Gather: Data Connectivity Options for the PI System and the Cloud

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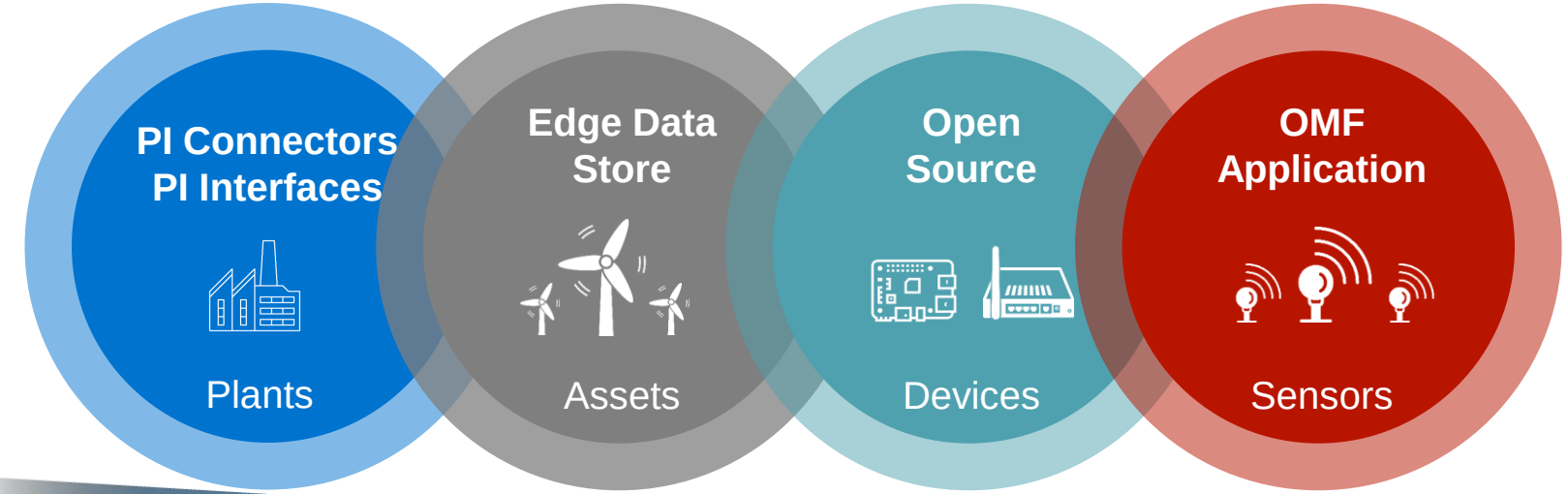
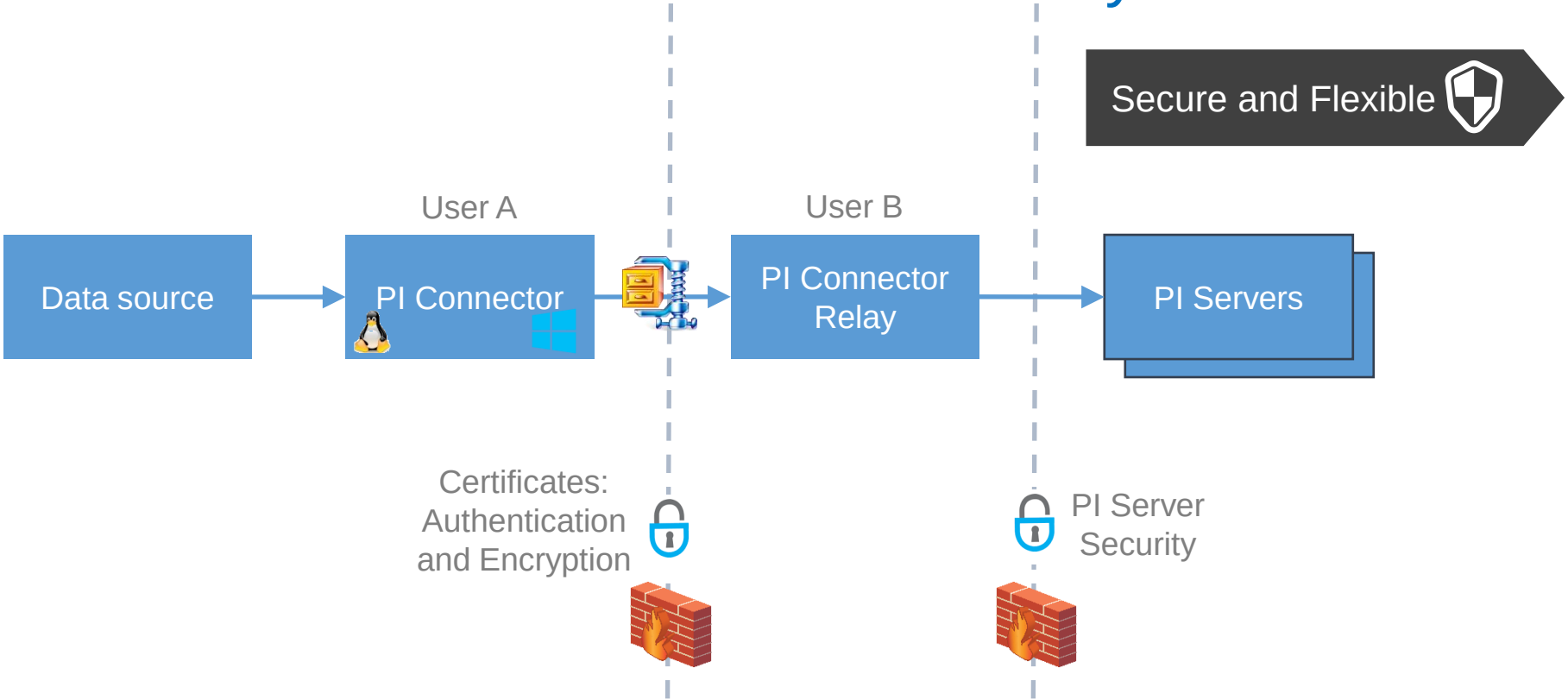
Pervasive Data Collection



