IE17 - Introduction to OptixEdge™: Redefining What is Possible at the Industrial Edge

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expanding **human possibility**®

Agenda

01 OptixEdge™ Introduction and Overview

02 Wizard App Overview

03 Container Support

04 Demo

05 Q&A

Introduction and 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 standalone 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 update

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 update

Flexible Deployment Options for FactoryTalk® Optix™

Select the optimal platform for performance, functionality and openness

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

Sealed/Closed HMI terminals

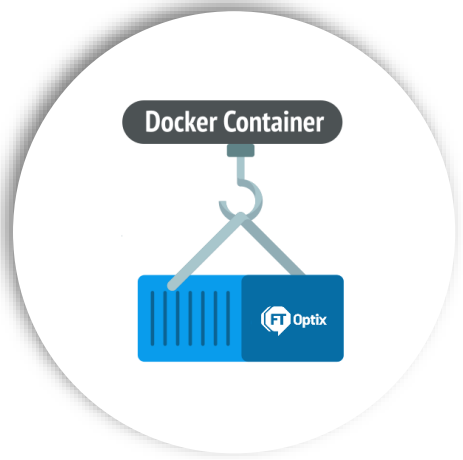
Use when you need...

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

Industrial PCs & Thin Clients

Use when you need...

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



Docker Container

Use when you need...

A lightweight, portable environment for running applications in isolated, scalable deployments

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 more securely connect to remote applications for troubleshooting and maintenance

Flexible & Scalable

- Host custom applications that are already developed in a more 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 third-party controllers

