

Enabling Data Science for the Enterprise with OSIsoft Cloud Services

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Agenda

- 1 What is Data Science Enablement & why are we talking about it
- 2 What is OSIsoft's role in enabling data science for the enterprise
- 3 How can we work together to ensure our customers' success

Enabling Decision Making

“

**Has this
temperature
data pattern
occurred
before?**



“

**Will this asset
fail before
the next
scheduled
maintenance?**





Data Science Enablement

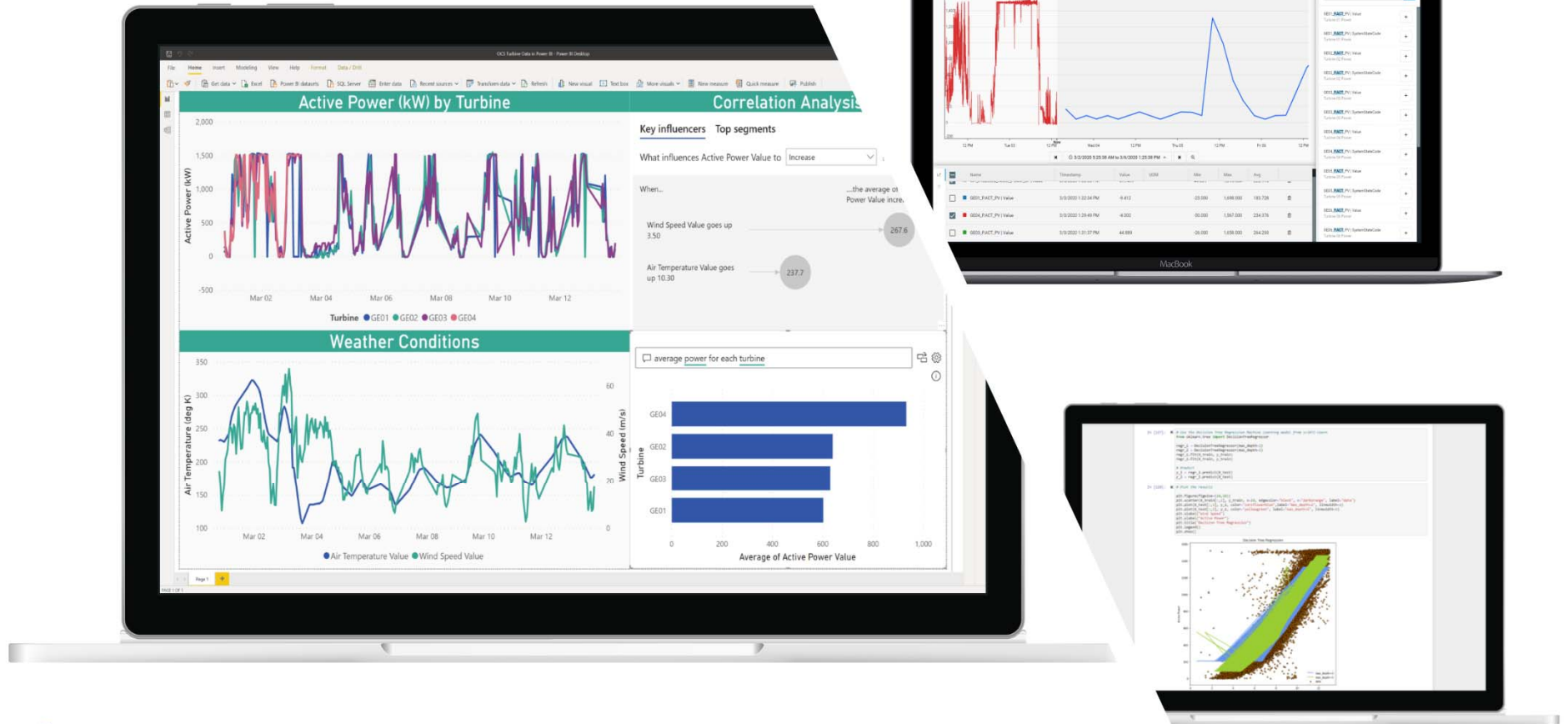
Process
Optimization

Demand
Forecasting

Predictive
Maintenance

Condition
Monitoring

Take Your Data Anywhere





Configure Data View

Use the configuration pane on the left to manage the data view. Then click the **Apply** button to generate a preview of the current configuration.

Index Configuration

Start Index

2020 - 03 - 08 12 : 00 AM

End Index

2020 - 03 - 10 12 : 00 AM Now

Time Interval

00 : 01 : 00 : 00

☐ Save Defaults with Data View

Shape

Standard

Narrow

Field Management

☐ {IdentifyingValue} IsSubstituted
Property Id☐ {IdentifyingValue} SystemStateCode
Property Id☒ {IdentifyingValue} Value
Property Id☐ {IdentifyingValue} Measurement
Metadata☐ {IdentifyingValue} engunits
Metadata☐ {IdentifyingValue} exdesc
Metadata☐ {IdentifyingValue} instrumenttag
Metadata

Apply

Name

PI World SF 2020 - Wind Farm Demo

Description

PI World 2020 SF Data Views Demo - Taylor McMa

Timestamp	Turbine	Blade1 Actual Value	Blade2 Actual Value	Blade3 Actual Value	Rotor Speed Value
Mar 8, 2020, 12:00:00 AM	GE01	-0.26010424	-0.26895112	-0.17220762	16.57147
Mar 8, 2020, 1:00:00 AM	GE01	-0.2719144	-0.2831329	-0.19625625	16.060314
Mar 8, 2020, 3:00:00 AM	GE01	-0.28372452	-0.2973147	-0.22030486	15.549158
Mar 8, 2020, 4:00:00 AM	GE01	-0.29553467	-0.3114965	-0.24435349	15.038002
Mar 8, 2020, 5:00:00 AM	GE01	-0.30734482	-0.3256783	-0.2684021	14.526845
Mar 8, 2020, 6:00:00 AM	GE01	-0.31915498	-0.33986008	-0.29245073	14.015689
Mar 8, 2020, 7:00:00 AM	GE01	-0.33096513	-0.35404187	-0.31649935	13.504532
Mar 8, 2020, 8:00:00 AM	GE01	-0.3427753	-0.3682237	-0.34054798	12.993376
Mar 8, 2020, 9:00:00 AM	GE01	-0.35458544	-0.3824055	-0.3645966	12.48222
Mar 8, 2020, 10:00:00 AM	GE01	-0.1601437	-0.185775	-0.17180352	13.445314
Mar 8, 2020, 11:00:00 AM	GE01	0.07579008	0.05320631	0.06445386	12.507959
Mar 8, 2020, 12:00:00 PM	GE01	0.31172386	0.29218763	0.30071124	14.444635
Mar 8, 2020, 1:00:00 PM	GE01	0.5476576	0.53116894	0.53696865	12.646818
Mar 8, 2020, 2:00:00 PM	GE01	0.7835914	0.77015024	0.773226	16.204851
Mar 8, 2020, 3:00:00 PM	GE01	1.0195252	1.0091316	1.0094833	12.118774
Mar 8, 2020, 4:00:00 PM	GE01	6.0080795	6.242848	5.9195395	12.963752
Mar 8, 2020, 5:00:00 PM	GE01	4.950221	4.952825	4.9606104	13.540001
Mar 8, 2020, 6:00:00 PM	GE01	6.5575867	6.574448	6.364513	14.16655
Mar 8, 2020, 7:00:00 PM	GE01	0.66061306	0.6780311	0.7058576	12.184908