PI Connectors with PI Connector Relay



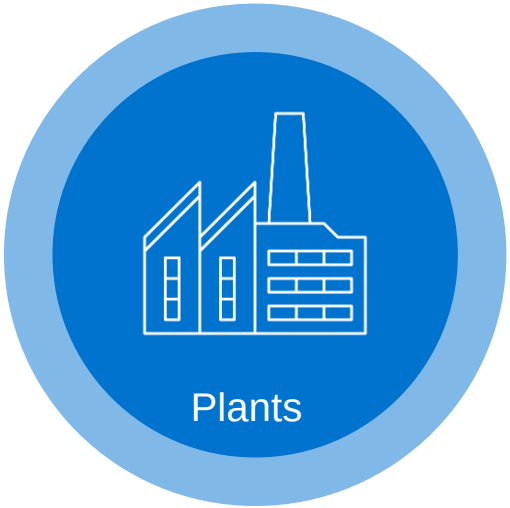
The only thing that is constant is change…

- **Support for Larger Datasets**
- **Tag Naming Control**
- **Tag Mapping Control**

Support for Larger DataSets

Why??

DCS’s



SCADA’s

Process Historain’s

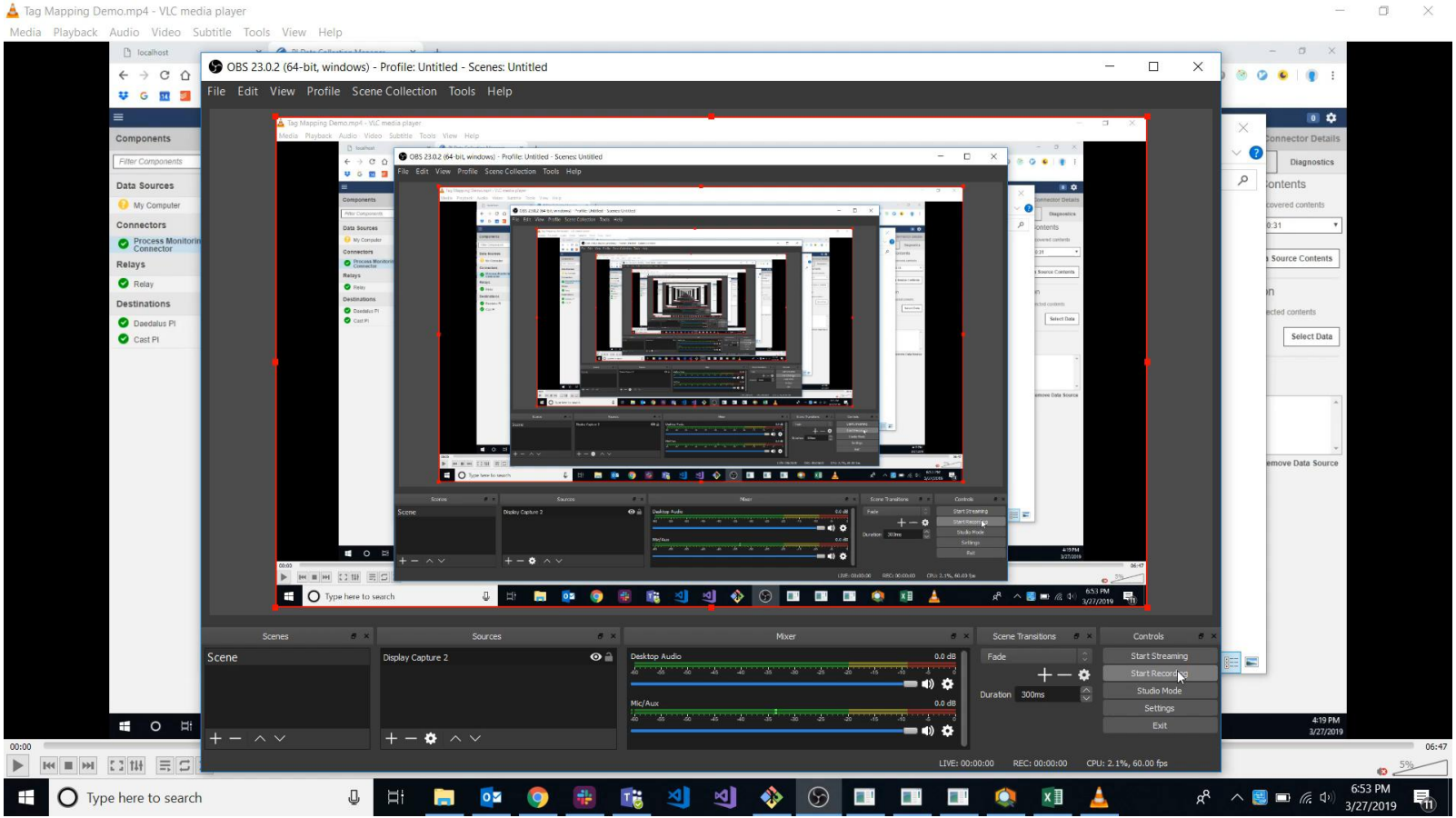
Centralized Servers

Before and After..