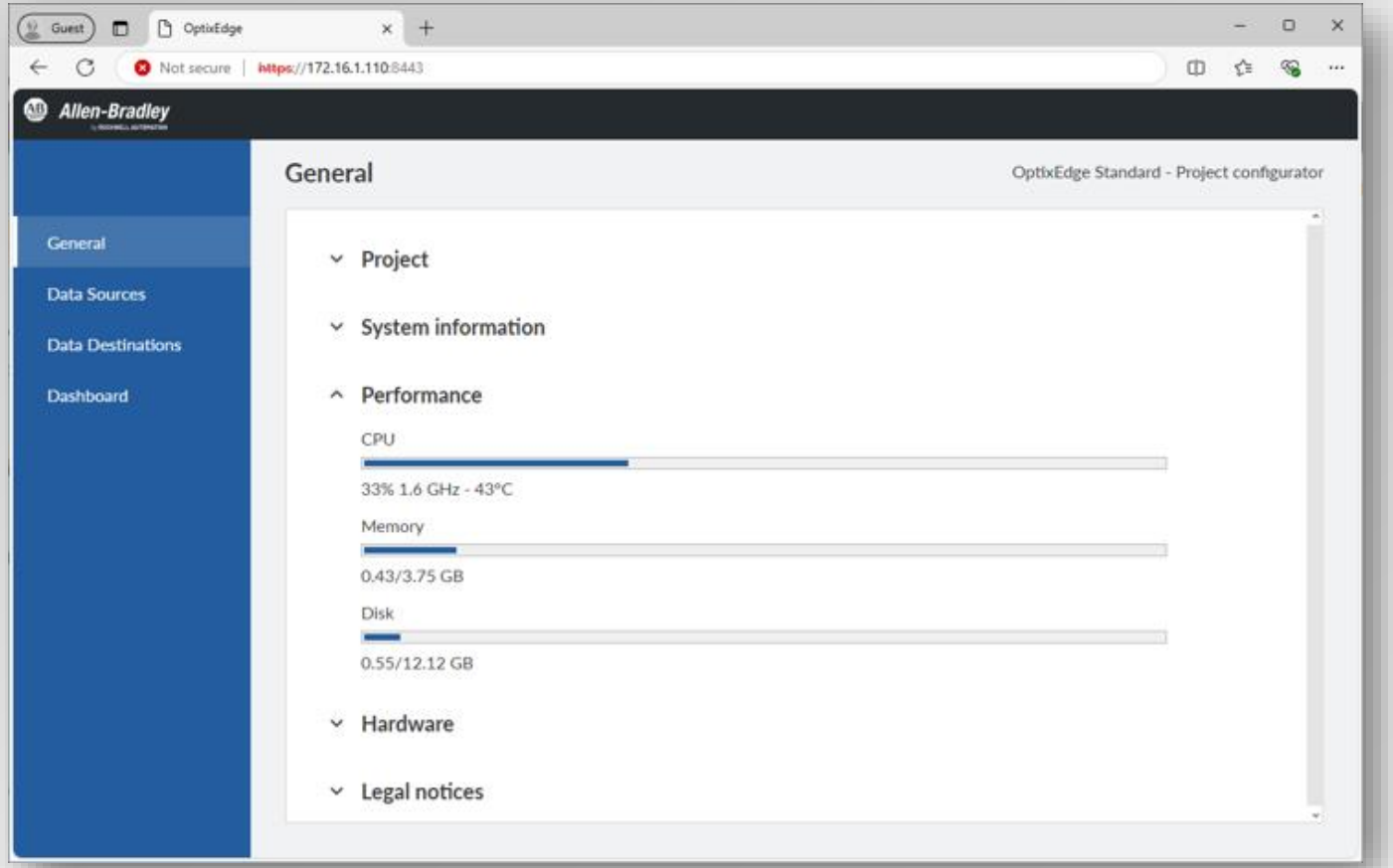
Wizard App

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

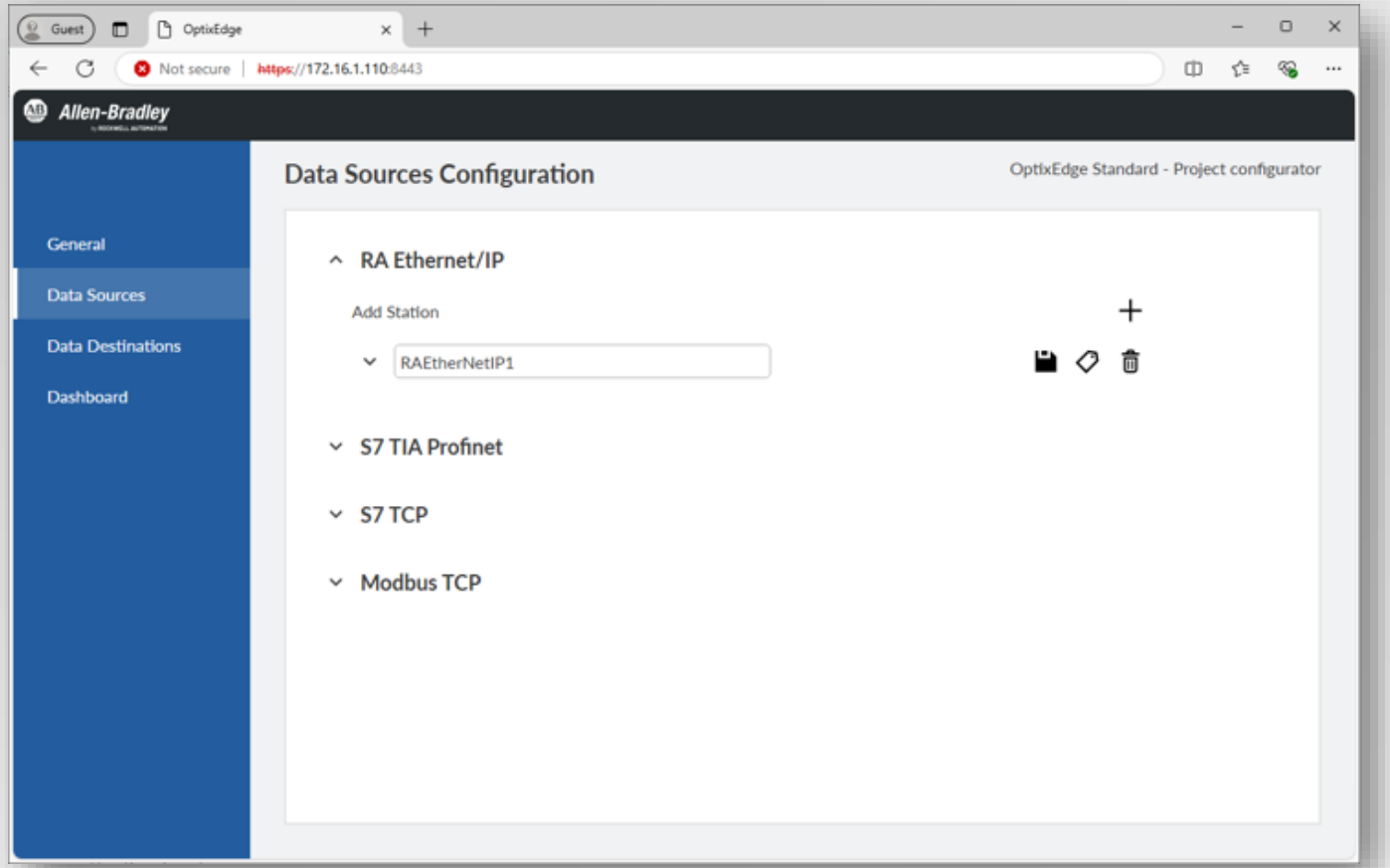


OptixEdge™ Wizard Application

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

