Online Events
Register to receive a calendar invite

THE REYNOLDS COMPANY
ELECTRICAL SUPPLY

TECH TALK

- **E300 Electronic Overload**
  Wed, October 27, 2021, 10am
- **Automation Fair Preview**
  Wed, November 3, 2021. 10am

USER GROUP

- **Introduction to Factorytalk Logix Echo Emulation** Wed, October 20, 2021 @ 10am

YouTube

TRC Talks
a podcast on industrial automation

reynoldsonline.com

Rockwell Automation

PLAN TO ATTEND

NOV 10-11, 2021 • HOUSTON, TEXAS

Automation Fair®

We are excited to welcome you back to Automation Fair in person!

This year's Automation Fair will feature everything you love from engaging keynote presentations to interactive hands-on labs and technical sessions to industry-centric panel discussions, and our signature exciting show floor showcasing the latest innovations and solutions from Rockwell Automation and members of our PartnerNetwork™.

Your health and safety are our priority and we are working hard to create the safest in-person experience possible. What is certain is that whether you join us in person or virtually, you'll experience the value and power of our IT/OT expertise and have more opportunities than ever before to network with innovation experts, company executives, thought leaders and peers in your field.

https://www.reynoldsonline.com/automationfair

Our Guest Panelists

David Nute
Automation Specialist
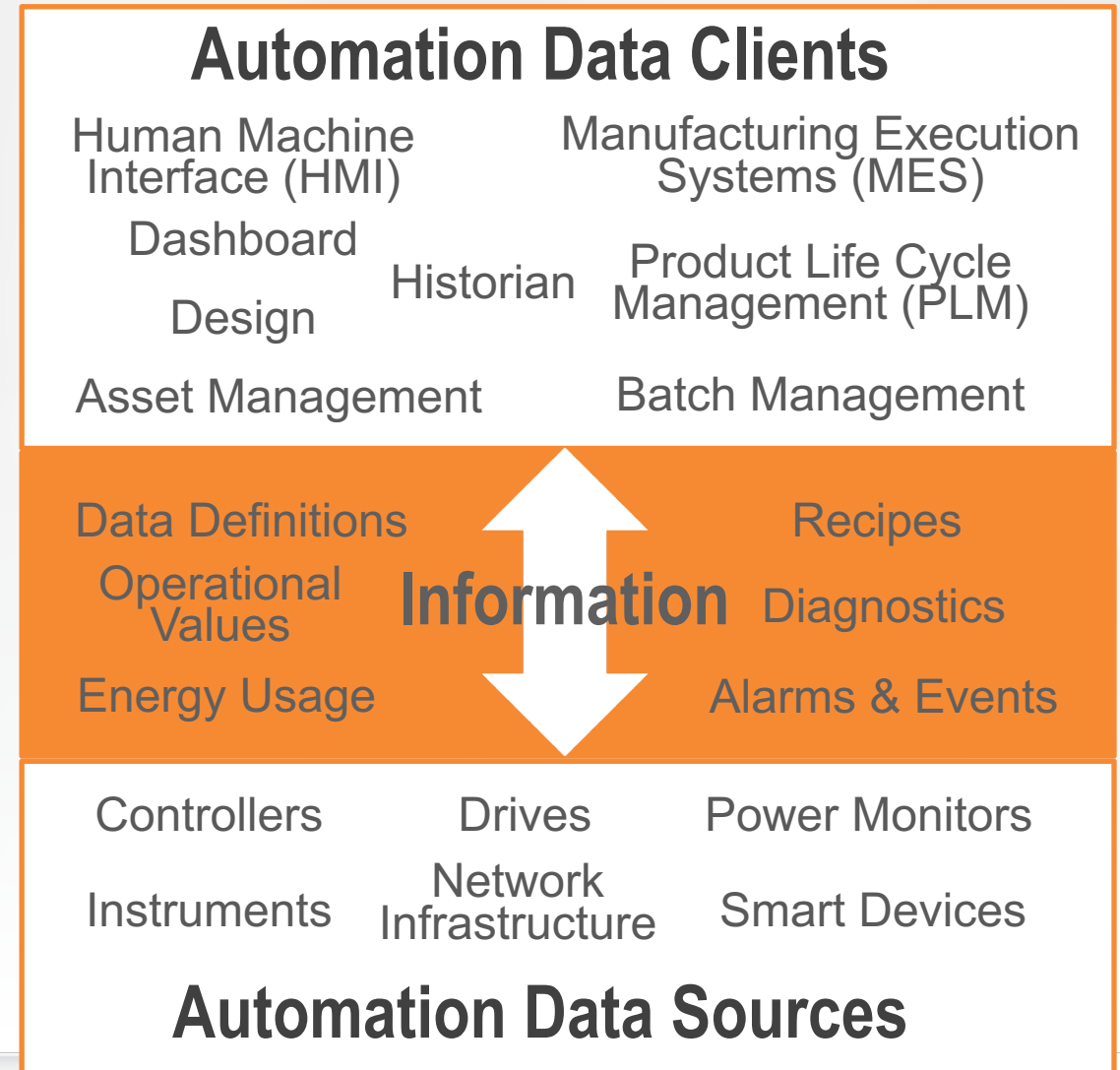**The Reynolds Company-Houston**