1M Assets, 10M Properties	2.2.x (seconds)	2.3.x (seconds)
Discovery	330	90
Data file loading	192	49
Apply selection rules	OutOfMemoryException	27

100k Assets, 1M Properties	2.2.x (seconds)	2.3.x (seconds)
UI: Open	15	8
UI: Expand Root Asset	8	.1
UI: Expand Child Asset	8	.002
UI: Click, Generate a Rule	9	.3
Apply selection rules	3.5	2.6

DEMO



PI Connector for OPC UA 1.3.x.x

- Certified by OPC Foundation
- Support for ‘Tag Only’ Mode
- Support for sending Engineering Units
- Improved performance when handing disconnects from OPC UA server

PI Connector for Wonderware Historian

- Retrieve data for Wonderware System tags
- Instrumentation streams and PI points are available for monitoring data collection status
- ‘NULL’ values can now be handled through “Comm Fail” Digital State
- Ability to specify tag name prefix for each data source.
- Enhanced handling of tags names identified with illegal characters on Wonderware Historian
- Improved logic for handling Store and Forward events

PI Connector for MQTT Sparkplug

- Supports reading messages from MQTT Brokers via the pub/sub model
- Supports messages formatted in Sparkplug B format (protobuf based)
- Look into JSON to Protobuf converters (external product)

New PI Connectors in development

PI Connector	Market	Status
GE e-terra	T&D	Beta
Honeywell PHD	Many	Beta
Modbus for Cisco IOx	All	UAT
MQTT Sparkplug	All	Beta
Siemens Spectrum 7	T&D	Development
Tridium	Facilities	Beta
WITSML PASON	O&G	Beta
61850 with Relay	T&D	Beta

Connectivity - Roadmap

Manageable System
Seamless Infrastructure
Increased Value & Scope of Data

Developing Now

Expand Data Connectivity BETA
Several more data ingress options including MQTT Sparkplug, Honeywell PHD, WITSML PASON, etc.

Tag (Stream) Naming Control
Ability to control tag naming convention

Tag (Stream) Mapping Control
Ability to migrate from Interfaces to Connectors and use existing tags

Flexible Deployment
Continue to enhance customer experience by delivering flexibility when deploying connectivity

Considering Next

Multiplatform Compatibility
Enable customers to run OSIsoft developed connectivity cross-platform

Lightweight and Higher Performant
Reduce installation footprint and optimize resource consumption

Edge to Cloud
Support use cases that require sending data to OCS from EDGE and IoT devices

Researching Future

Remote Operations Monitoring
Enable insights into the operations and health of remote assets

Manageability and Deployment
Optimize the experience around deploying and managing multiple connectivity solutions

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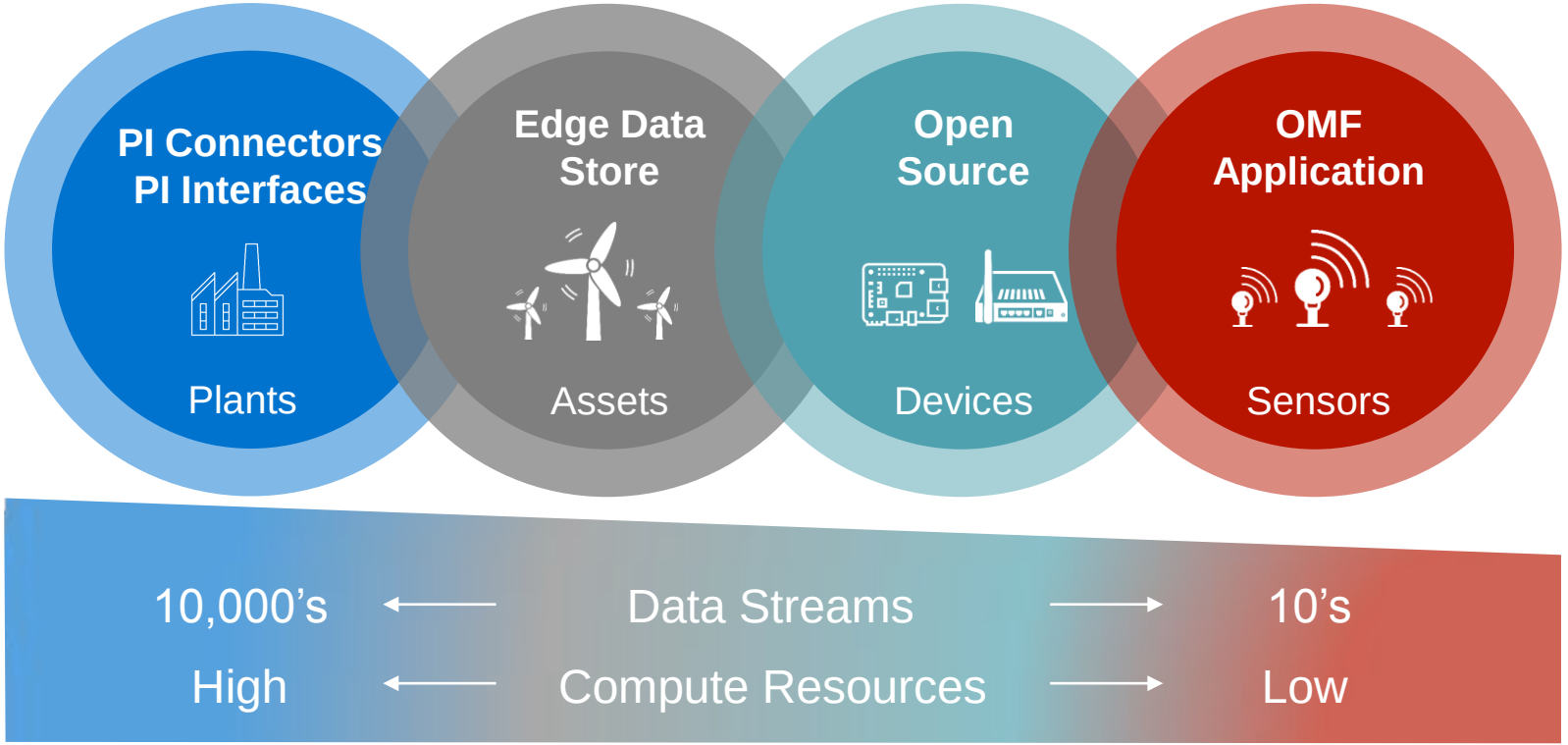
Last Updated: 2019-04

