IIoT Data Collection with the PI System

Presented by
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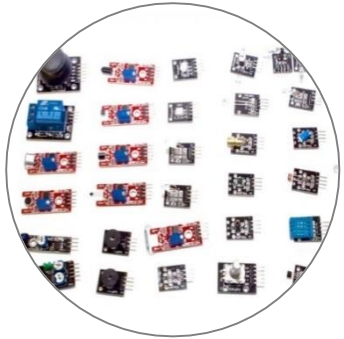
October 5th, 2017

OSIsoft on Industrial IoT

"Connecting people with sensor based data in ways that were physically or economically unrealistic before"

What's Driving the Interest in IoT?



Cheap and tiny sensors

Decreased compute and storage costs

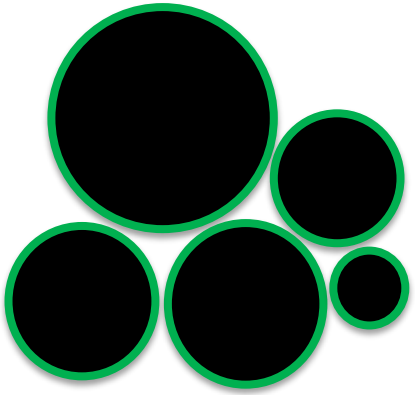
New abilities to process and analyze data

Ubiquitous connectivity

What is Different About IIoT?

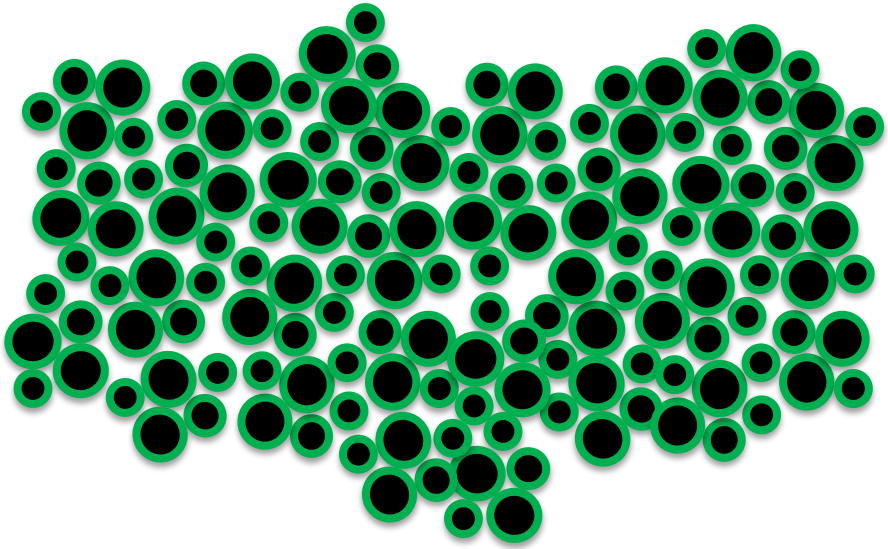
Traditional PI System data pattern

A few large “pipes” to systems on premises



IIoT data pattern

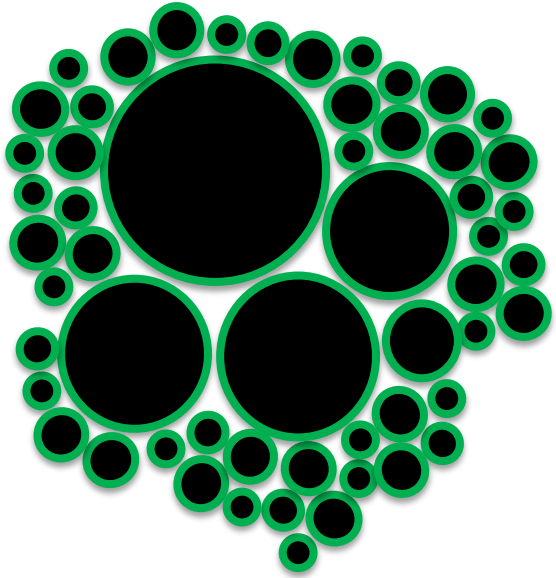
Many small “pipes” from IoT devices



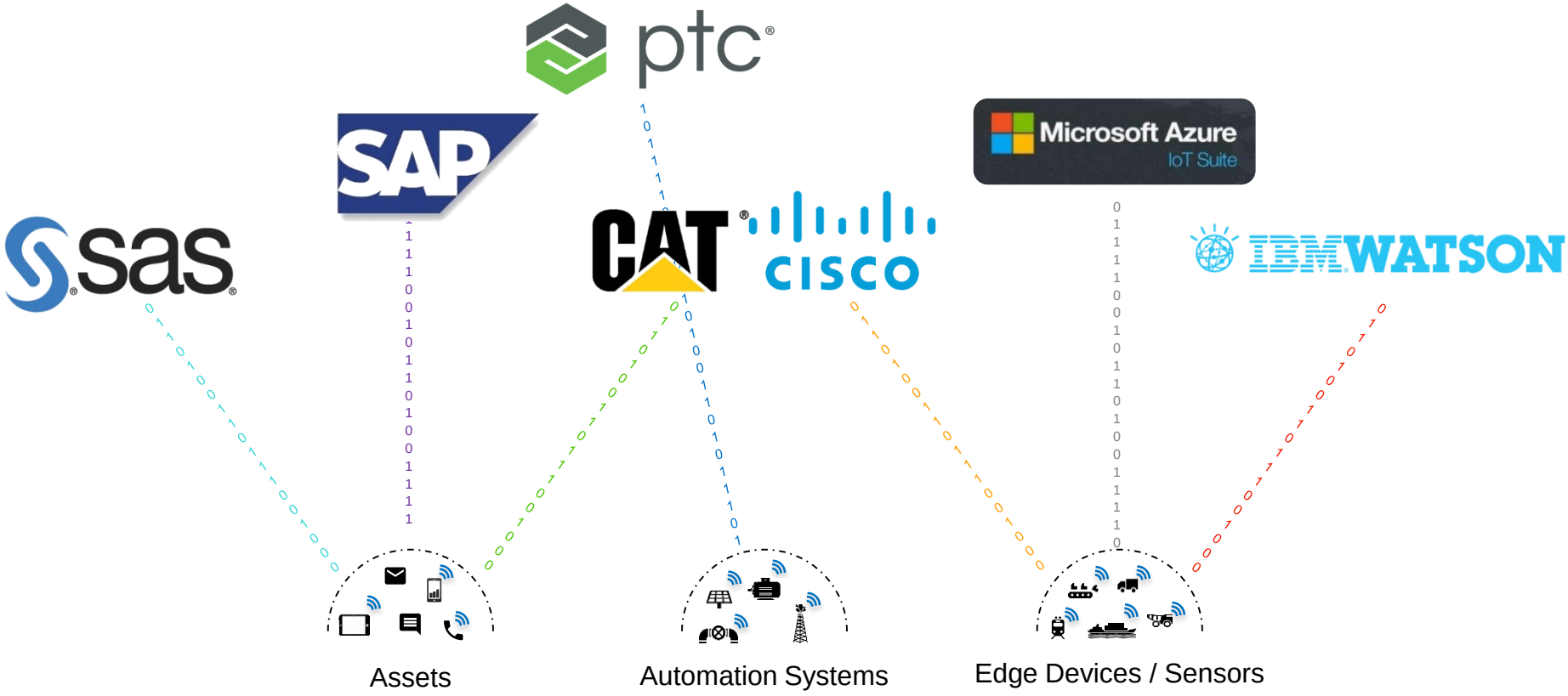
PI System Environment for IIoT

Hybrid of traditional PI System and IIoT data patterns

A few large “pipes” to systems and many small pipes to devices on premises or in the cloud



