



Enabling Remote Operations Monitoring with OSIsoft Cloud Services

Todd Brown – Strategic Product Manager
Victor Zhang – Technical Product Manager



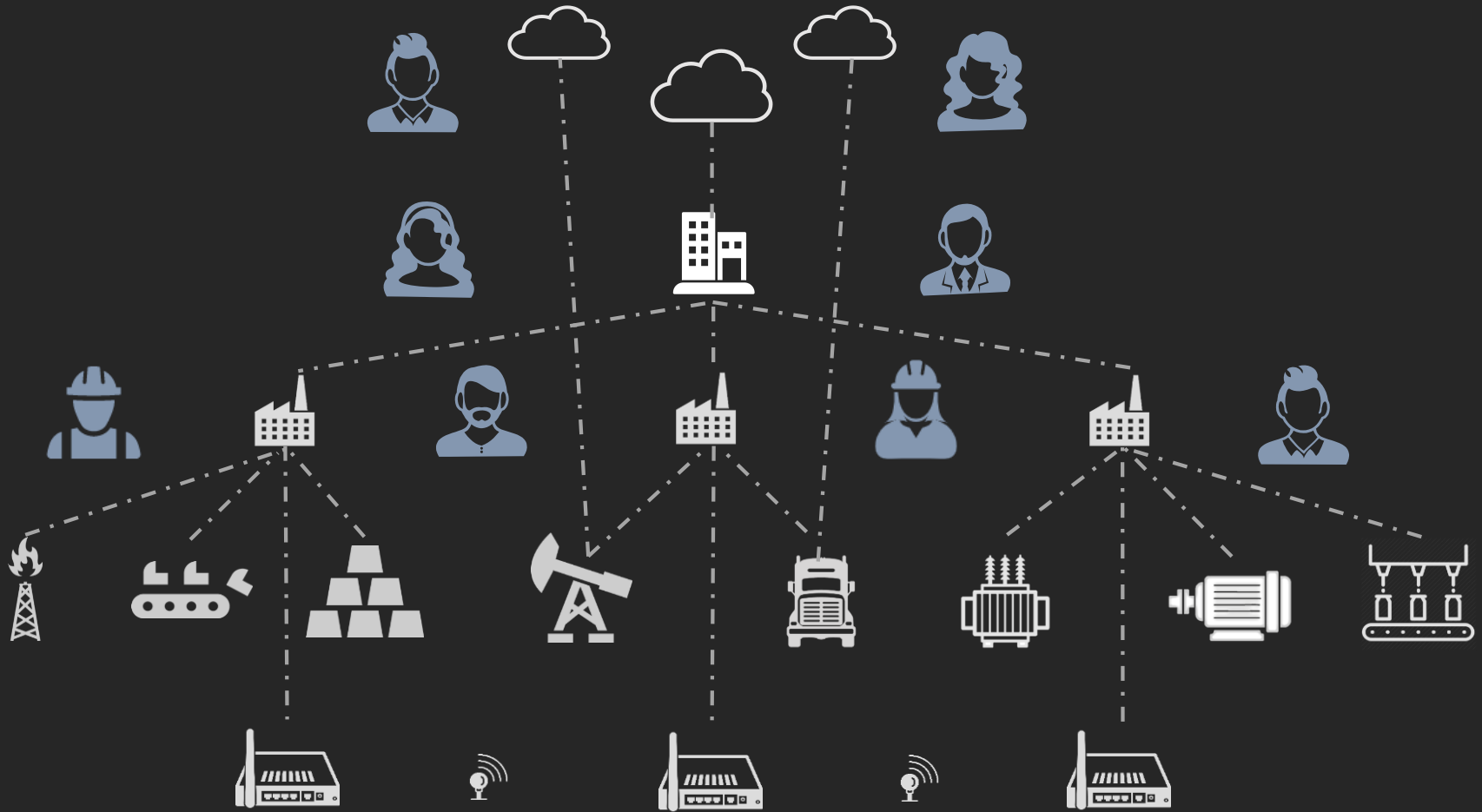
Today's Agenda

- Seamless Infrastructure & OCS
- Remote Operations Monitoring Overview
- Visualization Demo
- Connectivity & Data Ingress
- Product Roadmap
- How to Engage with us

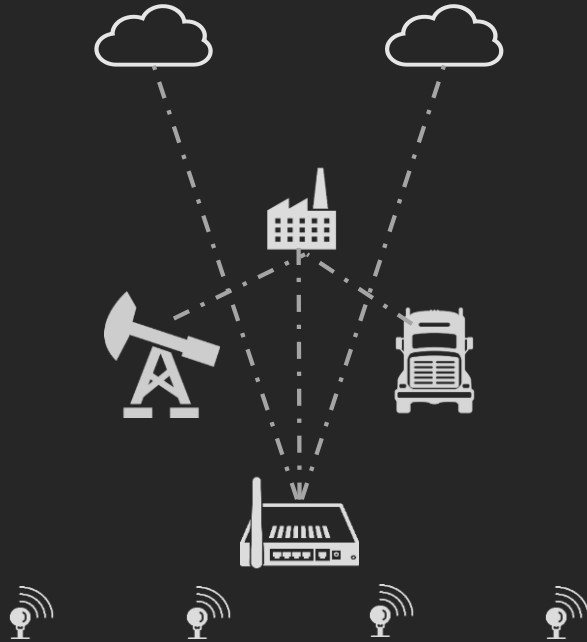


Seamless Infrastructure





Edge



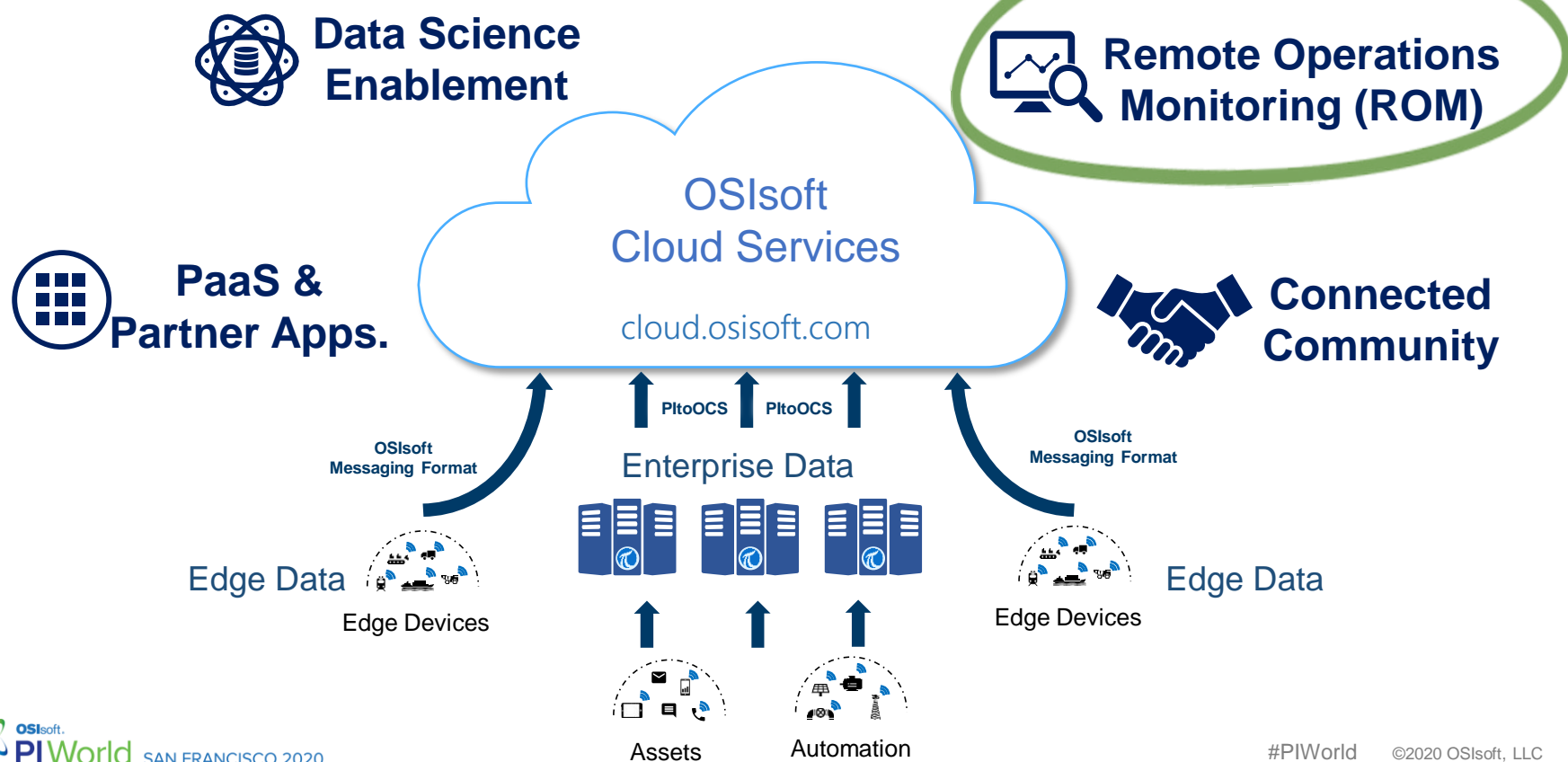
- Expanding operational datasets
- Enabling asset intelligence at the edge