Save

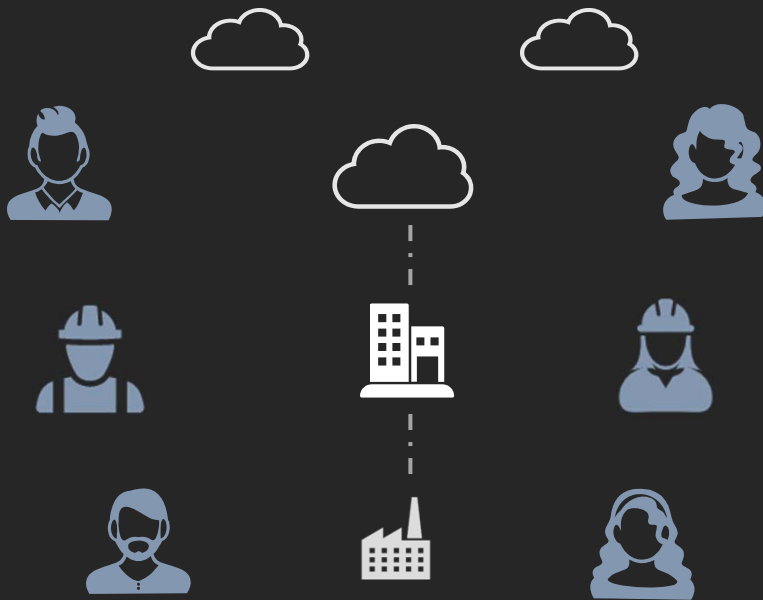
Cancel

Seamless Infrastructure





Cloud enablement beyond Operations



- Simplifying operations data at scale
- Extending to new data consumers

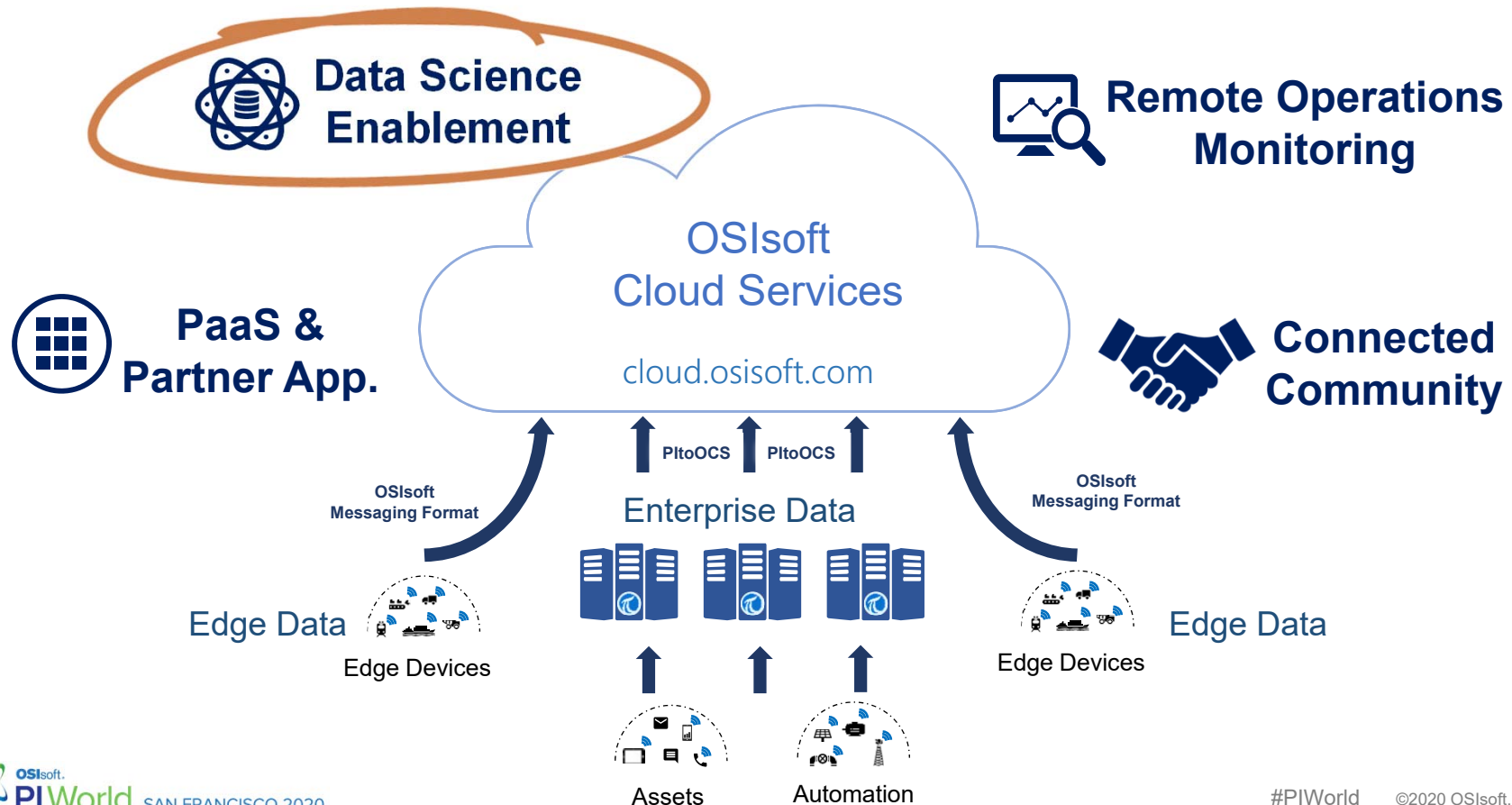
Challenges in the Market



Trustworthy Operations Data