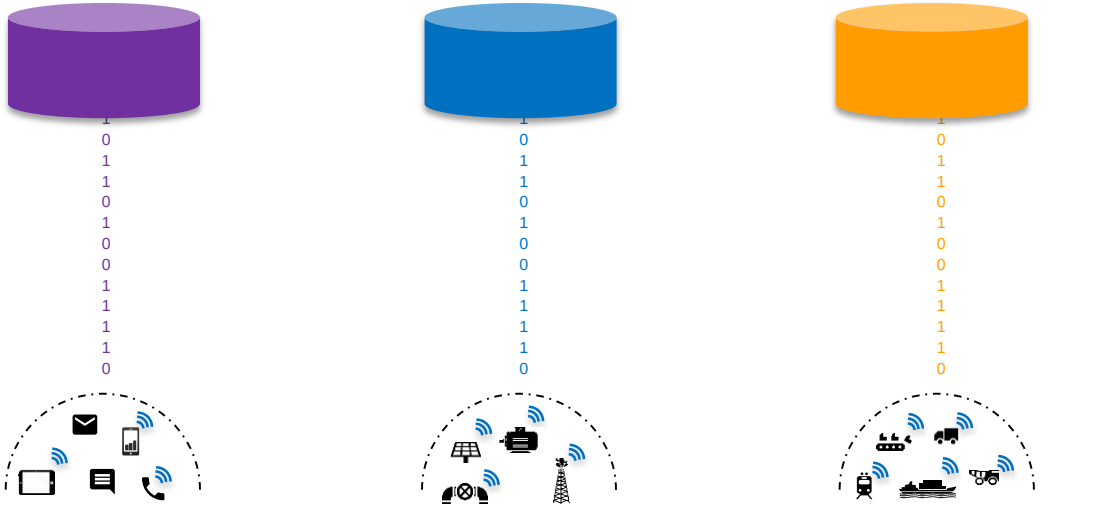
IoT is Driving Innovation Across the Industrial World



There are Inherent Risks and Challenges

Data Silos

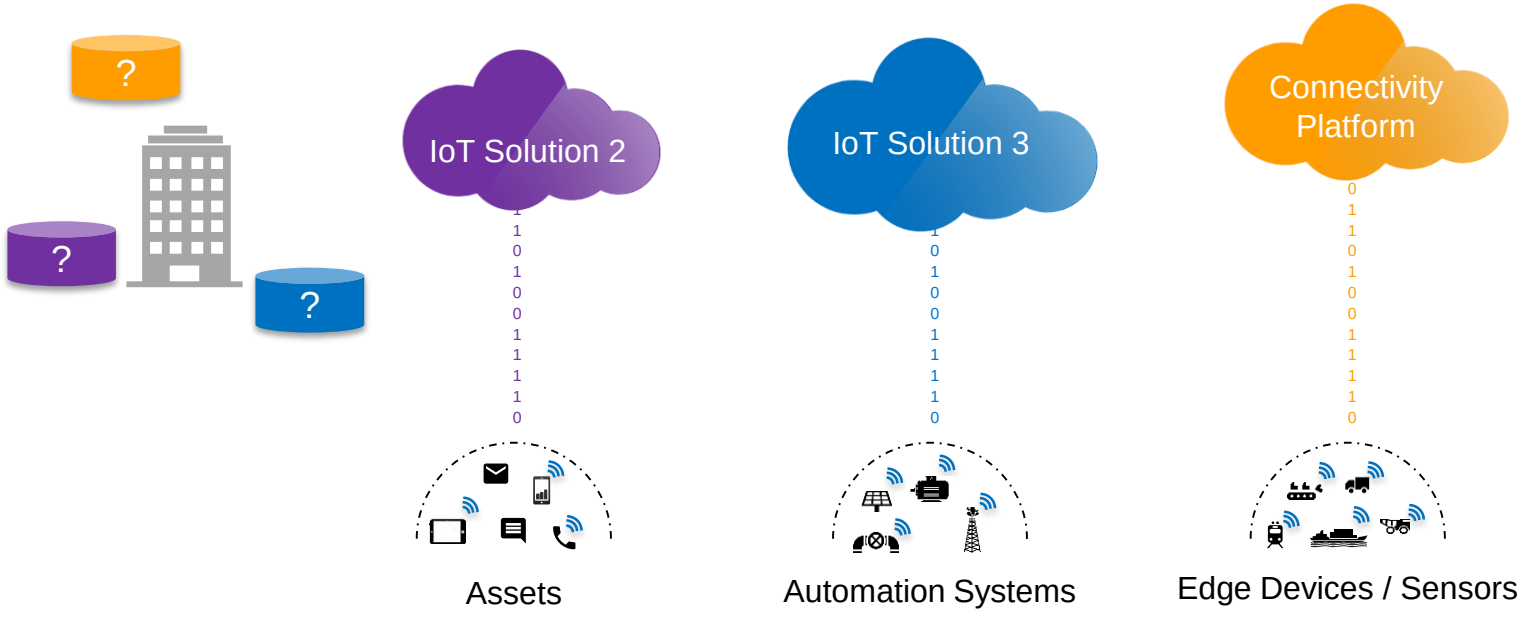
One version of the truth?
Data isolation from other use cases!
Data management challenges!