Cloud enablement for Remote Operations



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

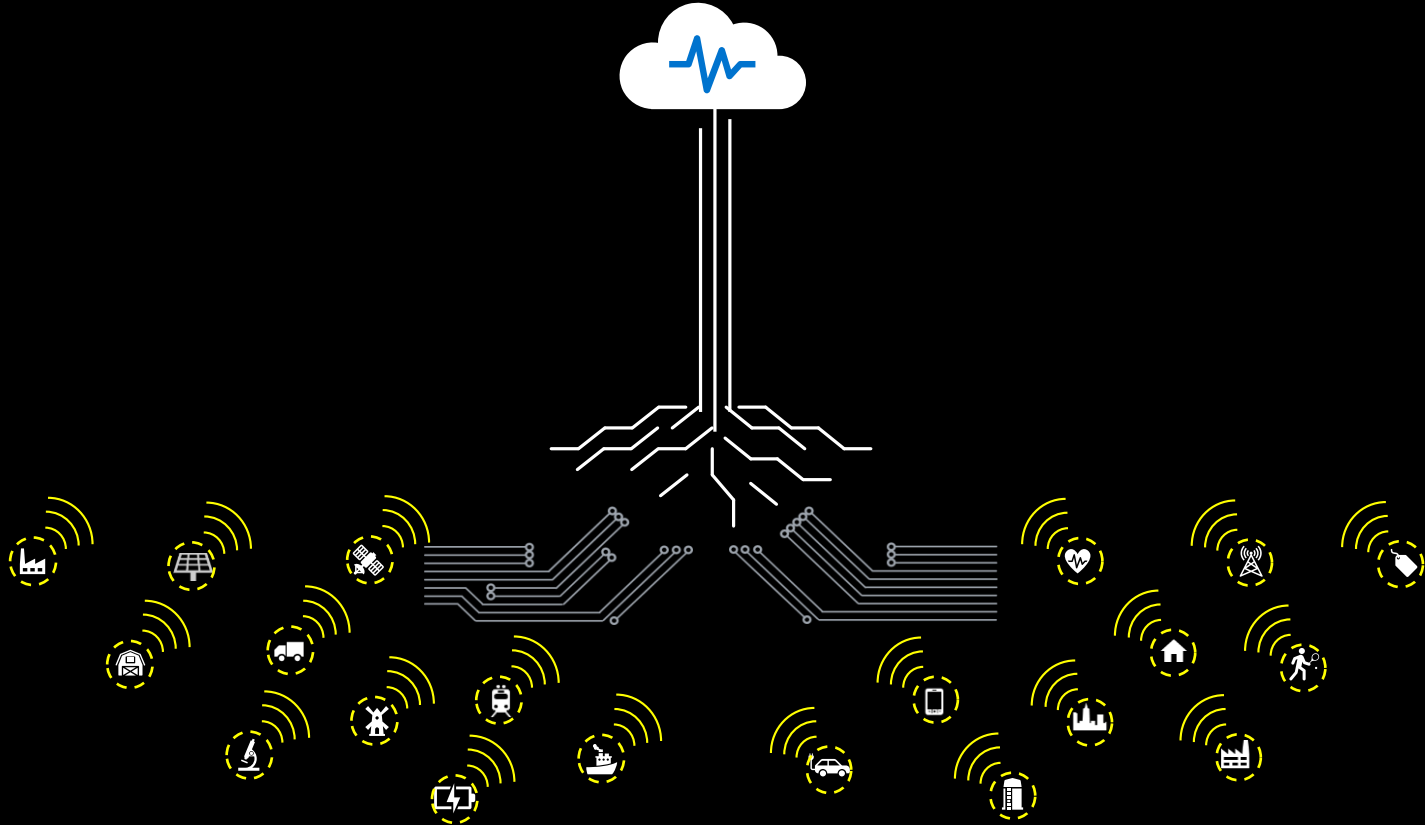
OSIsoft Cloud Services (OCS)



Remote Operations Monitoring



Shine a Light on Dark Data





Remote Sites & Assets

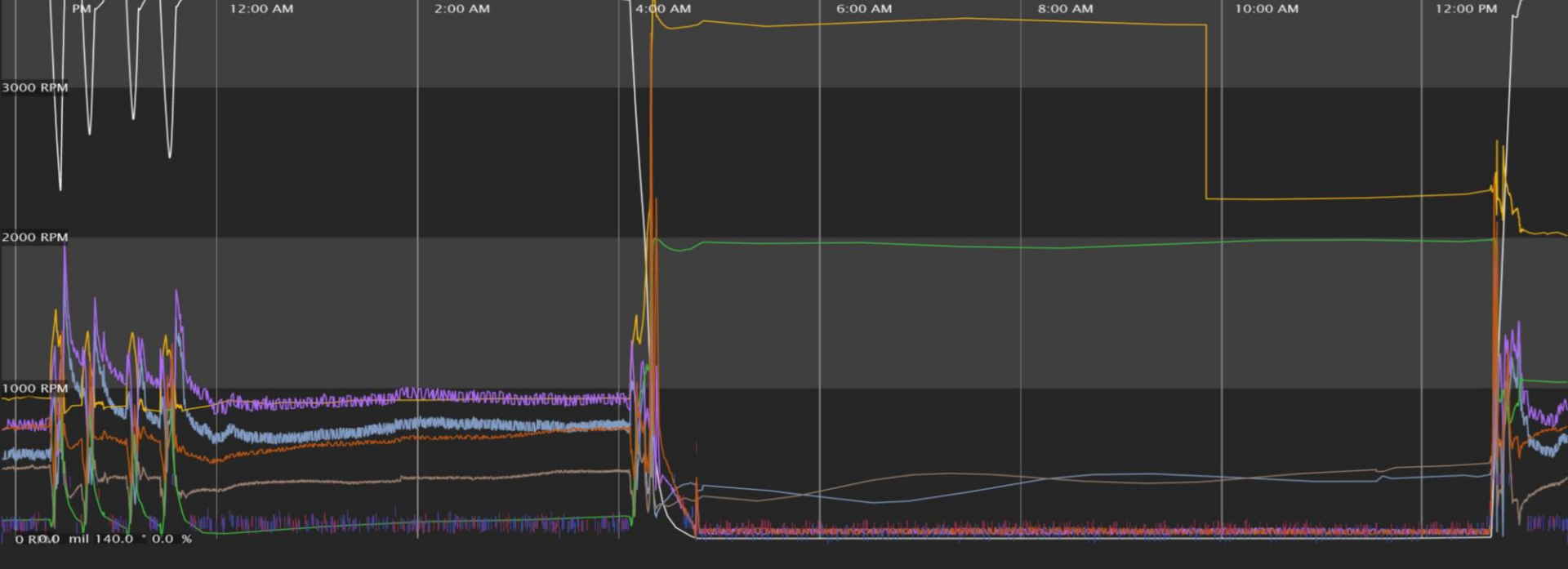




Limited IT Infrastructure



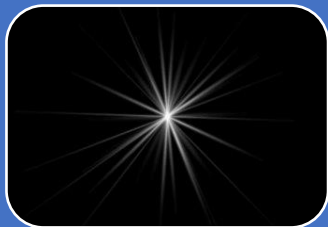
Limited Resources



Data is Magic



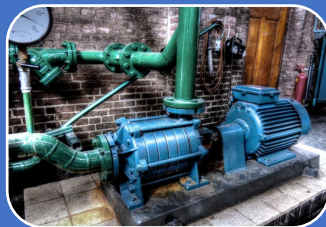
Remote Operations Monitoring



Dark Data



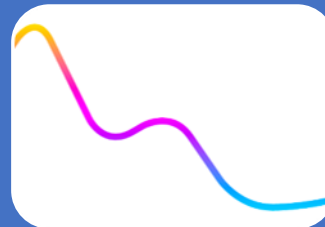
Remote Sites
& Assets



Limited IT
Infrastructure



Limited
Resources



Believe Data
is Magic

Enable Remote Operations Monitoring of assets and processes at the “network edge” by sending data directly to the cloud and being able to visualize it in real time.

