Scalable visualization with centralized management – IE20

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Rockwell Automation
expanding **human possibility**®

Agenda

01 Introduction to our scalable visualization portfolio

02 Distributed systems with visualization software

03 Value of ThinManager as a centralized management platform

04 Modern and integrated visualization solutions

05 Learn more

Introduction to our scalable visualization portfolio

Visualization Market Trends

OPTIMIZE PRODUCTION | EMPOWER PEOPLE | BUILD RESILIENCY | DRIVE SUSTAINABILITY | ACCELERATE TRANSFORMATION

Market Dynamics

- **Scarcity of knowledge workers** driving need for simplicity and higher levels of automation.
- **Increasing Cybersecurity risk** and evolving regulatory environment adding requirements to solutions.
- **Growing business challenges** to improve productivity, increased agility, sustainability, and resilience.
- **Converging IT/OT expectations** spanning industrial automation, IIoT, and enterprise IT.

Current State

- **Multiple disparate systems** for electronic operator interface, HMI, SCADA and production reporting systems in the plant.
- **Disparate software offerings** required for plant/equipment data aggregation, organization, processing and presentation.
- Disparate tools and applications lead to **redundant and inefficient workflows** across the automation system lifecycle.
- **Hardware constrained approach** to EOI with limited scalability and industry-specific form factors.

Future State

- **Converged software platform** for collection, organization, processing, visualization and exchange of data leveraging prevalent open standards.
- **Software defined modular architectures** scalable from machine to enterprise that are multidisciplined and compute/hardware agnostic.
- **Empowered workers** with collaborative visualization / design securely accessible from anywhere. Supported by pre-built content and AI-powered design and decision support.
- **Secure and resilient** hardware and software designed for the industrial environment and supporting IT management practices.

Modernizing technology and approach to enable operations and support shift from Automated to Autonomous

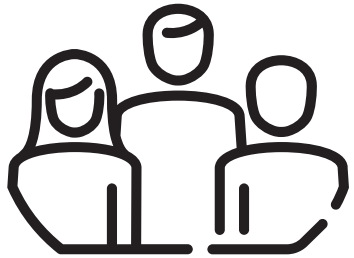
Visualization Software and Hardware

Connecting people to the information that drives better decisions

FT View

FT Remote Access™

FT Optix



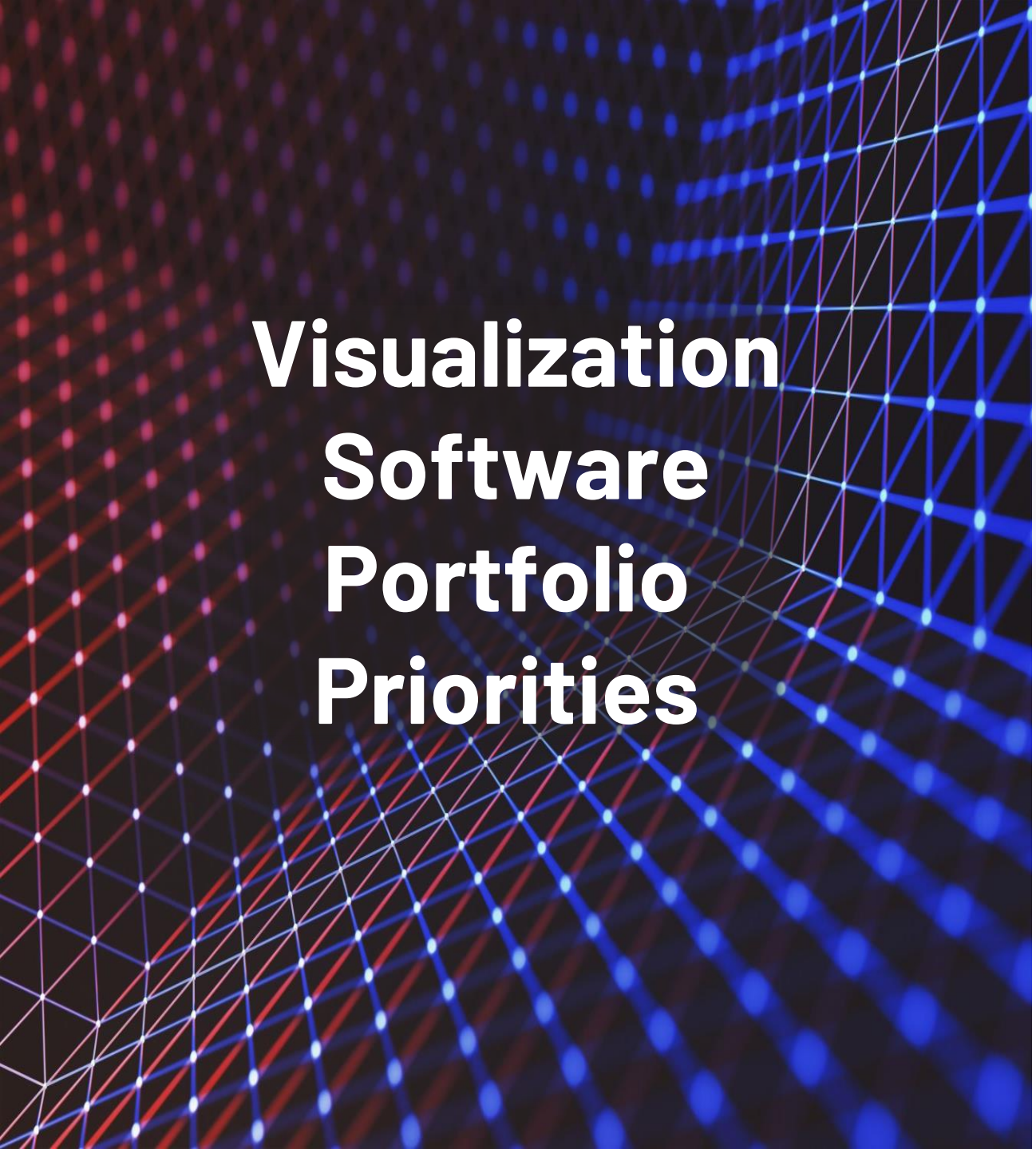
ASEM
A ROCKWELL AUTOMATION COMPANY

FT AssetCentre®

A-B Allen-Bradley
by ROCKWELL AUTOMATION

Studio 5000 View Designer®

THINMANAGER®
A ROCKWELL AUTOMATION TECHNOLOGY



Visualization Software Portfolio Priorities

Mature and expand solutions and architectures with **FactoryTalk Optix**, enabling a complete edge to cloud SCADA portfolio with **software-defined hardware platforms** with an **open flow of data**

Continue to deliver software features and expansions in **FactoryTalk View** to support distributed systems and **PlantPAx solutions**

Continue to deliver unprecedented control and security in a **sustainable and scalable platform** with **ThinManager**

Align and expand **system capabilities** that simplify design effort, improve operations productivity and **asset management**, while incorporating evolving technologies such as **cloud** and **generative AI** with a focus on **cybersecurity**

Unified visualization portfolio

Flexible deployment options to support a wide range of applications

PanelView 5000

PanelView Plus

OptixPanel

ASEM 6300 Industrial PCs, monitors and thin clients

Optix Edge and Logix Embedded Edge Compute

HMI and IIoT software for every application

Machine-level Panel HMI

Studio 5000 View Designer®

- Design simplicity and intuitive operator interfaces
- Premier integration with ControlLogix

FT View ME

- Full-featured, reliable platform
- Common design interface

FT Optix

- Flexible, modern HMI with built-in comms drivers

Scalable HMI

FT View SE

- Modern platform for station and distributed HMI
- Tested, reusable content libraries

FT Optix

- Flexible, cloud-enabled HMI with built-in comms drivers and C# script
- Only pay for the features you use

Edge / IIoT

FT Optix

- IIoT applications with contextualized data from edge to cloud
- Containerized runtimes for modern deployments

Software to enable the entire portfolio

FT Remote Access™

Remote access for deployment, maintenance and troubleshooting

THINMANAGER®
A ROCKWELL AUTOMATION TECHNOLOGY

Content management across the portfolio and beyond

Centralized visualization: from capable to exceptional

Distributed HMI

- Scalable server/client capabilities that support small to very large systems
- Load balanced applications with communications, data, and graphics distributed over multiple servers
- Independent operator interfaces with common servers

Managed HMI

- Visualization with centrally managed security, deployment and maintenance
- Fast redeployment when failures occur
- Customize and combine visualization from multiple sources

