PI System Pervasive
Data Collection

Presented by
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“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
- Decreasing compute and storage costs
- New abilities to process and analyze data
- Ubiquitous connectivity
Interest in IoT is Enormous
IoT is Driving Innovation Across the Industrial World
There are Inherent Risks and Challenges

Data Silos
- Multiple versions of the truth
- Data exchange data between silos
- Data management challenges

Assets
Automation Systems
Edge Devices / Sensors
There are Inherent Risks and Challenges

Data Ownership
Do I have access to my own data?
How do I ensure 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.

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Extending the Time Series Infrastructure from the Edge to the Enterprise

Enterprise Operations Infrastructure

Assets, Automation Systems, Edge Devices / Sensors, IoT solutions
Why Use an OSIsoft Infrastructure?

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

- 1.5B data streams
- 35+ years
- 65% of Industrial Fortune 500
Next Generation Data Collection Architecture

On Premises

DMZ

Edge

Enterprise PI Server

Applications

PI Connector Relay

PI Connector

PI Connector (Linux)

OMF Application

Assets Automation Systems Edge Devices / Sensors
Remote Asset and Device Connectivity

- **PI Connector (Linux)**
  - Connector Protocol
  - Edge

- **PI Connector (Linux)**
  - Connector Protocol
  - DMZ or Destination

- **PI Connector (Linux)**
  - Connector Protocol
  - Destination

- **PI Connector Relay**

- **Enterprise PI Server**
  - SAS Tokens
  - PI Security
Extending Device Connectivity

OMF Application

OSIsoft Message Format

PI Connector Relay

Enterprise PI Server

Edge

DMZ or Destination

Destination

SAS Tokens

PI Security
Connectivity Stack

Device Resources

OMF Application

PI Connectors running on Linux

PI Connectors running on Windows

Capacity / Capability
Remote Storage, Access and Analytics

On Premises

DMZ

Edge

Enterprise PI Server

Applications

PI Connector Relay

PI Connector

OMF Application

PI Connector (Linux)

Remote Assets

Assets Automation Systems Edge Devices / Sensors

PI Connector

PI System

PI Interface Node

PI Connector Relay

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#OSIsoftUC
Edge Gateways – An Emerging Class of Hardware

- Ruggedized
- Low price hardware
- Windows 10 IoT Enterprise
- Scalable from 1k to 2.5k PI tags
Data Collection at Scale

On Premises

DMZ

Edge

Enterprise PI Server

Admin

Applications

PI Connector
Relay

PI Connector
Relay

PI Connector
Admin Server

PI Connector
(OMF) Application

OMF Application

PI Connector

Remote Assets

Assets
Automation Systems
Edge Devices / Sensors

PI System

Applications
Any Data Source to Any Destination

PI Connector

OMF

PI Connector (Linux)

OMF

PI Connector (Linux)

Pervasive Data Collection

Enterprise PI Server

PI Web API

PI Integrators

PI System for Edge Gateway

SCADA

EMS

DCS

IloT Platform

Analytics Platform

OMF

PI Connector (Linux)

PI Connector (Linux)
Today we are going to talk about…
PI Connectors on Linux platform

- Brief history of OSIsoft ingress technologies
- Embedded device landscape – Linux dominate
- Cisco & OSIsoft joint project – PI Connector for Modbus
- Future… How may it look like…
Brief History of OSIsoft Data Ingress Technologies

Data Source → PI Interface → PI Data Archive

Automation Systems
Brief History of OSIsoft Data Ingress Technologies

- Data Source
- PI Interface
- PI Connector
- PI System
  - PI Data Archive
  - PI AF Server
- Automation Systems

Data Source → PI Interface → PI Connector → PI System

Automation Systems
Brief History of OSIsoft Data Ingress Technologies

Data Source → PI Interface → PI Data Archive

Data Source → PI Connector → PI Connector Relay → PI AF Server

Automation Systems

Data Source → PI Connector

Edge Devices / Sensors
95% IoT Devices run Embedded Linux

• Couple of words about Linux
Cisco & OSIsoft joint project

Cisco IR8X9 Industrial Routers and Fog Computing

IR829

IR809

Virtual Machine

Virtual Machine

Virtual Machine

IOS

IOx

Virtual Device Server

Hypervisor

IR829/809 Hardware
Cisco & OSIsoft joint project

PI Connector for Modbus as LXC Container Application

Modbus/TCP Slave

PI Connector for Modbus

Modbus/TCP Slave

PI Connector for Modbus

Enterprise PI Server

PI Security

Certificates

DMZ or Destination

Edge

Destination
Welcome to Cisco Fog Director

No Apps are available

ADD NEW APP  IMPORT APPS
Future… How it may look like…
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Please wait for the **microphone** before asking your questions.

State your **name & company**

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Thank You

감사합니다

谢谢

Danke

Gracias

Merci

 Baltic

Spasiba

Obrigado

ありがとうございます