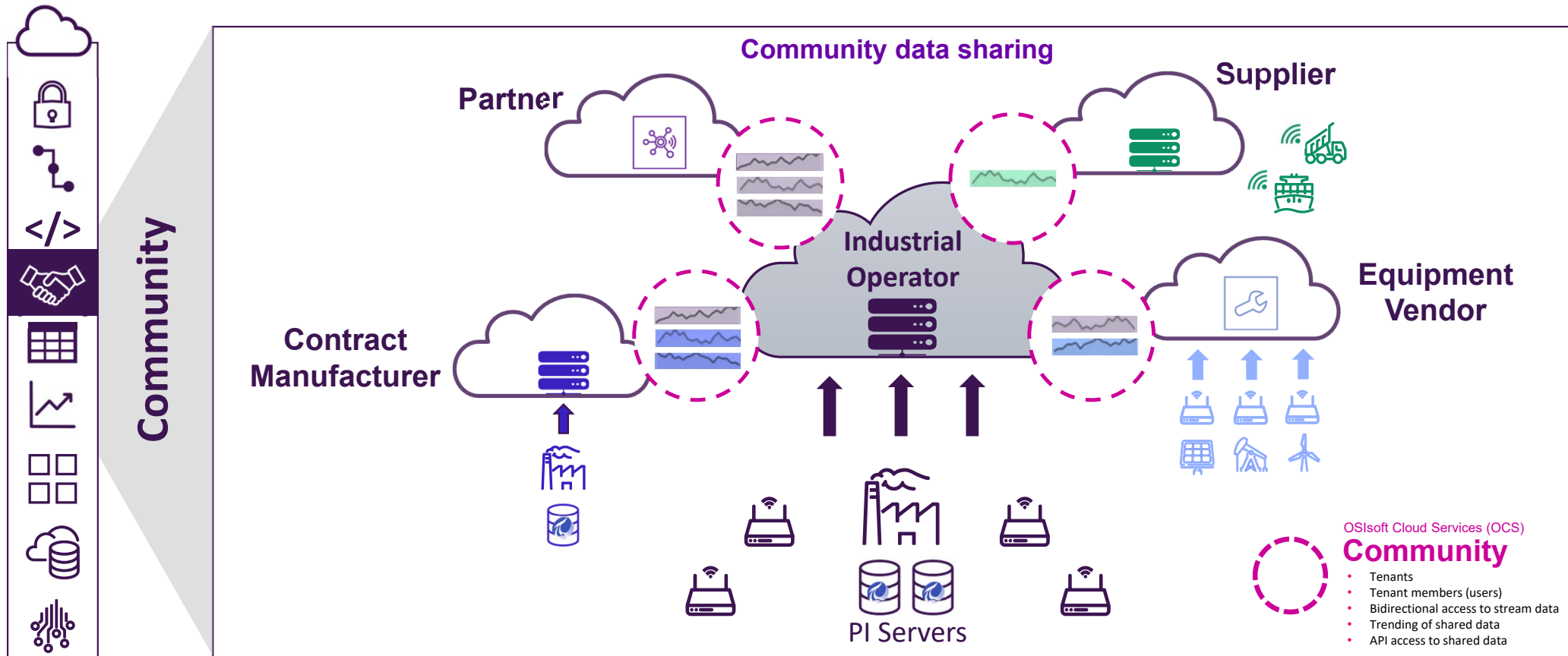


Data sharing today

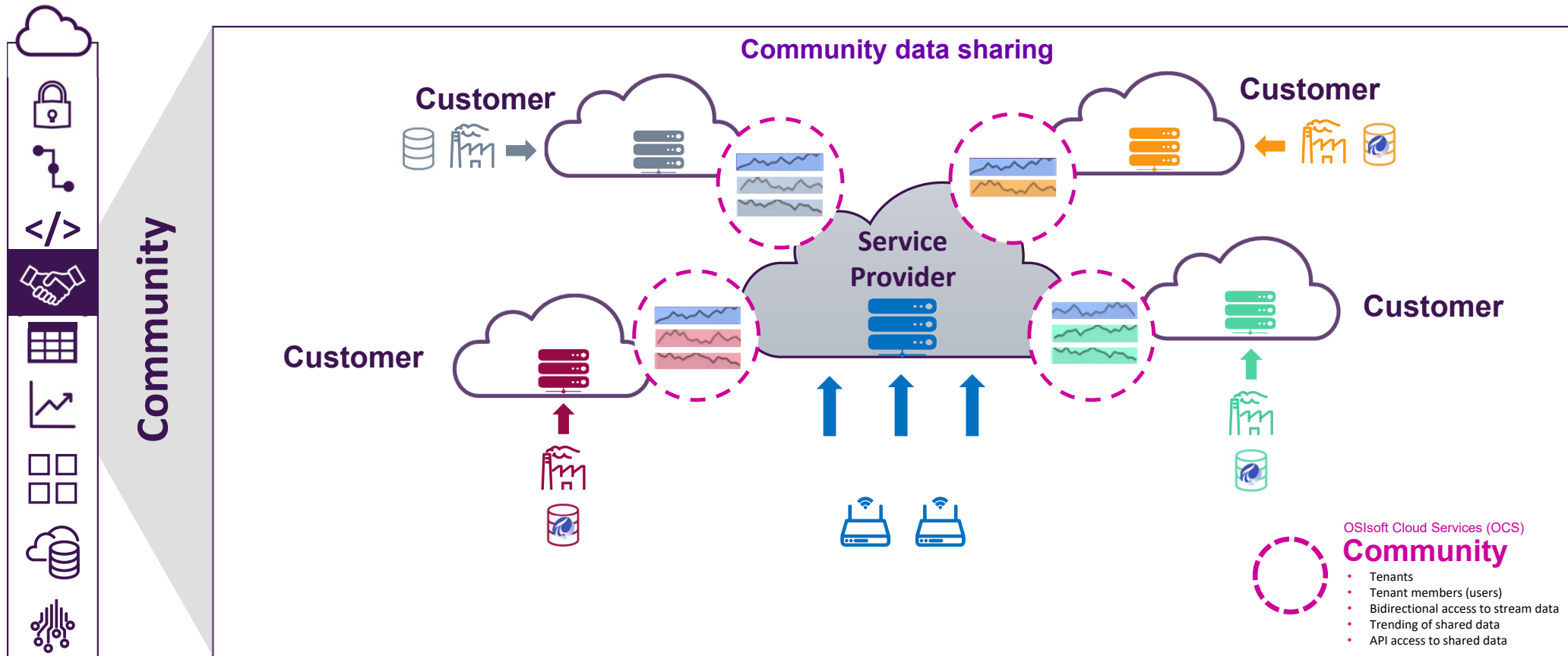
Brainstorm of current solutions, challenges, and impact

- **Engineer exports subset of data to Excel or a report & emails it**
 - Out of date quickly & not real time
 - Not full granularity of data
 - Resource intensive
 - Delayed analysis, slow response time if data wasn't what they needed [not self-service]
- **Create a user account for vendor in our Identity & Authentication systems & issue a restricted laptop**
 - Not that secure
 - Hard to manage over time with personnel changes
 - Expensive
- **Vendor comes on site and downloads the data**
 - Expensive with travel costs, resource limiting
 - Safety issues (covid)
 - Analysis and value is delayed
 - Vendor is logging into your IT systems (security risk)
- **VPN access into your company's network**
 - Expensive to setup & maintain, significant IT support, long lead time
 - IT connection into your company's network, security risk
 - Difficult to limit data access, security risk
 - Managing access requests is tedious
 - Feedback from analysis could require separate mechanism
- **Direct internet access to plant floor via modem or other communication technology**
 - High security risk, "back-door"
 - Data isolated from plant information systems
 - Not cost effective for larger numbers of assets
- **CSVs, text files, FTP files**
 - All this is cumbersome and 1980s
- **Custom onsite applications**
 - Onsite Hardware & software setup / costs
 - Unique for every data source and expensive to maintain (need to go onsite), hard to troubleshoot remotely
 - Move data around is not what we want to be experts in
 - Doesn't scale
- **Setup additional on prem duplicate systems in a DMZ for the purpose of sharing subsets of data externally**
 - Additional HW & SW Infrastructure, Cost, TCO
 - Maintaining vendor facing systems
- **PI Cloud Connect**
 - Works great with PI on both sides, but many of our partners don't have PI
 - Copies data outside of our walls, loss of control.
 - PI is not the only data source needed for data sharing
 - History recovery is limited when you need years for training data for machine learning
- **Global Data Sharing Issues**
 - No standard way of sharing data. Today data is copied all over the place. Many ways of communicating outside and lots of connections from PI System to the outside via firewall openings ... connections may not be that secure.
 - Solutions don't scale to many business partners
 - Most data sharing solutions don't support bi-directional sharing

Connected Community – Industrial Operators



Connected Community – Service Providers



OSISOFT CLOUD SERVICES

Overview

AVEVA

WHAT IS OSIsoft Cloud Services?