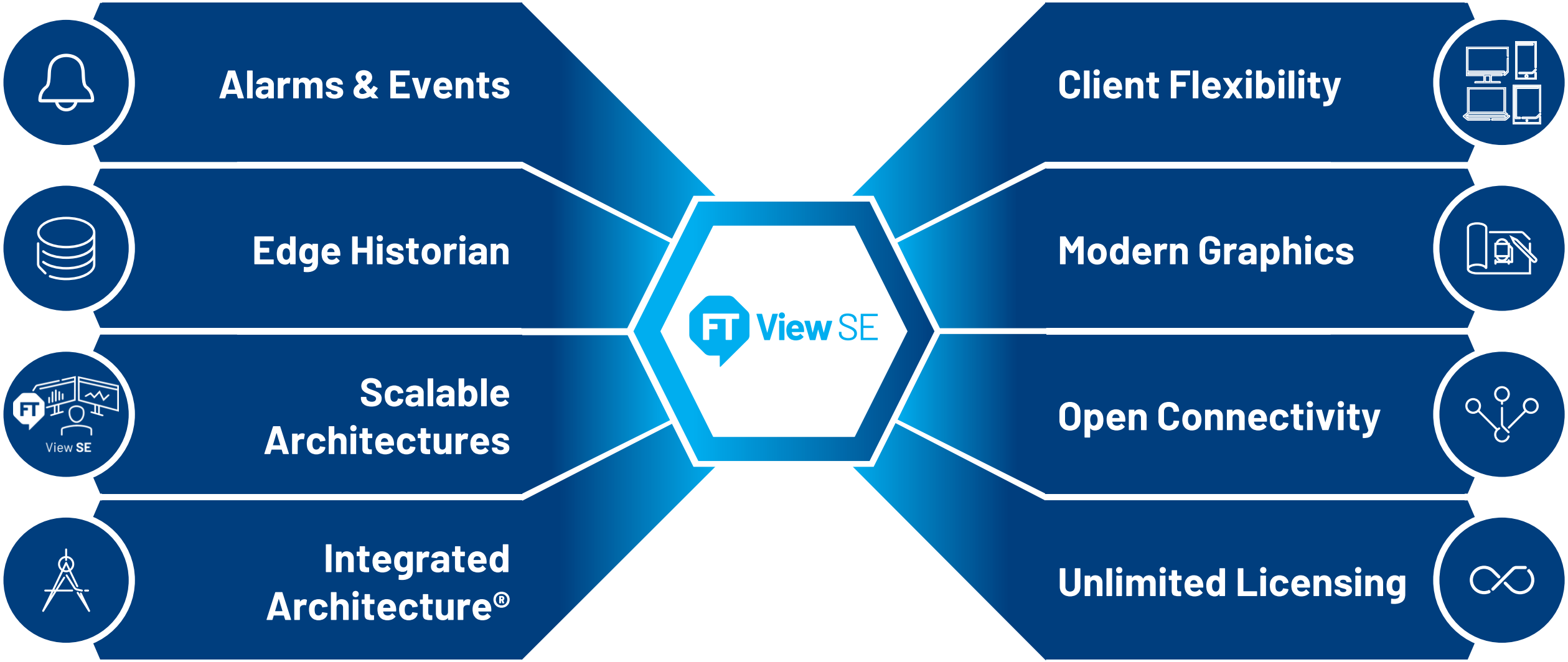
Modern HMI

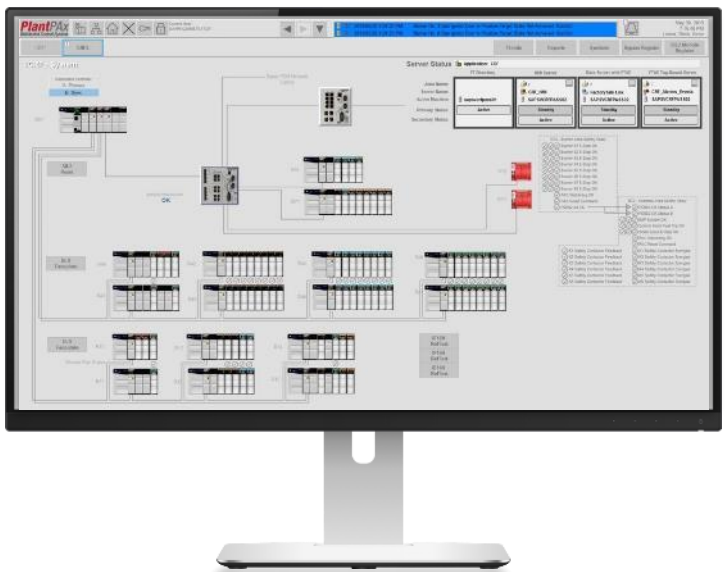
- Managed visualization + modern technology adoption
- Containerized deployments
- Integrated hardware platform options

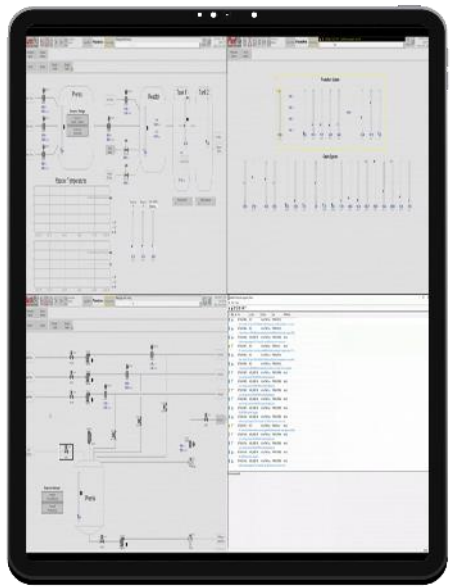
Distributed systems with visualization software (vis sw today)

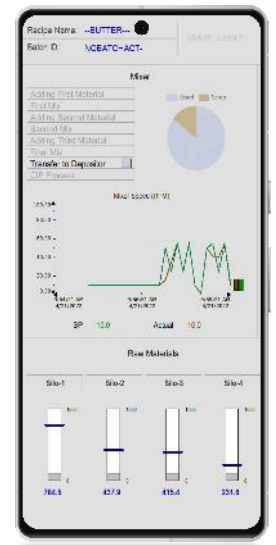
FactoryTalk® View Site Edition

All you need in an HMI/SCADA solution for process, discrete, and hybrid applications




PlantPAx

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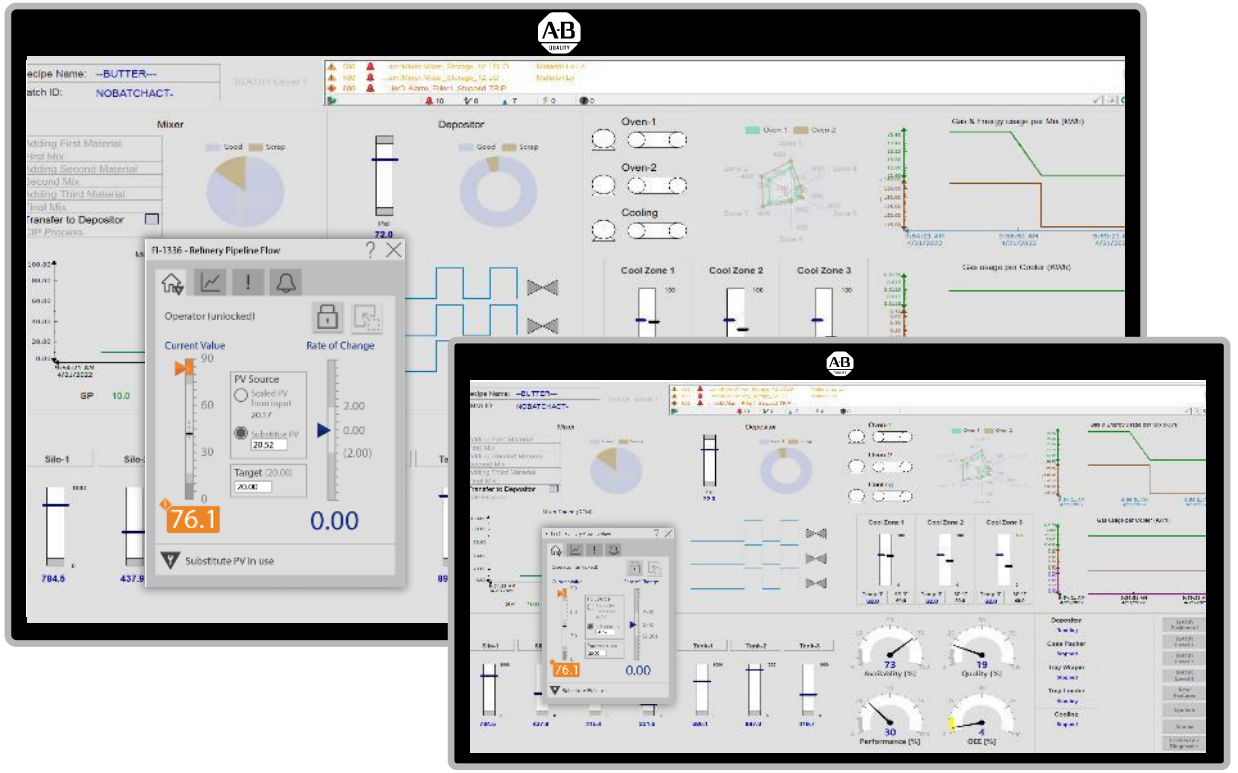
Batch ID: NOEATC-ACT-
Mixer
Transfer to Depositor
Raw Materials

Build Your Modern HMI

Build intuitive operator interfaces for any display

- Thousands of reusable graphical objects
- Automatic display scaling
- Dynamic adaptation of application content using Windows scale factors
- Uniform user experience
- Multi-touch support with zooming and panning in TrendPro and XY Plot
- Support for high-resolution monitors
- Support for scalable vector graphics
- Support for ECharts



Premier integration with Logix-based controllers

- Single supplier from controller to HMI means lower overall support costs and deeper integration
- Optimized communications between HMI and controller
- No need to create and maintain tags in the HMI –simply use tags created and managed in the controller
- Online and offline browsing to controller tags directly from display objects in the HMI
- Display information related to controller tags such as description, min/max, or units on HMI displays

View SE

Studio 5000 Logix Designer®

Drives & Motion Control | Safety | Process | Batch | Robots | Security

And more..

