

Moxa IIoT in Rail

Challenges and issues for successful deployments

Jeremy DELL'OMO

Global Key Account Manager

Didier LEBRUN

Field Application Engineer

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TRANSRAIL
CONNECTION 2019

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Reliable Networks ▲ Sincere Service

Agenda

- **Moxa presentation**
 - **Connectivity and Rail experience**
 - **OT to IT convergence**
- **IIoT value and promises**
- **How to do IIoT projects at scale**

Fast Facts

Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for **enabling connectivity**.



30+
years of experience in
industrial automation



Connecting
50+ Million
devices worldwide

Market Leadership

1

Supplier in
Serial
Connectivity

3

Supplier in
Industrial Ethernet
Infrastructure

Numerous Global Awards



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Global Presence



1200+
Employees

12
Branches

120+
Distributors

34%
R&D Manpower

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Your Trusted Partner in Automation
Strong recognition and experience in Rail

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Moxa has a complete offering for Rail connectivity

Ethernet Infrastructure
TN Series



Wireless Communication
AWK / TAP Series



Computing VCU NVR
V2000A Series



IP Camera
VPort Series



Programmable Controller and IO
ioPAC / ioLogik Series



Device Server
NPort Series



Over **400** Railway-Specific Models



IRIS
Certification

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IIoT Applications



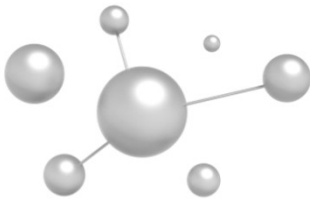
Industrial Applications (Rail, Power, Factory Automation...)

Cloud Infrastructure 

Data Processing & Analytics 

Enterprise Applications 

Connectivity



Moxa provides OT-IT-IIoT **Connectivity Solutions** for your mission-critical applications **from edge-to-cloud**



Industrial Network Infrastructure



Industrial Edge Connectivity



Industrial Computing

Edge Device



Smart / Legacy Components

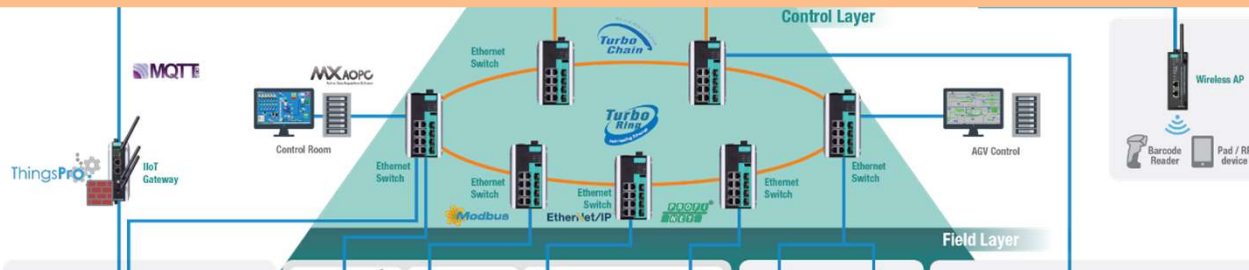
Sensors, Actuators, Processors, Data Storages/Control, and Embedded OS/Software