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

Edge Technologies

Chris Felts

Pervasive Data Collection Products & Technologies



Many “Edges”

Edge Data Store

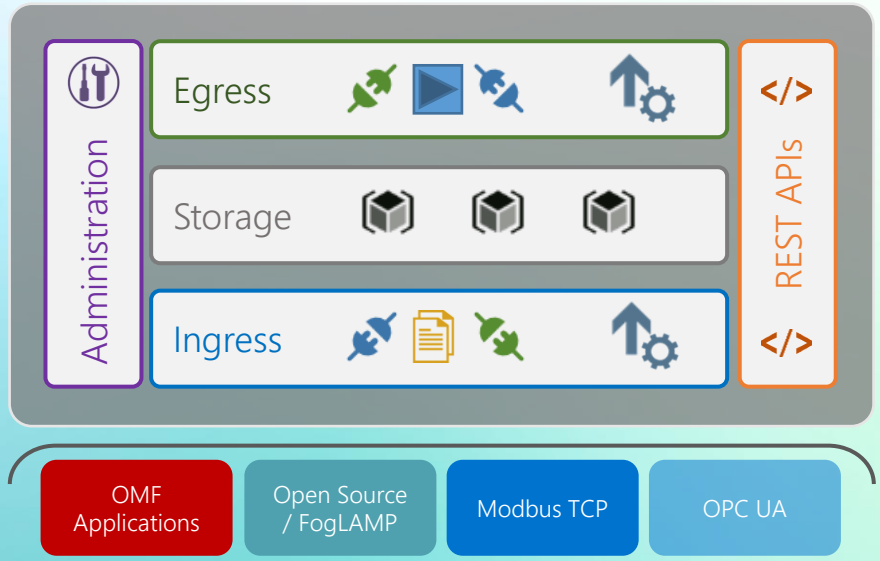
Persistent Storage

Self-Healing

Application Platform

- Cross Platform (Windows, Linux)
- Multiple Data Ingress Options
- Analytics Ready
- Egress to PI Server and OSIsoft Cloud Services
- Developed, Sold, and Supported by OSIsoft