The Logix Platform

Integrated alarms and diagnostics

Studio 5000 Logix Designer®

Logix controllers and the FactoryTalk® platform **automatically share** alarm and device diagnostics

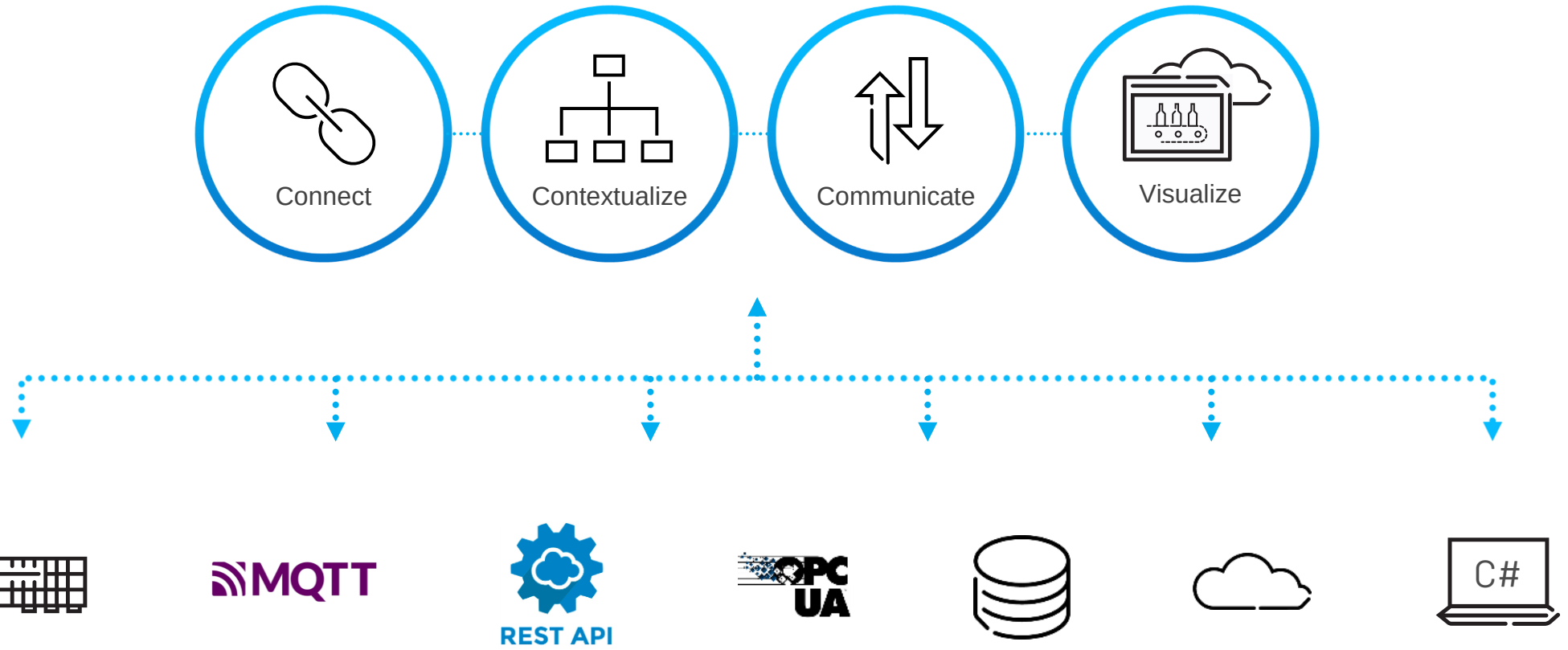
Pre-built objects for operator HMI displays require **no configuration**

Flexible options for **alarm interaction** allow actions such as viewing, acknowledgment, or shelving from the HMI, web browser, or mobile devices

Access and display **device diagnostic** information from the controller in the HMI without additional programming

FT Optix™

Robust edge connectivity and application platform to enable data and analytics with core operations data



FT Optix

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 connectivity

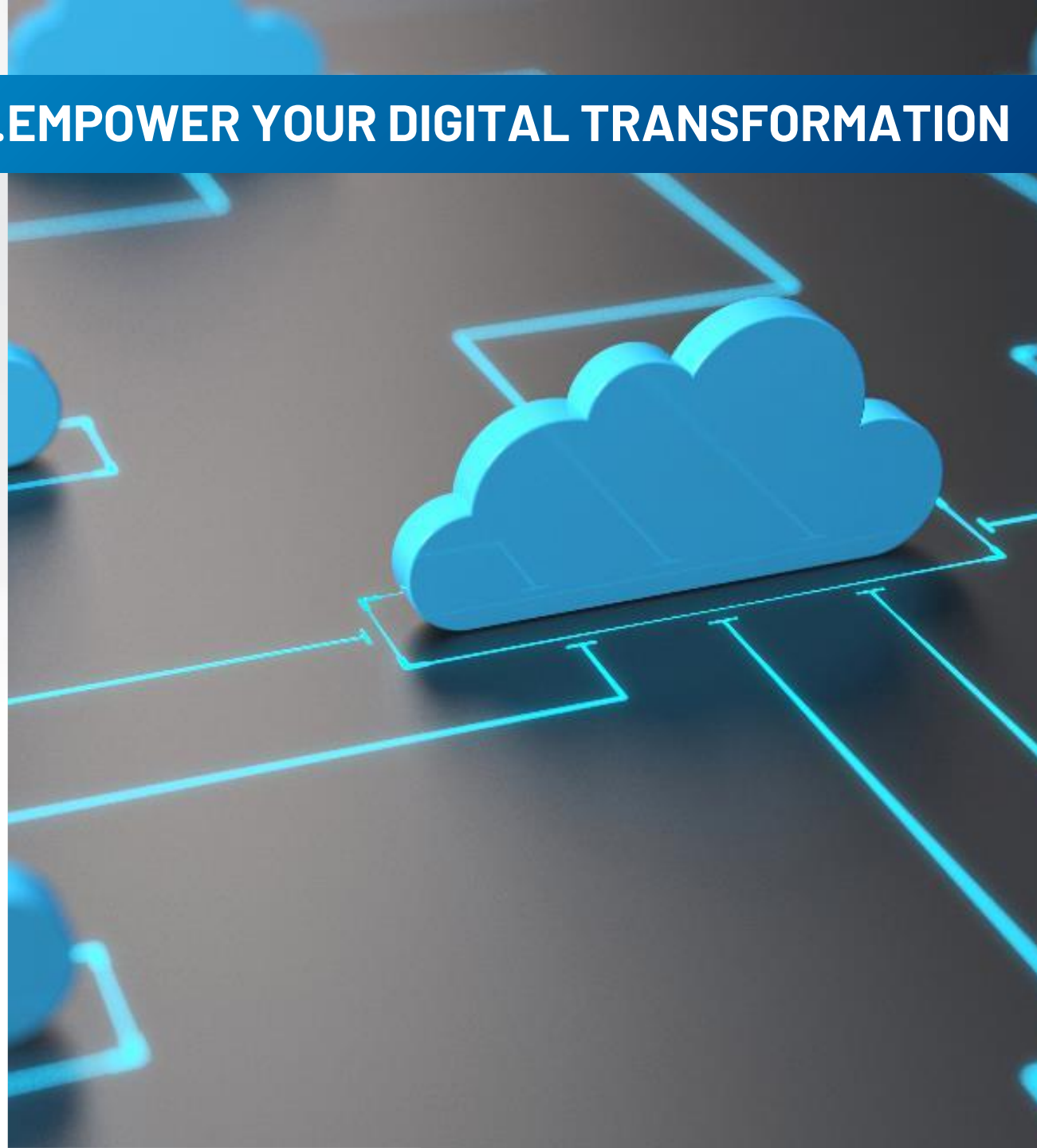
Connect to automation devices, databases, and cloud data stores via open standards (MQTT, OPC UA, Rest APIs, InfluxDB)

Industrial interoperability

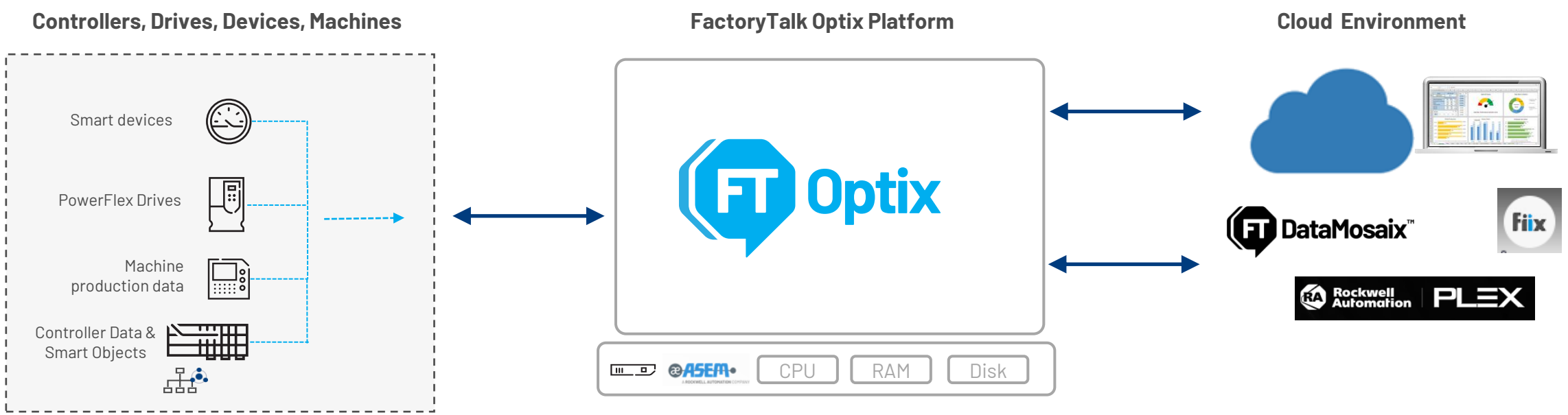
Flexible communications with built-in third-party device drivers and full OPC UA support