Users and applications access and utilize
one version of the truth

Infrastructure from Edge to Cloud

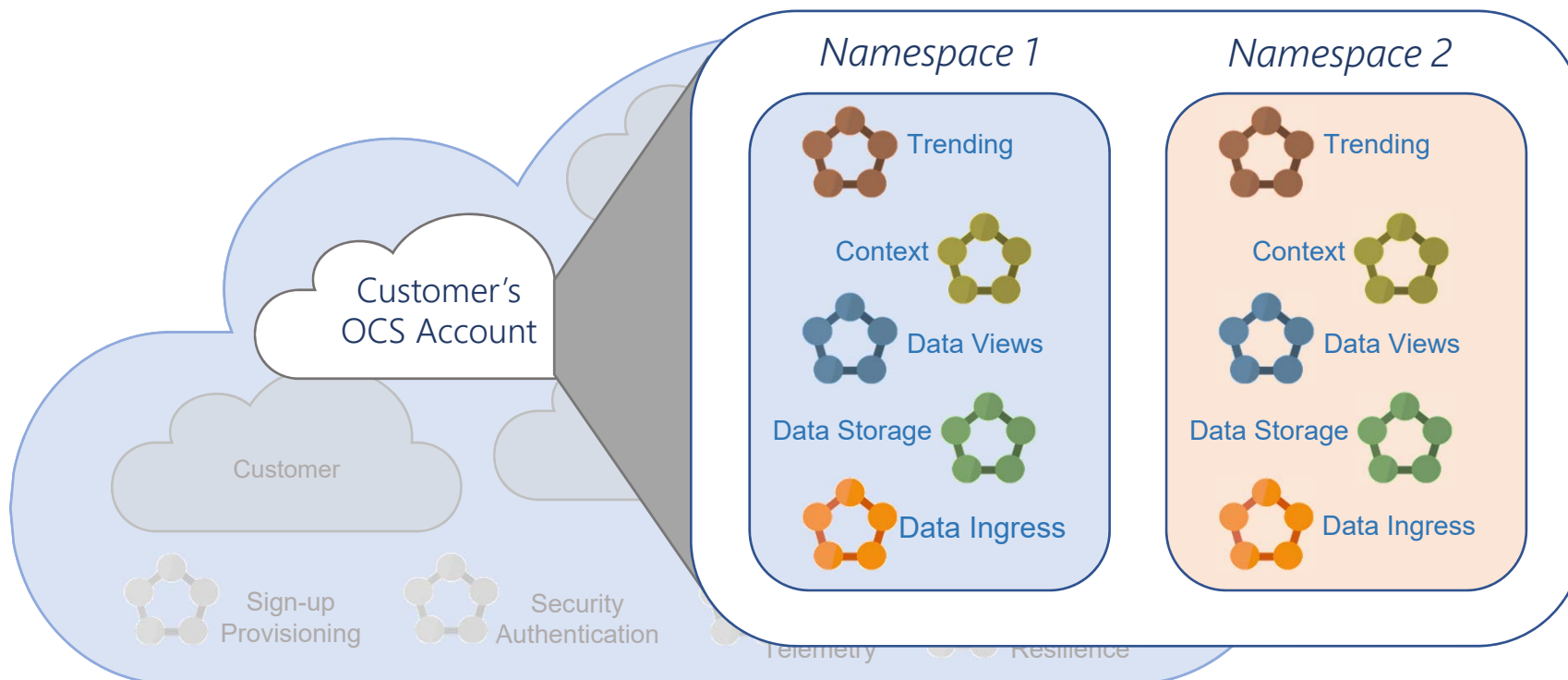




Enterprise Scale and Support

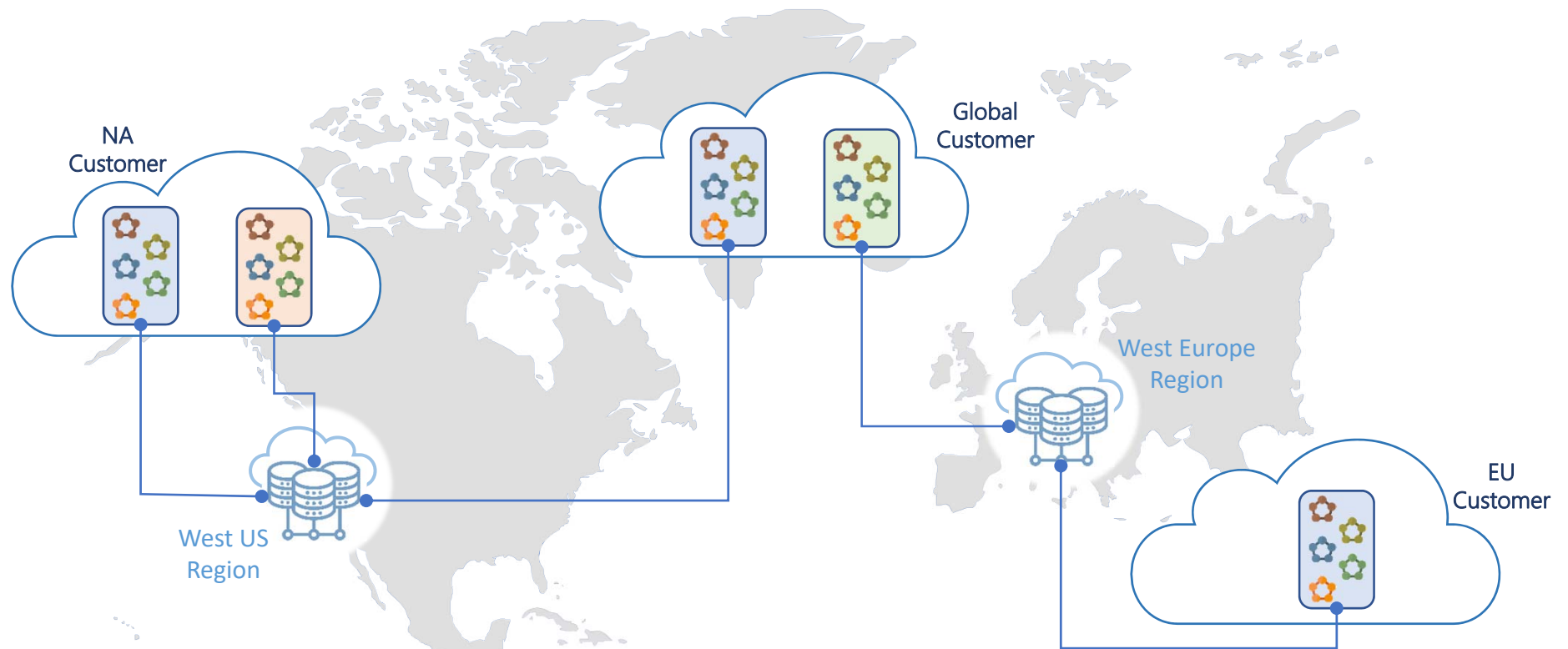
OSIsoft Cloud Services provide the necessary **scale and resiliency** for an enterprise infrastructure