Remote Operations Monitoring Customers

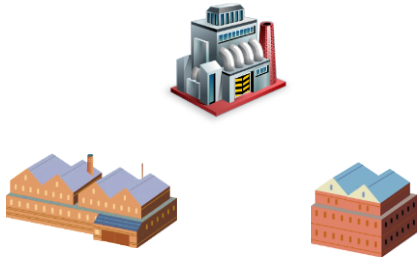


New
Customers &
Markets

Connected
Services
Customers

Large Industrial
Operators /
Asset Owners

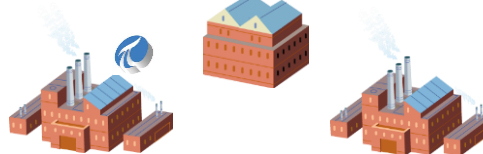
New Customers



*Connected Services & Equipment
Providers*



... Their Customers



Large Existing Sites



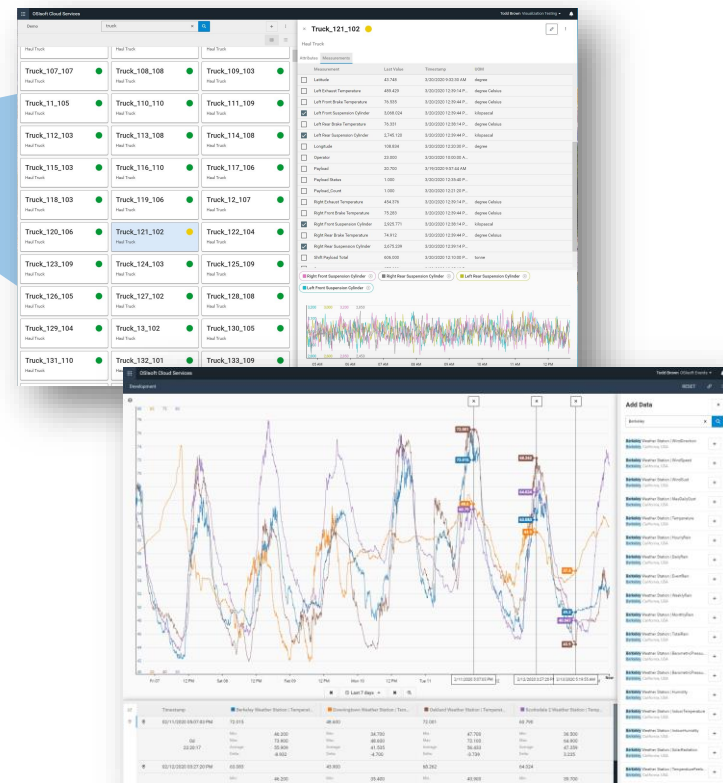
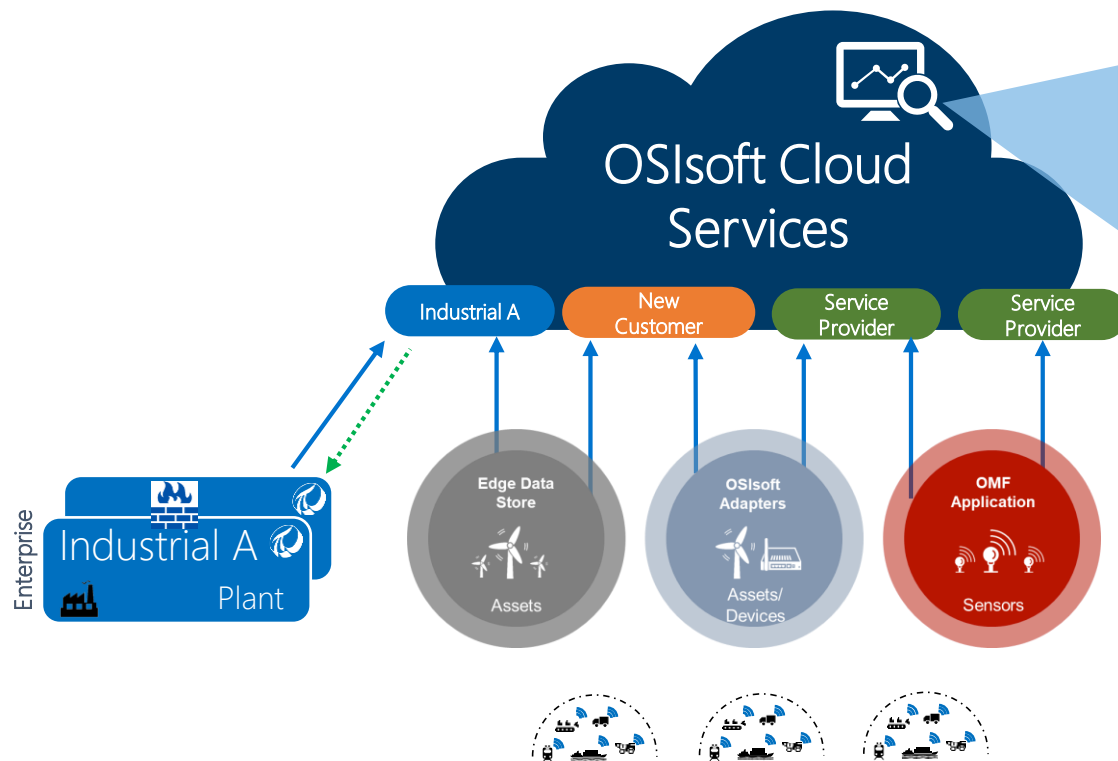
Small Remote Sites / Assets