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



FactoryTalk Optix Visualization Platform



- Collect important system operation and maintenance data
  - RA and third-party controller connectivity drivers
  - Machine and device connectivity using OPC
  - Direct drive connectivity
- Contextualize the data in a meaningful format for clear analysis
  - Information Model
  - OPC UA companion specifications
  - Logix controller Smart Objects

- Store the data for easy analysis
  - Internal database
  - External database and access
  - Store and Forward
- Visualize and analyze the data in FT Optix
  - Graphics, charts, reports, web pages, alarms …

- Visualize and analyze the data in the cloud
  - Edge to Cloud connectivity
  - Enterprise-wide dashboarding
  - Advanced analytics and reporting
  - Increased insight into operations

A seamless continuum of deployment options

When you're ready to deploy FactoryTalk Optix, pick the optimal platform for performance, functionality and openness

ASEM 6300 Industrial PCs

Use when you need...

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

OptixPanel

Use when you need...

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

Embedded Edge Compute

Use when you need...

High-speed backplane communication with a CLX controller for edge computing

OptixEdge

Use when you need...

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

SCALABLE

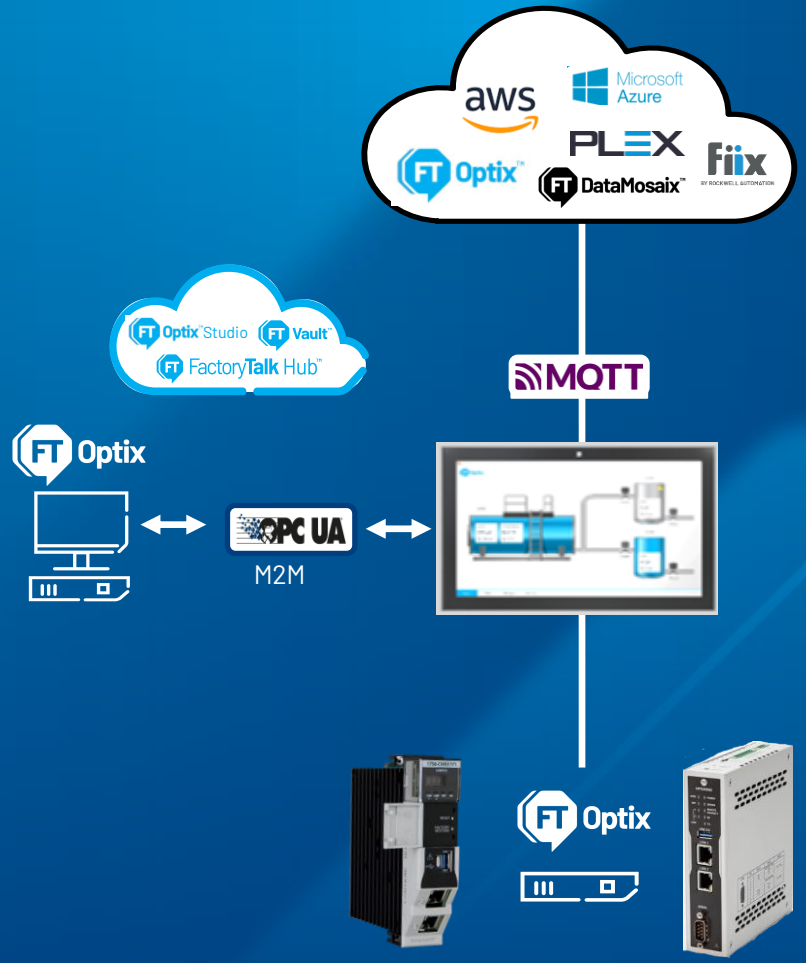
The FactoryTalk® Optix™ Platform

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: LEEC, OptixEdge



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

EVOLVING TO SUPPORT LARGER MULTI-NODE ARCHITECTURES

FT Optix

System monitoring

Scaled performance and high availability. Monitor the status of lines, machines, and devices across the system.

Shared security and user management

Centralized and propagated security permissions to prevent unauthorized access to remote sites

Secure communications

Managing cloud to remote site communications for machine control performance, latency, disconnects

Remote management

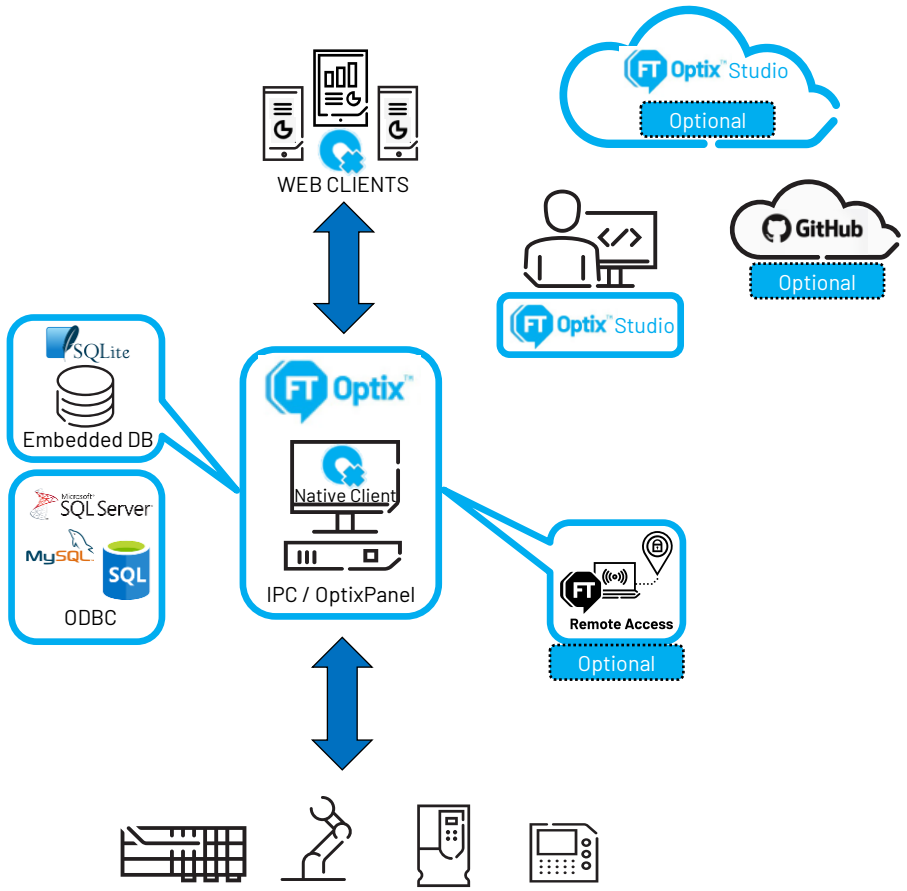
Manage the system topology, update applications and components.