Convergence of OT and IT with IIoT

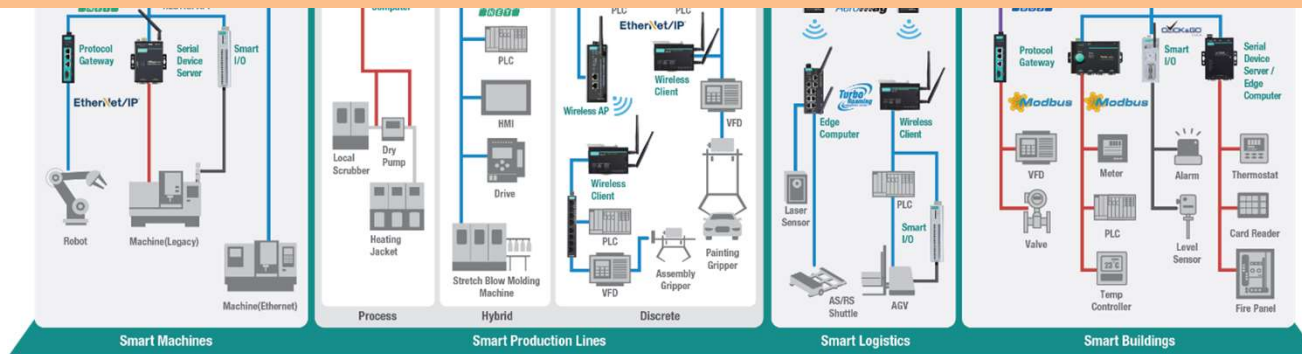
Integrating OT data to IT and cloud applications with security



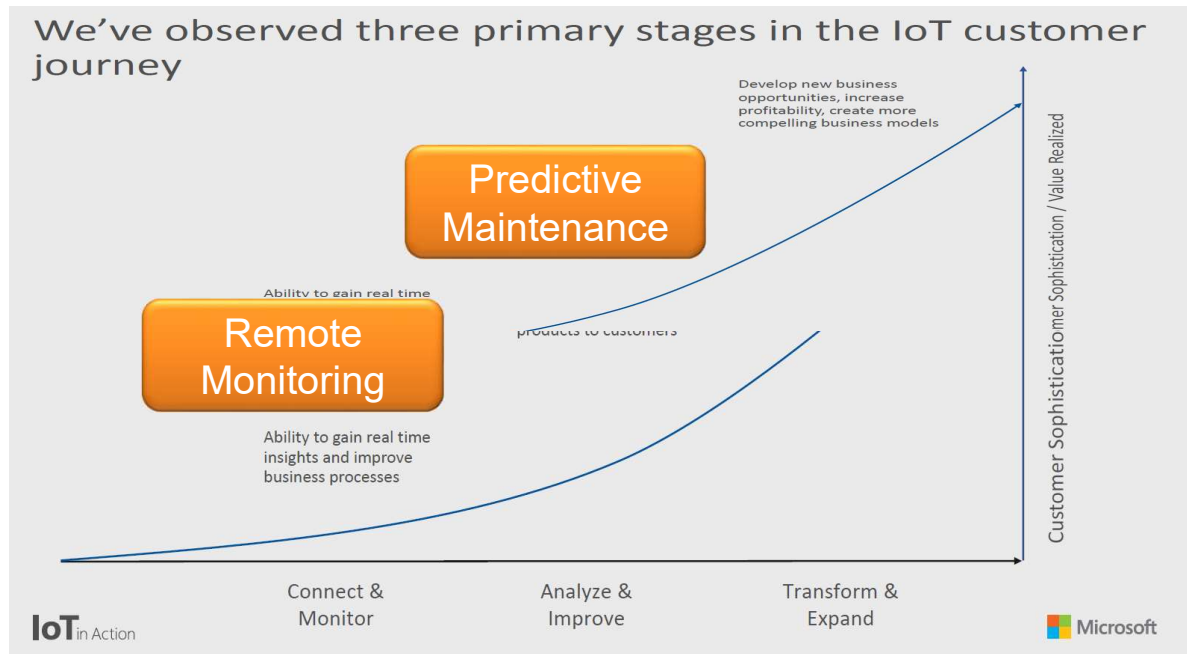
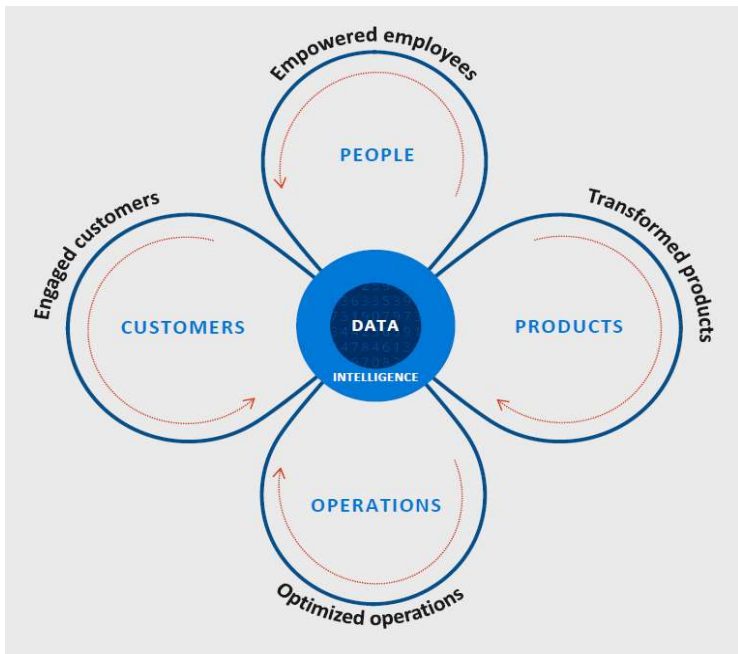
Optimizing industrial Ethernet network infrastructure