Remote Operations Monitoring



Asset Explorer

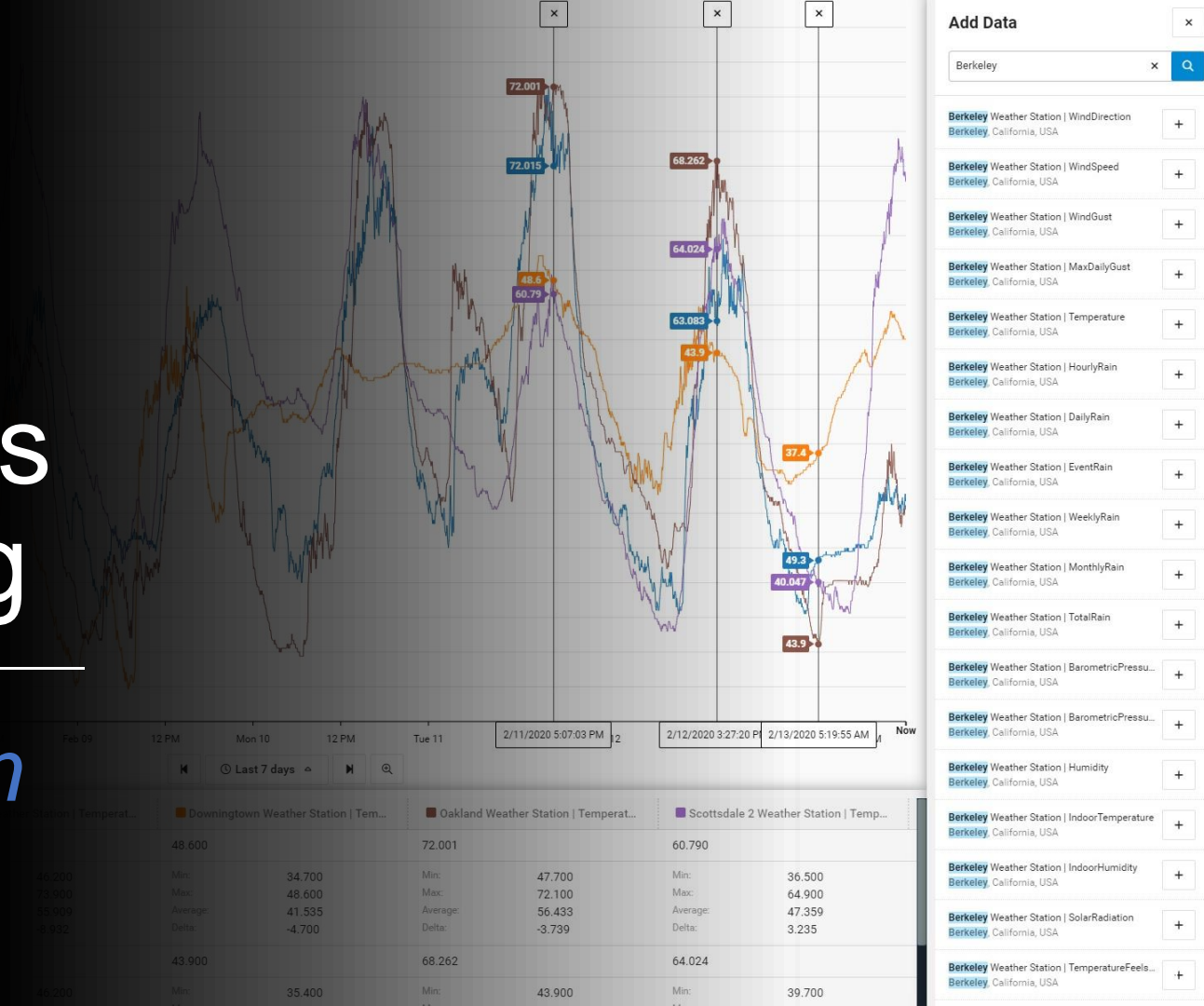


Remote Sites, Assets, & Edge Devices

Trend Investigation

Remote Operations Monitoring

Visualization Demo



Demo Setup



Job title & industry: Fleet manager at a mining truck dealer

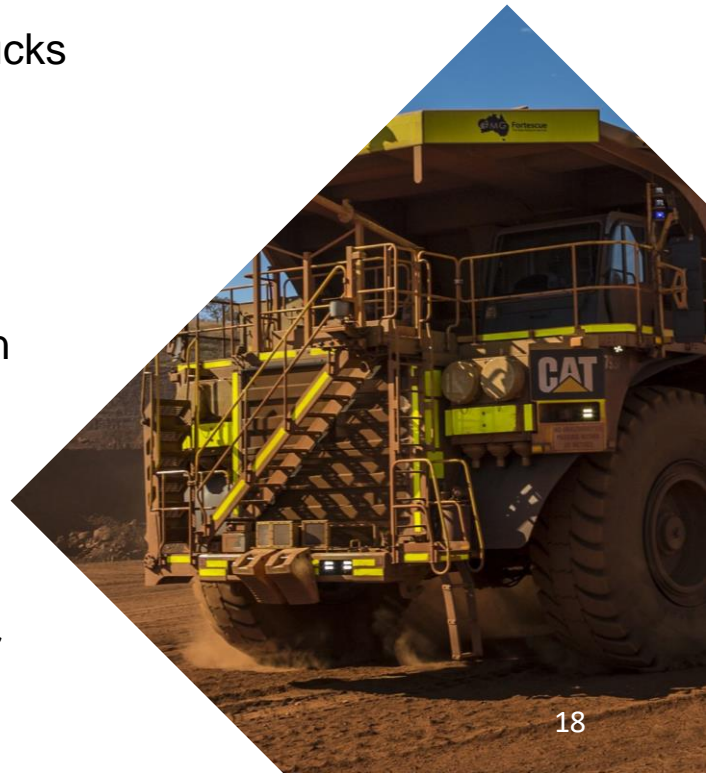
Critical business issue: Difficult to apply preventative maintenance before customers' trucks break down

Reason: No access to real-time data and unable to monitor fleet health

Specific capabilities: A fleet management system and a real-time data visualization solution

Delta: 60% boost in vehicle utilization

Increases production revenue by nearly \$ 6 million and reduces maintenance cost by \$300,000 per vehicle per year