OCS Accounts – Data Services



Cloud Services Infrastructure

OCS Accounts in North America & Europe

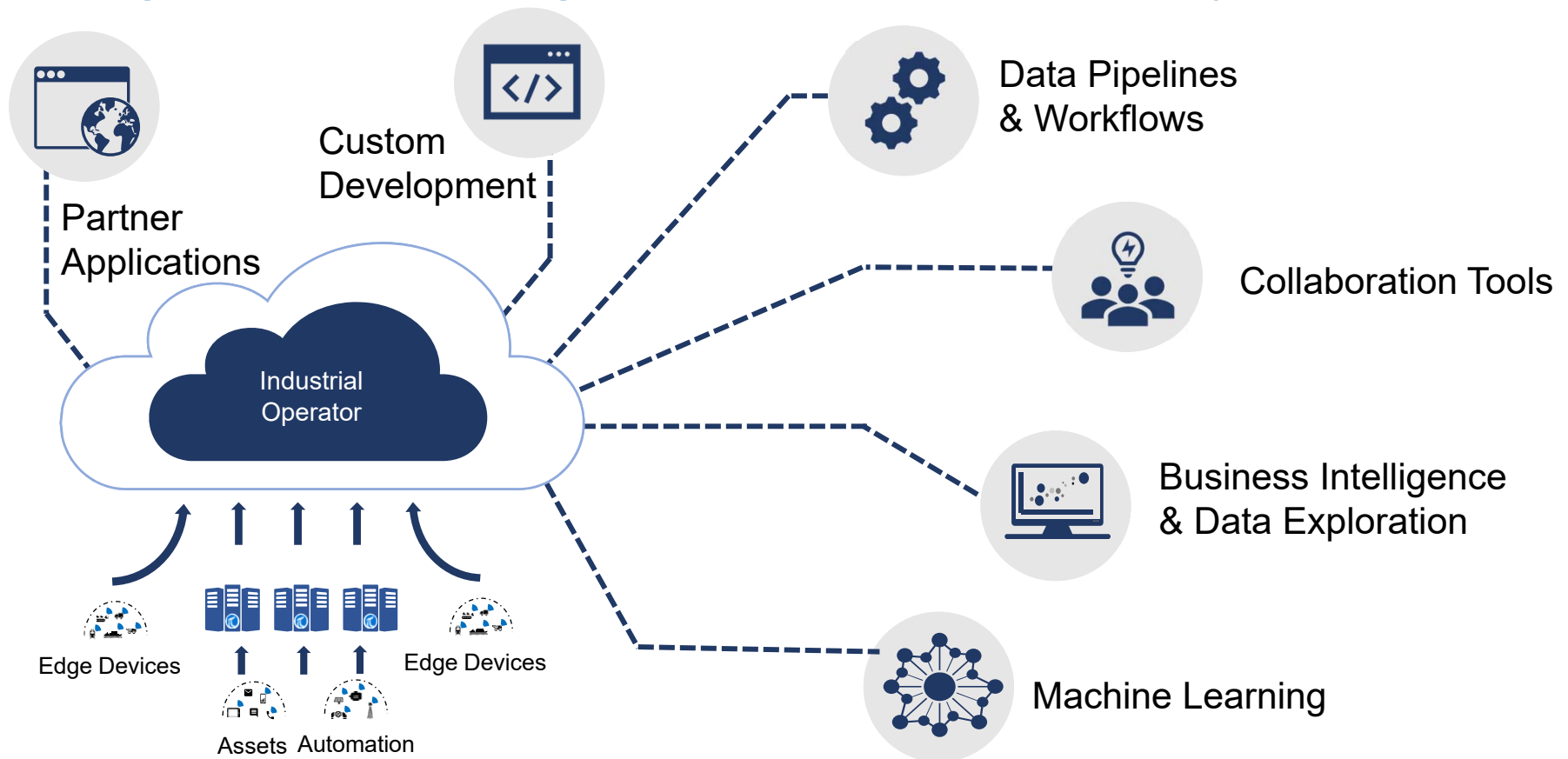




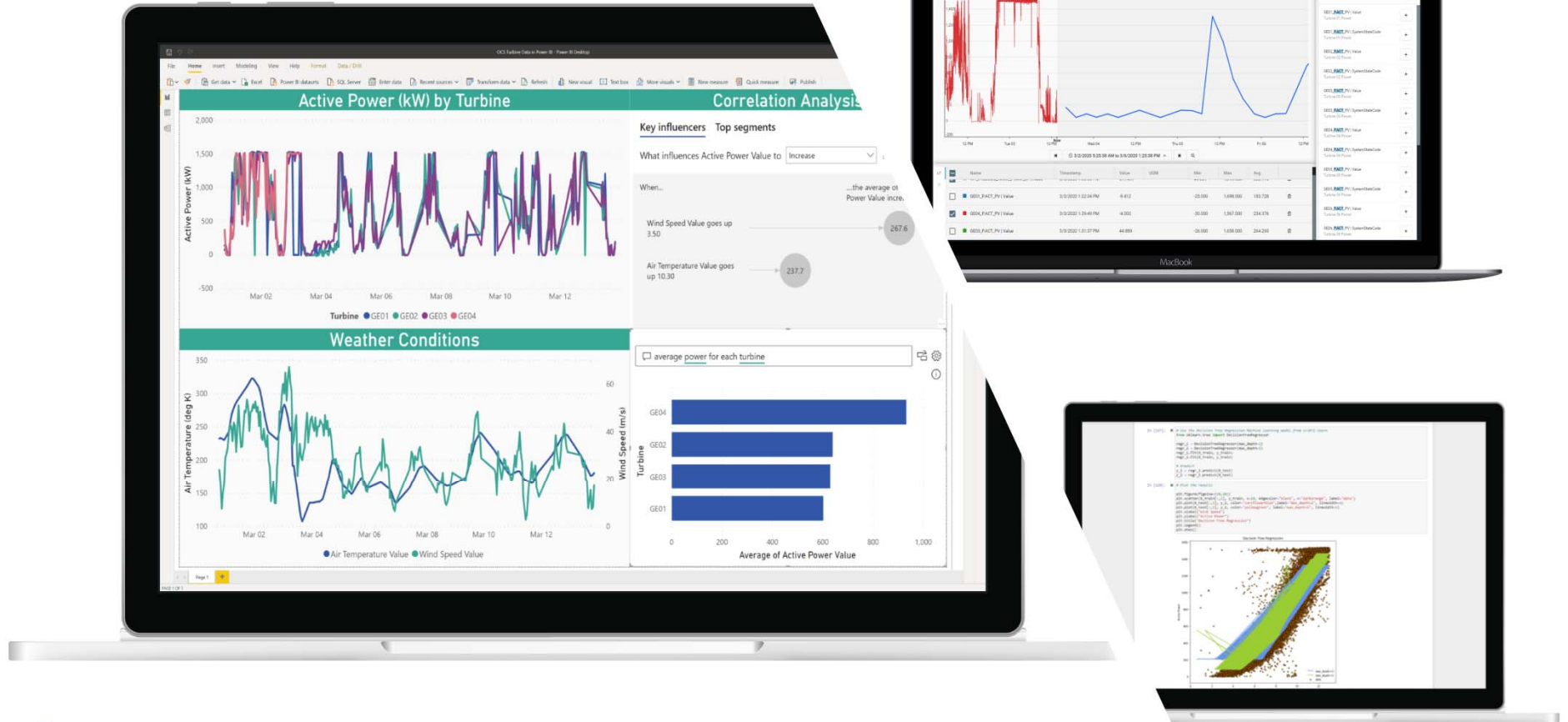
Flexibility in a Dynamic Market

Integration with your choice of advanced analytics platforms
and tools

Integration through Rest API for many use cases



Take Your Data Anywhere





Contextualized Data

Metadata and asset definitions help users find data faster and include valuable context for analysis.