Unifying edge device connectivity of diverse protocols



IIoT value and promises

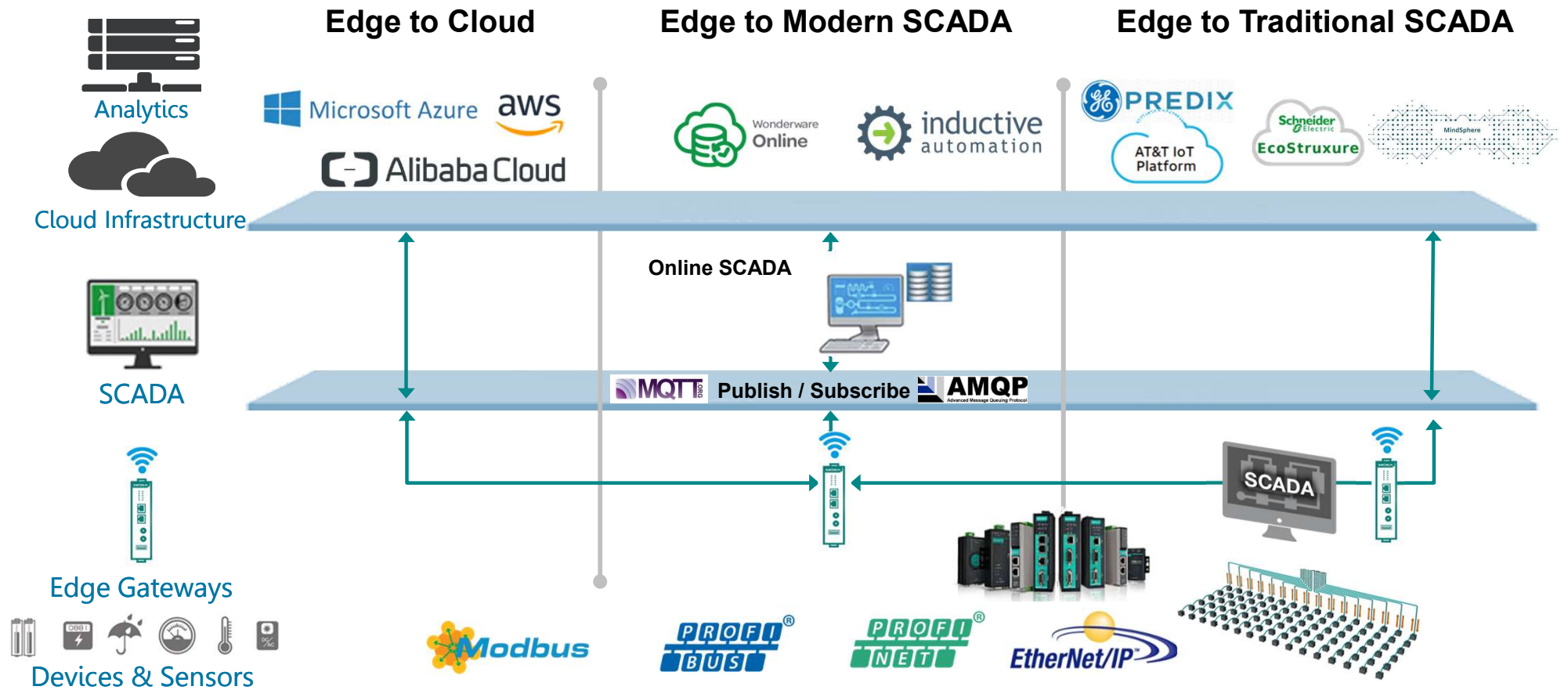


Microsoft IoT in Action, Nuremberg, February 2019

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IIoT Architectures



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Traditional deployments made in Rail

Onboard remote diagnostic