Cloud-native platform for real-time operations

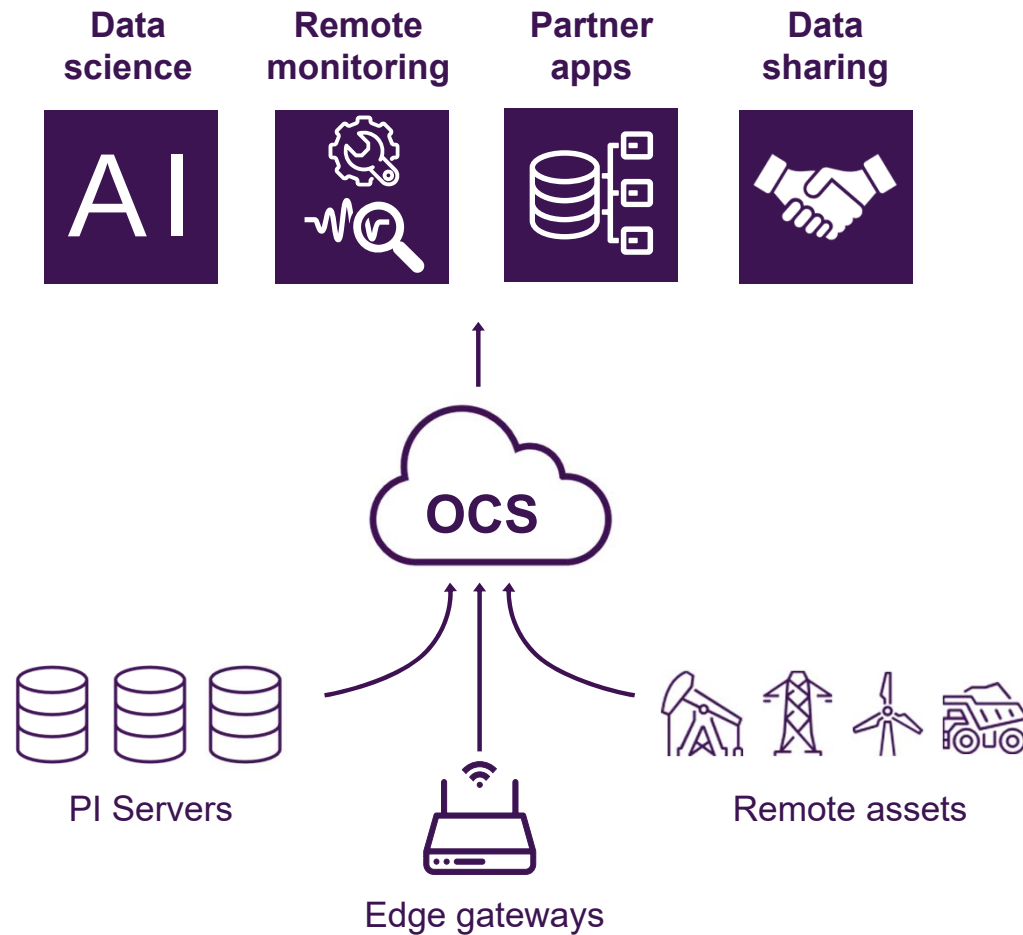
Purpose-built for operations

Security suitable for critical operations

Allows users to **interact with data**,
not microservices



AVEVA



Cloud native
platform designed for
real-time operations

Managed, secure, multi-tenant platform

Operated & maintained by AVEVA

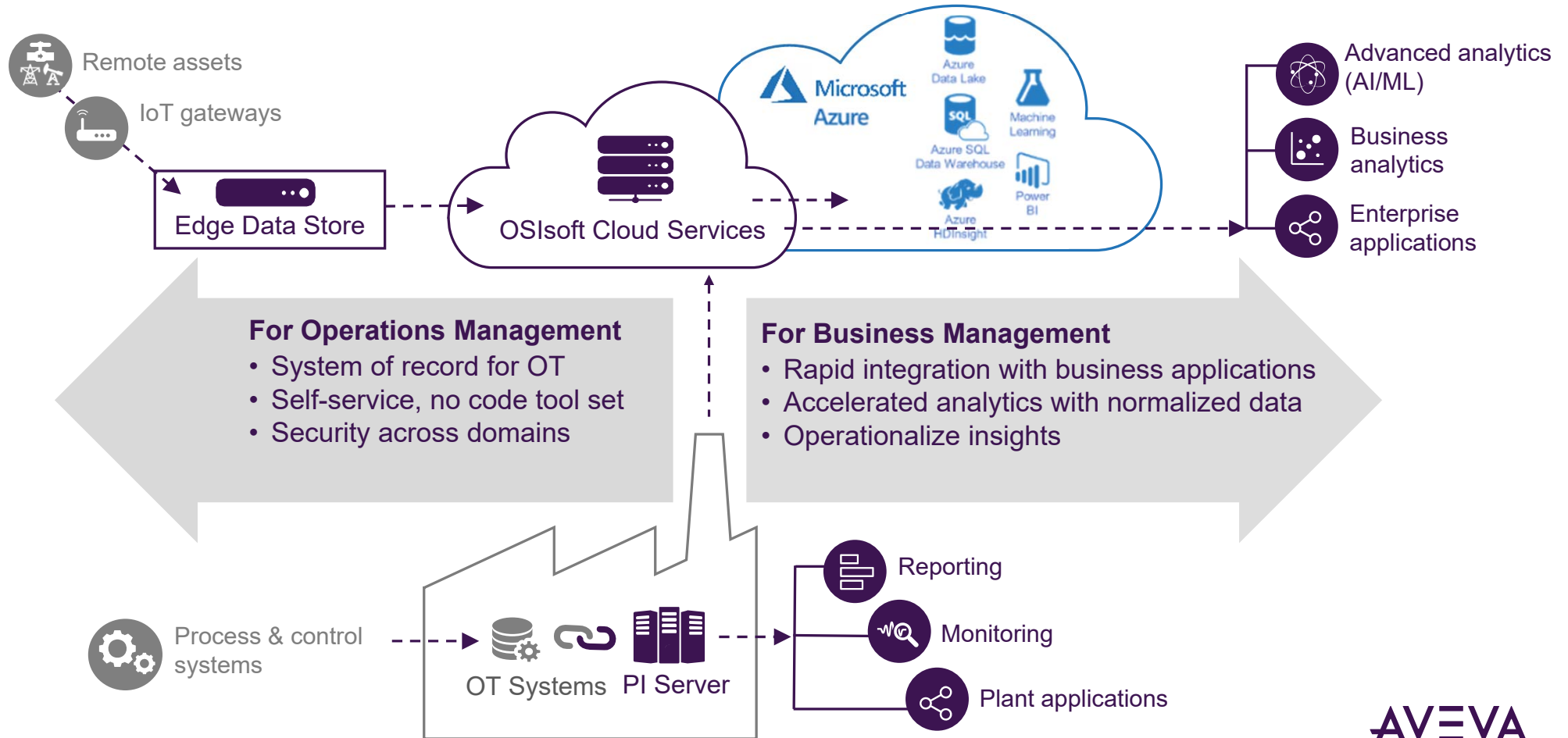