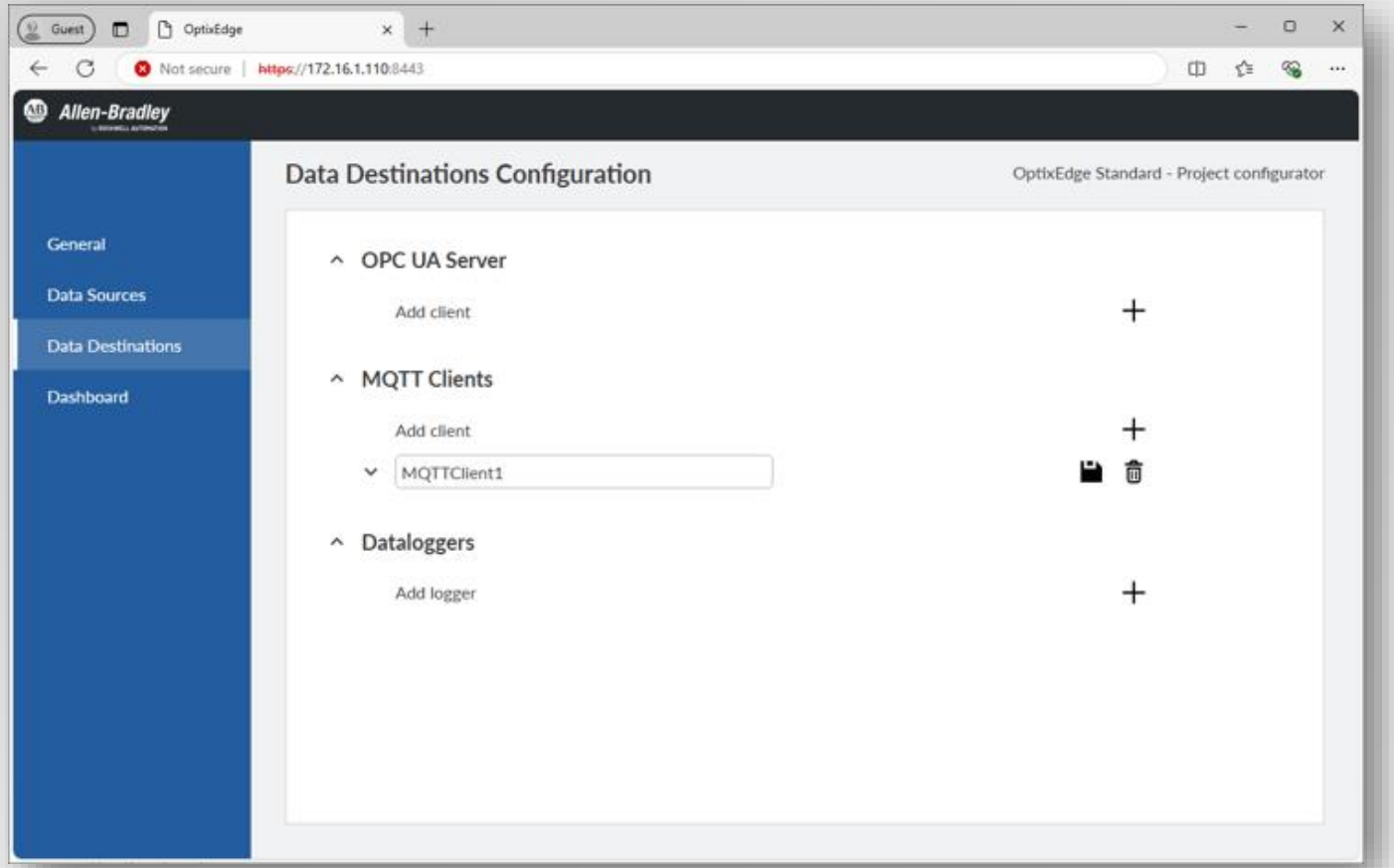


OptixEdge™ Wizard Application

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

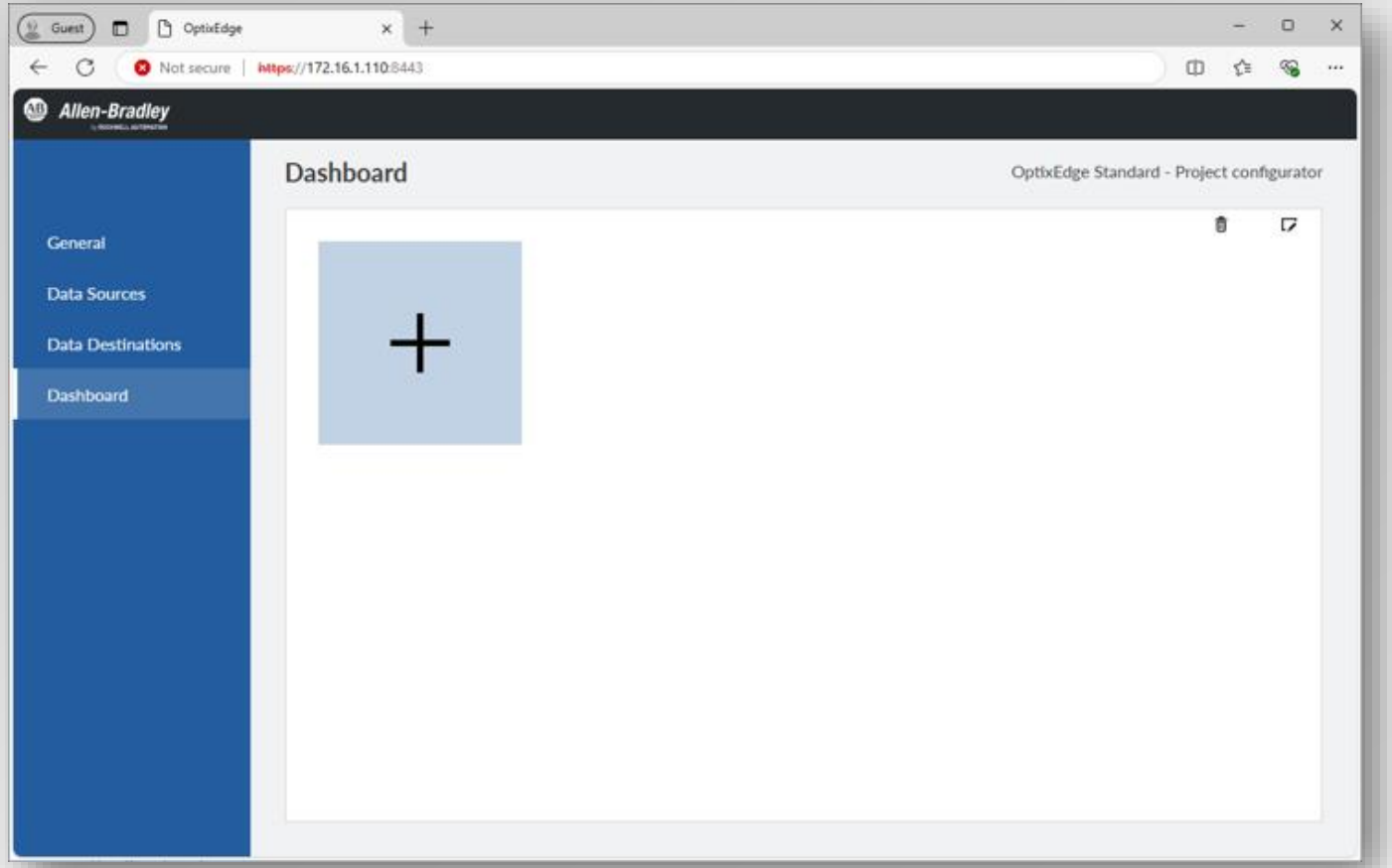


OptixEdge™ Wizard Application

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