Stream metadata organizes your data while making it more understandable and valuable

Type of Equipment

Equipment: Turbine
Pump: Submersible Pump

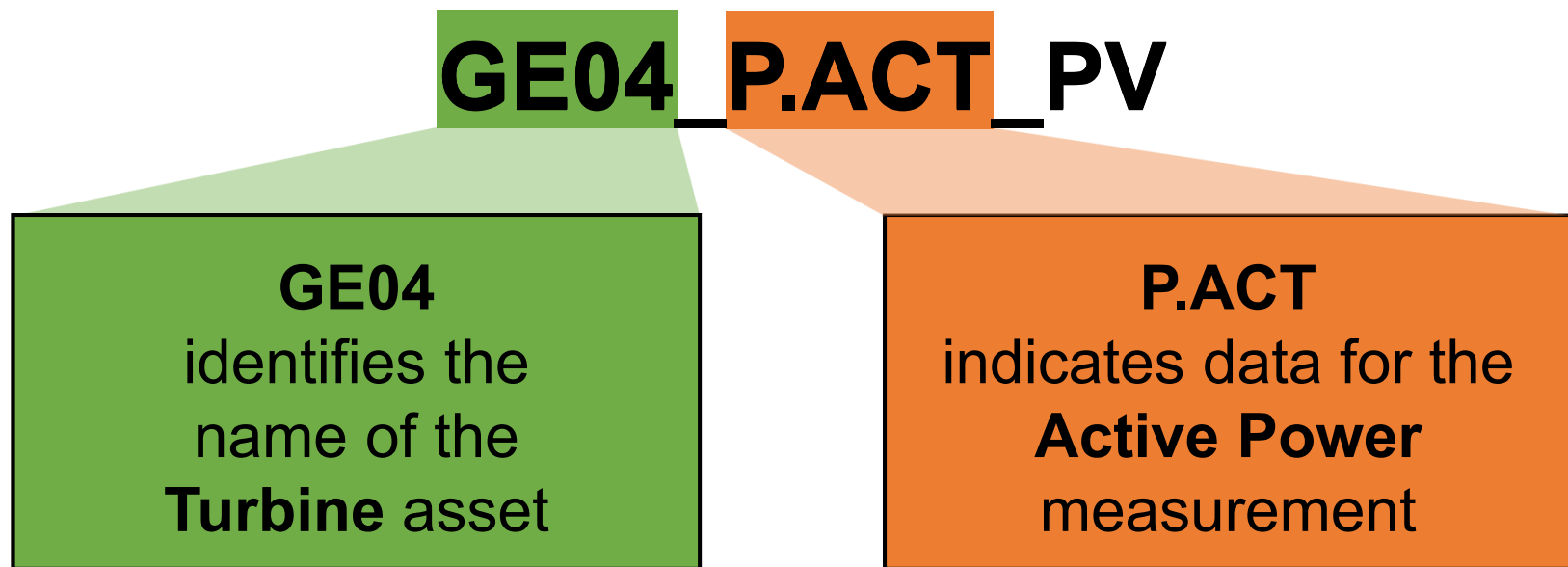
Asset Identification

DeviceID: BAC67
HeatEx: RX1_HX3

Location

Plant: US_Houston
ZipCode: 19107

Metadata Rules create and maintain stream metadata via patterns



Latest Service Updates

[View All Updates](#) 

Recent Updates

Feb 8, 2020, 10:56:33 AM

Stream Metadata Change Management: Now you can see the last changed information for metadata on streams. When selecting a stream from the SDS Explorer, users can click on the "i" icon in the Metadata and Tags panel to see which identity has last changed the metadata for that stream and when it was changed.

The footer has been removed to make more room for page content and the following icons sources of information have also been relocated within the whole OCS portal:

Now located in the Upper right hand corner:

- User Notifications (the little bell) are to the right of the logged in user, and are presented top down;
- Give feedback is in the drop down menu of the logged in user and link directly to the UserVoice forum for OCS;

The following links are now found in the main navigation menu under the Support section:

- Terms of Service
- Privacy Policy
- Browser Support
- Contact Support
- Cookie Settings

Let us know where to expand to next: [Feedback Forum: OSIsoft Cloud Services](#).

▶ 0:00 / 2:30



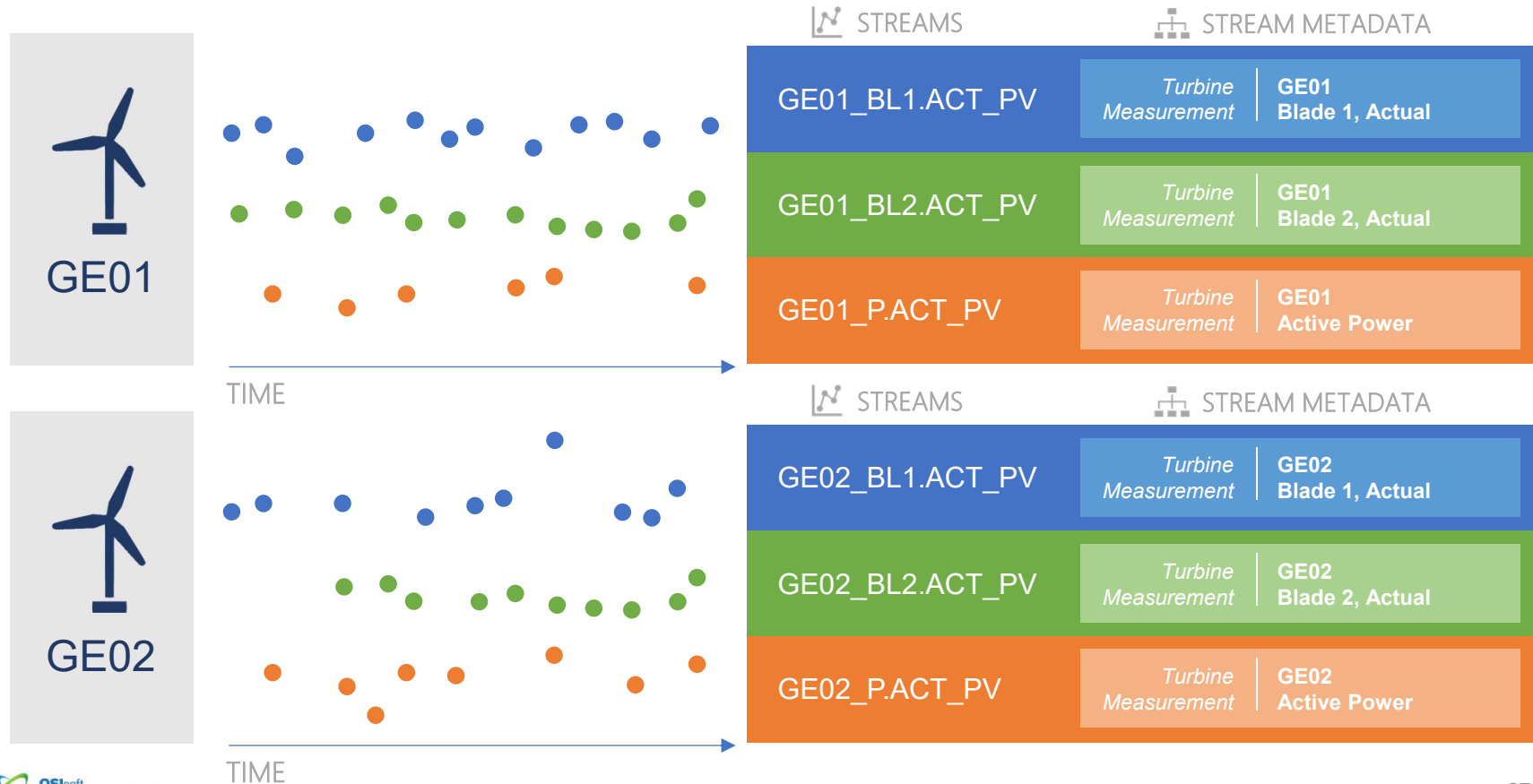
OSIsoft Cloud Services Expands Availability to new EMEA region