Mike Masterson
Automation Specialist
The Reynolds Company-Houston

Automation System Communications

Multiple forms of information in an automation system

FactoryTalk Linx communicates with many types of devices to delivery multiple forms of information to many types of software

- There are many data sources in an automation system delivering multiple types of information

- There are many clients that need access to information to perform their role in the system

- The FactoryTalk® software portfolio provides a range of offerings the help give clients access to information in automation data sources

Automation Data Clients

Human Machine Interface (HMI)　　Manufacturing Execution Systems (MES)

Dashboard

Historian　　Product Life Cycle Management (PLM)

Design

Asset Management　　Batch Management

Data Definitions　　　　Recipes

Operational Values　　**Information**　　Diagnostics

Energy Usage　　　　Alarms & Events

Controllers　　Drives　　Power Monitors

Instruments　　Network Infrastructure　　Smart Devices

Automation Data Sources

Enabling the Connected Enterprise

FactoryTalk® Linx™

Highest capacity and performance
Logix data server for Rockwell Automation software
(delivered with FactoryTalk® Service Platform)
(Formerly RSLinx® Enterprise)

FactoryTalk® Linx™
OPC UA CONNECTOR

Provides connectivity to third-party OPC UA Servers for FactoryTalk® Software
(delivered with FactoryTalk® Service Platform)

FactoryTalk® Linx™ Gateway

Delivers data from FactoryTalk® Linx to third-party software via OPC-DA and UA
(Formerly FactoryTalk® Gateway)

RSLinx® Classic

Provides OPC-DA access for third-party software, with best support for legacy control equipment

FactoryTalk® Live Data

Provides global namespace with tag browsing and delivers data to FactoryTalk Software
(delivered with FactoryTalk Service Platform)