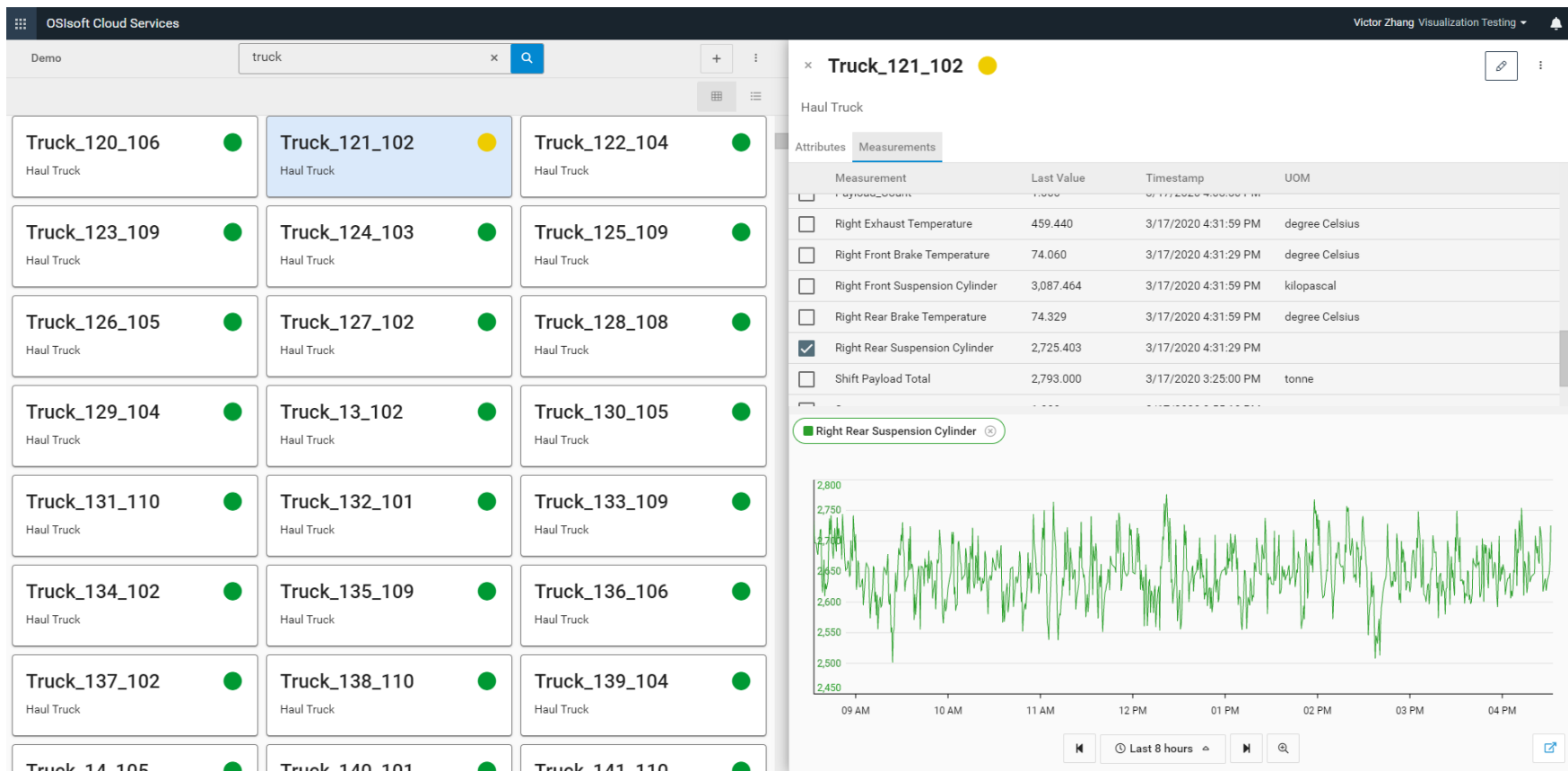


Asset Explorer

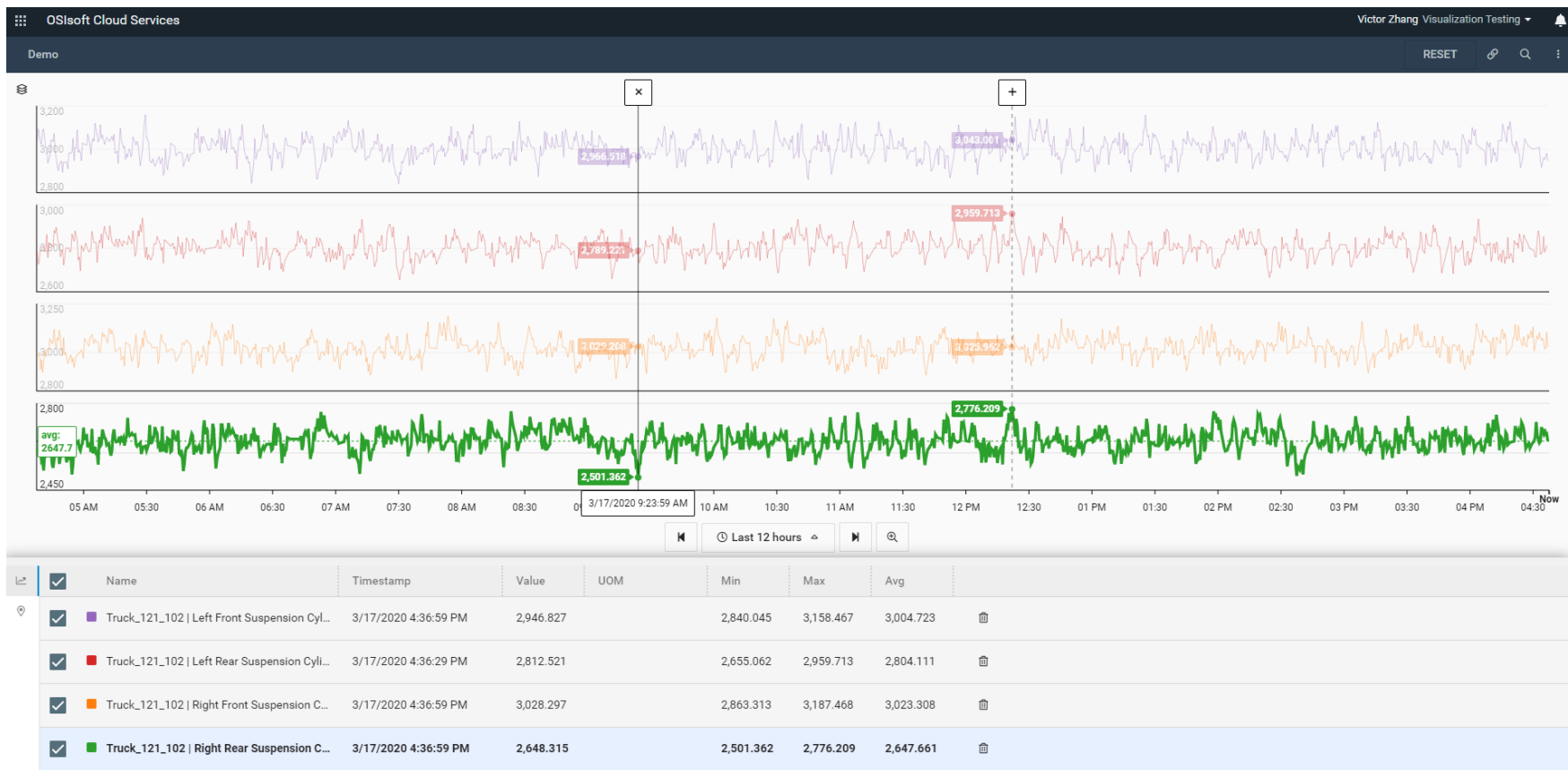


OSIsoft Cloud Services						Victor Zhang Visualization Testing	
Demo		truck					
Truck_1_107 Haul Truck	Truck_10_109 Haul Truck	Truck_100_109 Haul Truck	Truck_101_110 Haul Truck	Truck_102_106 Haul Truck	Truck_103_105 Haul Truck	Truck_104_106 Haul Truck	
Truck_105_108 Haul Truck	Truck_106_103 Haul Truck	Truck_107_107 Haul Truck	Truck_108_108 Haul Truck	Truck_109_103 Haul Truck	Truck_11_105 Haul Truck	Truck_110_110 Haul Truck	
Truck_111_109 Haul Truck	Truck_112_103 Haul Truck	Truck_113_108 Haul Truck	Truck_114_108 Haul Truck	Truck_115_103 Haul Truck	Truck_116_110 Haul Truck	Truck_117_106 Haul Truck	
Truck_118_103 Haul Truck	Truck_119_106 Haul Truck	Truck_12_107 Haul Truck	Truck_120_106 Haul Truck	Truck_121_102 Haul Truck	Truck_122_104 Haul Truck	Truck_123_109 Haul Truck	
Truck_124_103 Haul Truck	Truck_125_109 Haul Truck	Truck_126_105 Haul Truck	Truck_127_102 Haul Truck	Truck_128_108 Haul Truck	Truck_129_104 Haul Truck	Truck_13_102 Haul Truck	
Truck_130_105 Haul Truck	Truck_131_110 Haul Truck	Truck_132_101 Haul Truck	Truck_133_109 Haul Truck	Truck_134_102 Haul Truck	Truck_135_109 Haul Truck	Truck_136_106 Haul Truck	
Truck_137_102 Haul Truck	Truck_138_110 Haul Truck	Truck_139_104 Haul Truck	Truck_14_105 Haul Truck	Truck_140_101 Haul Truck	Truck_141_110 Haul Truck	Truck_142_108 Haul Truck	