Edge Data Store Components



IPCOS / Beam Pump Monitoring

Mikhail Koloskov

IPCOS Introduction

Over **500 projects** in **50 locations** in **30 countries**

15 years of experience, 65 engineers, offices in Europe, US, India and UAE

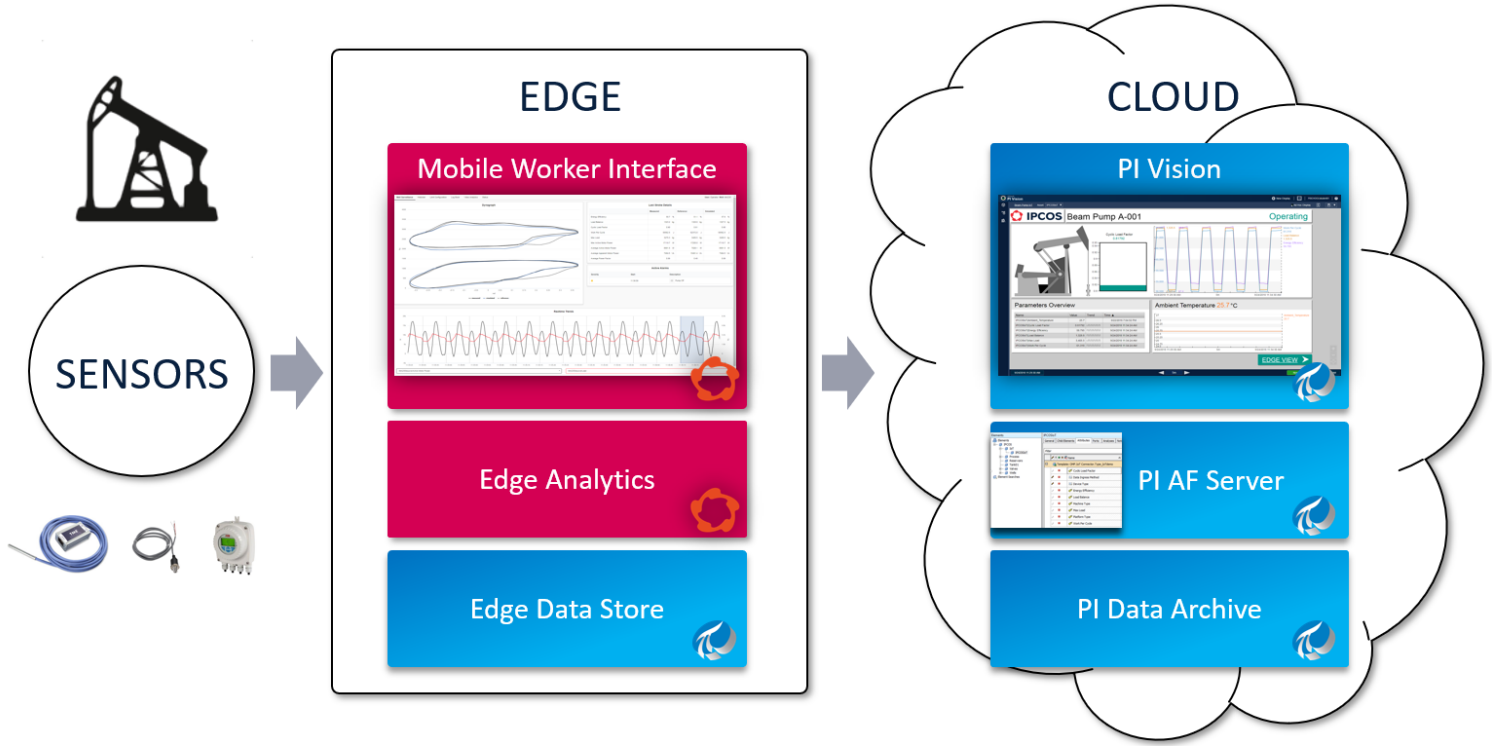
IPCOS

- Advanced analytics partner with deep expertise in Oil and Gas
- Systems Integrator

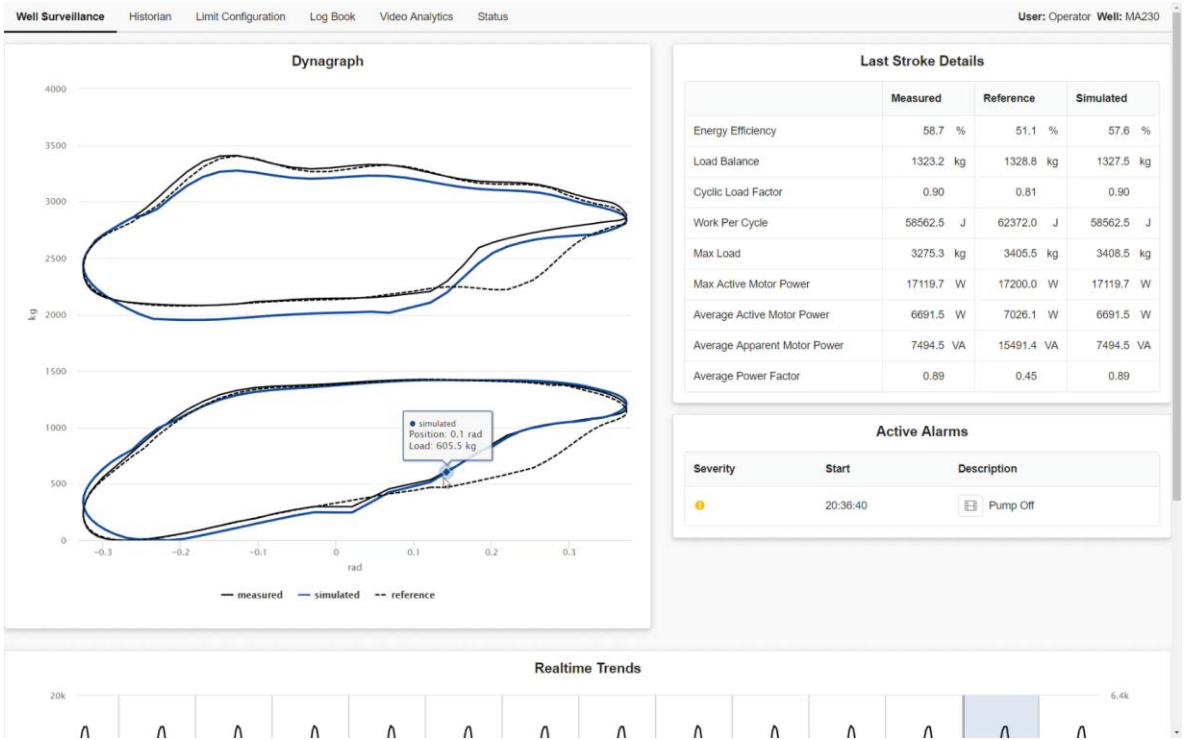
IOT – Why to Consider?

- The IoT architecture can bring the cost of automation down significantly
- Advanced data processing “on the edge” (e.g. vibration data, soft sensors)
- Scalable and modular

Architecture Components



Beam Pump Application Demo



Where is the Money?