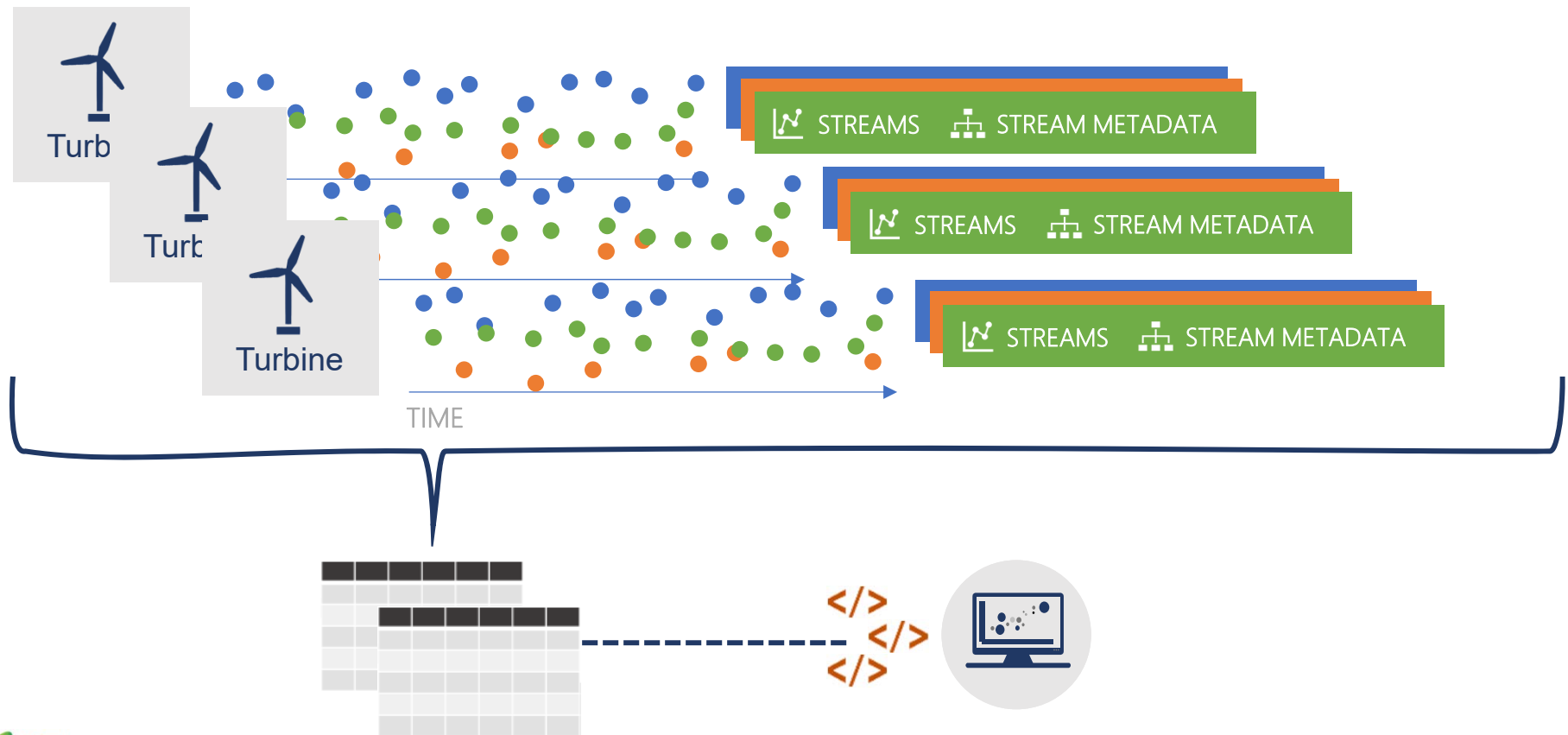
Curated and Prepared Data

Datasets are shaped, aligned, and ready for analysis by users and applications

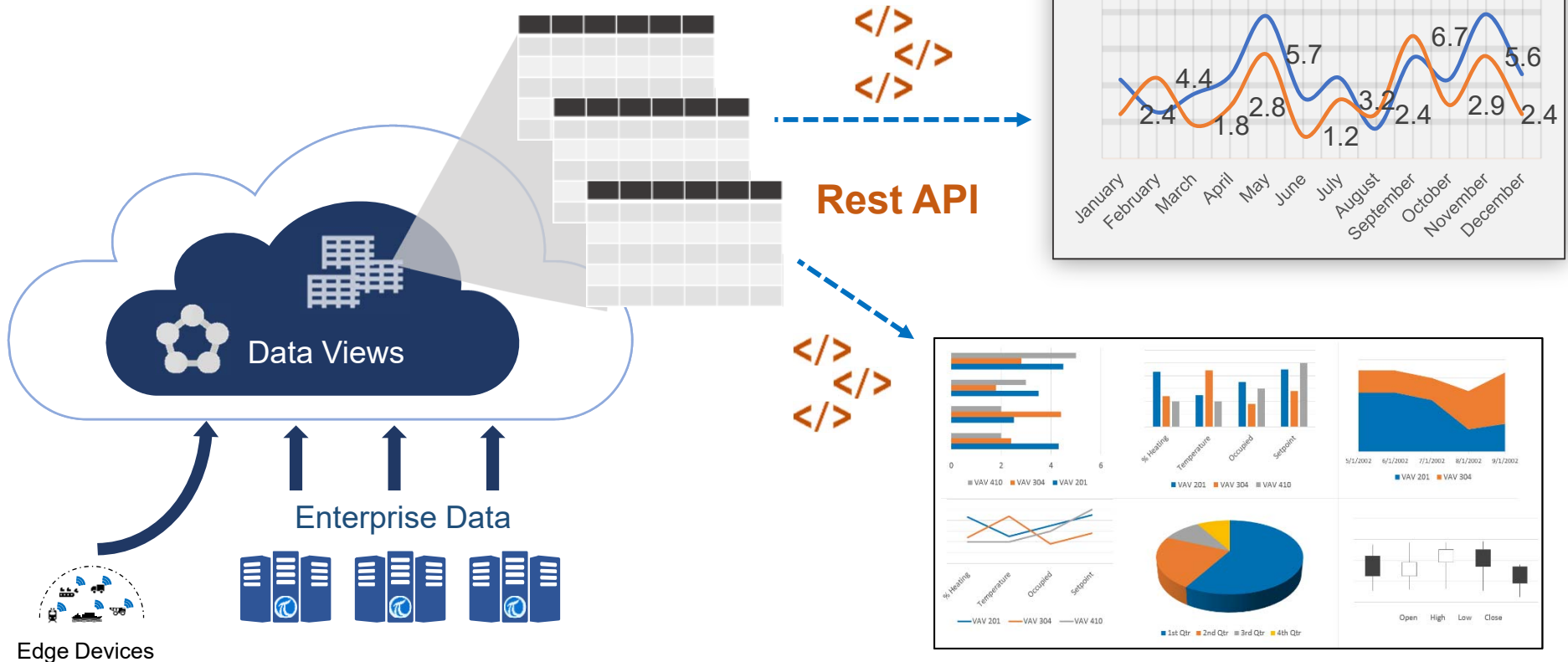
And it's not just any data you need



And it's not just any data you need

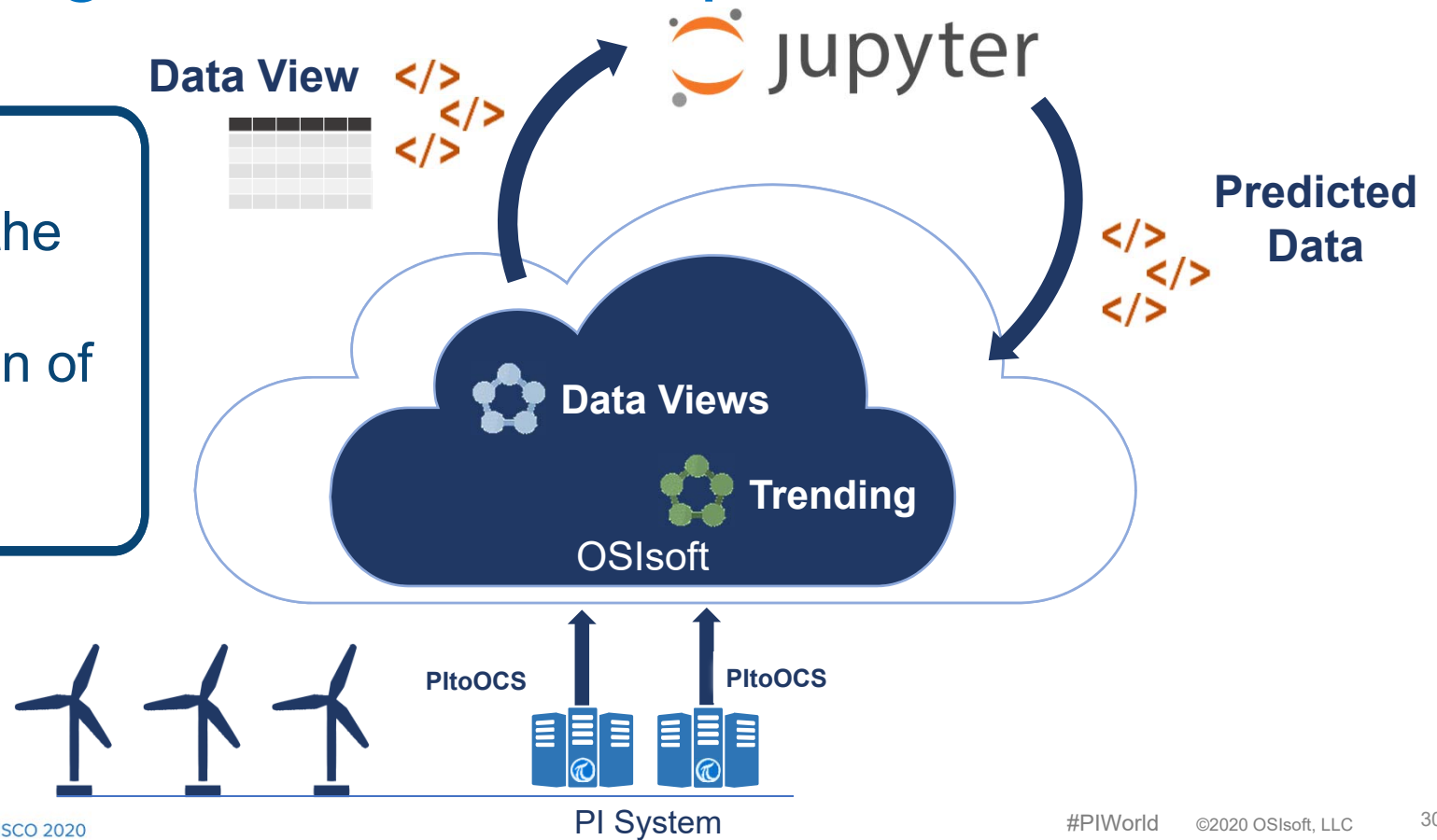


Data Views: Pre-configured data sets for algorithm and BI tool consumption



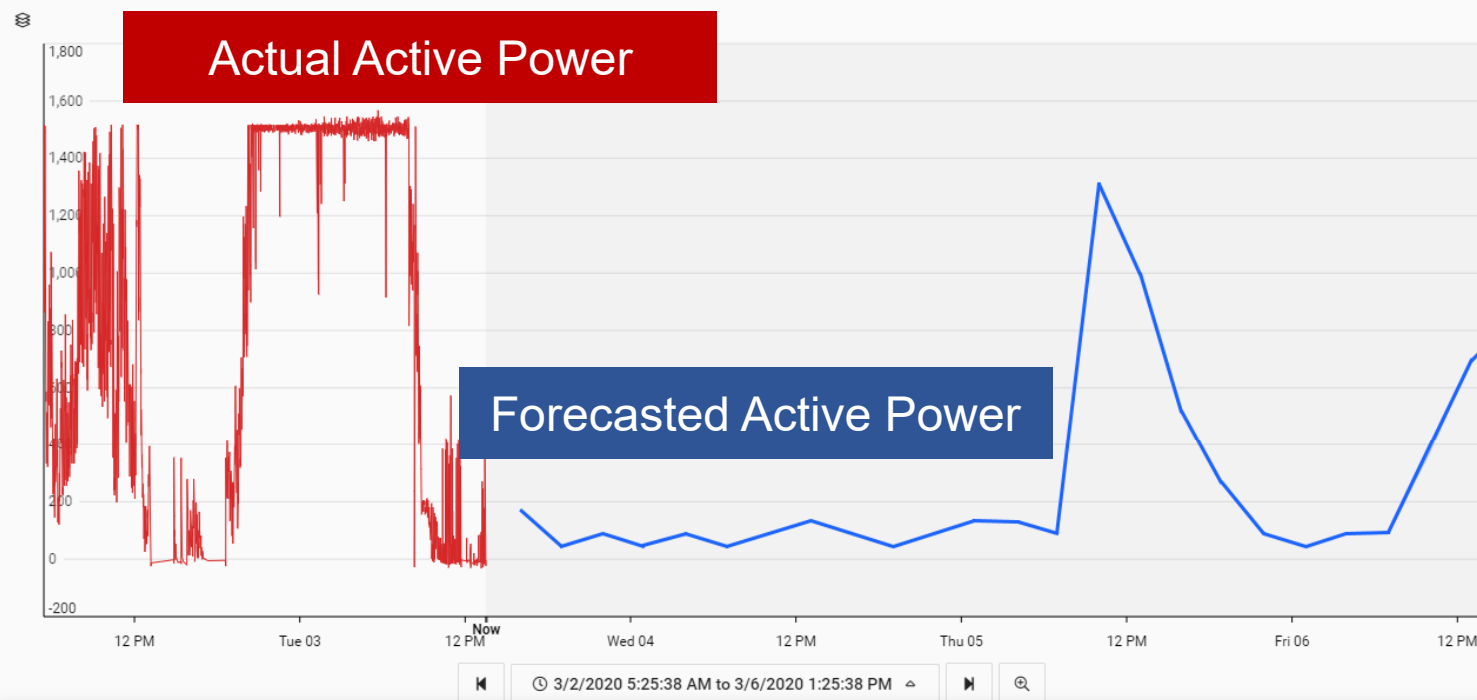
Predicting Wind Turbine Operation

“Can we forecast the power production of our wind turbines?”



DEMO

Predicting Wind Turbine Operation



	Name	Timestamp	Value	UOM	Min	Max	Avg	
<input type="checkbox"/>	GE01_PACT_PV Value	3/3/2020 1:22:34 PM	-9.412		-23.000	1,698.000	183.728	
<input checked="" type="checkbox"/>	GE04_PACT_PV Value	3/3/2020 1:29:49 PM	-4.000		-30.000	1,567.000	234.376	
<input type="checkbox"/>	GE03_PACT_PV Value	3/3/2020 1:31:37 PM	44.889		-26.000	1,658.000	264.293	

Add Data

PACT

x

+

GE01_PACT_PV | Value
Turbine 01 Power

+

GE01_PACT_PV | SystemStateCode
Turbine 01 Power

+

GE02_PACT_PV | Value
Turbine 02 Power

+

GE02_PACT_PV | SystemStateCode
Turbine 02 Power

+

GE03_PACT_PV | Value
Turbine 03 Power

+

GE03_PACT_PV | SystemStateCode
Turbine 03 Power

+

GE04_PACT_PV | Value
Turbine 04 Power

+

GE04_PACT_PV | SystemStateCode
Turbine 04 Power

+

GE05_PACT_PV | Value
Turbine 05 Power

+

GE05_PACT_PV | SystemStateCode
Turbine 05 Power

+

GE06_PACT_PV | Value
Turbine 06 Power

+

GE06_PACT_PV | SystemStateCode
Turbine 06 Power

+

Product Roadmap

More Data, More Users, More Value

Data Science Enablement in OCS – Roadmap



Developing Now

Stream Metadata Rules

Create and maintain stream metadata from patterns in stream names.



Data Views for Data Science

Define tabular datasets that are grouped, shaped, aligned, and formatted for data scientists.