There are Inherent Risks and Challenges

Data Ownership

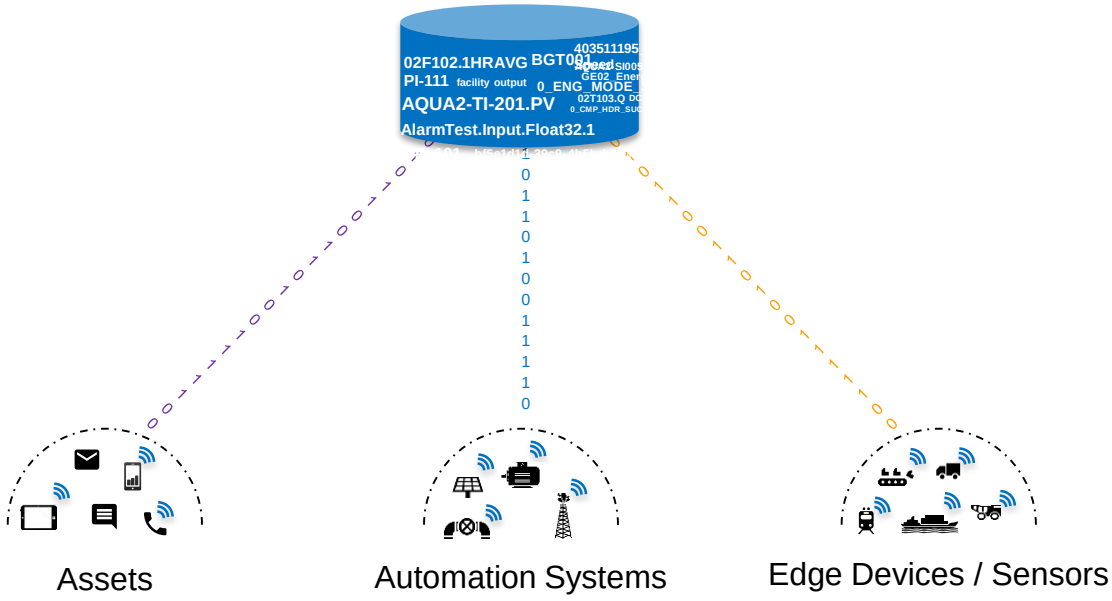
Do I have access to my own data?
How do I ensure that I can move from one solution to another?



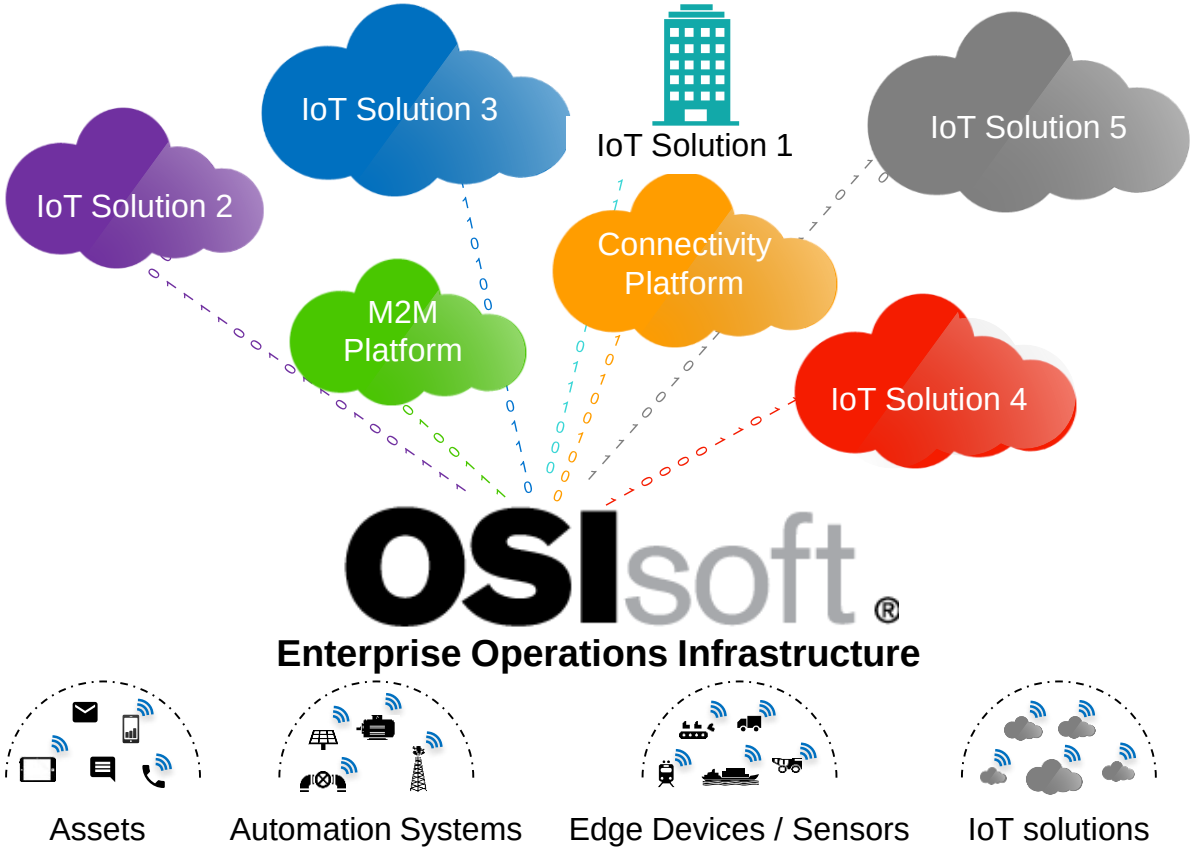
There are Inherent Risks and Challenges

Data Context

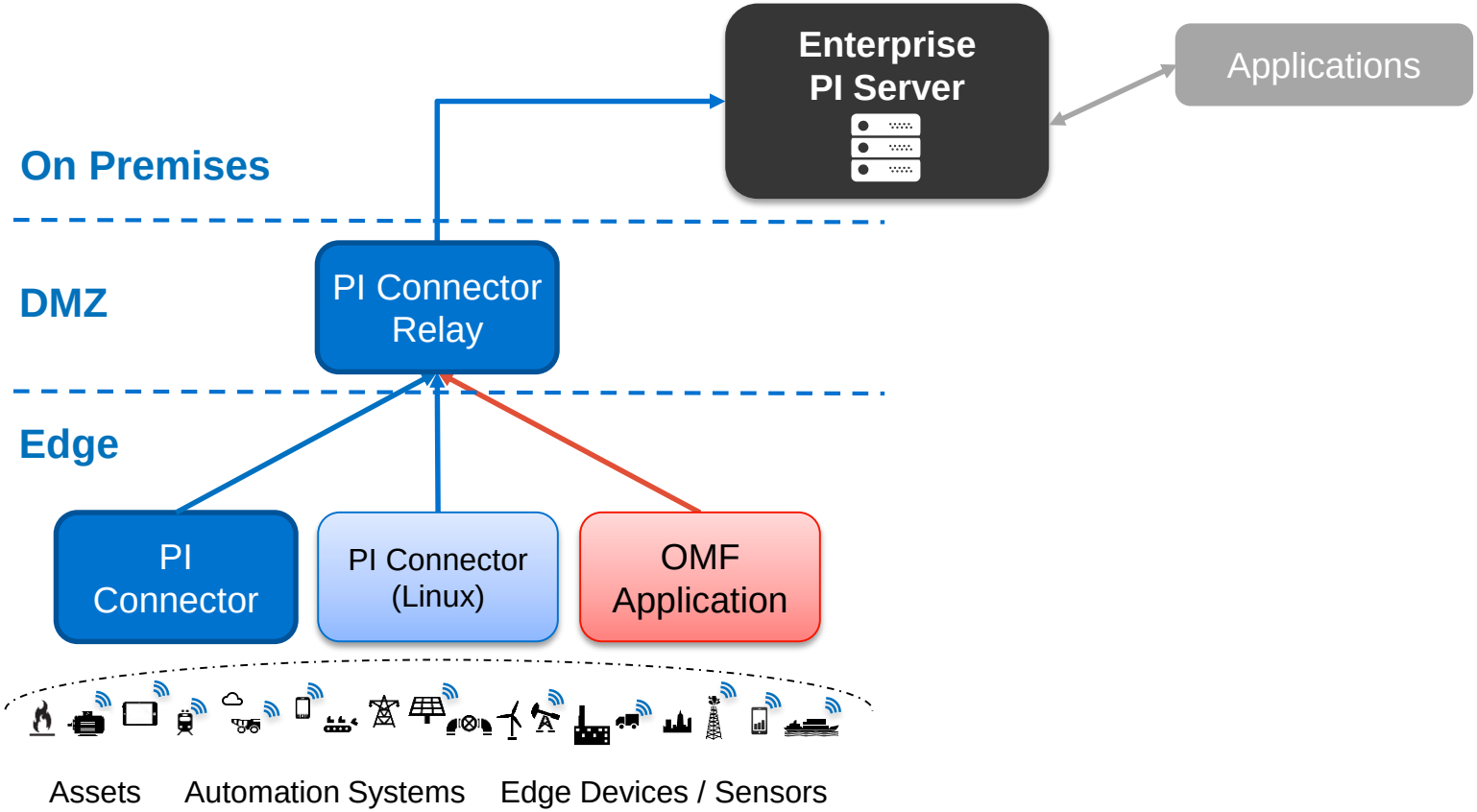
Understanding the criteria to analyze data is as important as the data itself
The further data moves from SME's, the more important context is