- Remote monitoring minimizes costs and improves safety of manual inspections
- Enhanced surveillance reducing down time and deferment
- Improved planning and reservoir management

IPCOS

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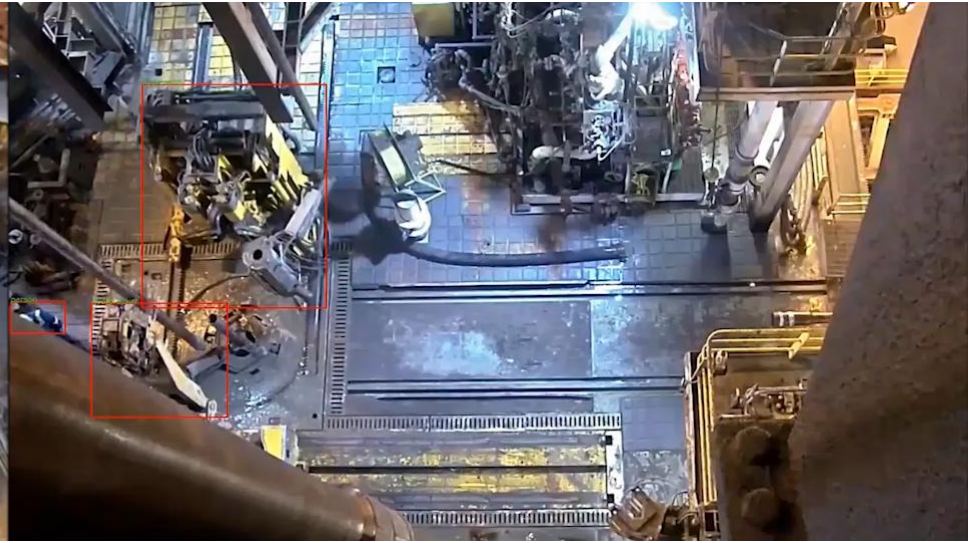
Rolloos / Red Zone Monitoring