Sample Client Libraries

Sample client libraries for creating data views and retrieving data in .NET, Python, and Java.



Asset Context

Create Asset definitions with references to streams.



Considering Next

Asset Context in Data Views

Enable finding and aligning data via asset definition and attributes in data views.

AF to OCS

AF representation in OCS Asset Context.

Context Rules

Create and maintain Asset context from patterns in stream names & stream metadata.

Calculations in Data Views

Expose stream calculations (average, minimum, maximum) as fields in data views.

UOMs in Data Views

Expose Units of Measure for data fields in data views.



Researching Future

Context Enhancements

Streaming Data Egress

More Data Retrieval Options

Data Filtering and Cleaning in Data Views

OSIsoft Cloud Services (OCS) – Roadmap



Developing Now

Edge Data Store to OCS

Enable customers to forward data from a remotely deployed Edge Data Store to OCS.

Released

Stream Metadata Rules

Create and maintain stream metadata from patterns in stream names.

Lighthouse

Data Views for Data Science

Define tabular datasets that are grouped, shaped, aligned, and formatted for data scientists.

Lighthouse

Trending Experience

Enable customers to trend and easily analyze stream data.

Preview

Asset Context & Visualization

Create Asset definitions with references to streams, & visualize what's happening now on Assets.



Considering Next

Asset Fleet Filtering & Searching

View status of Asset fleets, filtering and searching on Asset attributes and metadata values.

PI to OCS Enhancements

Manageability of agents & connections, snapshot support, handling out of order archived data.

AF to OCS

AF representation in OCS Asset Context.

Community Data Sharing

Enable cross-account data sharing with your business partners, service providers, and analytics providers.

Azure AD Bulk Users Mgt

Extend OCS integration with Azure Active Directory for better searching, browsing, and groups support.



Researching Future

Streamlined Customer Onboarding & License Mgt

Asset Support for Data Views

Data Views Enhancements

Context Enhancements

Remote Operations Monitoring Visualization Enhancements

Community Data Sharing Enhancements

Last Updated: 2020-03

Roadmap themes: [Manageable Systems](#) | [Seamless Infrastructure](#) | [Increased Value & Scope of Data](#)



OSIsoft's Product Roadmap is for INFORMATIONAL PURPOSES ONLY and is SUBJECT TO CHANGE.

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Communicate with OSIsoft Product Managers



feedback.osisoft.com

.....
If it is not shared on the feedback portal, it didn't happen!



Engage with OSIsoft

Keep the Conversation Going

Data Science Enablement Lighthouse Program

OSIsoft provides:

- OSIsoft Cloud Services account with access to Lighthouse features
- Installation & configuration support
- Technical support
- Program management

Participant provides:

- Viable scenario
- Resources to use OSIsoft Cloud Services
- Feedback on use of OSIsoft Cloud Services
- Willingness to document a success story and participate in a future PI World presentation

**Join us in the
lighthouse!**

lighthouse@osisoft.com

Working to Meet Your Data Science Needs



OSIsoft Cloud Services is a data science-ready infrastructure extending the value of your investment in the PI System



Metadata rules and data views enable a queryable surface for easy and quick access to years of operations data

Contact us for more information



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Questions?

Please wait for
the **microphone**

State your
name & company



Save the Date...



AMSTERDAM
October 26-29, 2020