Next-generation capabilities

Co-Pilot design tools, Git branching and merging, MQTT Sparkplug B Edge node

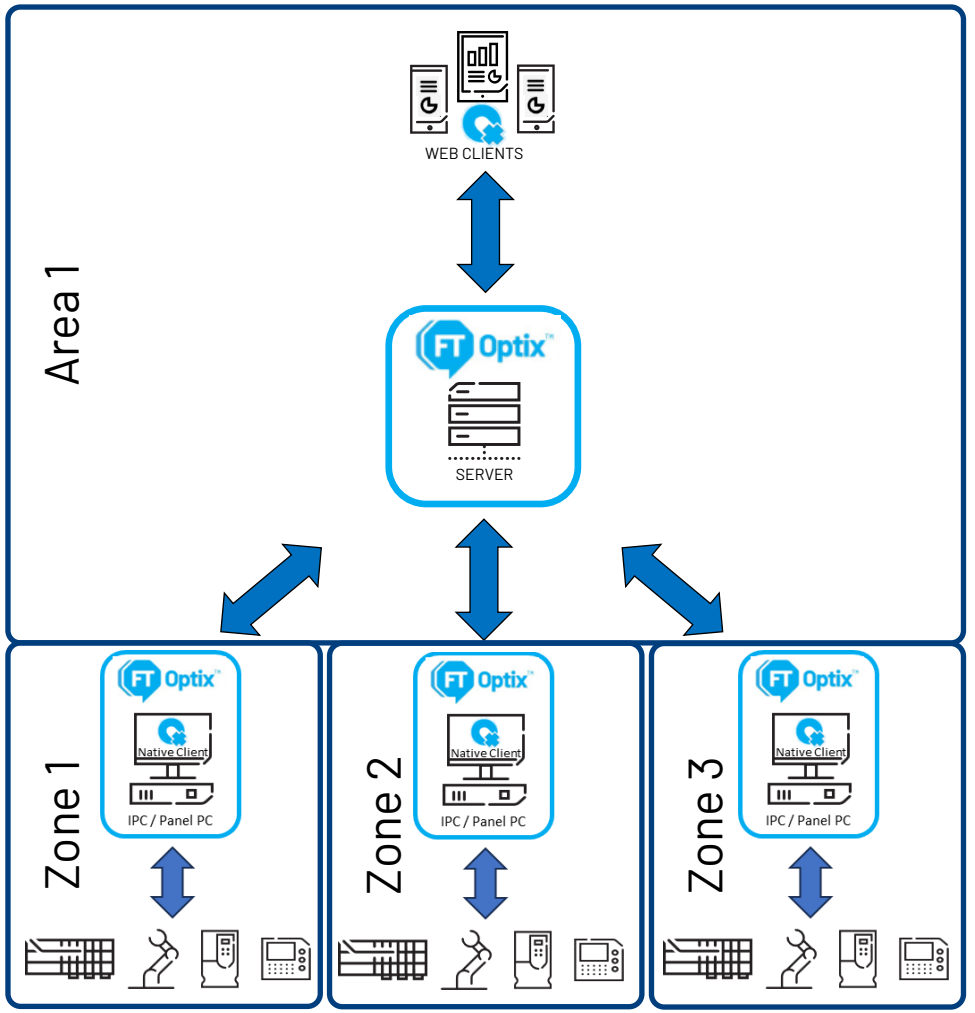
Simplified Current Architecture

Single FactoryTalk Optix Runtime “Node”



Simplified Distributed Architecture

Multiple connected FactoryTalk Optix Runtime “Nodes”



Choose the right hardware for your HMI

Flexible ASEM 6300 options to fit every application

Box PC (6300B-*)

- Rugged, reliable, compact PC platform for industrial applications
- Industry-specific options for hazardous environments
- Includes FactoryTalk Remote Access endpoint to enable remote troubleshooting and maintenance

Panel PC (6300P-*)

- Rugged, all-in-one design that integrates PC with monitor
- Touchscreen for intuitive operation
- Space-saving design eliminates the need for separate components and cables
- Includes FactoryTalk Remote Access endpoint to enable remote troubleshooting and maintenance

Thin Client (6300T-*)

- Improved reliability in harsh environments
- Enhanced security with no local storage of applications, data, or operating systems
- Centralized application management with lower TCO
- Fast replacement when failures occur
- Optimized for use with ThinManager

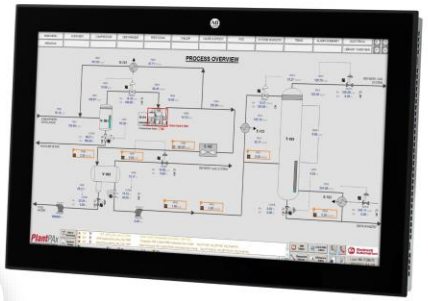
Choose the right platform and follow system sizing guidelines for the specific model for your application

The Rockwell Automation Industrial PC portfolio

Tailored to your unique requirements with over 5 million configurations to choose from

Box PCs and Thin Clients

Panel PCs and Monitors



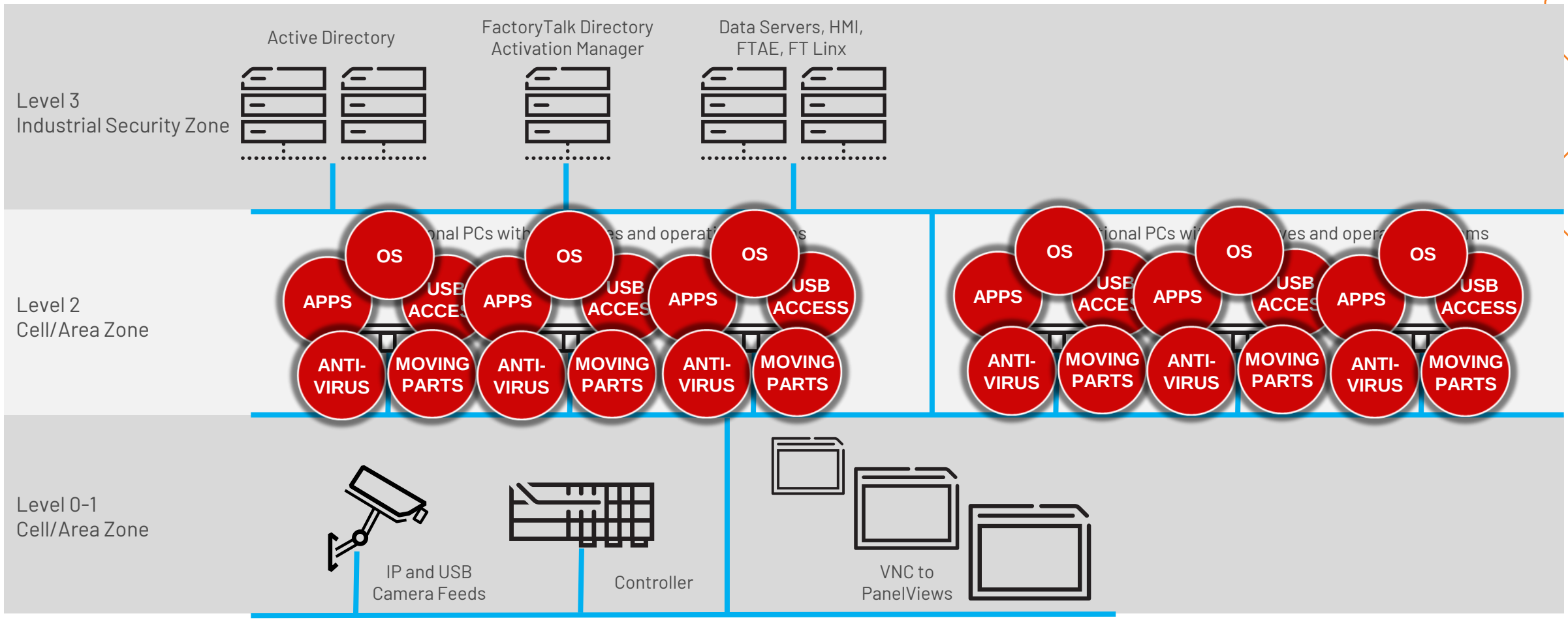
On-Machine PCs and Monitors

Hazardous Location

Value of ThinManager as a centralized management platform

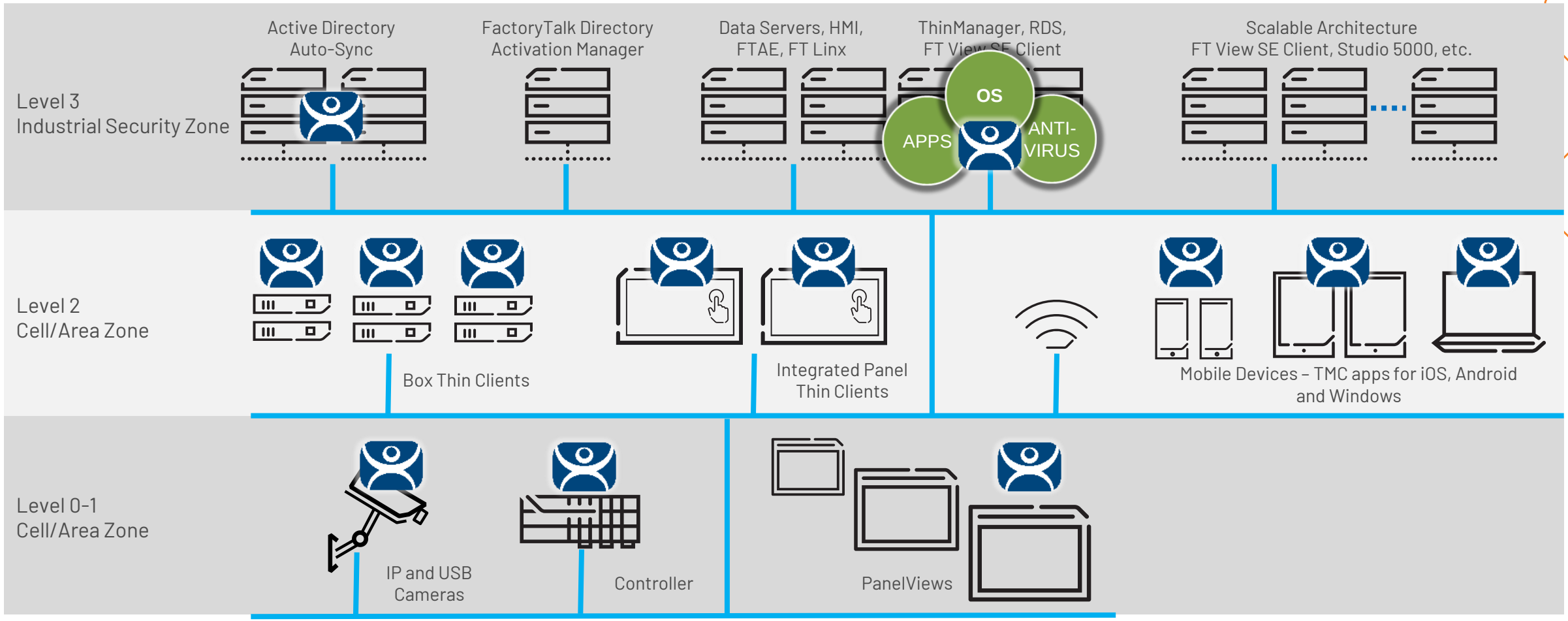
Traditional automation networks waste time and resources

Dedicated PCs with local operating systems and applications compound unplanned downtime and maintenance



Server-client architecture reduces total cost of ownership

Replace PCs running local content with diskless, secure thin clients that are managed centrally



Secure content delivery to every user, device and location

Centrally manage the secure deployment of your industrial applications to devices and users based on their role and/or their location in the facility.