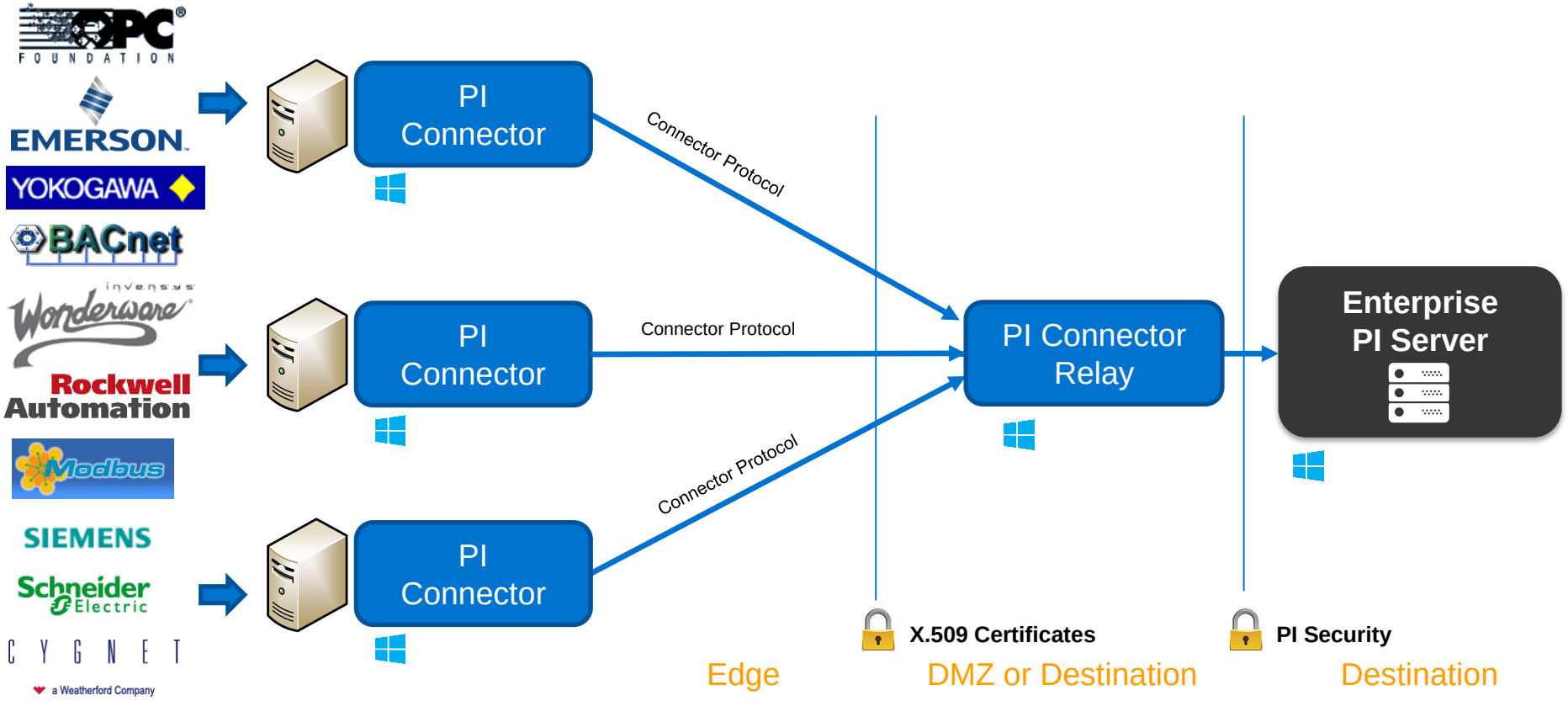
Extend a Time Series Infrastructure from the Edge to the Enterprise



Pervasive Data Collection Architecture



Traditional Data Source Connectivity



Remote Asset and Device Connectivity

PI Connector (Linux)

PI Connector (Linux)

PI Connector (Linux)