Asset Details

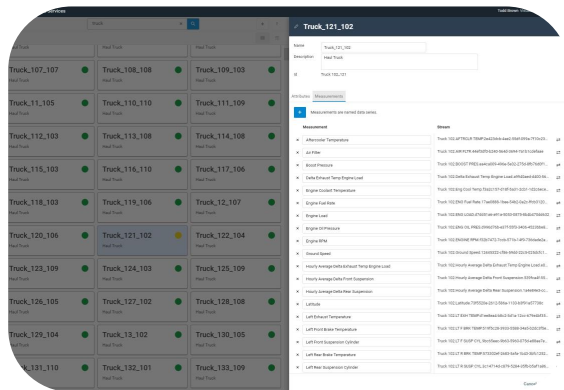


Data Exploration & Root Cause Analysis

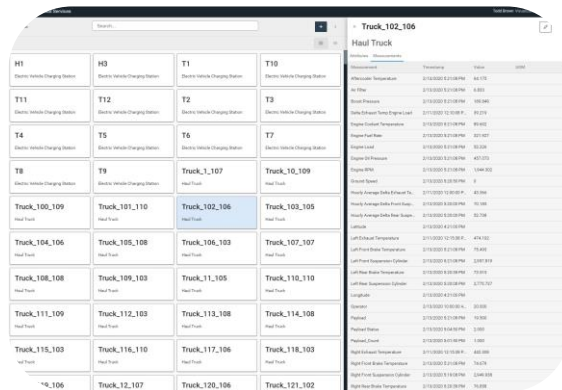


DEMO

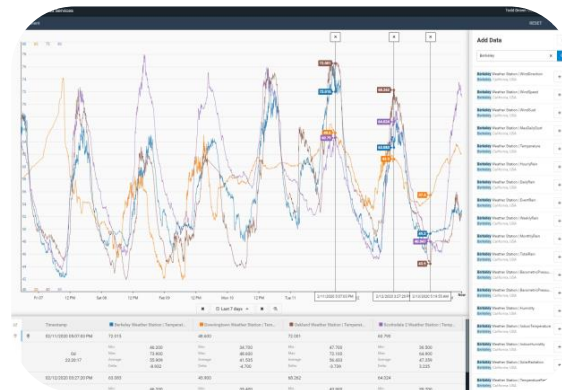
Remote Operations Monitoring Demo Recap



Asset
Management



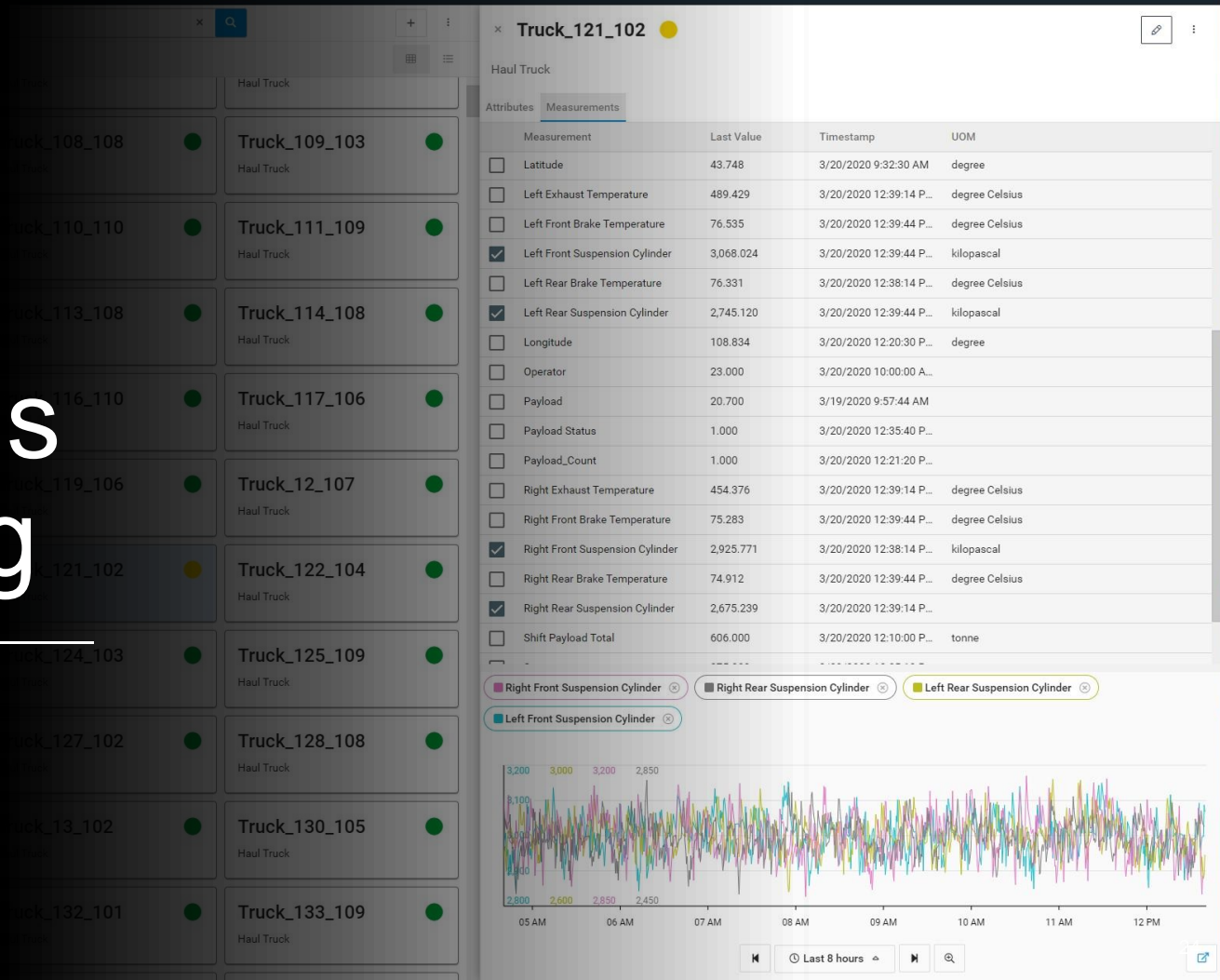
Asset Explorer



Data Exploration
& Trending

Remote Operations Monitoring

Context



Asset Management

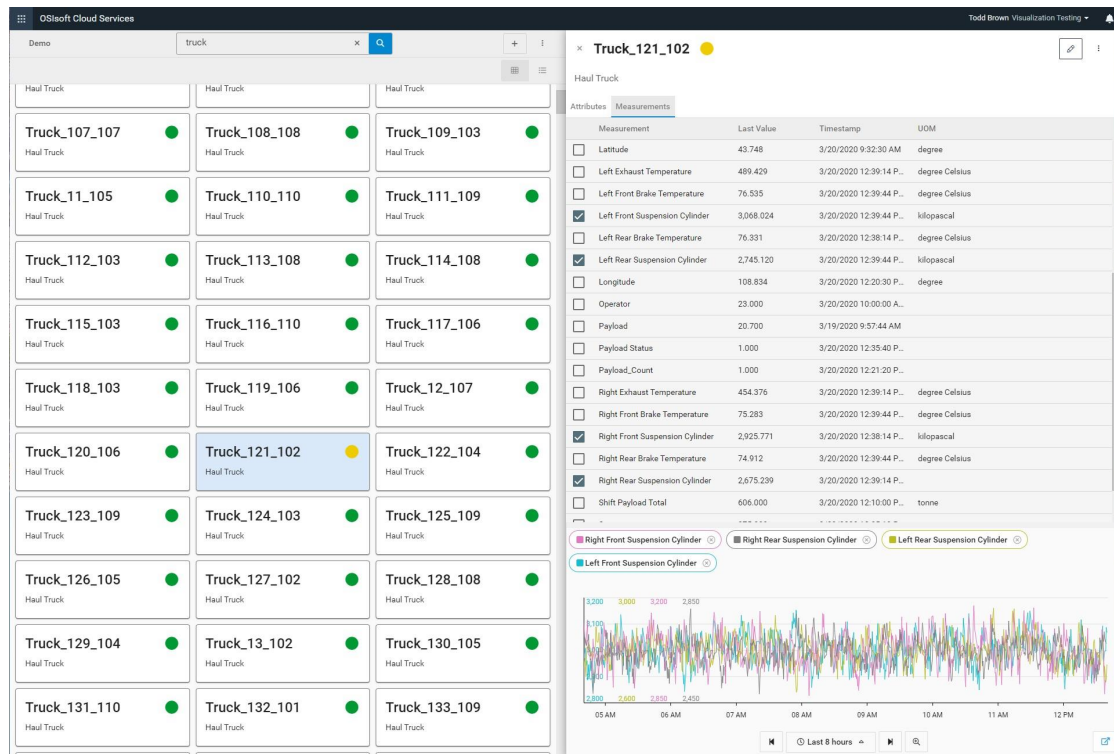


The screenshot displays the OSIsoft Cloud Services interface for asset management. On the left, a grid of asset cards is shown, each representing a 'Haul Truck' asset. The card for 'Truck_121_102' is highlighted. On the right, the details for 'Truck_121_102' are displayed. The details include the asset's name, description, and ID. Below this, there are tabs for 'Attributes' and 'Measurements'. The 'Measurements' tab is active, showing a list of measurements and their corresponding streams. The measurements include 'Aftercooler Temperature', 'Air Filter', 'Boost Pressure', 'Delta Exhaust Temp Engine Load', 'Engine Coolant Temperature', 'Engine Fuel Rate', 'Engine Load', 'Engine Oil Pressure', 'Engine RPM', 'Ground Speed', 'Hourly Average Delta Exhaust Temp Engine Load', 'Hourly Average Delta Front Suspension', 'Hourly Average Delta Rear Suspension', 'Latitude', 'Left Exhaust Temperature', 'Left Front Brake Temperature', 'Left Front Suspension Cylinder', 'Left Rear Brake Temperature', and 'Left Rear Suspension Cylinder'. Each measurement has a corresponding stream reference.

Capabilities

- ✓ Create & Manage Assets
- ✓ Asset Access Control Permissions
- ✓ Asset Attributes (static metadata)
- ✓ Asset Measurements (stream references)

Asset Explorer

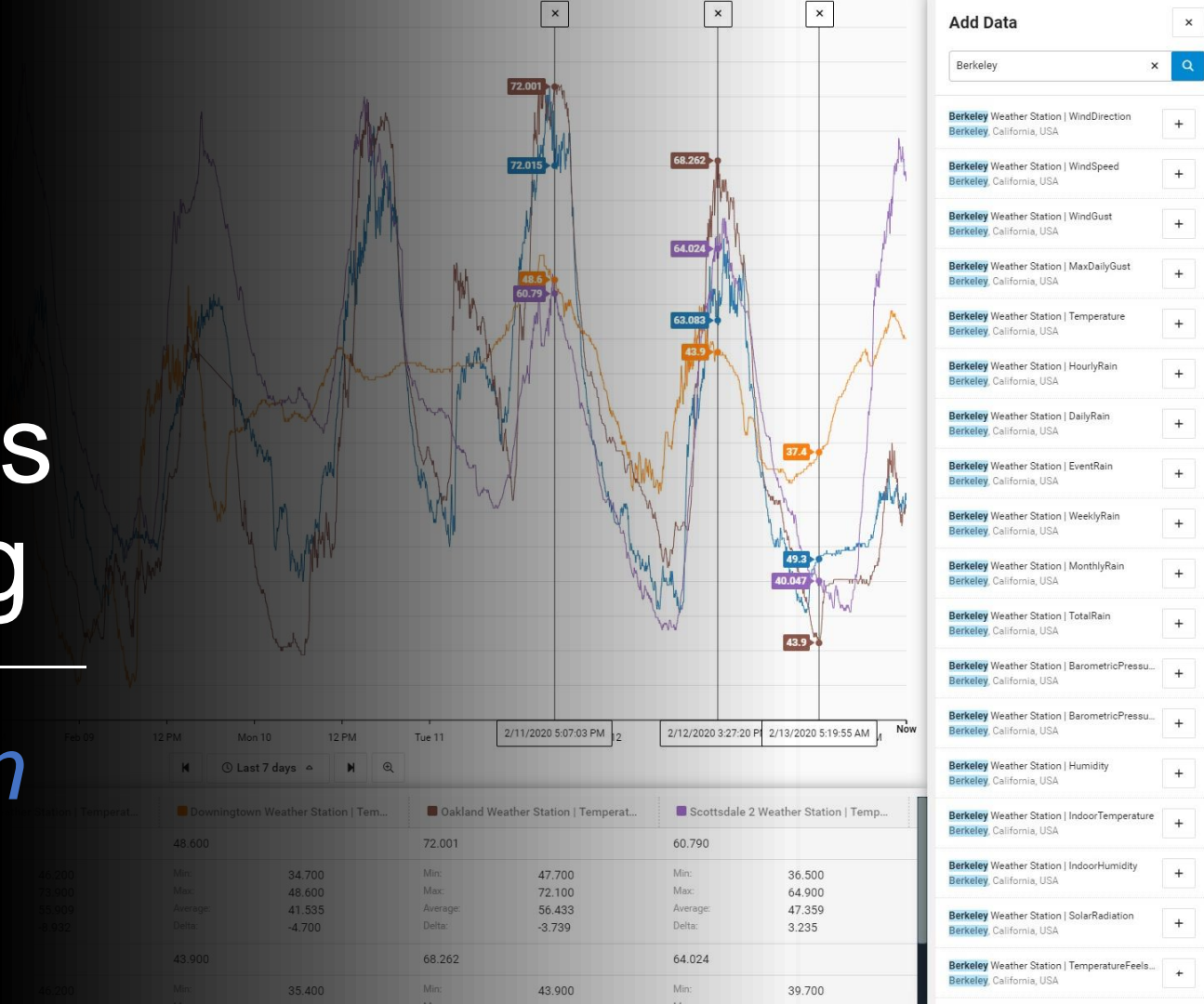


Capabilities

- **Asset Explorer**
 - ✓ Asset Search by Name
 - ✓ Card View
 - ✓ Table View
 - ✓ Asset Status
- **Asset Details**
 - ✓ Attributes & Measurements
 - ✓ Updating Data
 - ✓ Asset Trending
 - ✓ Launch to Full Trend