Martijn Handels

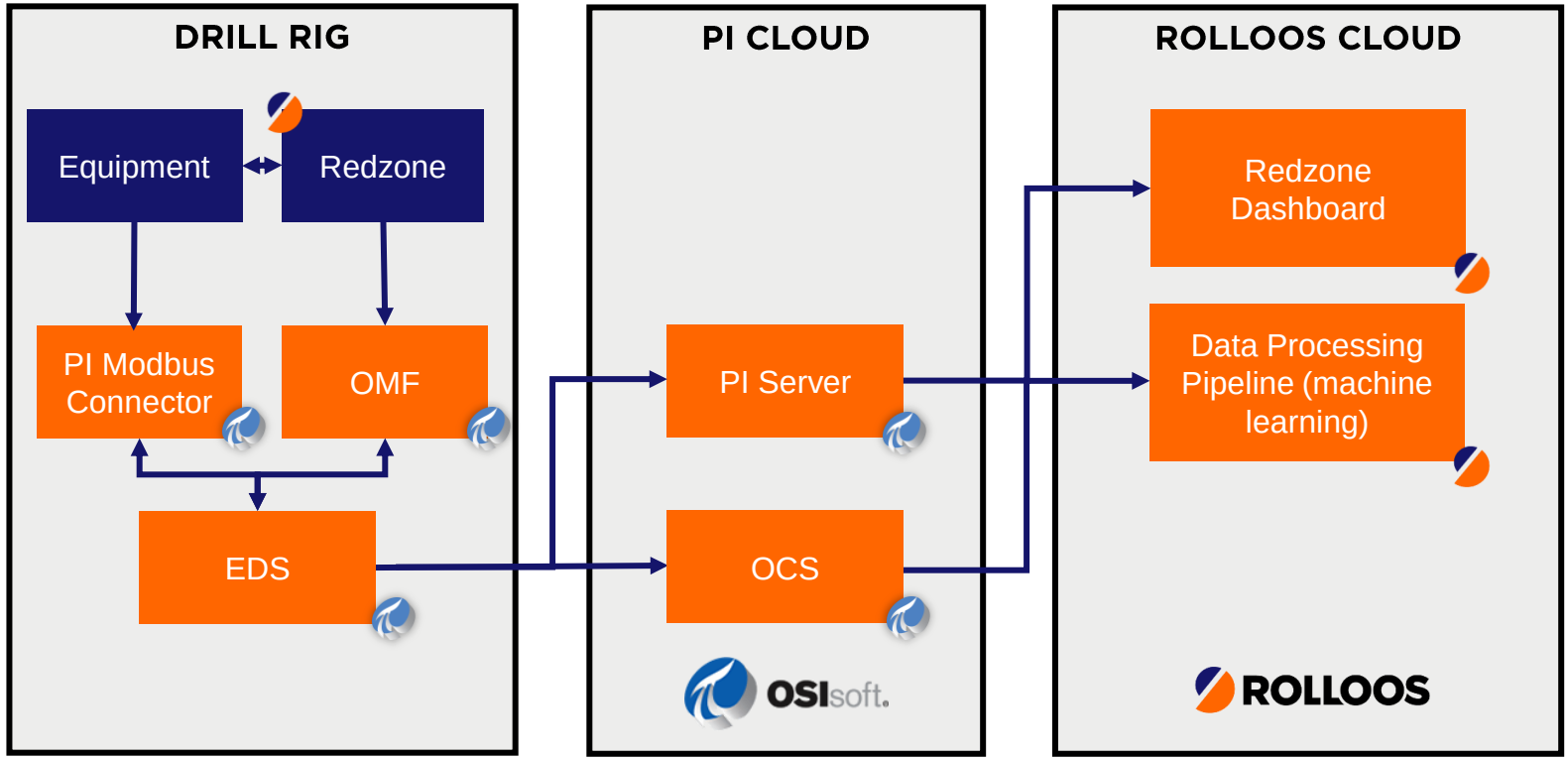
People & Equipment Detection

PEOPLE DETECTION

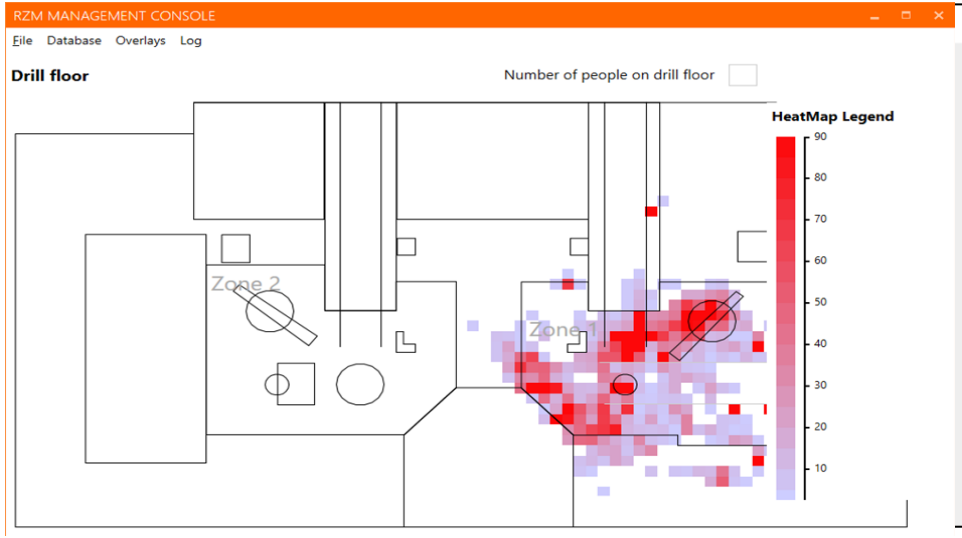
PEOPLE & EQUIPMENT DETECTION



EDS / OCS Architecture



People & Equipment Movement



Rolloos

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Transpara / Asset Monitoring