Connector Protocol

Connector Protocol

Connector Protocol

PI Connector Relay

Enterprise PI Server

SAS Tokens

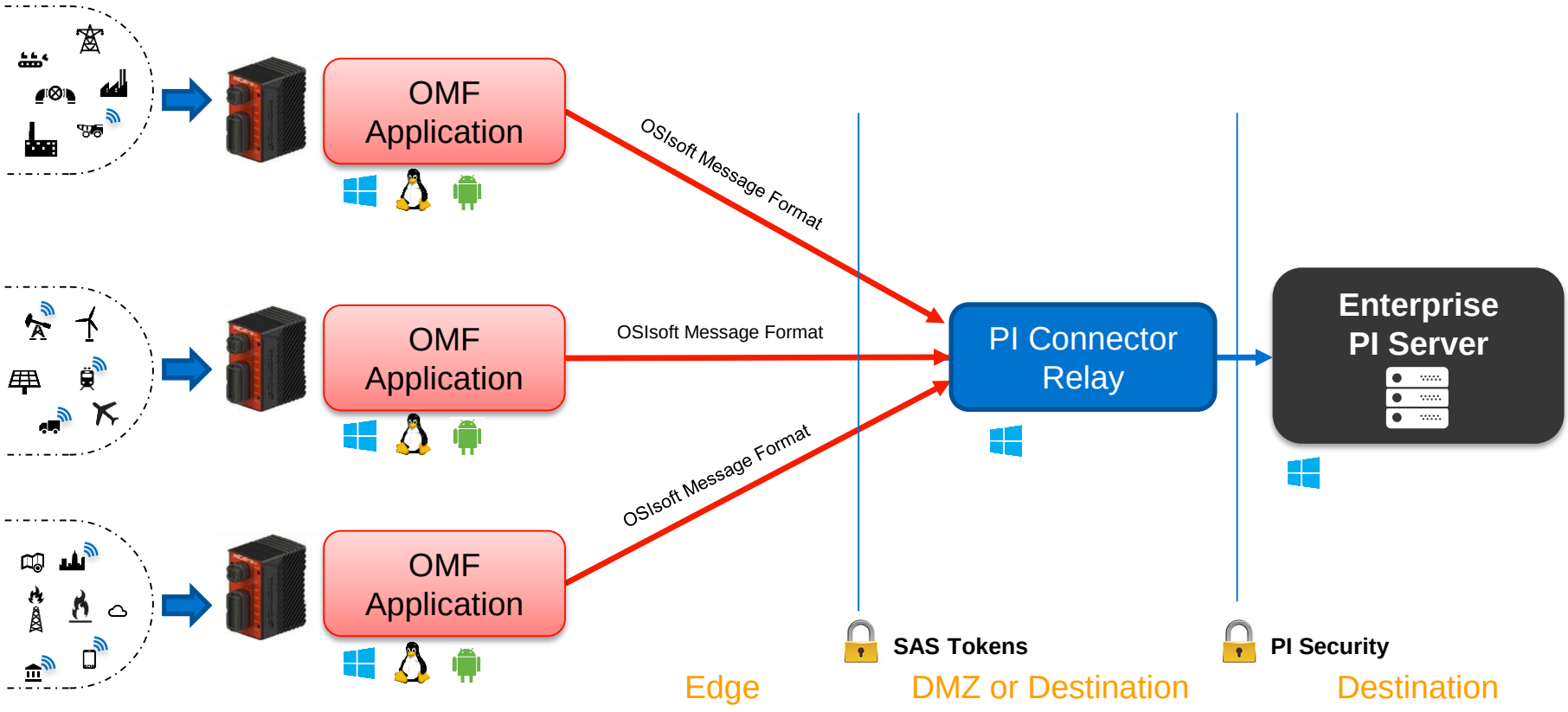
PI Security

Edge

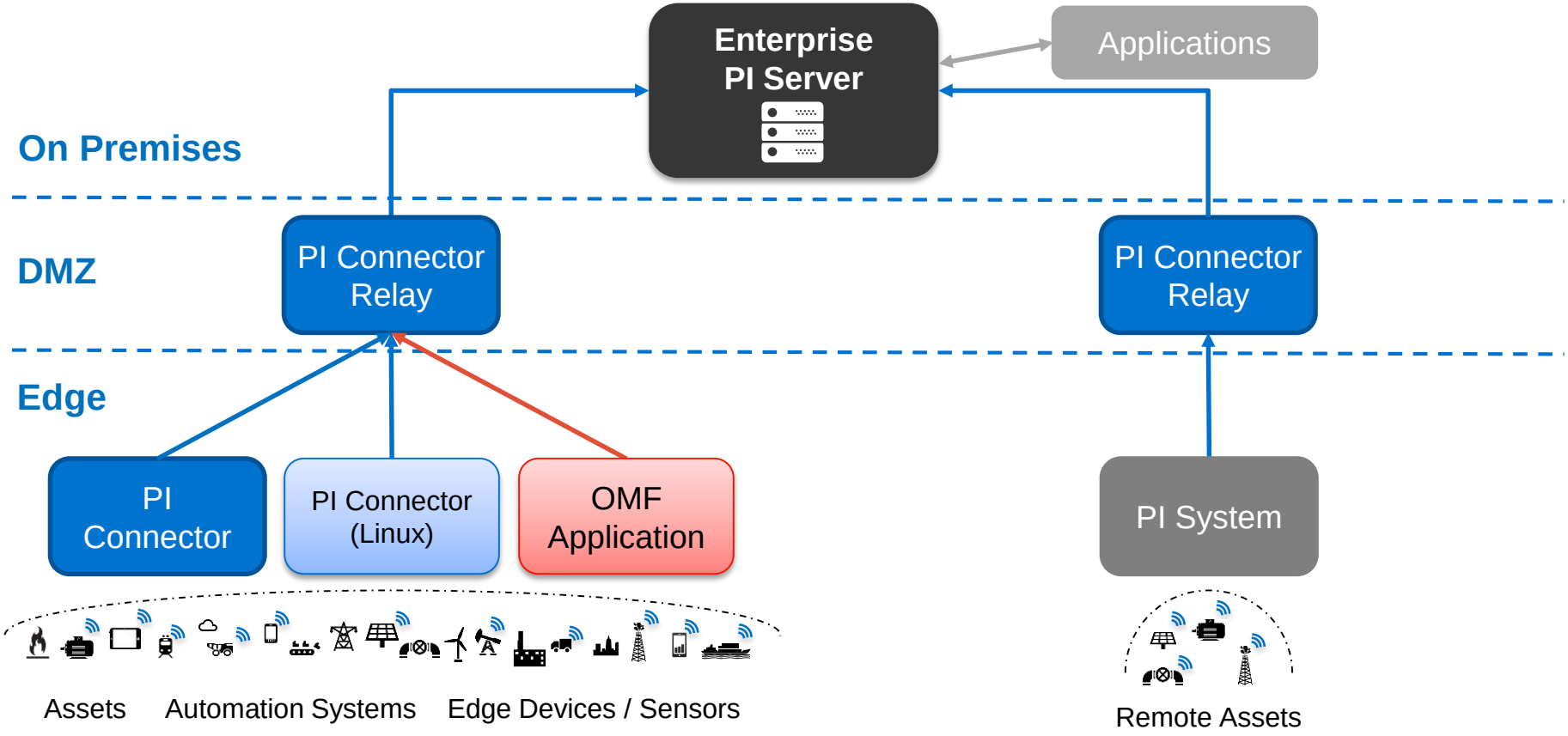
DMZ or Destination

Destination

Extended Device Connectivity



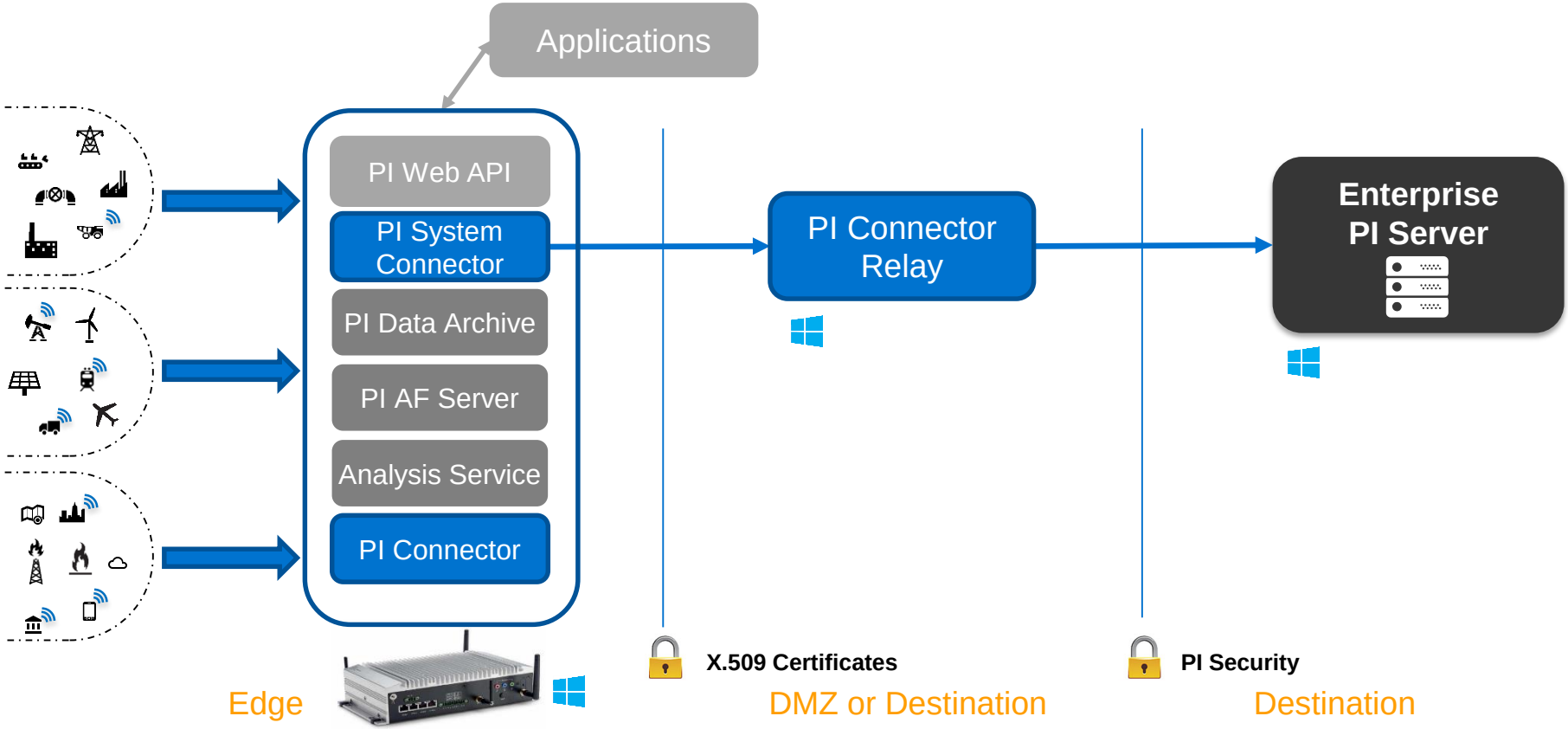
Remote Storage, Access and Analytics



Edge Gateways: An Emerging Class of Hardware

- ✓ Ruggedized chasses
- ✓ Low price points
- ✓ Windows 10 IoT Enterprise OS
- ✓ Capacity for 1k to 2.5k PI tags

PI System for Edge Gateways