Content Types

- Remote Desktop Server Applications
- VNC Server PanelView™ Plus, PanelView™ 5000
- Terminal Shadow
- Web Content
- IP Cameras USB Cameras

Configuration

THINMANAGER
A ROCKWELL AUTOMATION TECHNOLOGY

Management

Container Images

Hardware

ThinManager provides secure configuration and delivery of content

Delivery

- DEVICES
- USERS
- LOCATIONS
- EVENTS

Managing your HMI centrally and securely

Benefits of ThinManager and FactoryTalk View SE

Security and resiliency

Meet OT expectations while abiding by IT policy

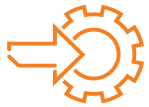
High availability

Reduce maintenance and downtime with continuous visualization

Remote visualization

Enable user access when and where they need

ACCELERATE TRANSFORMATION



OPTIMIZE PRODUCTION

EMPOWER PEOPLE

Security driven by IT implemented by OT

IT

Maintains administrative permissions and ownership responsibilities

- Manage Active Directory policies and procedures and synchronize between systems
- Enable flexible deployment and manage all devices in one place
- Manage administrative access of all visualized content in centralized architecture
- Simplify identity verification with integrated platforms such as OpenID Connect, Azure AD and SSO on-prem

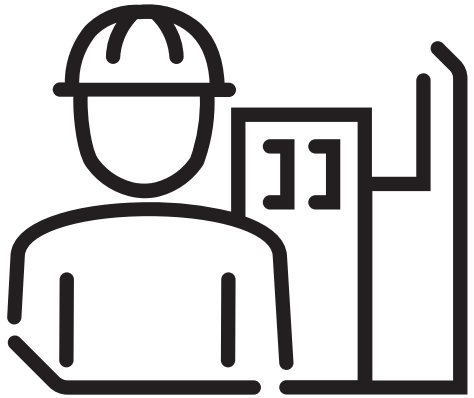
OT

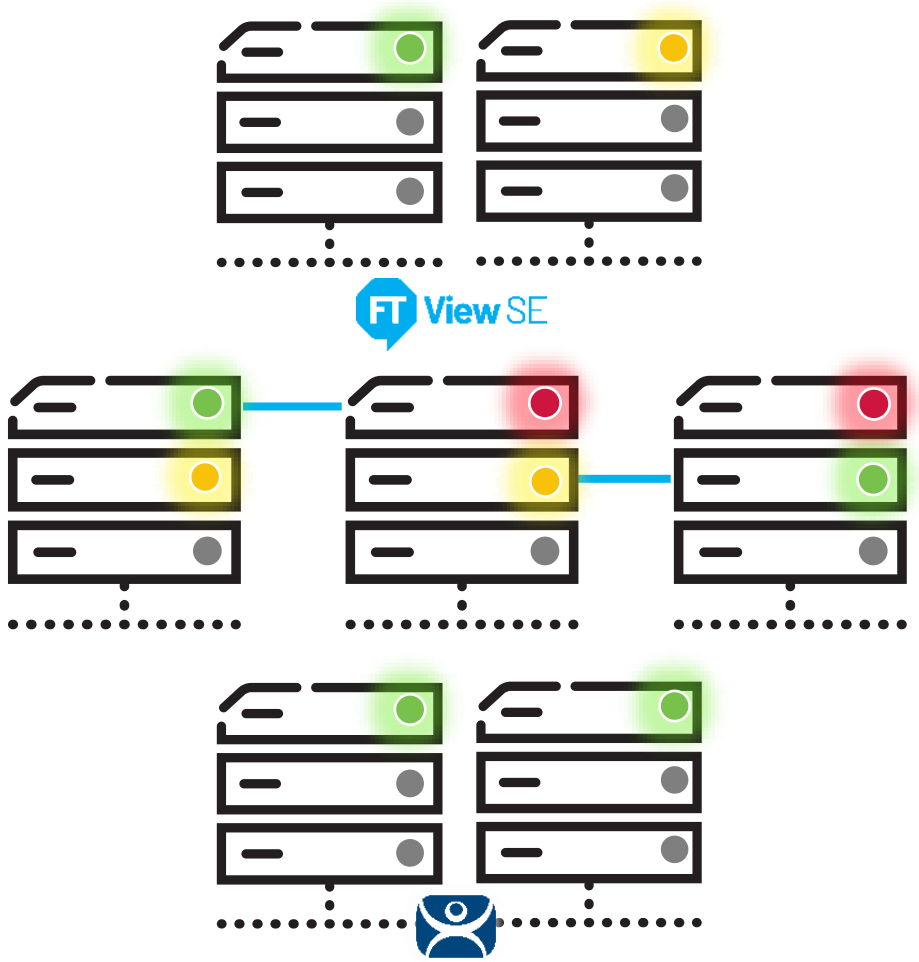
Defines how engineers and operators interact with the system

- Control the actions that a user is allowed to make
- Validate change by requiring approvals and electronic signatures
- Enforce line-of-sight for write access
- Integrate diverse systems with real-time data communication with MQTT
- Improve responsiveness and decision-making with integrated events and contextualized data

Layers of high availability to reduce downtime

Start at the highest level to achieve uptime and continuous availability





Redundant HMI servers

Highly available applications

Constant uptime during server maintenance

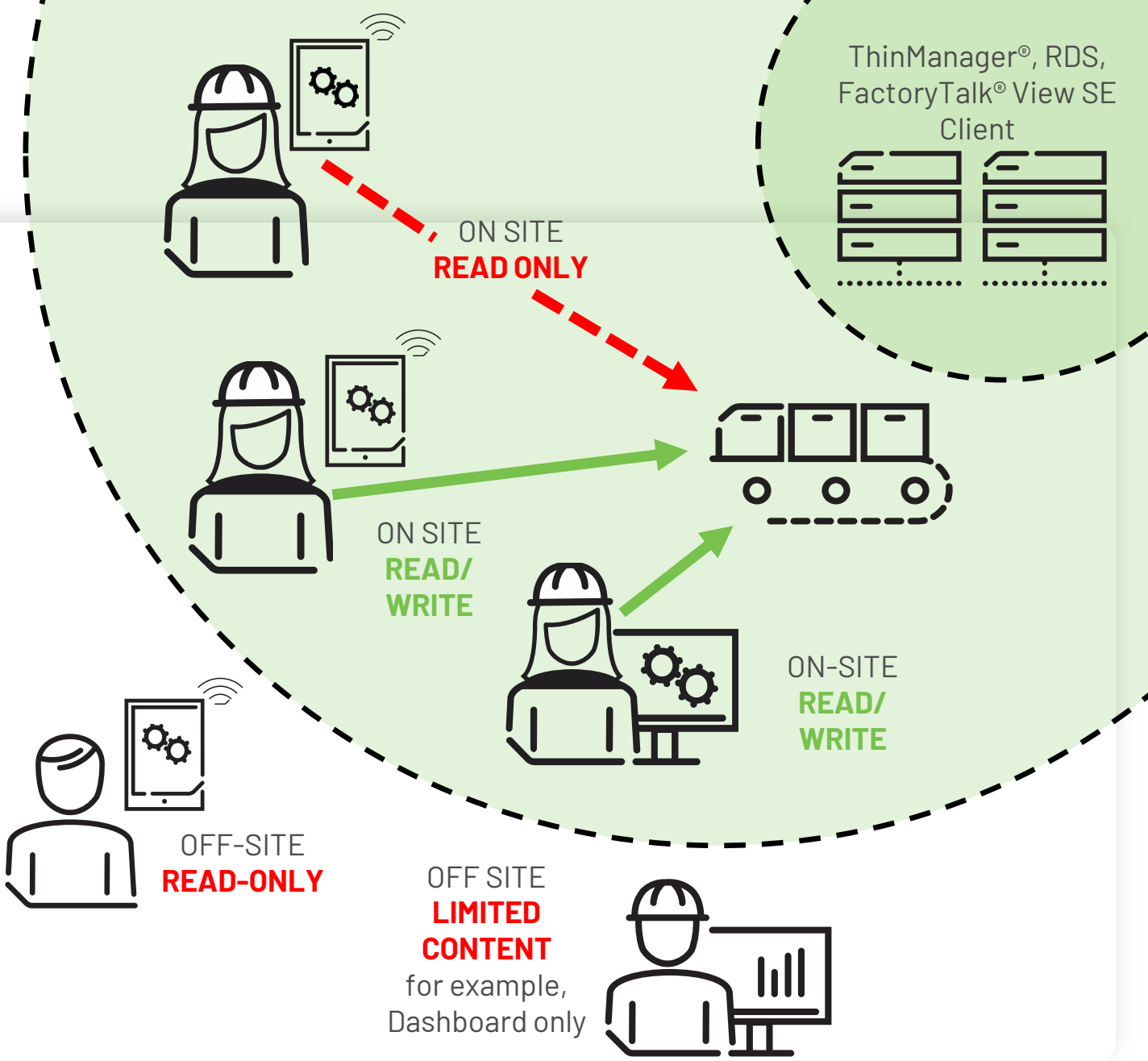
Enable remote visualization

Restrict mobile devices from receiving content outside of authorized locations, enforcing line of sight control

Establish permissions based on user or location to **determine can be seen remotely**

Enable **enterprise-level views** of all visualization devices and **shadow any device** when needed

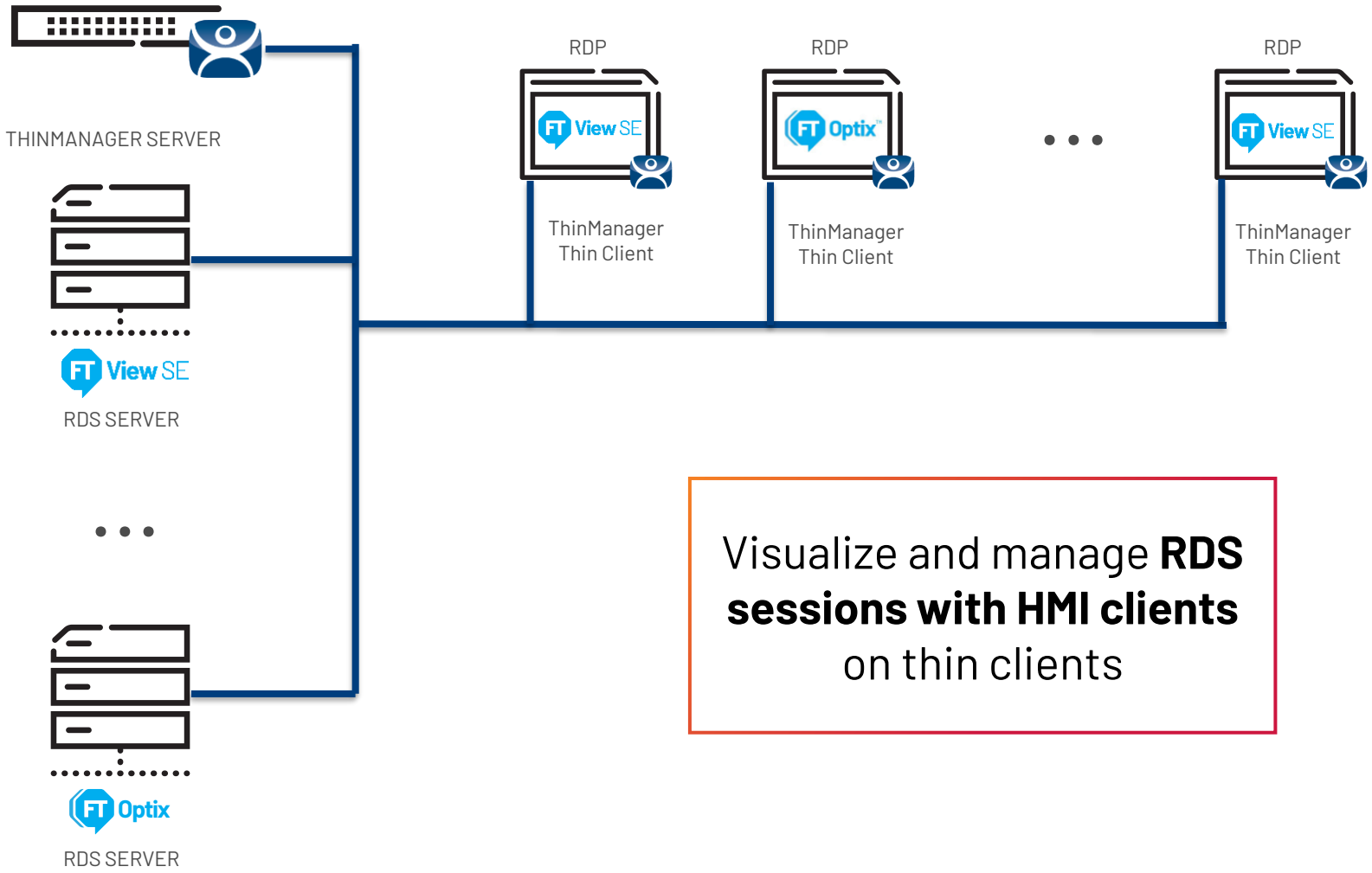
Centrally manage devices without an OS utilizing **ThinManager Ready BIOS-enabled tablets** for mobile visualization



Modern and integrated visualization solutions

Option 1: Managed clients with Remote Desktop Services

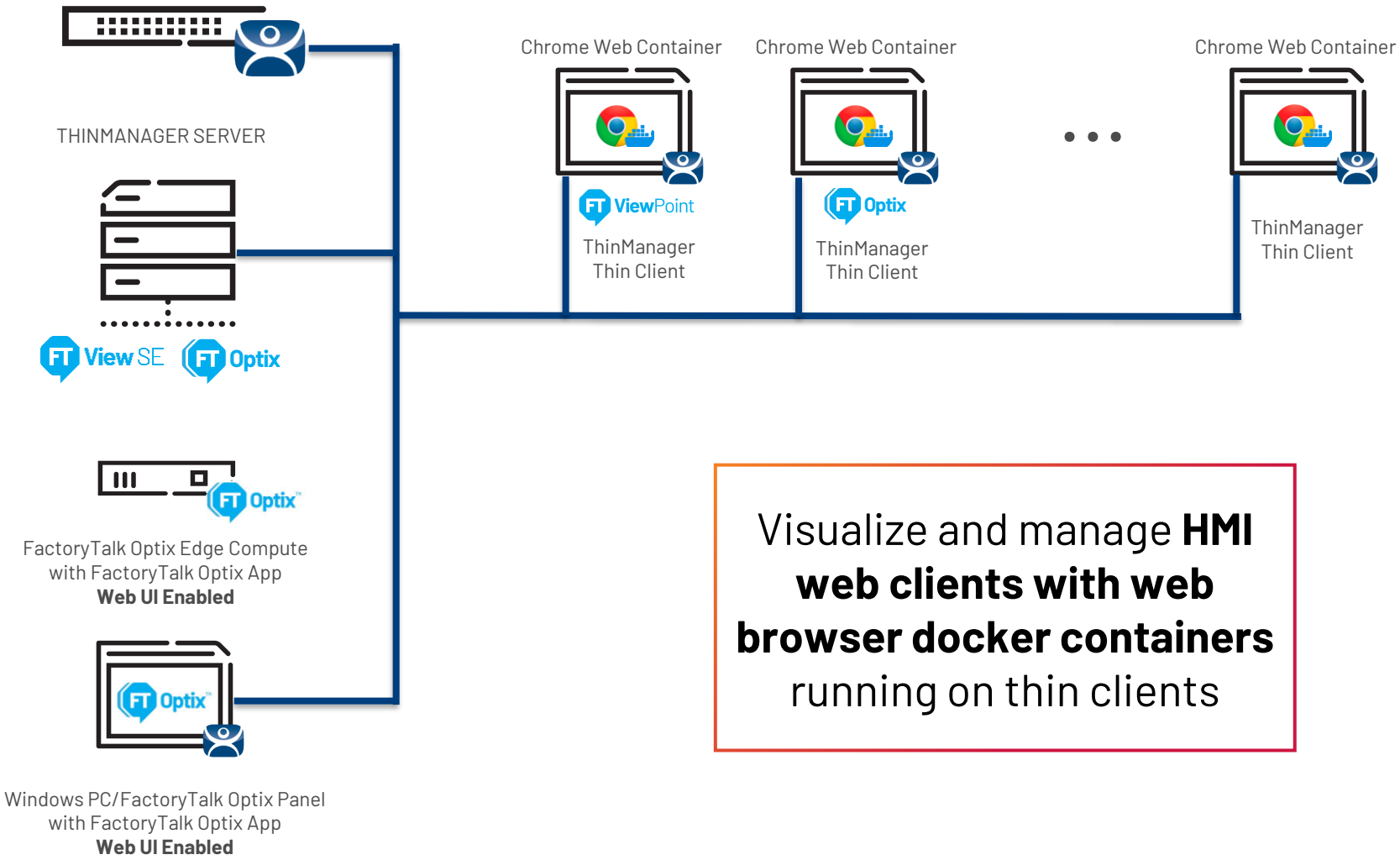
Utilize RDS architecture with HMI servers and ThinManager Display Clients



Visualize and manage **RDS sessions with HMI clients** on thin clients

Option 2: Managed web clients

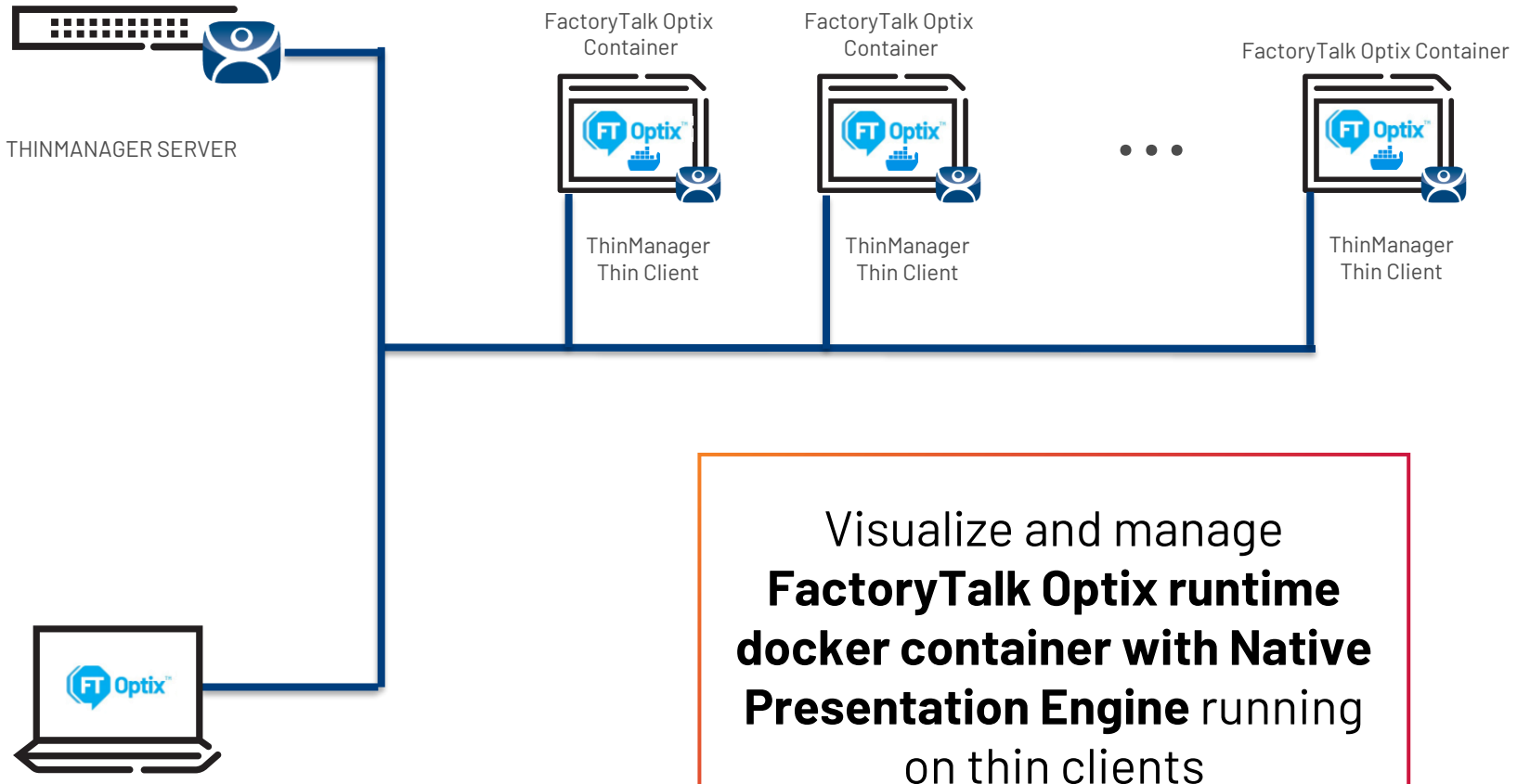
Utilize ThinManager Chrome or Firefox docker container to connect to web-based software



Visualize and manage **HMI web clients with web browser docker containers** running on thin clients

Option 3: Managed runtime containers

Utilize FactoryTalk Optix Native Presentation Engine in ThinManager docker container



Visualize and manage **FactoryTalk Optix runtime docker container with Native Presentation Engine** running on thin clients

Manage devices with ThinManager and ASEM 6300

Preferred ThinManager Ready hardware enhancements

ASEM™ hardware portfolio expansion

6300B-, product families capable of being shipped with **ThinManager® Ready** capabilities

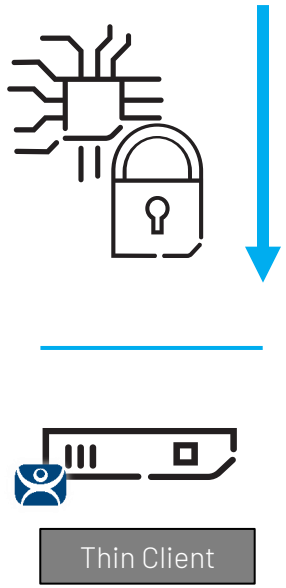
Configure 6300B hardware with **TPM** for preferred security with **ThinManager Version 13.2** and greater (**Device Authentication**)

- Tailor to any manufacturing environment with **industry-specific ratings** and industrial components
- Satisfy any **IT or OT requirement** with customized options such as number of display ports, resolution, mounting options, fan type, etc.
- Customize with the **form factor** needed for your application and environment (Windows OS, ThinManager® OS, or both)

Faster, more secure boot over wide area networks

ThinManager will now default **to boot over HTTPS**, without the need to rely on traditional firmware delivery

Secure boot enabled in the BIOS of ASEM ThinManager Ready hardware



ASEM™ 6300 ThinManager Ready & Secure Boot BIOS

All ASEM™ 6300 IPCs can now be deployed as ThinManager® clients with the new ThinManager Ready BIOS

- BIOS now shipping natively on all ASEM™ IPC products
- Upgrade existing IPCs with BIOS as needed
- Microsoft Secure Boot is also supported

Configure any ASEM™ 6300P panel PC as a thin client with your choice of screen sizes and bezel options

- For the lowest price point configure Celeron processor, No SSD, No OS, 4/8GB RAM

Now any ASEM™ 6300P or ASEM™ 6300B box PC can swap between thick client and thin client operation

Choose the right ThinManager Ready hardware

Evaluate CPU necessary for your applications, SSD needs, Display & USB ports required

Box PC (6300B-*)

Maximize performance & display count

- CPU: Atom, Celeron, i3-i7
- 0 to 2TB SSD
- 4 to 32GB RAM
- 1 to 4 DisplayPorts
- 2 to 5 USB ports

Panel PC (6300P-*)

Save on space & additional hardware

- CPU: Atom, Celeron, i3-i7
- 0 to 2TB SSD
- 4 to 32GB RAM
- 1 Display/DVI Port
- 4 USB ports
- RVL + Multitouch

Thin Client (6300T-*)

Best value & quick replacement

- CPU: Atom, Celeron
- No storage (today)
- 4 to 8GB RAM
- 1 to 4 DisplayPorts
- 2 USB ports

Considerations for choosing what's right

- **CPU** – type of content; size of applications
- **SSD** – cache onto local storage with BootAssist
- **RAM** – docker container performance
- **Display ports** – # external display connections
- **USB ports** – # peripheral devices

Learn more

Learn more...

Learn more about our visualization portfolio and how you can build the right centralized system

Product documentation

Technical Documentation Center

ThinManager Manuals and Guides

Rockwell Automation Knowledgebase

Rockwell Automation Literature Library

Webinars

ThinManager + Optix webinar

ThinManager webinars

Maximize your HMI Potential webinar series

Whitepapers and videos

ThinManager white papers

ThinManager YouTube

FactoryTalk View SE YouTube

FactoryTalk Optix YouTube

Blogs and podcasts

Rockwell Automation blogs

Introduction to Containerization blog series

The Plant podcast

Webpages

ThinManager

FactoryTalk View SE

FactoryTalk Optix

Optix Portfolio

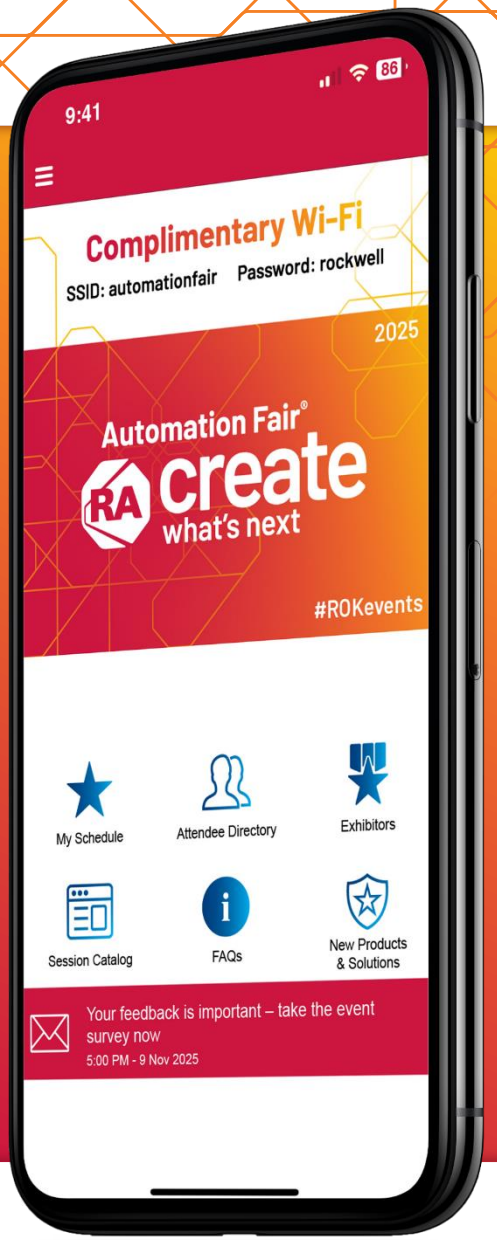
Case Studies

Engage Online Community

share your

Feedback

- Download the **Events ROK App**
- Select **Automation Fair 2025** and sign in
- Select **Session Catalog** and the session you are attending
- On the **survey tab**, fill out the survey and submit



THANK YOU

Rockwell Automation

expanding human possibility®

www.rockwellautomation.com