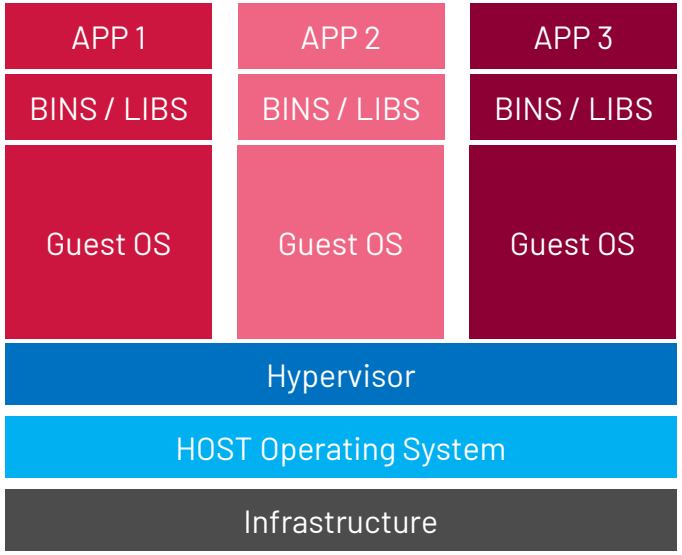
Container Support

Containers vs. Virtual Machines

The key differences between containers and virtual machines

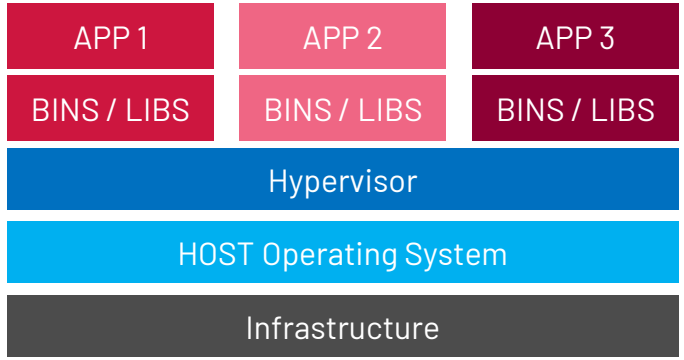
Virtual Machine

- Needs lot of resources
- Needs specific virtualization software
- Weighs some tenth of GB
- Contains many 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 numerous 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 that 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