Remote Operations Monitoring

Visualization



Data Exploration & Root Cause Analysis Trending



Capabilities

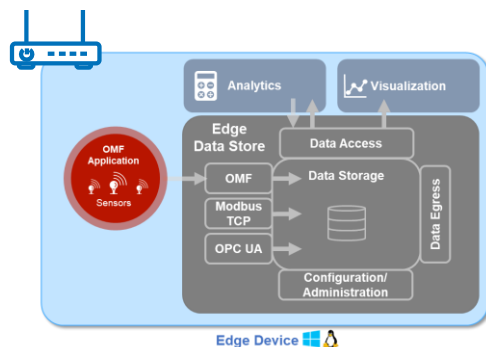
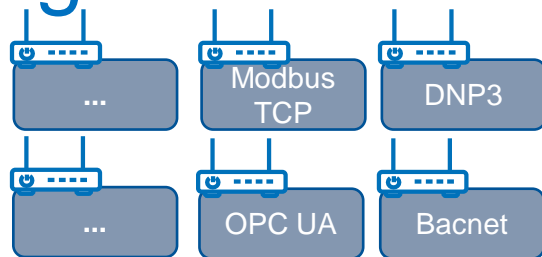
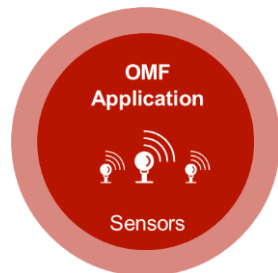
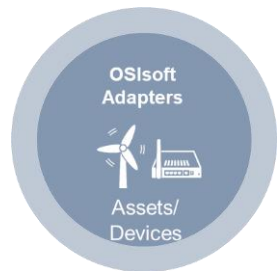
- ✓ Stream Search
- ✓ Common Trend Interactions
- ✓ Stacked Trends
- ✓ Trace Summary Calcs
- ✓ Visualize Trace Details on Trend
- ✓ Min/Max Easy Cursors
- ✓ Multiple Cursor Delta Summary Calcs
- ✓ Trend Sharing
- ✓ URL Parameters



Remote Operations Monitoring

*Connectivity &
Data Ingress*

Data Ingress to OCS for ROM

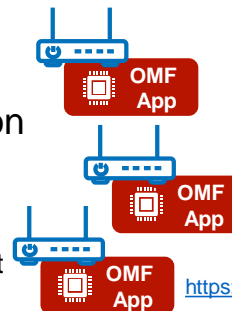


OMF

OSIsoft Cloud
Services
cloud.osisoft.com

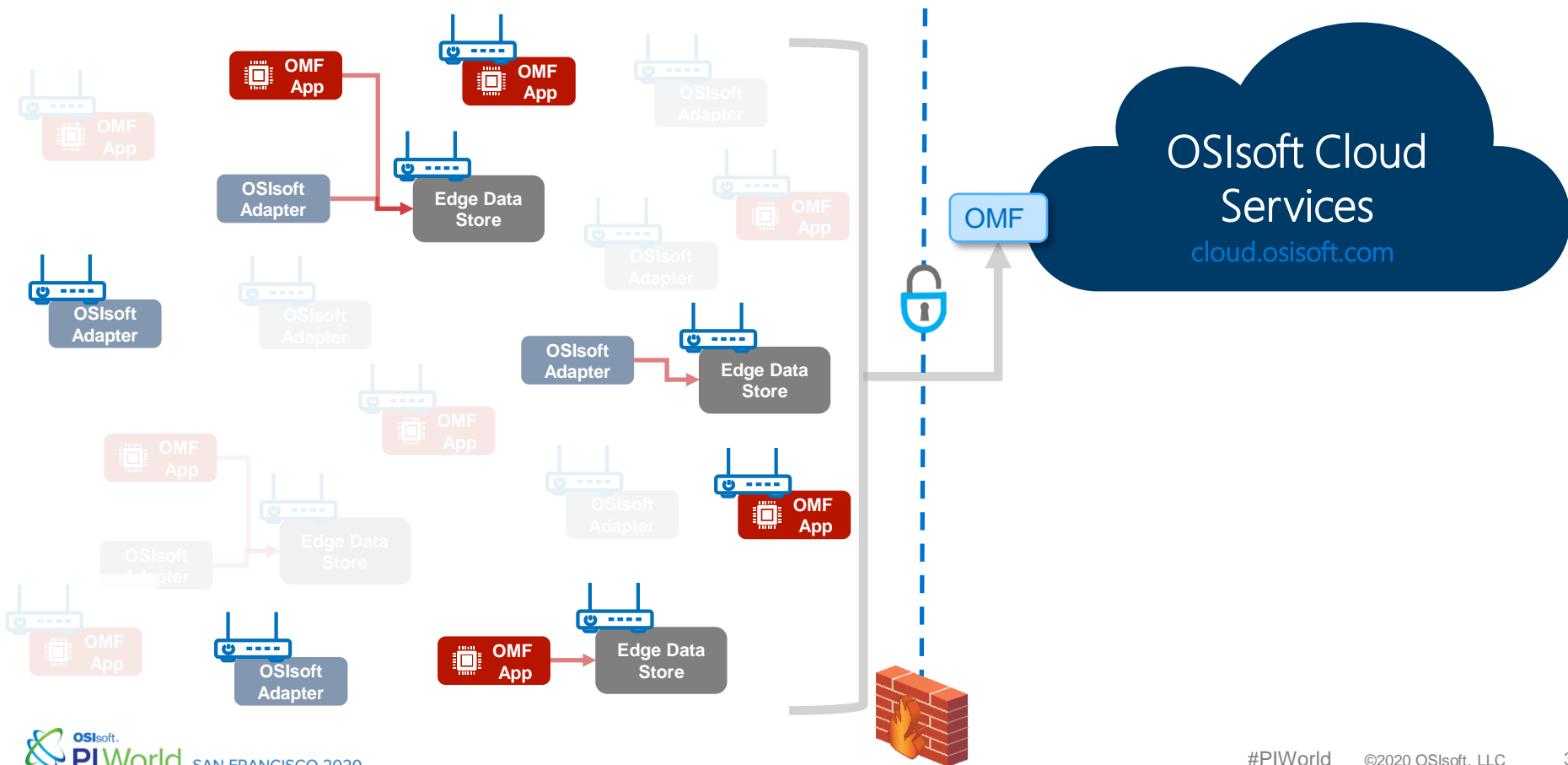
OSIsoft Message Format Specification

- Simplified interface for data insertion
- Supported by the PI Server, OSIsoft Cloud Services, and Edge Data Store
- Specification defines a data message format
- Supported on any operating system and hardware platform



<https://omf-docs.readthedocs.io/en/v1.1/>

Flexible Edge Connectivity for ROM



OSIsoft Cloud Services

Product Roadmap



Remote Operations Monitoring in OCS – Roadmap



Developing Now

Edge Data Store to OCS

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

Released

OSIsoft Adaptors to OCS

Modbus TCP, OPC UA, DNP3 and Bacnet

Preview

Trending Experience

Enable customers to trend and easily analyze stream data.

Preview

Asset Context & Explorer

Create Asset definitions with references to streams.
Visualize Asset information & Asset details.

Basic Asset Searching

Enable basic searching by Asset names and measurement names.

Asset Status

Configure and visualize current Asset status and historical views within Asset Explorer.



Considering Next

Asset Measurement Groupings

Enable users to group asset measurements for easier re-use in visualization.

Context Rules

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

Asset Metadata Filtering

Enable filtering of assets based on metadata keys (attributes).

Asset Metadata Searching

Enable searching of assets based on metadata keys (attributes).



Researching Future

More Remote Data Collection

Additional OSIsoft Adaptors

Context Enhancements

Remote Operations Monitoring Visualization Enhancements

Additional OCS Data Center Region Support

OSIsoft Cloud Services (OCS) – Roadmap

Remote Ops Monitoring Scenario



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

View details from our OCS feedback site!

By Status



OSIsoft Cloud Services

— User Feedback for OSIsoft Products and Services

Welcome to the OSIsoft Cloud Services feedback page!

We created this forum to hear your ideas, feature suggestions and feedback around our cloud offerings. For more information on OSIsoft Cloud Services, please refer to: <https://cloud.osisoft.com>

Please note that your ideas and comments posted here are visible to all other users.