- Onboard cellular gateway for Tramways of Dublin, Barcelona...
- Maintenance SW embedded on the gateway
- Data sent to a private server



Trackside conditioned monitoring

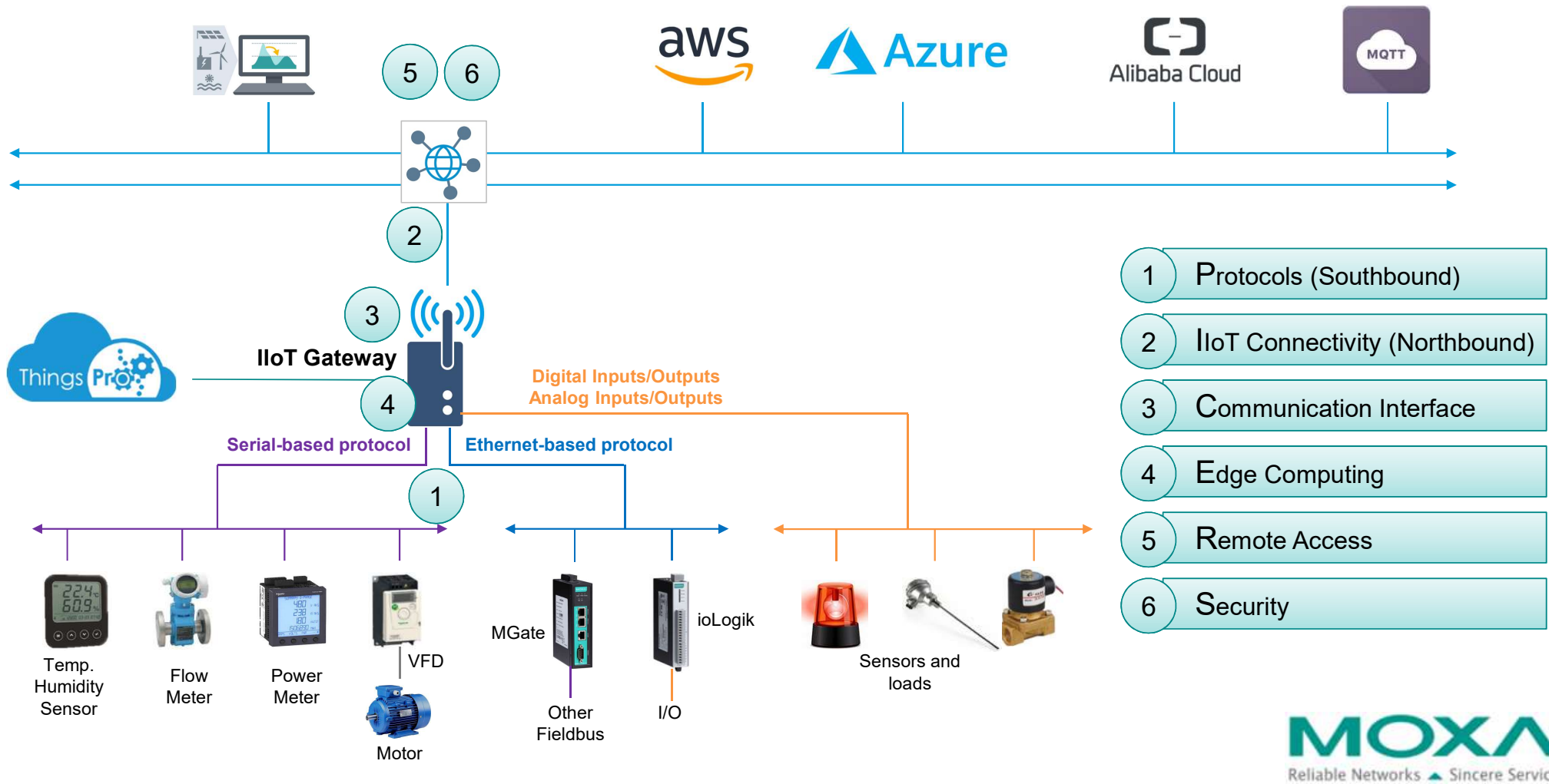
- Remote monitoring of Point Machines
- Programmable SW made by the customer
- Data sent to a private server through LAN or WAN