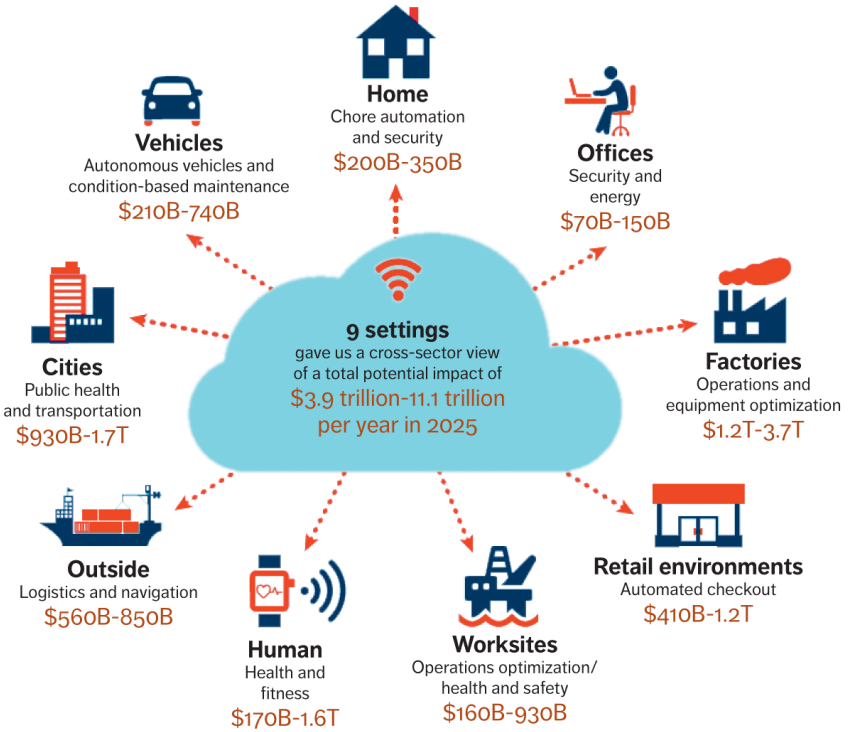
Michael Saucier

New Possibilities

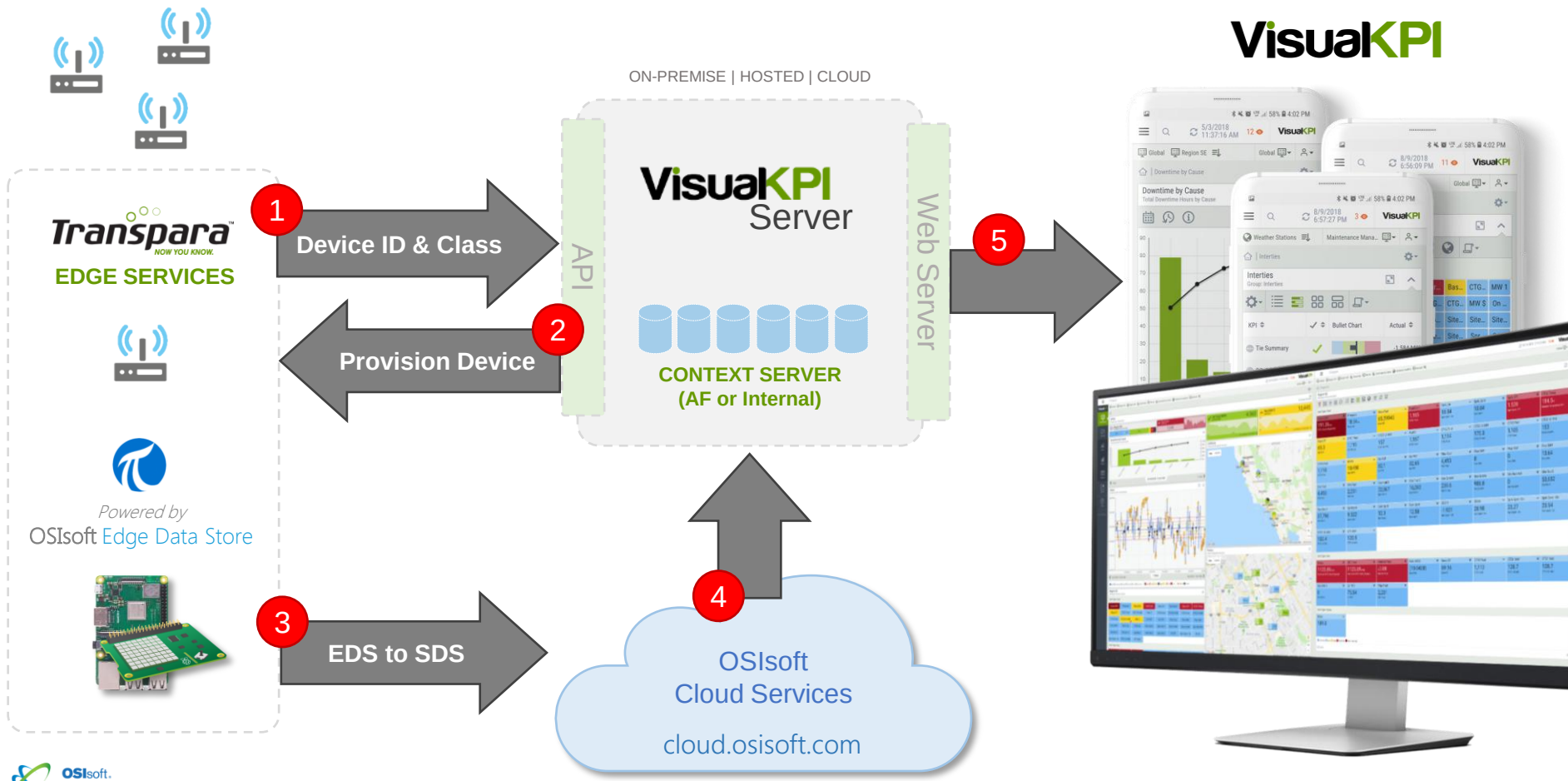
- Low cost, commodity sensors
- Low power, small footprint, high volume, no touch
- Occasionally connected, wireless-ready
- Remote and/or mobile assets
- Outside the DCS or PLC (due to age, cost, effort)
- Benchmarking / compositing

New Opportunities

- Industrie 4.0 & Brownfield modernization
- New applications (e.g. vertical farming, drones)
- Smart cities / infrastructure as a service
- Autonomous vehicles
- Data as a business (e.g. Streamr, Quandl, PJM, National Grid)
- Uptime as a service



Source: McKinsey Global Institute, June 2015



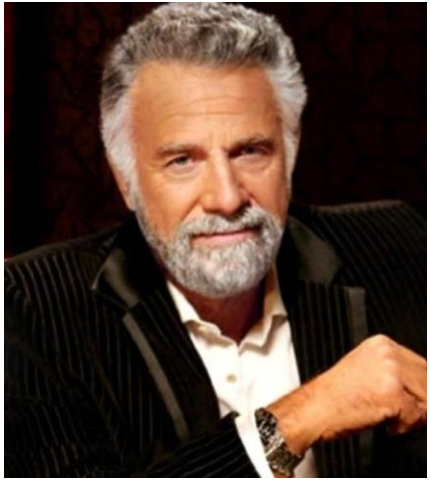
DEMO

Edge Data Store with Transpara Visual KPI

Try it yourself on any device:

http://dev.transpara.com/piworld

Transpara (Visual KPI)



Michael Saucier
CEO
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Edge Data Store - Roadmap

Manageable System
Seamless Infrastructure
Increased Value & Scope of Data

Developing Now

Data Connectivity BETA
Several data ingress options including Modbus TCP, OPC UA, OMF and EDS API.

Data Storage BETA
Data collected through the various connectivity options is persisted at the edge.

Application Platform BETA
Partner and customer developed trending, analytics and other applications interact with the Edge System via a Restful API.

PI System Integration BETA
Stored data is transferred to the PI Server using configurable egress rules.

Considering Next

OCS Integration
Stored data is transferred to OCS using configurable egress rules.

Remote Management
Edge System is configured and administered from a remote, centralized location.

Researching Future

Additional Data Connectivity

Calculations

Trending Experience

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Last Updated: 2019-04

Product Booths

- Data Collection – Golden Gate
- Edge Technologies - Yosemite
- IIoT Demos – Yosemite
- Partner booths:
  - Dianomic (Golden Gate)
  - IPCOS (Yosemite)
  - Monico (Yosemite)
  - Transpara (Yosemite)

Product Expo – Hilton

Other Talks

Designing OMF into a Multi-function Edge Device
Today - 3:30pm
Marketplace Partner Showcase Track
– Hilton, Imperial Ballroom B

Edge Analytics with the PI System
Today - 3:30pm
Developer Track 1
– Hilton, Cyril Magnin I

And more …

EDS API (documentation)
http://osisoft-edge.readthedocs.io/en/latest/EdgeDS_Admin.html

OMF Specification
https://omf-docs.readthedocs.io/en/v1.1/

FogLAMP (source code)
https://github.com/foglamp/FogLAMP

Communicate with OSIsoft Product Managers

https://feedback.osisoft.com

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

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Questions?

Please wait for the **microphone**

State your **name & company**

Please remember