FactoryTalk® Linx™ Data Bridge

Moves data from one system data source to another across FactoryTalk® Live Data
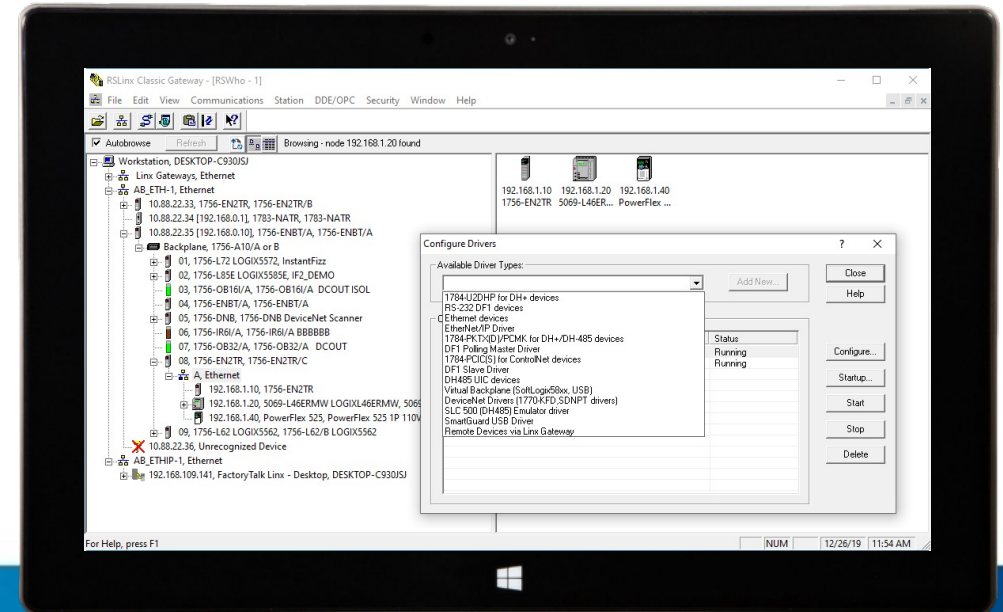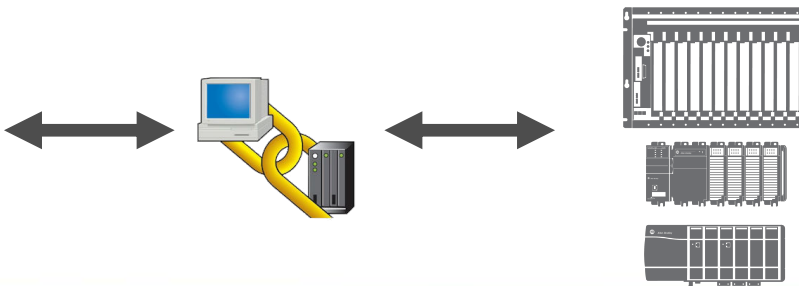(Bundled with FactoryTalk Linx Gateway Professional)

FactoryTalk® Linx™ CommDTM

Communications service for asset management of EtherNet/IP process devices

KEPServer Enterprise

Enables FactoryTalk software to access data from third-party control equipment

FactoryTalk® Service Platform

Rockwell Automation

RSLinx® Classic

Overview

- Data acquisition for Allen-Bradley® control hardware (controllers and devices)
- Network browser and device commissioning capabilities
- Ideal for legacy configurations and smaller systems
- Active Mature status (migrating capabilities to FactoryTalk® Linx)
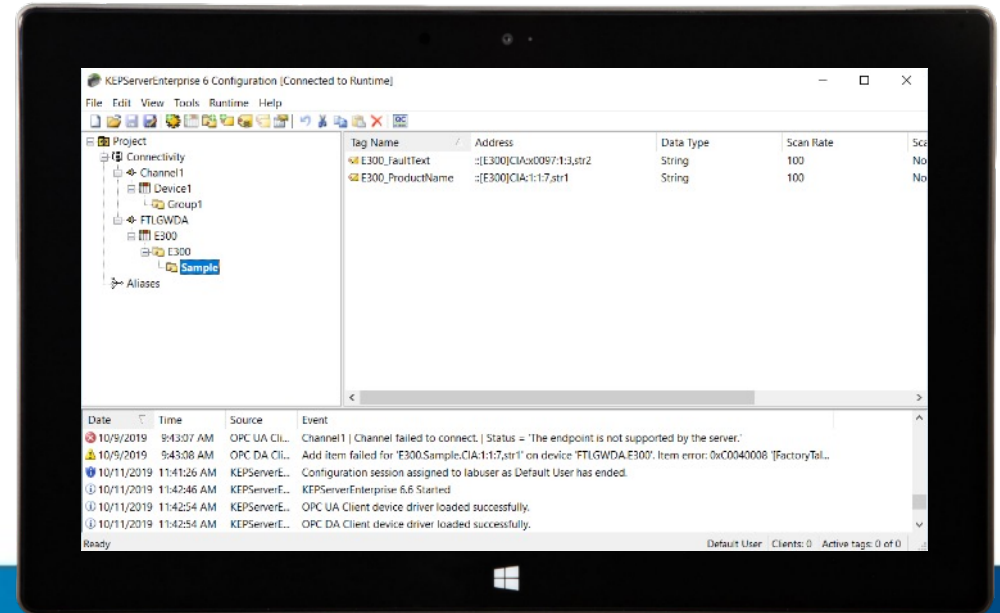
Software Acquisition