OSIsoft Embedded Technology Examples

Service Provider
Monico
(OMF application)

IT Hardware
HPE
(PI System deployment)

IT Hardware
Dell
(PI System deployment)

Automation Hardware
Partner
(PI Connector on Linux)

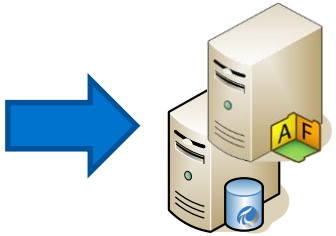
IT Hardware
Cisco
(PI Connector on Linux)

Service Provider
Stratus IoT Solutions
(OMF application)

What Can This Look Like?

Example application:
Collecting power data at the edge

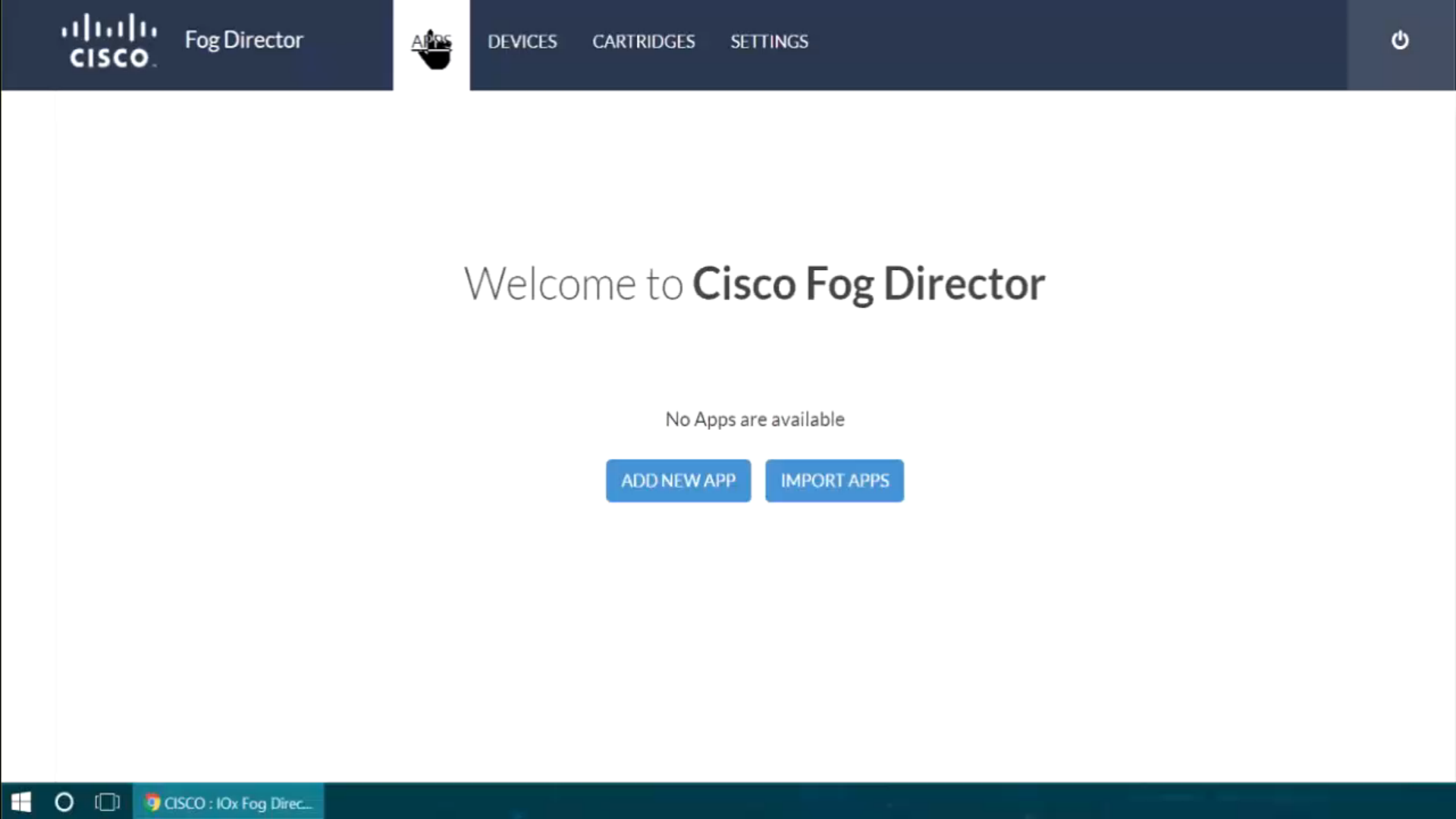
Critically important power data from a Modbus device is available at the edge