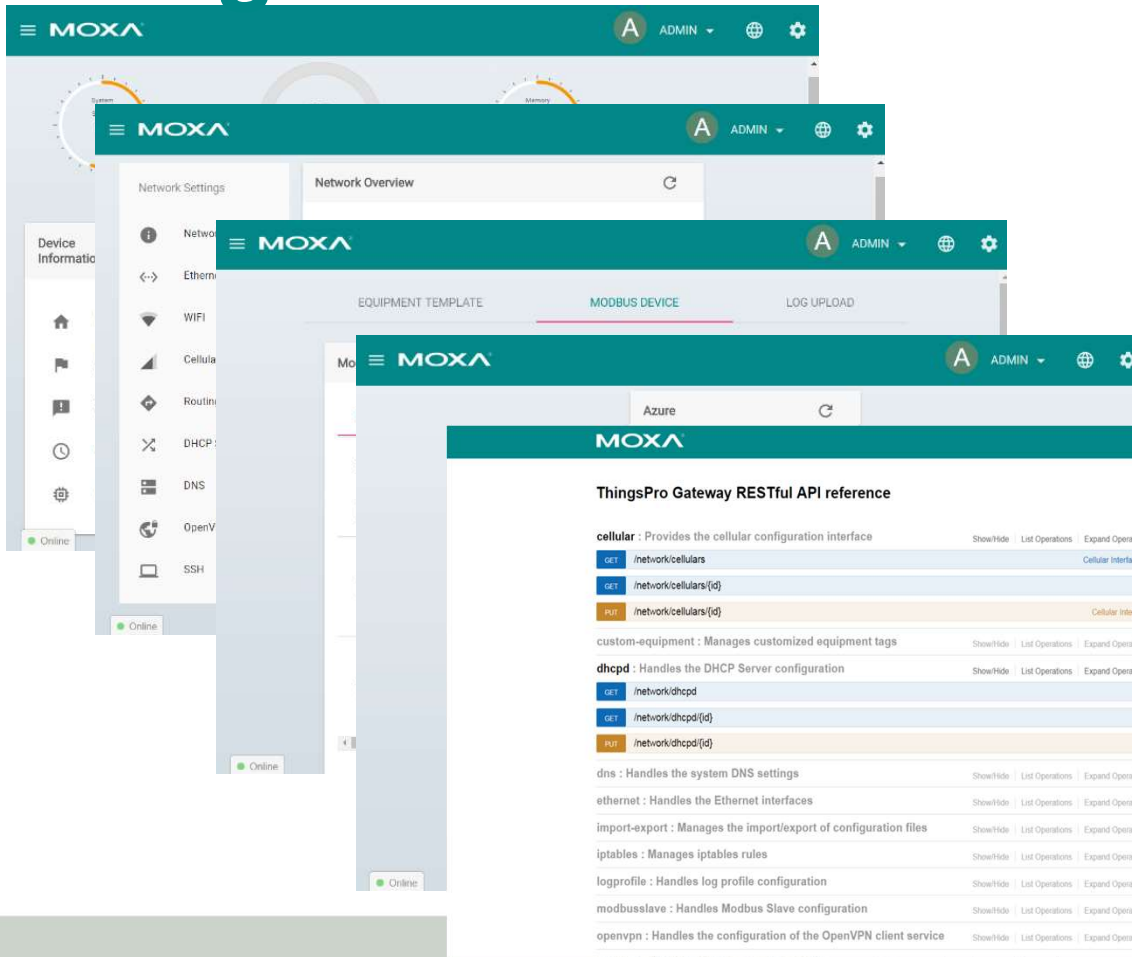
So what's new with Moxa ??

Simplify the Edge to Cloud of OT protocols

Decomposition of Edge IIoT Architecture



ThingsPro



Key Features

- Device Configuration:
 - Networking and System settings
 - Cellular Configuration
- Industrial Protocol Gateway
- Cloud and SCADA Connectors
- RESTful API

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Moxa's Seven Principles of Device Lifecycle Management (DLM)

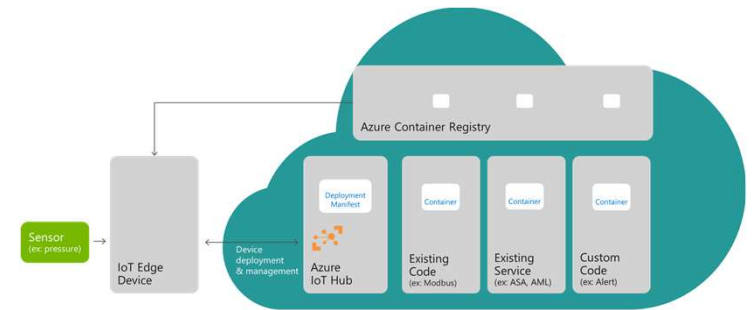
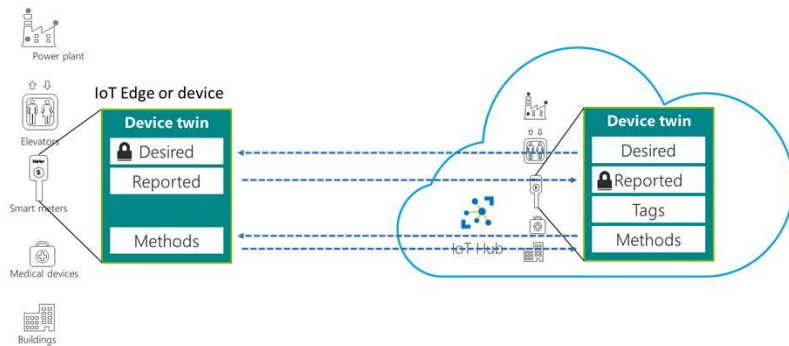
1. Provisioning (ensure connection from device to IoT Hub)
2. Commissioning (install hardware physically)
3. Remote Software Updates (Containers)
4. Device Management (IP, Cellular, and other hardware Settings)
5. Remote Security Patches
6. Updates to "Edge" Software (in progress)
7. Updates to OS Kernel (in progress)

automatic
deployment

maintenance

Three Key Concepts to support DLM at scale

- **Device Provisioning Service**
- **Device Twins**
- **Deployment Manifest**
 - **Device Twin**
 - **Edge Software**



Conclusion



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Thank you !!!

Q&A