• For PI Cloud Connect, please enter your ideas here: <https://feedback.osisoft.com/forums/596933-pi-cloud-connect>

How can we improve OSIsoft Cloud Services?

Hot Top ideas New Visualization: Trends (24) All OCS / PDCVIEW (11)

My feedback

9 votes

Vote

Trend OCS Stream Properties

Ability to search for OSIsoft Cloud Services (OCS) Streams by name and trend Stream Properties.

Ability to perform basic trend interactions such as: setting the time range, configure y-axis mode, highlight traces, hide/show traces, multiple cursors, horizontal panning & zooming.

0 comments Visualization: Trends Delete Admin

0 votes

Vote

Stacked Trend

Besides the single-scale and multi-scale trend modes, I also want to stack the trends on top of one another so that traces don't overlap, and each trace has its own Y-axis scale.

0 comments Visualization: Trends Flag idea as inappropriate Admin

0 votes

Vote

Hide / Show Traces

As an end-user of the Trend app, when visualizing multiple variables in a trend, sometimes I want to hide a few of them so I can focus on the rest. Once done, I want to add the hidden traces back to the trend so I can see the whole picture.

0 comments Visualization: Trends Flag idea as inappropriate Admin

0 votes

Vote

OSIsoft Cloud Services (OCS) now offers three Y-axis modes: single-scale, multiple-scale and stacked.

Users can click the button in the upper-left corner to toggle between the modes.

Any feedback can be entered via feedback.osisoft.com.

By Category: Visualization

Hot Top ideas New Visualization: Trends (17) Status

My feedback

13 votes

Vote

Display Assets / Sites on a Map

Ability to display sites & assets on a map, show their current status, and then have a way to drill down into details for them.

1 comment Visualization Delete Admin

12 votes

Vote

View Data Related to an Asset

Ability to click on an Asset and view the current values for data & metadata associated with the Asset.

STARTED / IN DEVELOPMENT 2 comments Visualization Delete Admin

4 votes

Vote

View OCS data in a Spreadsheet

Ability to view OCS data in a spreadsheet like Microsoft Excel or Google Sheets.

2 comments Visualization Delete Admin

3 votes

Vote

Asset Filtering

Ability to filter on equipment / assets by various metadata (key/value pairs) SO THAT I can find the assets I'm interested in monitoring or performing analysis on.

0 comments Visualization Delete Admin

2 votes

Vote

Alarm / Faults Visualization

Ability to visualize recent faults for an Asset.

1 comment Visualization Delete Admin

2 votes

Vote

Asset Metadata Searching

Ability to search for Assets by their metadata (key/value pairs). For example, search for "Philadelphia Pump"

0 comments Visualization Delete Admin

2 votes

Vote

Visualize Asset Status Over Time

Ability to visualize equipment statuses / states over a period of time (day, week, month, etc.) SO THAT you can get an idea of when certain statuses are the most prevalent and how the equipment has been behaving recently. Additionally, the ability to understand the % time each Status had over the time period (pie chart is a common visualization for this).

0 comments Visualization Delete Admin

By Category: Trends

Hot Top ideas New Visualization: Trends (24) Status

My feedback

9 votes

Vote

Trend OCS Stream Properties

Ability to search for OSIsoft Cloud Services (OCS) Streams by name and trend Stream Properties.

Ability to perform basic trend interactions such as: setting the time range, configure y-axis mode, highlight traces, hide/show traces, multiple cursors, horizontal panning & zooming.

0 comments Visualization: Trends Delete Admin

3 votes

Vote

Disable the Hover Cursor

I personally find the ever-present cursor really annoying. For example, sometimes I'm moving my mouse to scroll to a later point in time. Or I can imagine myself using my mouse to point something out to a colleague. In both instances, the cursor is not relevant and its presence is distracting (like a glare).

0 comments Visualization: Trends Flag idea as inappropriate Admin

3 votes

Vote

OCS Trending URL Parameters

Ability to support URL parameters for data, time, etc. in the OCS Trend page.

STARTED / IN DEVELOPMENT 1 comment Visualization: Trends Delete Admin

1 vote

Vote

The Cursor Table's Icon Can Be Confusing

In the lower pane of the workspace, the icon that is associated with the table doesn't seem to "fit." It has such a strong association with Google maps or a physical location. I think it might be better to use another icon. This is also where having tooltips would help.

0 comments Visualization: Trends Flag idea as inappropriate Admin

1 vote

Vote

Zoom Out and Revert Trend

You can zoom in on a portion of the trace, but it doesn't appear possible to zoom out and return to the starting point. Perhaps this feature will be implemented later? I expect to be able to zoom out again, in part, because this is the behavior I see in other applications. I also want to be able to get back to where I was before I zoomed.

0 comments Visualization: Trends Flag idea as inappropriate Admin

0 votes

Vote

Give feedback

Customer Scenarios (Internal) (83)
DevOps and Operations Guid (Internal) (8)
Edge Data Store (16)
INTERNAL - UI New Features Test (3)
Internal Tech Support Issues (24)
Legacy Products (36)
Manageability (48)
myOSIsoft (99)
NOC Services (42)
OSIsoft Cloud Services (155)
OSIsoft GitHub (7)
OSIsoft Learning (44)
OSIsoft Message Format (OMF) (16)
PI Cloud Connect (39)
PI Connectors (263)
PI DataLink (83)
PI Developer Technologies (118)
PI Integrators (164)
PI Interfaces (180)
PI Server (89)
PI Vision (97)
PI Vision 4.x Preview (24)
Referrals (55)
Salesforce, Service Cloud, and CPQ (Internal) (221)

Communicate with OSIsoft Product Managers



<https://feedback.osisoft.com>

.....
Let us know your product feedback!



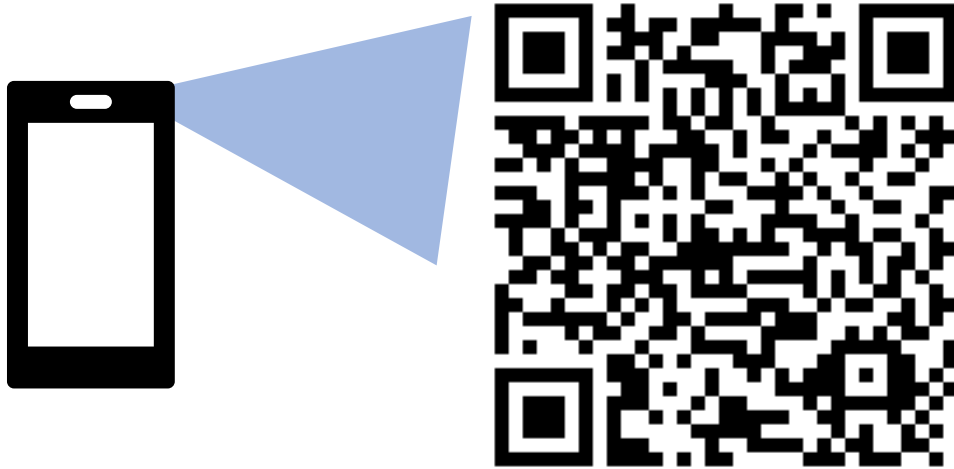
Remote Operations Monitoring

*How to
Engage*



Help us Learn about your Remote Operations Monitoring Scenarios!

Please take 5 minutes to complete our OCS Remote Operations Monitoring survey to help us learn about your ROM needs.



https://osisoft.az1.qualtrics.com/jfe/form/SV_elcijQx37C87le9

Discuss ROM with Our Team (Virtually)

Contact me (Todd Brown) at tbrown@osisoft.com



Remote Operations Monitoring
Scenario Discussions



OCS Visualization
Usability Testing

Remote Operations Monitoring Lighthouse Program



- OSIssoft provides:
 - OSIssoft Connectivity Software (OSIssoft Adapters, Edge Data Store, OMF)
 - OSIssoft Cloud Services Software
 - Installation & configuration support
 - Technical support
 - Program management
- Participant provides:
 - Viable scenario
 - Resources to use OSIssoft Cloud Services for Remote Operations Monitoring
 - Feedback on use of OSIssoft Cloud Services for Remote Operations Monitoring
 - Willingness to document a success story and participate in a future PI World presentation

Join us in the Lighthouse!

Email: ***Lighthouse@osisoft.com***

Contact us for more Information



- **Todd Brown**

- Strategic Product Manager – *OCS Remote Operations Monitoring*
- OSIsoft, LLC
- tbrown@osisoft.com



- **Victor Zhang**

- Technical Product Manager – *OCS Visualization*
- OSIsoft, LLC
- vzhang@osisoft.com



- **Joy Wang**

- Technical Product Manager – *OCS Context*
- OSIsoft, LLC
- jwang@osisoft.com

-

Questions?

Please wait for
the **microphone**

State your
name & company



Save the Date...



AMSTERDAM

October 26-29, 2020