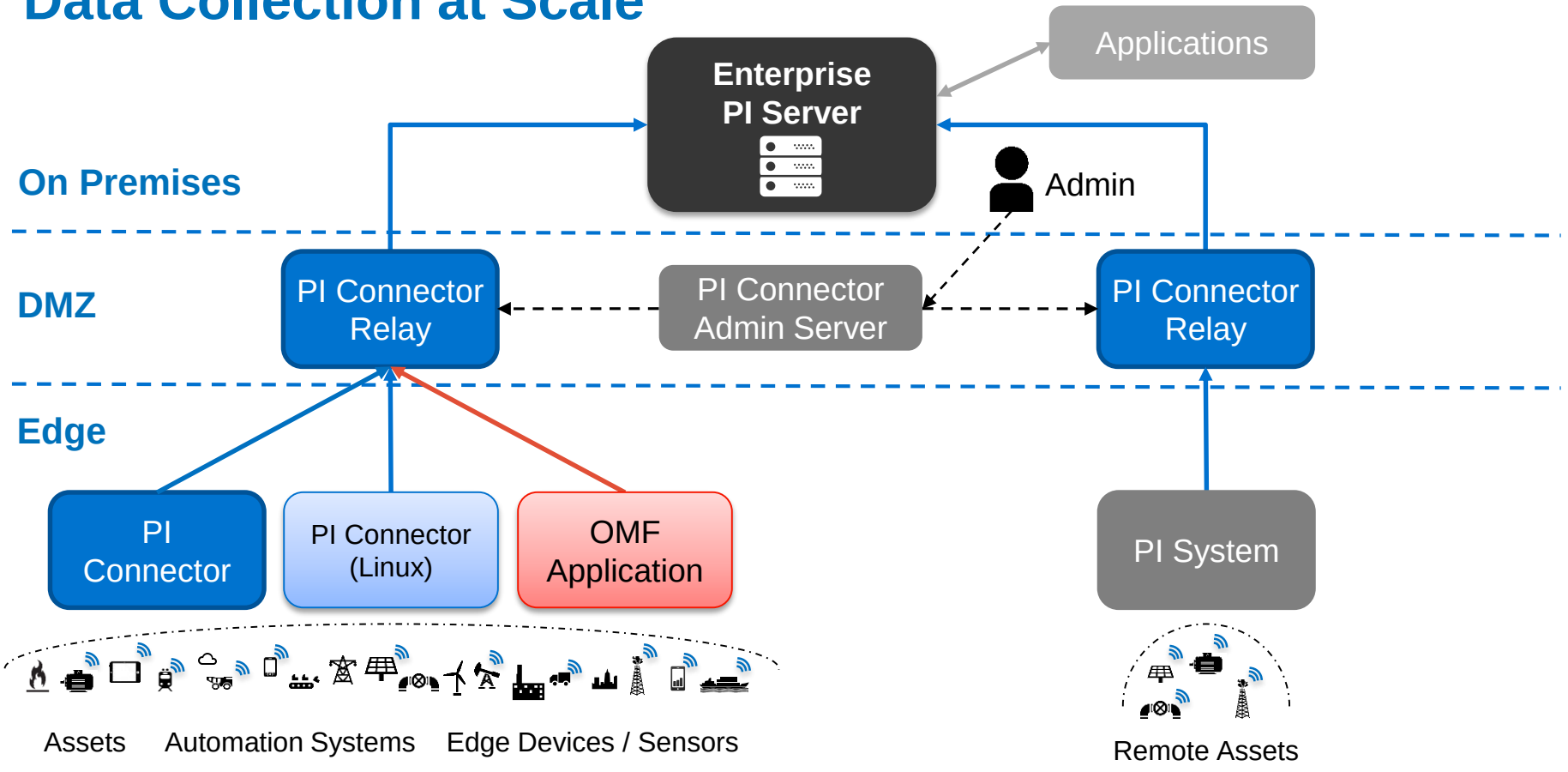
That data needs to eventually end up in an OSIsoft PI System, but the edge isn't suitable for running a PC

1. Power data is available at the edge, but there aren't any PCs at the edge!
2. The only hardware available at the edge is a Cisco 829 industrial router
3. **Our goal:** run a PI Connector for Modbus at the edge to collect critical power data

Solution: an embedded PI Connector can run directly on the Cisco edge device!


Fog Director
APPS
DEVICES
CARTRIDGES
SETTINGS
Welcome to Cisco Fog Director
No Apps are available
ADD NEW APP
IMPORT APPS
CISCO : IOx Fog Direc...