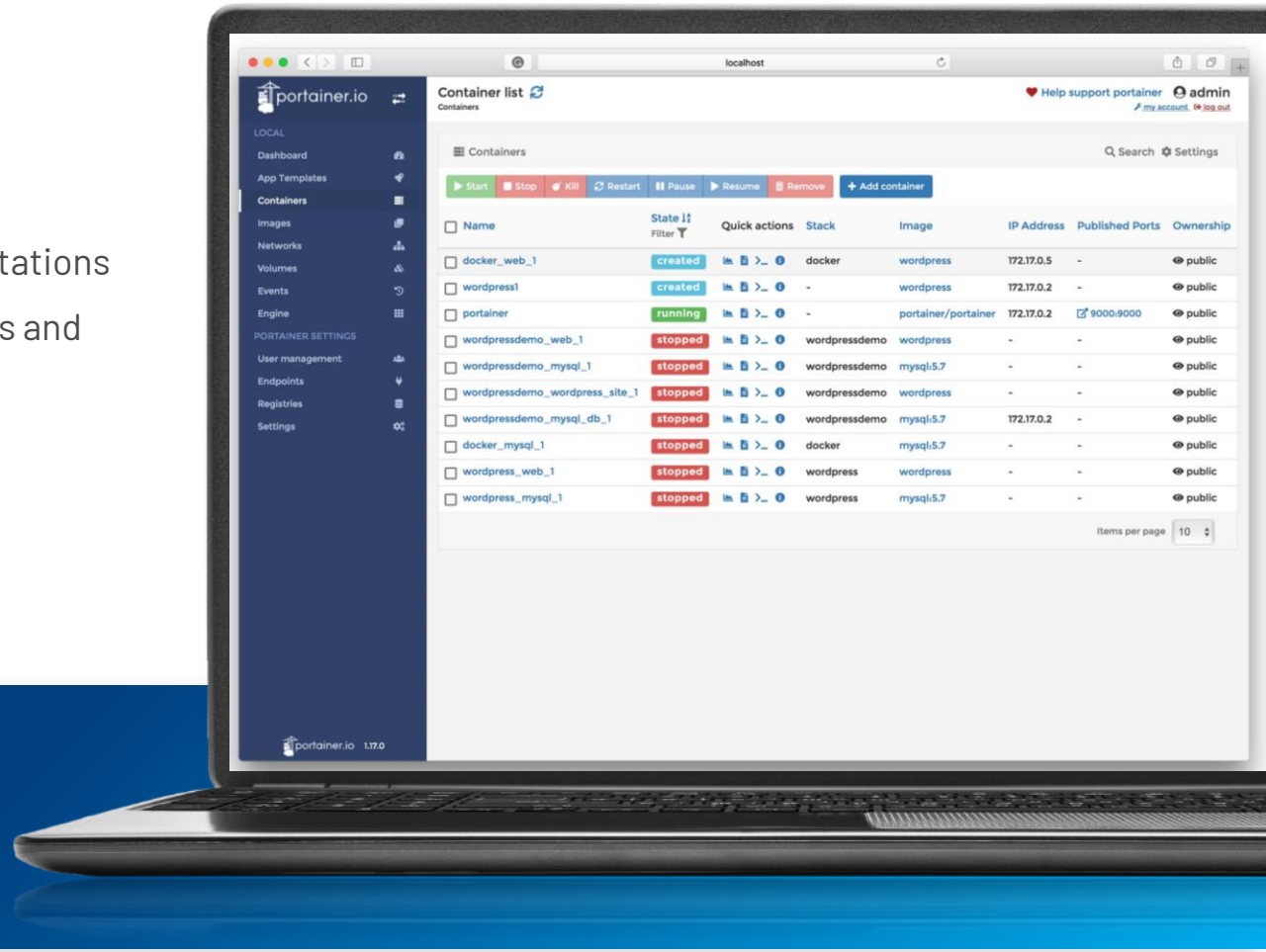
Why Docker?

- It is mostly focused on every-day development by supporting Linux, Windows and MAC OS
- It has a significant community of both professionals and amateurs that 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

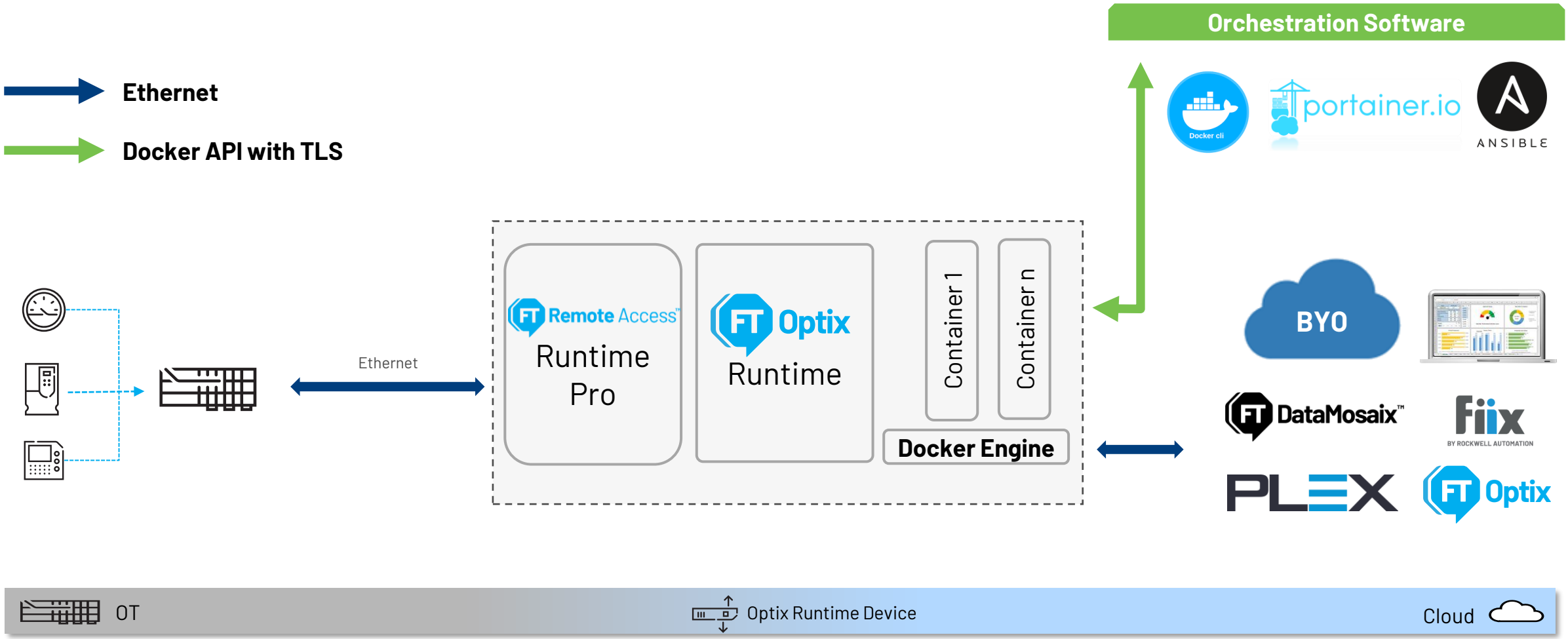
What is Portainer?

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



OptixEdge™ Docker Containers Support Architecture

Open, More Secure and IT/OT ready



Demo

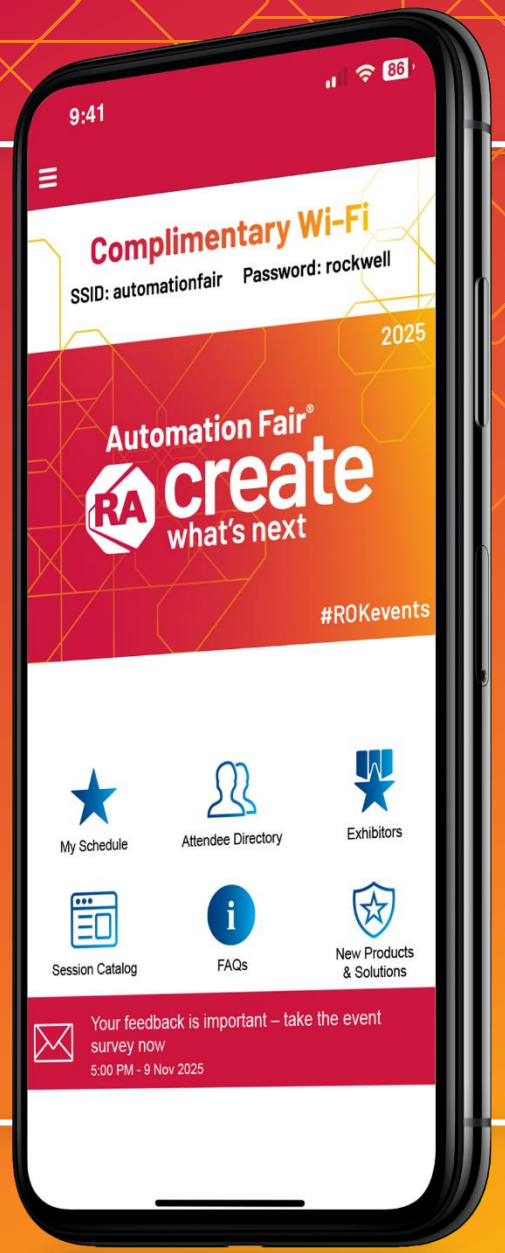
share your

feedback

EVENTS ROK

- Download the **Events ROK App**
- Select **Automation Fair 2024** and sign in
- Select **Session Catalog** and the session you are attending
- On the **survey tab**, fill out the survey and submit

Please complete the session survey in the mobile app



Thank you

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