High speed, scalable, elastic, & resilient

Modern, secure REST APIs

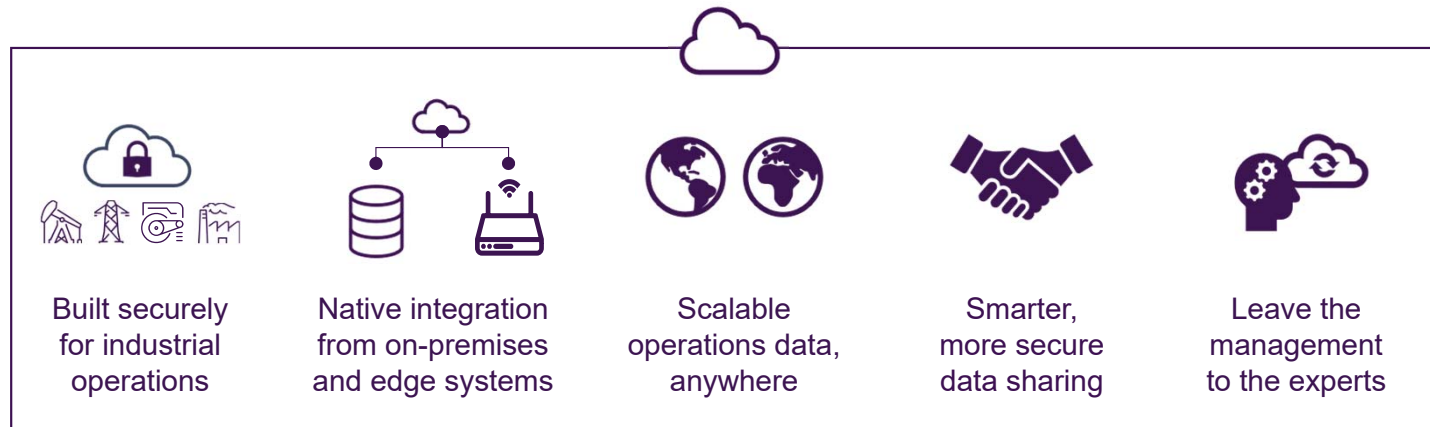
Built & deployed on Microsoft Azure

AVEVA

Bridging the OT, IT, and business domains



What sets OSIsoft Cloud Services apart?



OSIsoft Cloud Services

Customers are using OCS today for a variety of scenarios



OSIsoft Cloud Services components