Data Collection at Scale



Data Collection at Scale

Applications

Enterprise PI Server

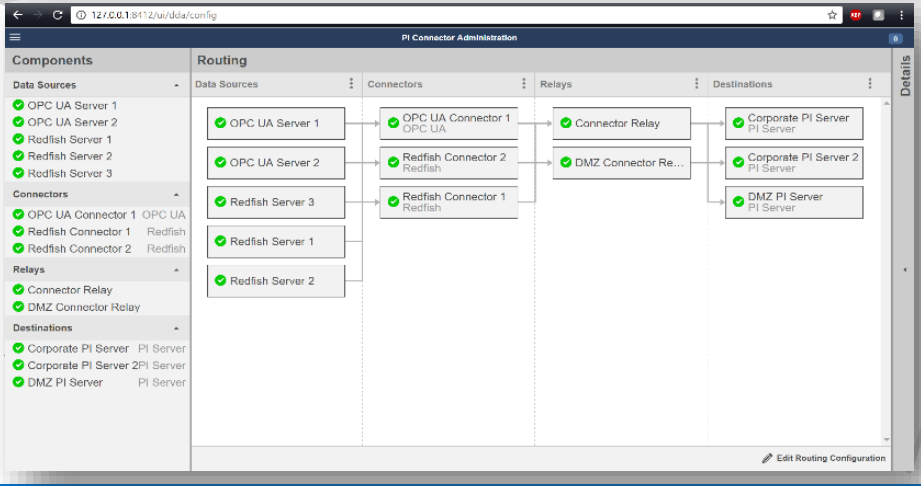
On Premises

Admin

DMZ

PI Connector

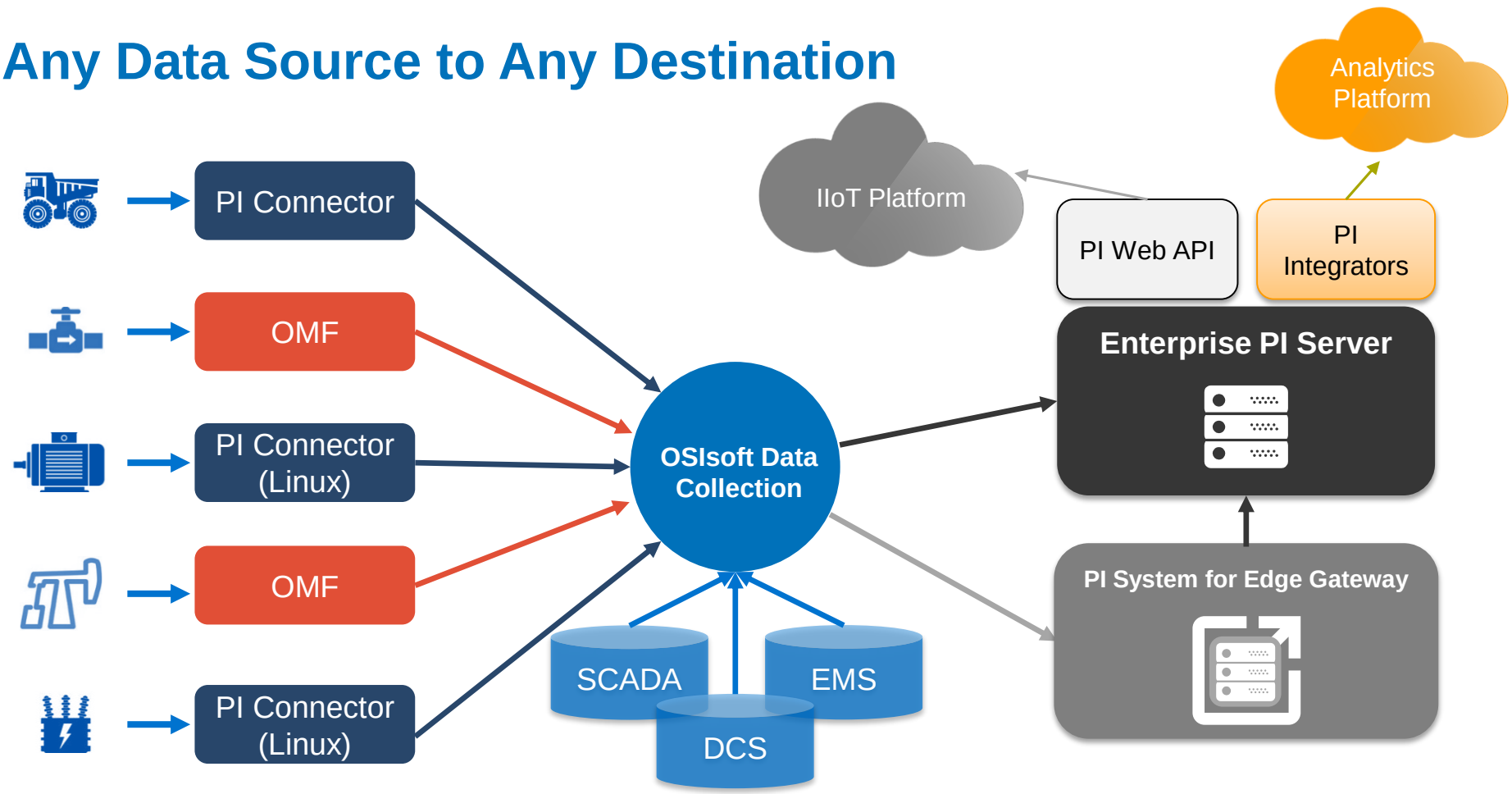
PI Connector Relay



PI System

Remote Assets

Any Data Source to Any Destination



Why Use an OSIsoft Infrastructure?

The world's most powerful time series data sets reside in OSIsoft technology

1.5B data steams
35+ years
65% of Industrial Fortune 500

Contact Information

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OSIsoft

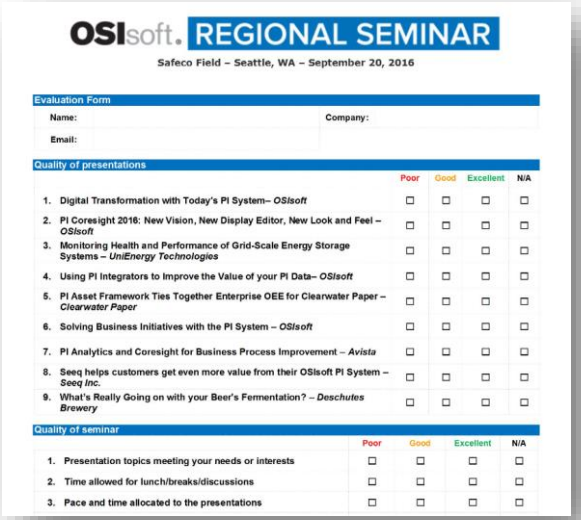
Questions

Please wait for the **microphone** before asking your questions

State your **name & company**

Please remember to…

Complete the Survey for this session



OSIsoft. REGIONAL SEMINAR

Safeco Field – Seattle, WA – September 20, 2016

Evaluation Form

Name: Company:

Email:

Quality of presentations

	Poor	Good	Excellent	N/A
1. Digital Transformation with Today's PI System– *OSIsoft*	☐	☐	☐	☐
2. PI Coresight 2016: New Vision, New Display Editor, New Look and Feel – *OSIsoft*	☐	☐	☐	☐
3. Monitoring Health and Performance of Grid-Scale Energy Storage Systems – *UniEnergy Technologies*	☐	☐	☐	☐
4. Using PI Integrators to Improve the Value of your PI Data– *OSIsoft*	☐	☐	☐	☐
5. PI Asset Framework Ties Together Enterprise OEE for Clearwater Paper – *Clearwater Paper*	☐	☐	☐	☐
6. Solving Business Initiatives with the PI System – *OSIsoft*	☐	☐	☐	☐
7. PI Analytics and Coresight for Business Process Improvement – *Avista*	☐	☐	☐	☐
8. Seeq helps customers get even more value from their OSIsoft PI System – *Seeq Inc.*	☐	☐	☐	☐
9. What's Really Going on with your Beer's Fermentation? – *Deschutes Brewery*	☐	☐	☐	☐

Quality of seminar

	Poor	Good	Excellent	N/A
1. Presentation topics meeting your needs or interests	☐	☐	☐	☐
2. Time allowed for lunch/breaks/discussions	☐	☐	☐	☐
3. Pace and time allocated to the presentations	☐	☐	☐	☐

감사합니다

Danke

谢谢

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado