OptixEdge Technical Presentation

May 2025

Allen-Bradley
by ROCKWELL AUTOMATION

Contents

OptixEdge Overview

OptixEdge Overview

The OptixEdge connects to the control system to collect, analyze, and send data to the cloud

What

An Advanced Edge Gateway

- Collect, analyze and push data to the cloud using an Edge or HMI application that is also accessible via web-browser
- Provide remote assistance with embedded digital I/O for additional security
- Extend the embedded capabilities by hosting Docker containers

Where

At the Machine Edge

- Can access both the Local Area Network (LAN) and the Wide Area Network (WAN)
- Compatible with Rockwell Automation as well as third-party controllers
- Ideal for greenfield and brownfield plants and applications

How

Headless stand-alone device

- Use the pre-installed OptixEdge Wizard App to configure your edge application at runtime or use FactoryTalk® Optix Studio™ to build and deploy your own application
- Provides networking functionality such as NAT, Routing and Internet Sharing[1], the same networking functionality as the Stratix® 4300 Remote Access™ Router
- Load, run and orchestrate your favorite containerized application using Docker CLI, Portainer, Ansible

[1]available after release via firmware upgrade

OptixEdge Standard Features

Software

FactoryTalk® Optix™ and Remote Access included, expand with Docker containers

Digital I/O

Embedded digital I/O for additional security and remote assistance

Networking Capabilities[1]

NAT, Routing and Internet Sharing functionality

Installation

Standalone DIN rail or Book Mount

Interfaces

Dedicated WAN and LAN ports, serial port, USB port, and MicroSD slot for storage expansion

[1]available after release via firmware upgrade

OptixEdge Standard Options & Specifications

The OptixEdge Standard has two FactoryTalk® Optix™ runtime options

HMI RUNTIME		FactoryTalk® Optix™ XS size (5 tokens)	FactoryTalk® Optix™ S size (8 tokens)
HMI SOFTWARE		Web-based wizard to easily create your Industrial IoT application	
SECURE REMOTE ACCESS SOFTWARE		FactoryTalk® Remote Access™ Pro	
OTHER SOFTWARES	3rd party	Docker containers support	
	Networking	NAT, NAT1:1, Routing, Internet Sharing[1]	
PROTECTION GRADE IP	IP rating	IP20	
	NEMA rating	UL TYPE 1 (indoor only)	
CASE	Installation	DIN rail / Book mounting	
	Material	Aluminum	
PROCESSOR, RAM, MASS STORAGE		i.MX 8M Plus CPU, 4GB RAM, eMMC in pSLC mode with ~12GB for customer's application and containers	
STORAGE EXPANSION		1x MicroSD slot on board with external access (push-push)	
INTERFACES	LAN	2x Gigabit Ethernet (RJ45)	
	USB	1x USB 3.0 (Type-A / host)	
	SERIAL	1x RS232/422/485 (DB9M) isolated	
DIGITAL INPUTS/OUTPUTS		IN: enable FTRA Network connection, restart device OUT: FTRA Network connection status, Remote connection status	
OPERATING TEMPERATURE		0° ÷ 50°C	
APPROVALS		REACH, RoHS, WEEE, CE, cULus Listed, KC, UKCA, RCM, MOROCCO, ODVA	

[1]available after release via firmware upgrade

Visualization Hardware Deployment Options

Flexible Deployment Options for FactoryTalk® Optix™

Select the optimal platform for performance, functionality and openness

Thin Clients & Industrial PCs

Use when you need...

A high-powered, open compute platform for hardware and software expandability

On-Machine Industrial PCs

Use when you need...

A self-enclosed IP65 industrial PC with optional configurable buttons

Sealed & Closed HMI Terminals

Use when you need...

A sealed, firmware-based visualization appliance at a low total cost of ownership

The OptixEdge is Here

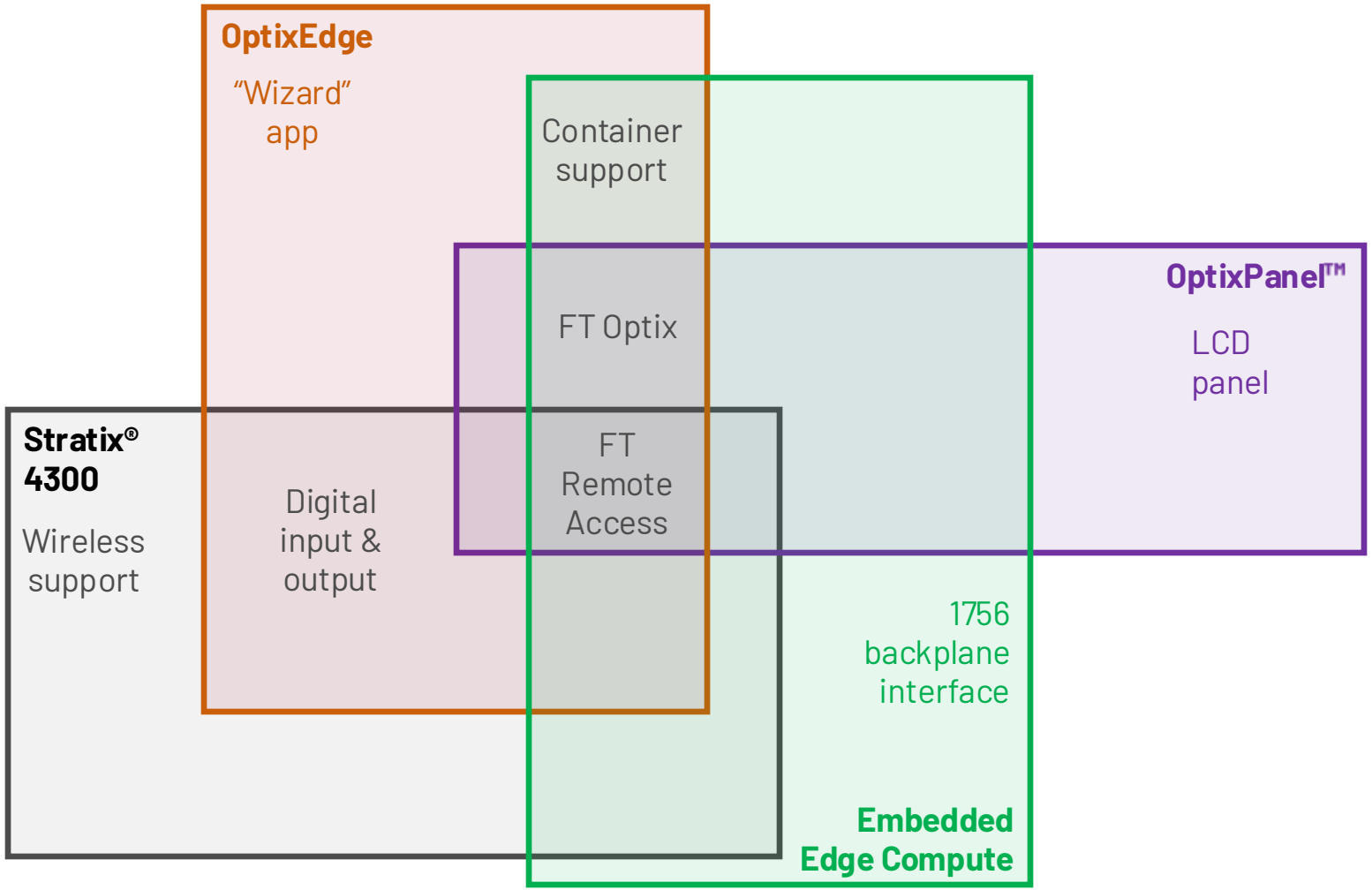
Headless Edge Devices

Use when you need...

An edge device that connects to your control system to collect, analyze, and send data to the cloud

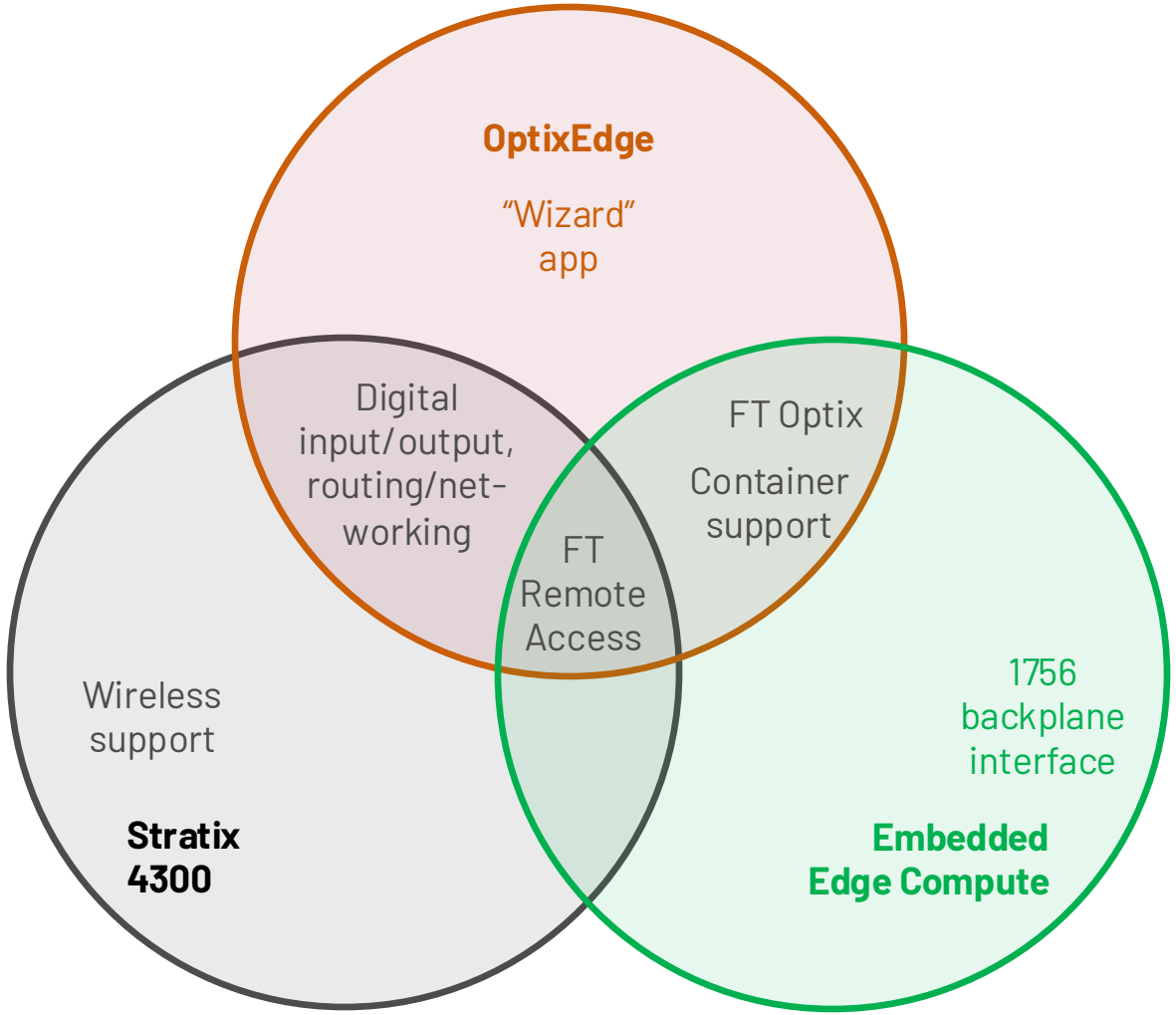
Flexible Deployment Options for FactoryTalk® Optix™ and Remote Access

Key similarities and differences between deployment options



Headless Deployment Options for FactoryTalk Optix and Remote Access

Key similarities and differences between *headless* deployment options



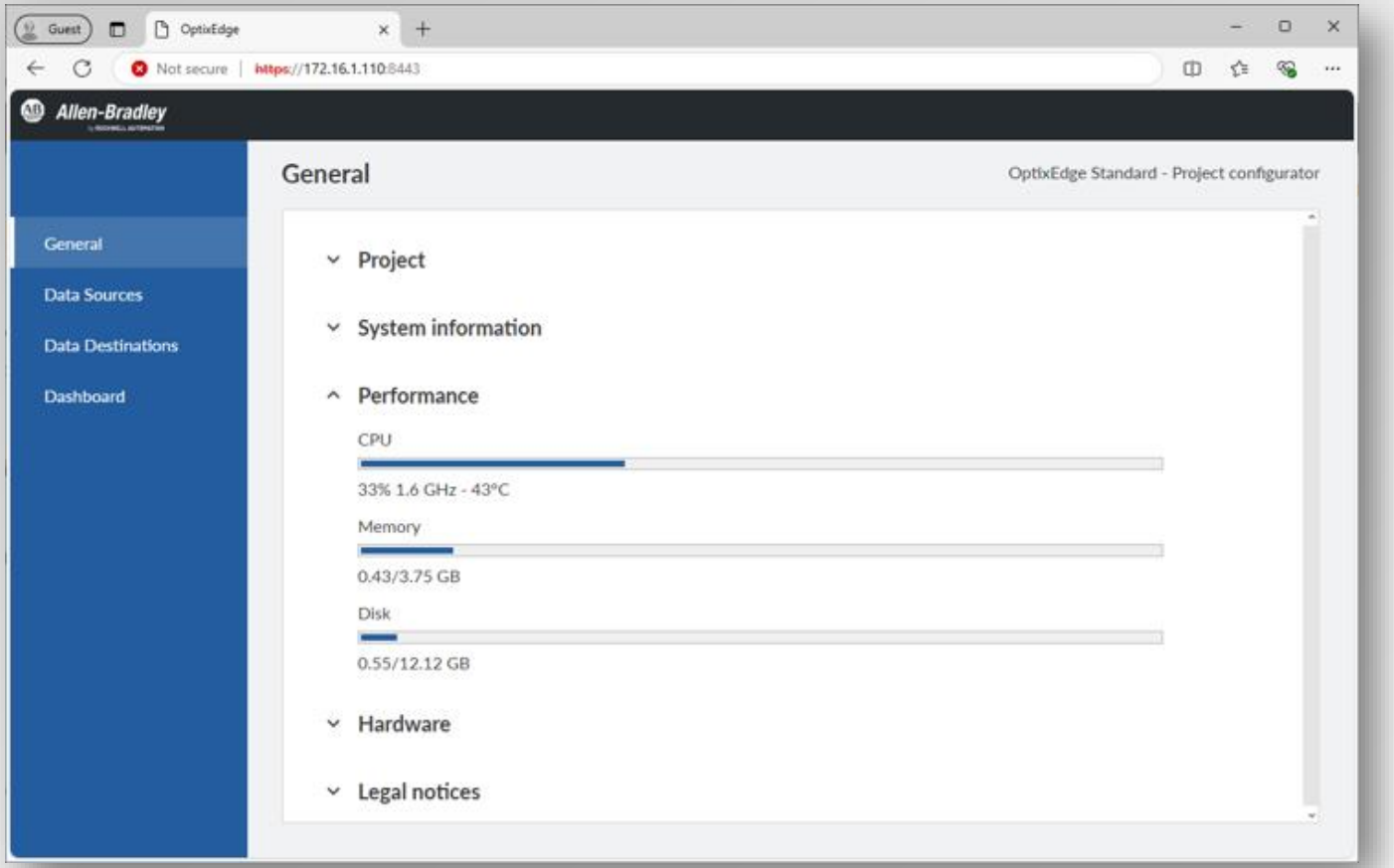
OptixEdge Wizard Application

OptixEdge Wizard Application

Leverage the built-in web-based wizard to easily create and configure your edge application at runtime

In the **General** tab:

- Define your project
- View system information
- View performance and storage details and hardware information

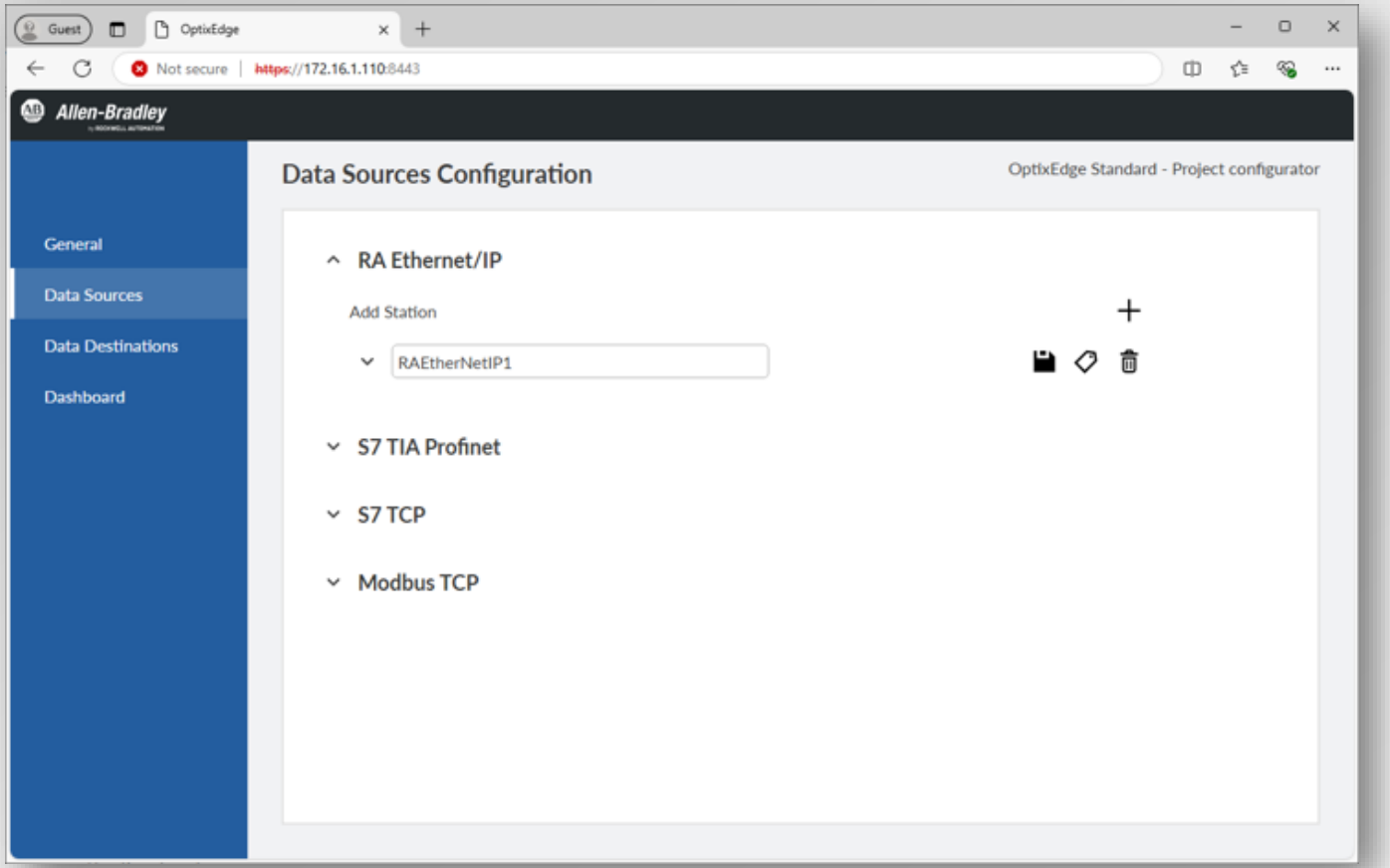


OptixEdge Wizard Application

Leverage the built-in web-based wizard to easily create and configure your edge application at runtime

In the **Data Sources** tab:

- Configure your sources of data
- Leverage the predefined sources:
  - Rockwell Ethernet/IP
  - S7 TIA Profinet
  - S7 TCP
  - Modbus TCP

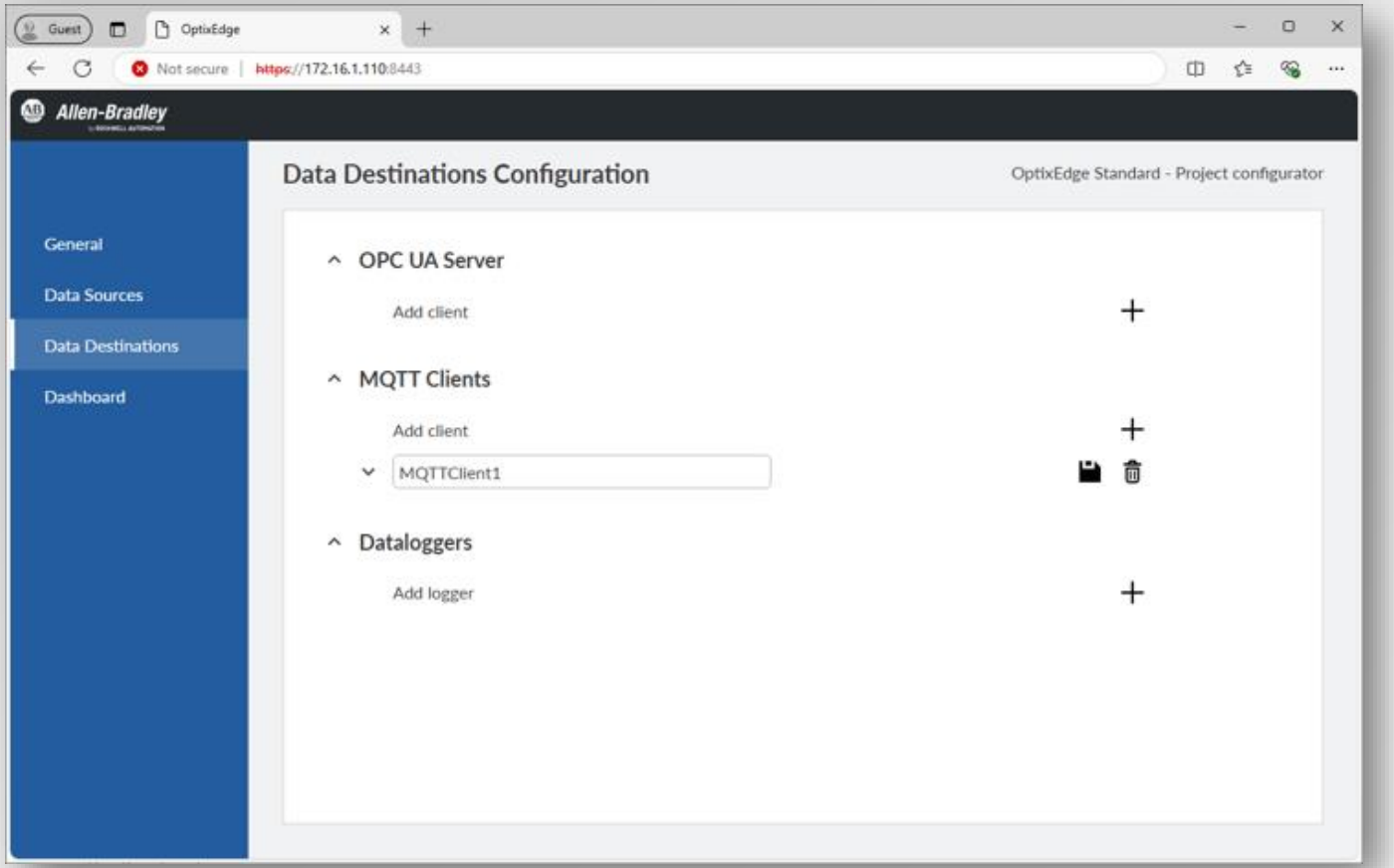


OptixEdge Wizard Application

Leverage the built-in web-based wizard to easily create and configure your edge application at runtime

In the **Data Destinations** tab:

- Configure where the data should be sent
- Use one of the following options:
  - OPC UA Server
  - MQTT Clients
  - or other Dataloggers

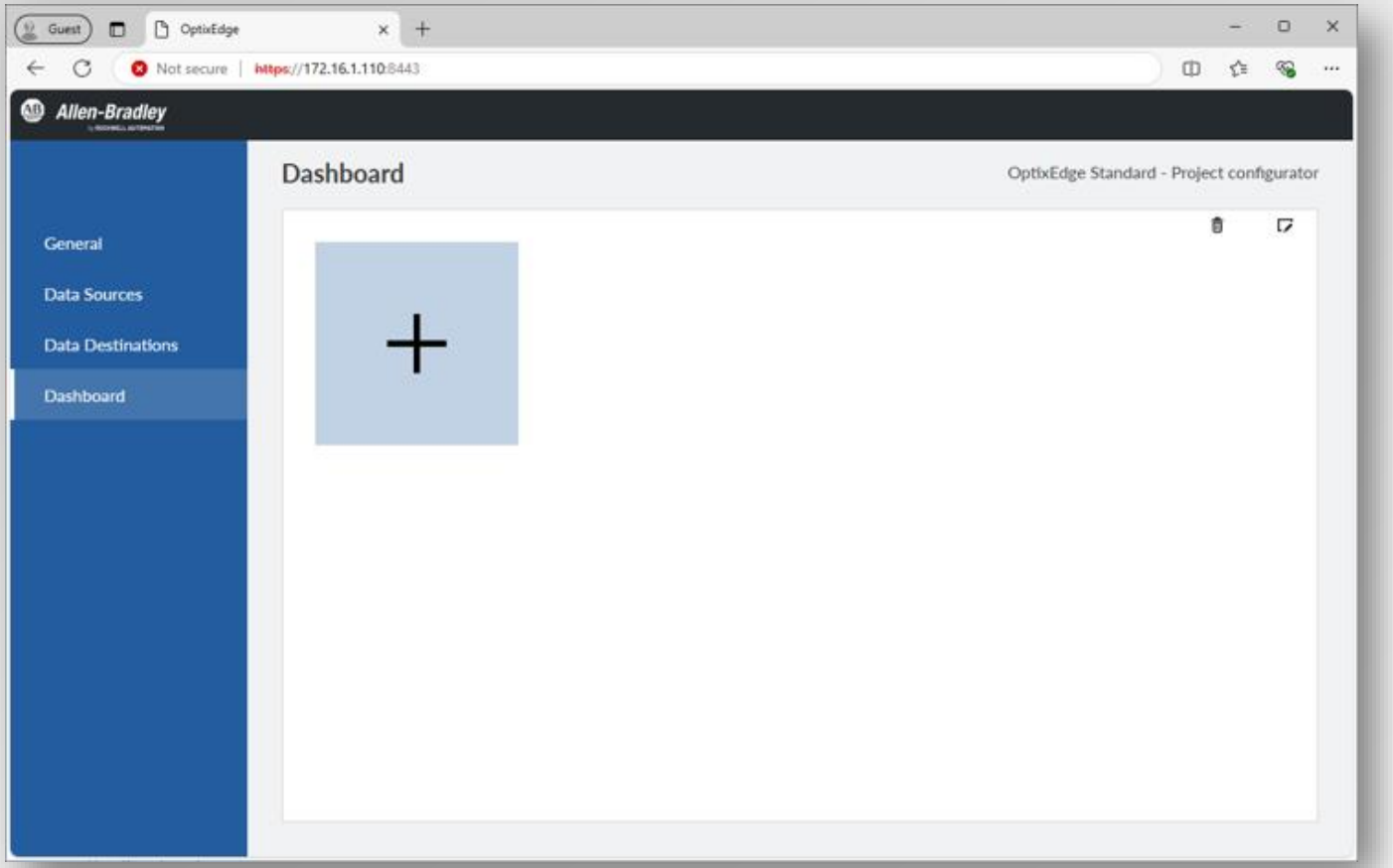


OptixEdge Wizard Application

Leverage the built-in web-based wizard to easily create and configure your edge application at runtime

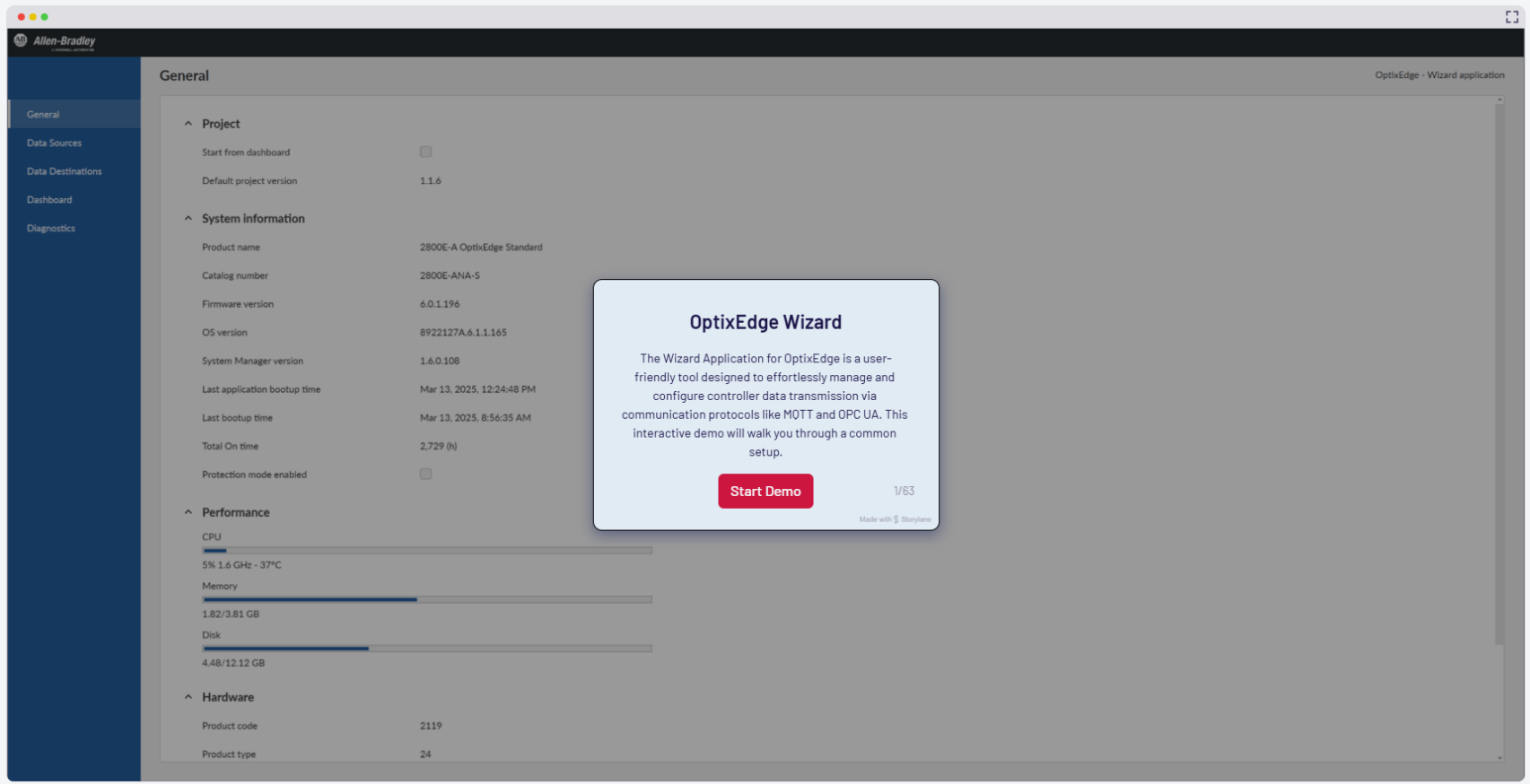
In the **Dashboard** tab:

- Configure a quick dashboard with the widgets provided to visualize your data



OptixEdge Wizard Application Guide

Leverage the web-based wizard to easily create your edge application at runtime



For detailed information on setting up and configuring the Wizard Application, refer to the Step-by-Step Guide.

FactoryTalk® Optix™ Overview

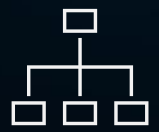
FT Optix

SCALABLE

A revolutionary visualization, IIoT, and Industry 4.0 platform

Create an application once and deploy to any device from edge to cloud

Empower operations with data insights and remote connectivity



Connect automation devices with native IIoT/edge protocols

SCALABLE

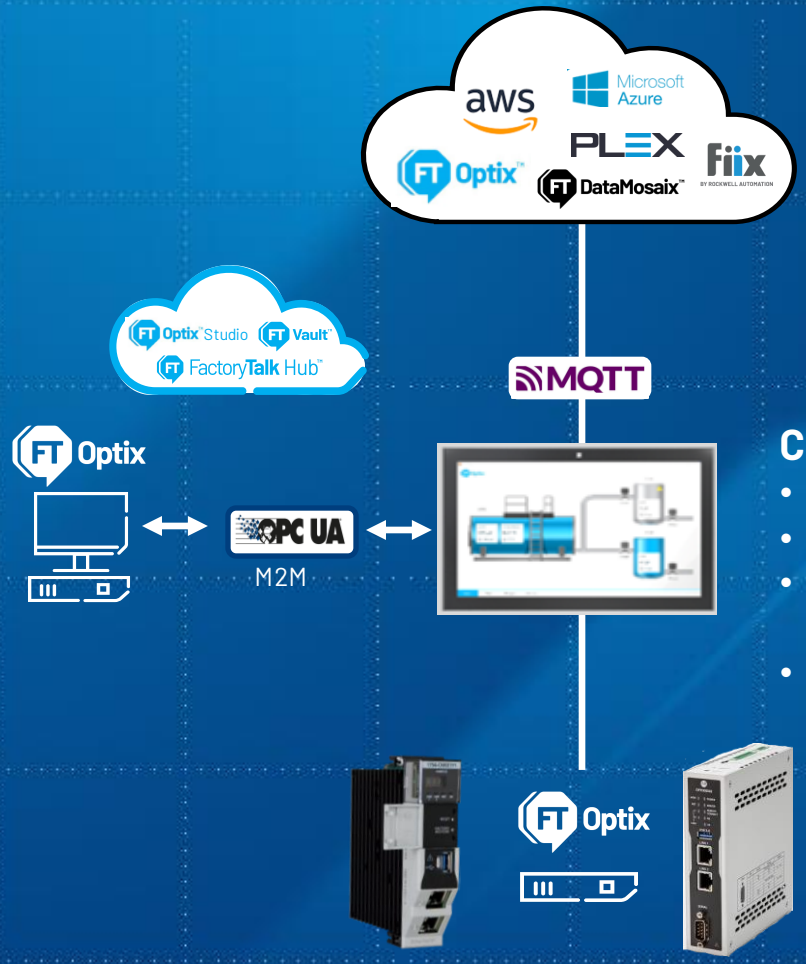
The FactoryTalk® Optix™ Platform

FactoryTalk Optix for SCADA[1]
- System configuration and monitoring
- Cloud-hosted deployment
- Remote management and deployment

[1]Initial offering available in 2026

FactoryTalk Optix for HMI
- Responsive Graphics
- Embedded and Station deployment
- 3rd party Drivers
- OPC UA machine-to-machine

FactoryTalk Optix for Edge
- IOT connectivity, MQTT
- Smaller, purpose-built applications
- Embedded runtime devices: Logix Embedded Edge Compute, OptixEdge



Common Platform
- Collaborative Workflows
- Connectivity to devices
- Integrated version control
- Pay for only what you use

EFFICIENT DESIGN AND COLLABORATION

FT Optix

Multi-user collaboration and version control

Collaborate throughout the design process with integrated change tracking and version management

Integrated library management

Increase code standardization and reduce repetitive steps with integrated library tools and application code libraries with pre-configured status and diagnostic HMI faceplates

Modular extensibility with scripting

Develop and maintain projects easily with object-oriented programming concepts, native OPC UA modeling, and C# scripting

BUILD IT ONCE AND RUN ANYWHERE

Scalable deployment

Choose your platform and form factor with runtime support for Windows or Linux and your choice of hardware

Responsive graphics built for mobile

Build a display once and view it on any screen size – desktop, panel, tablet, or phone

Choice of runtime form factors

Choose the runtime device that fits the application: industrial PC, dedicated panel, module in the Logix chassis, or lightweight edge PC

EMPOWER OPERATORS TO MAKE DECISIONS

FT Optix

Feature-rich visualization capabilities

Thousands of graphical objects and Rockwell Automation standard libraries, enabling reusable templates and themes

Logging, reporting and dashboarding

Simple database interface available for all components of the project

International and multi-language support

Preferences unique to each individual user with automatic unit conversions

Guidance and tools for alignment with standards and regulations

21 CFR Part 11 regulation compliance guidance with sample applications

FT Optix

FROM EDGE TO CLOUD ...EMPOWER YOUR DIGITAL TRANSFORMATION

Secure and native connectivity

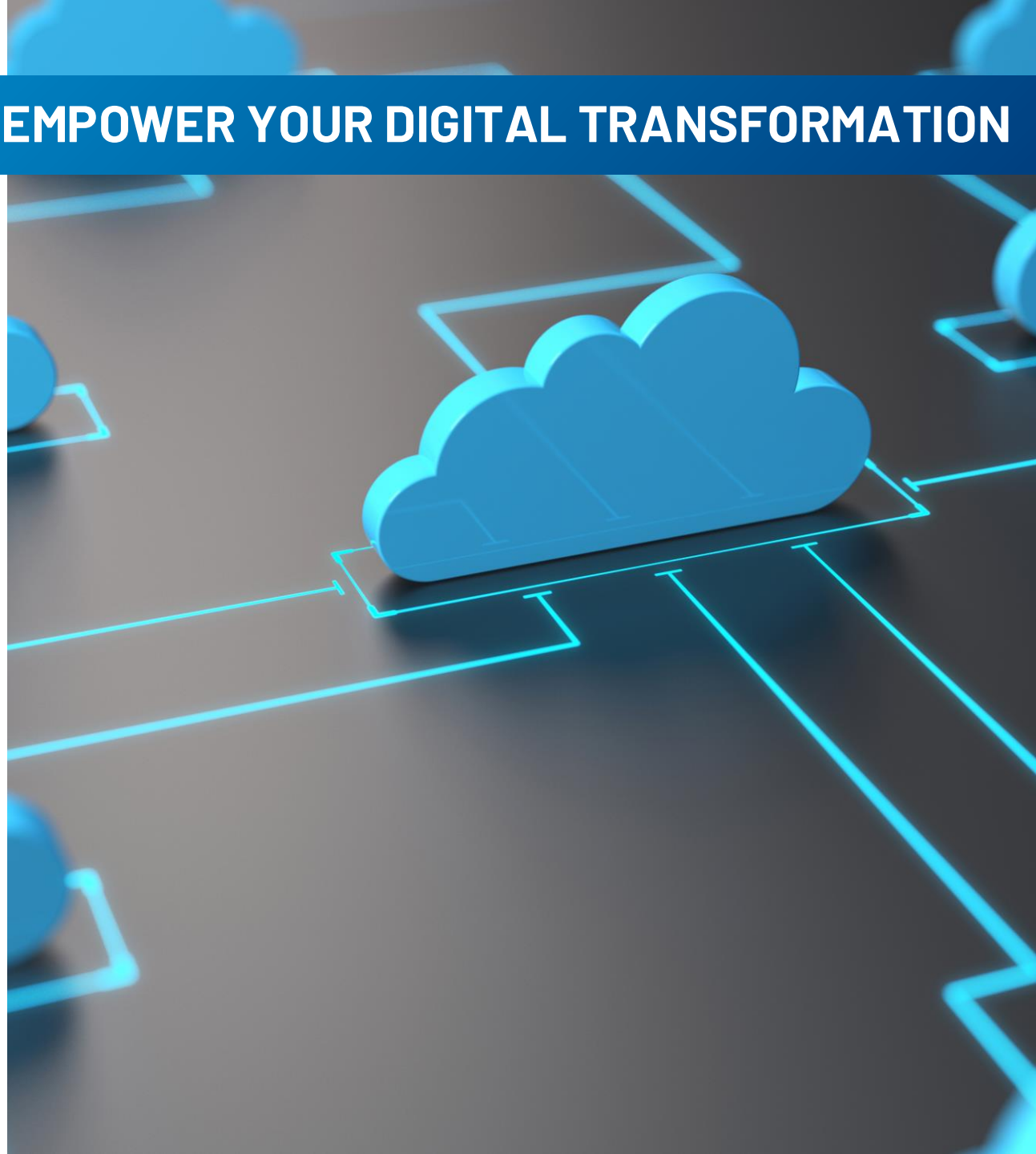
Connect to automation devices, databases, and cloud data stores via open standards (MQTT, Rest APIs, InfluxDB)

Industrial interoperability

Flexible communications with built-in third-party device drivers and full OPC UA support

Edge-enabled data management

Collect data from OT devices at the edge of the network, visualize it for the operator, and send it to smart manufacturing platforms for monitoring and analysis



DATA COLLECTION WITH ORGANIZATION AND CONTEXT

FT Optix

Data collection with context

Extend existing tag properties with additional configuration properties for data contextualization

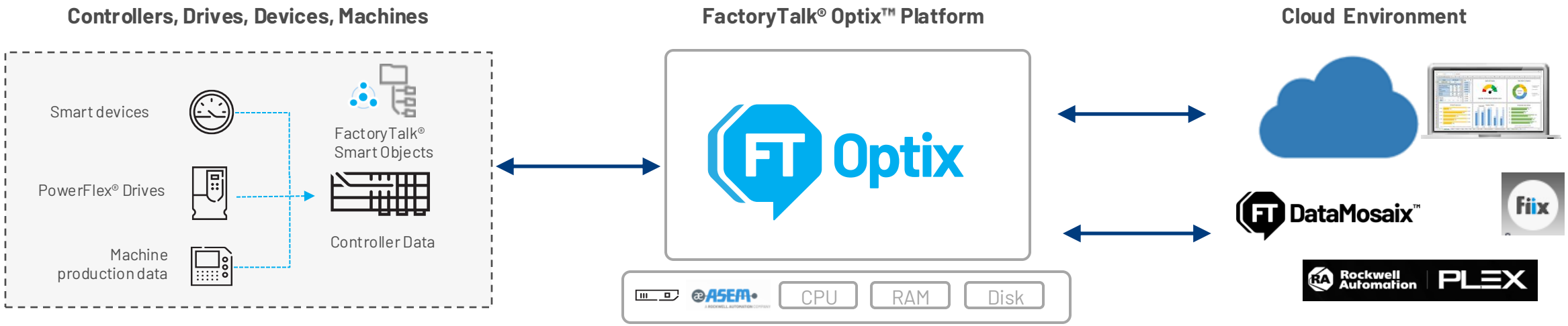
Organized information model

Integrate diverse and isolated data together, constructing the OT context in the IT layer

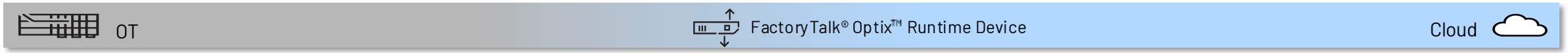
Better decisions more consistently

Provide a clearer understanding of information so operations can make accurate and consistent decisions

Operations and Information Convergence



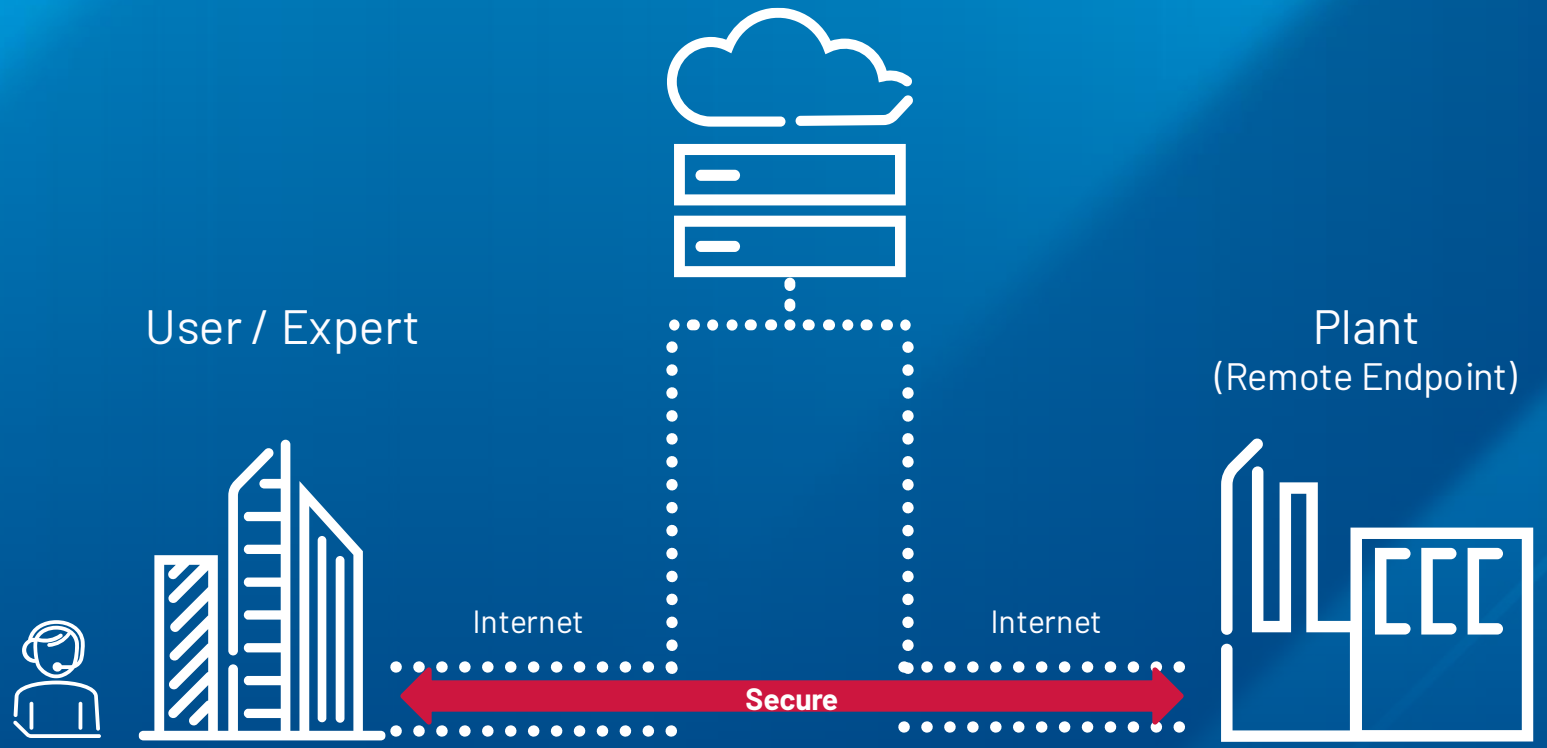
The FactoryTalk® Optix™ platform enables end-to-end HMI and IIoT solutions that can collect, store and visualize data for operators from machine to enterprise



FactoryTalk Remote Access

FT Remote Access™

Secure communications over the internet
enabling on-demand remote assistance, installation, programming, troubleshooting, and maintenance of any remote automation system and application.



FactoryTalk® Remote Access™

Only *two* key components

1 FactoryTalk® Remote Access™ Manager

A web-based client used to maintain and initiate remote connections:

- Management of account, users and groups, permissions and access
- Register devices
- Activate VPN for remote connectivity
- and more

2 Remote Access Endpoint Device

- **FactoryTalk® Remote Access™** Runtime
- **Stratix® 4300 Remote Access™ Router**
- **OptixEdge™** Standard
- **OptixPanel™** Graphic Terminal
- **Embedded Edge Compute™** Module
- **ASEM™ 6300** Industrial PC

Select the option that works best for your application(s).

Unique FactoryTalk® Remote Access™ Functionality

FactoryTalk® Optix™ & Design Studio™ Integration

Powerful combination with FactoryTalk® Optix™ for deploying an application and seamlessly integrating into FactoryTalk® Design Studio™ for cloud-to-edge connectivity

Security

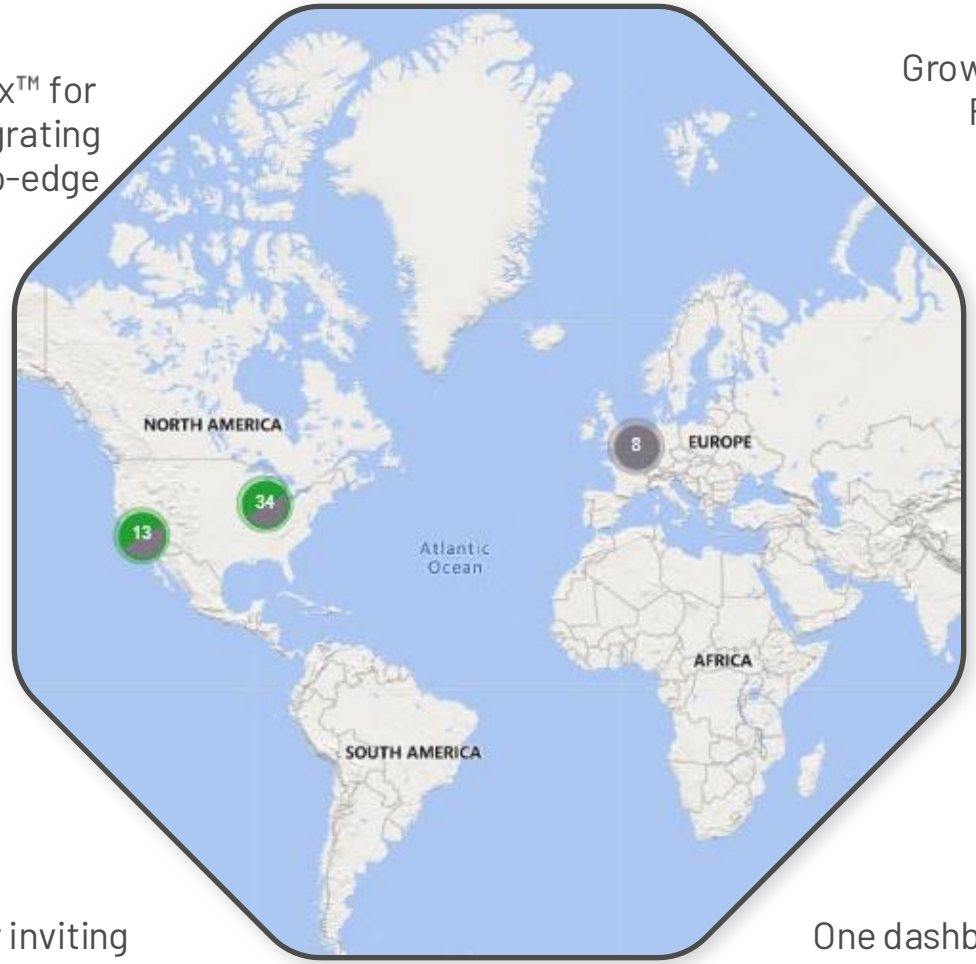
Developed with IT-compliant cybersecurity features

Runtime Software

The runtime software enables you to make any compatible PC a remote access endpoint

Flexible User Management

Leverage cross business collaboration by inviting users into your domain, control access, set up permanent and temporary users, and more



Remote Access Ready

Growing list of endpoint devices that ship with a FactoryTalk® Remote Access™ Runtime entitlement

Interactive Tools

Leverage interactive tools including remote desktop with *chat*, task manager, screen capture, file explorer and file transfer

3rd Party Compatibility

Support any automation system anywhere in the world *from* anywhere in the world[1]

All-in-One Management

One dashboard to manage everything: configure and manage devices, enable security features, add users, set access rights and more

[1]subject to US country restrictions

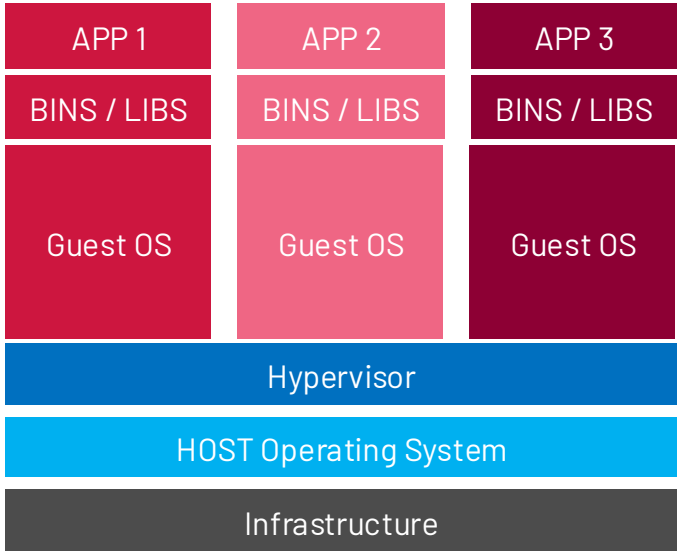
Container Support

Containers vs. Virtual Machines

The key differences between containers and virtual machines

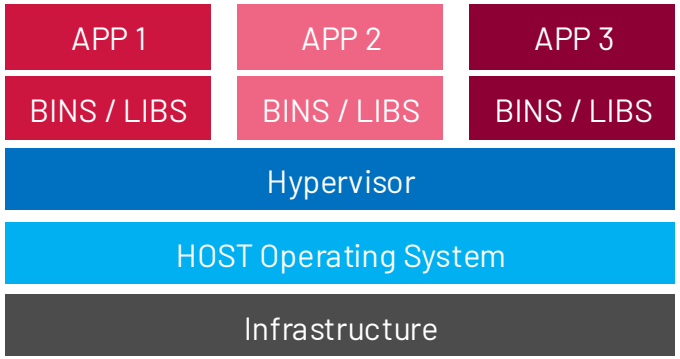
Virtual Machine

- Needs lot of resources
- Needs specific virtualization software
- Weighs some tenth of GB
- Contains a lot of things that are not strictly necessary



Container

- Needs only the resources used by the executable
- Can run on any host OS with a container agent
- Weighs few KB (or even just as a single text file)
- Only contains the main executable and dependencies



Containers pack a lot of things into a carry-on bag

Containerized Software Options

The OptixEdge is compatible with Docker by default

There are many containerization software options. These are some examples:

Minikube is a lightweight Kubernetes management tool with advanced features like load balancing and addons

Podman is an open-source tool which is 1:1 compatible with Docker

containerd is an industry-standard container runtime with an emphasis on simplicity, robustness, and portability

Docker offers a simple and efficient approach to running and managing containers

Kubernetes offers more complex capabilities, such as automated container deployment, scalability, and self-healing

The OptixEdge is compatible with Docker by Default

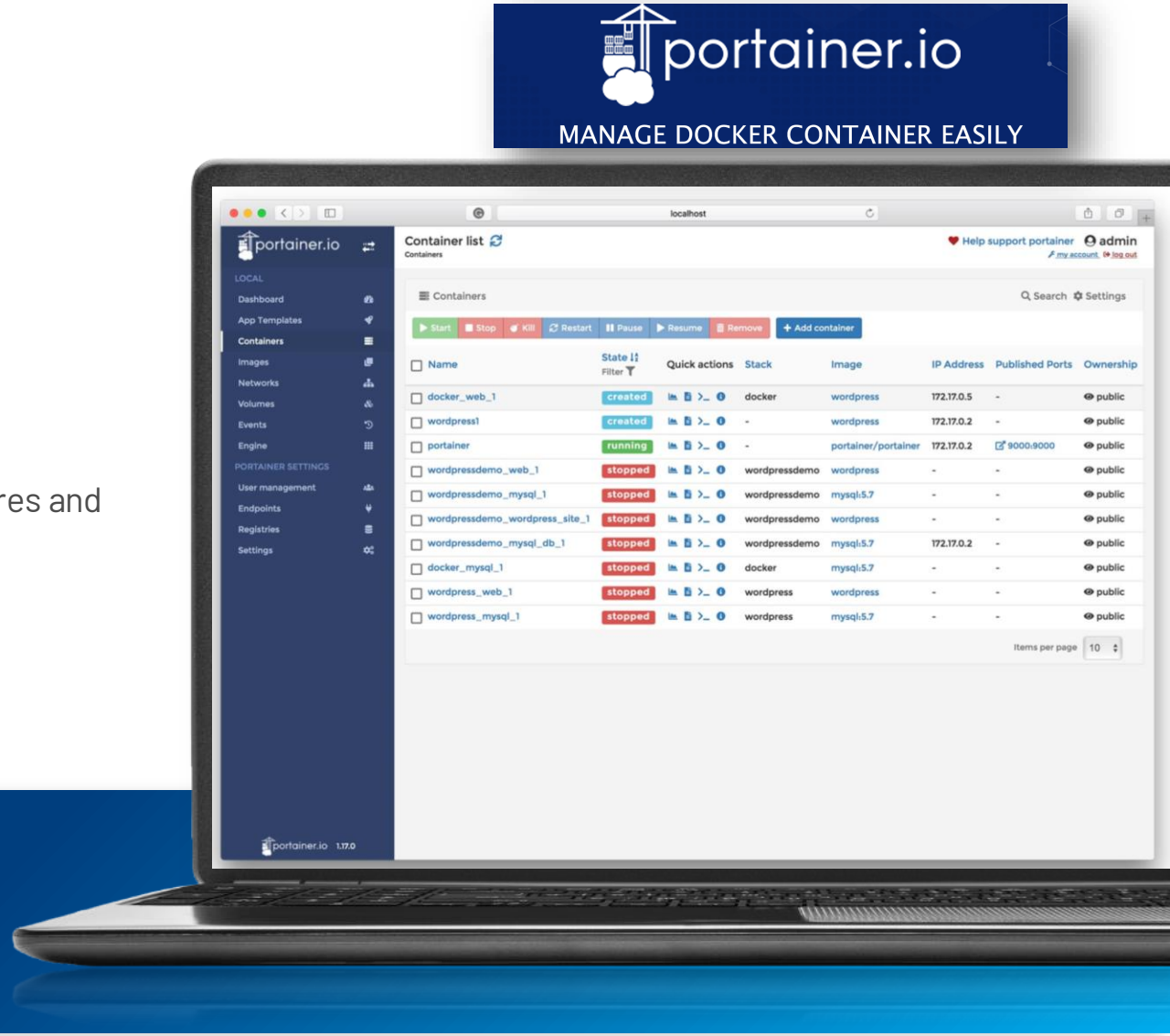
Why Docker?

- It is mostly focused on every-day development by supporting Linux, Windows and MAC OS
- It has a big community of both professionals and amateurs which creates strong engagement
- It is constantly updated and supported, including great customer support
- Containers can be easily ported across different systems and host Operating Systems
- Supports scalability
- It is known for simplicity and good documentation

The OptixEdge Embeds an Instance of Portainer-CE

What is Portainer?

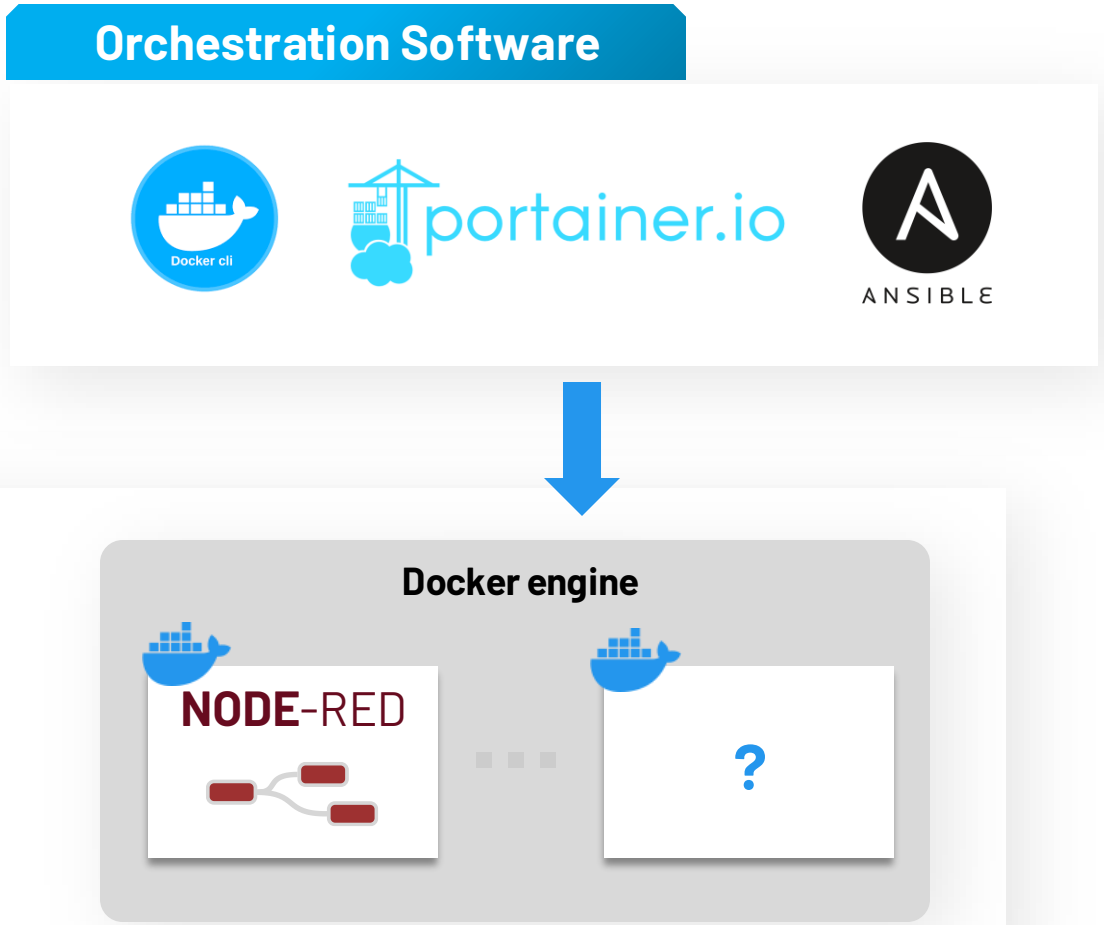
- Portainer is **not** a containerization platform
- It is a Docker container
- It is a Graphical User Interface (GUI) for Docker
- Comes in two flavours:
  - Portainer-ce which is free with some minor features limitations
  - Portainer-business which is paid and includes all features and support
- It can connect to multiple agents
- Supports both Dockerfiles and Docker compose



OptixEdge™ Docker Containers Support

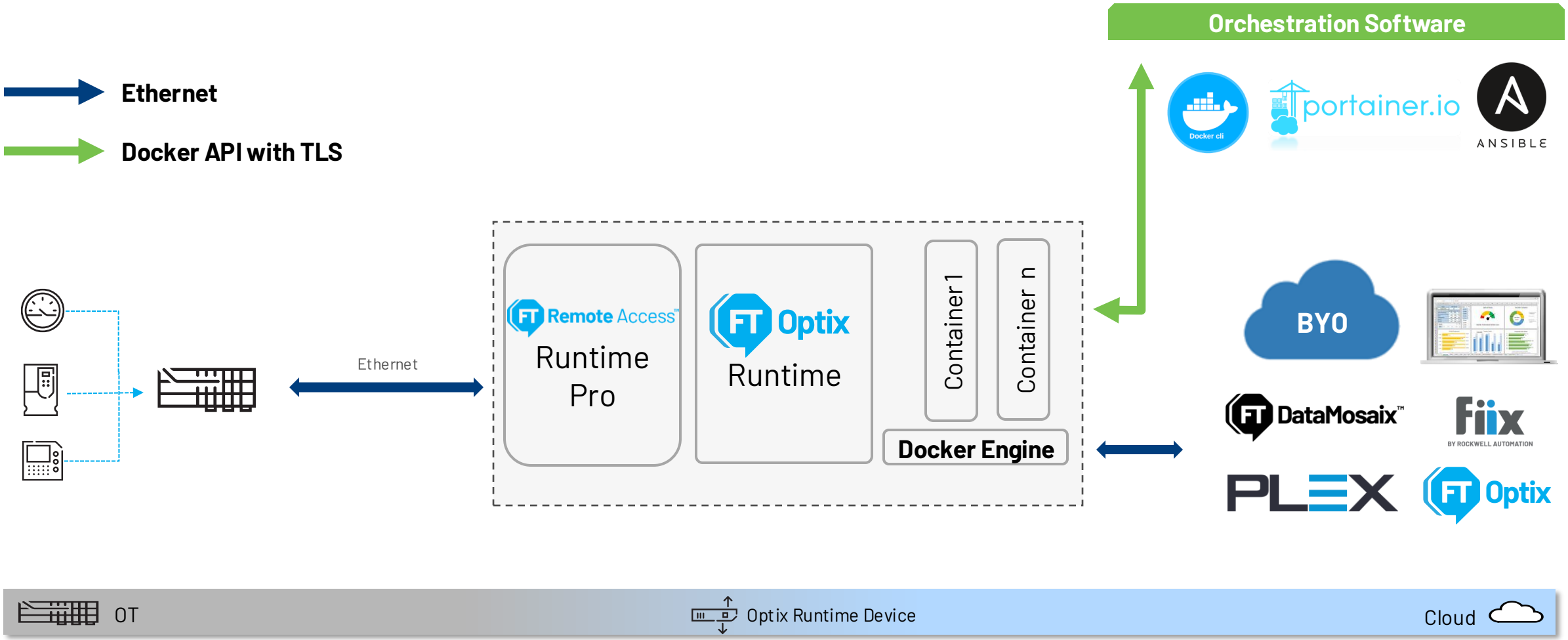
OptixEdge extends beyond FactoryTalk Optix and FactoryTalk® Remote Access™ capabilities by providing the ability to host **Docker containers:**

- They allow applications and their dependencies to be encapsulated**,** ensuring that only **the necessary components are running**.
- They **simplify deployment and management** through orchestration tools such as Portainer.



OptixEdge™ Docker Containers Support Architecture

Open, Secure and IT-OT ready



Use Cases

Unlock the Full Potential of the OptixEdge

Outcomes and Use Cases for the OptixEdge

Simplify Data Collection

- Collect data from heterogenous systems
- Collect data from various sources

Improve Operational Efficiency

- Use FactoryTalk Remote Access to securely connect to remote applications for troubleshooting and maintenance

Flexible & Scalable

- Host custom applications that are already developed in a secure closed Operating System via Docker containers

Solution Standardization

- Suitable for both existing (brownfield) and new (greenfield) applications where there is no 1756 backplane availability
- Use in combination with CompactLogix®, PanelView™, and/or 3rd party controllers

Learn More

Learn More!

Additional resources where you can find more information about the OptixEdge

Reach out to your Rockwell Automation or Authorized Distributor contact for more information.

Webpage

- [Coming Soon]

Documentation

- OptixEdge Standard User Manual
- OptixEdge Standard Installation Instructions

FactoryTalk
by ROCKWELL AUTOMATION

Thank you

www.rockwellautomation.com