- Lite edition included with most Rockwell Automation software
- Purchase for OPC DA / DDE data access

Catalog #	Nodes	Clients
9355-WABSNENE	1	Local
9355-WABOEMENE	Many	Local
9355-WABGWENE	Many	Remote

Connectivity

- OPC DA and DDE Server
- Gateway supports remote workstation browsing / communications bridging
- Wide range of drivers (DH+, Serial DF1, ControlNet, DeviceNet, EtherNet/IP)
- Alias topics / redundant paths

Rockwell Automation

KEPServer Enterprise

Data Server

- Enables FactoryTalk® software to access third-party hardware and protocols
- Delivers data to FactoryTalk® software via OPC-DA and UA
- Includes a ThingWorx interface

Software Acquisition

- Included in PanelView™ Plus
- To be added to MobileView™
- For Window's PC purchase 9301-OPCSRVENE
- Supported by Rockwell Automation

Connectivity

- Supports most drivers included in Kepware's KepserverEX Manufacturing Suite (excludes Allen-Bradley® drivers)
- Uses FactoryTalk® Linx to access Allen-Bradley® hardware

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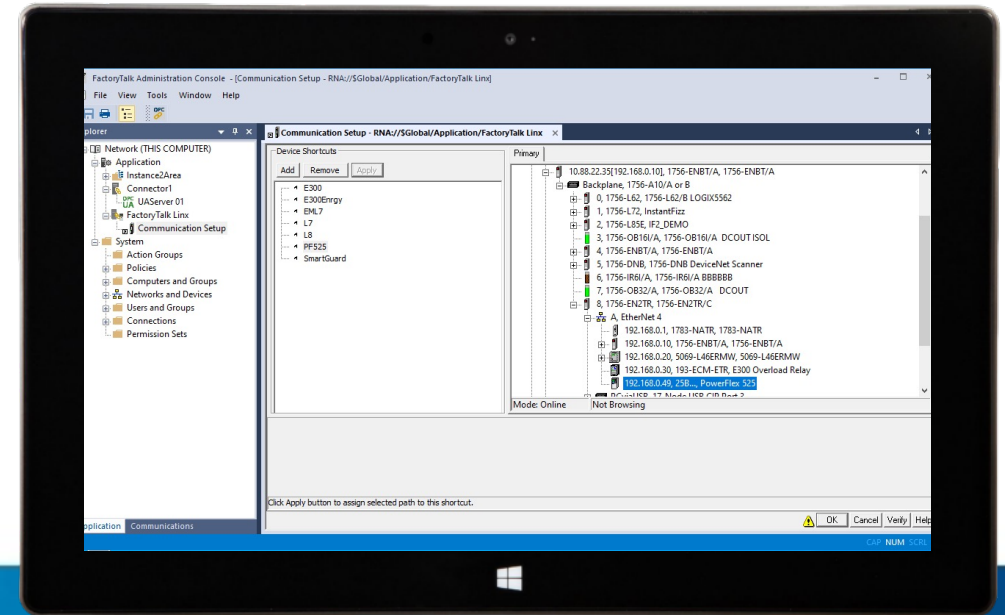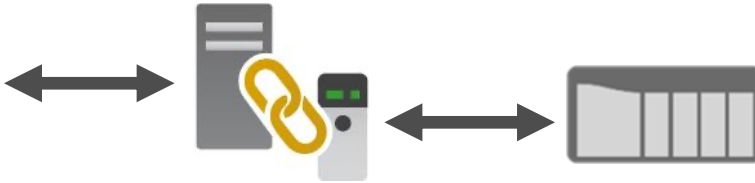
FactoryTalk® Linx

Data Server

- Network browser and device commissioning capabilities

- Data acquisition for Allen-Bradley® control hardware (controllers and devices)

- Used by FactoryTalk® software to access Logix alarms and extended tag properties

Software Acquisition

- Included with most FactoryTalk® software

- Coexist on workstation with other FactoryTalk® software

- FactoryTalk® Linx Gateway purchase separately to use data with OPC-DA/UA clients

Connectivity

- High performance / capacity Logix data delivery

- Dual instances on a single workstation

- Redundant / high availability data servers

- Optimized for operation with ControlLogix® redundancy

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FactoryTalk® Linx Overview

Designed for Logix

- Most efficient method to obtain Logix data
- Shares data with multiple software clients to minimize impact on the system (network and controllers)

Ubiquitous access to tag definitions

- Automatically distributes Logix Tag definitions and changes across FactoryTalk®
- Supports both off-line and on-line design methods
- Logix Extended Tag properties and device CIP Energy information
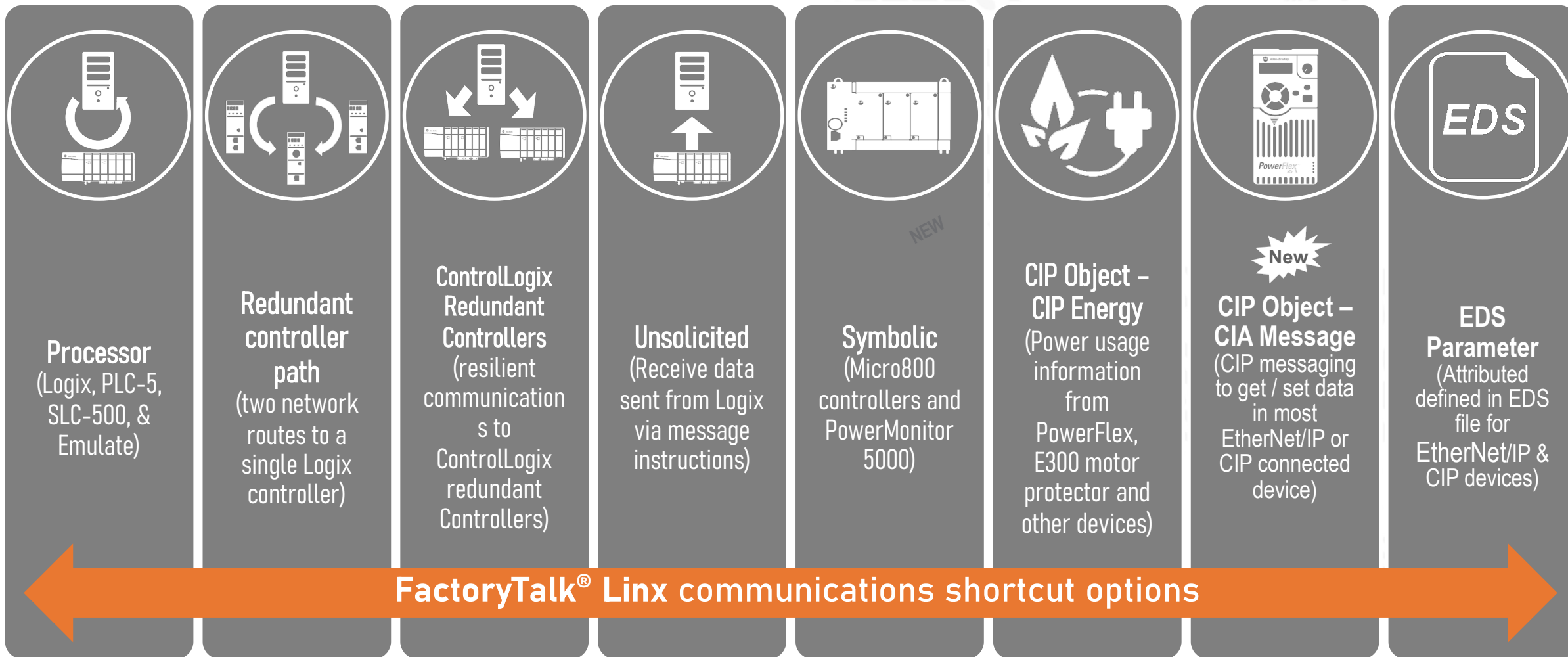
Scaling without compromise

- Add additional servers as needed without adding duplicate controller data requests
- Redundant data servers switch in seconds to keep information flowing

Included Free

- Delivered with Rockwell Software FactoryTalk products
- Embedded in PanelView® Plus and MobileView®
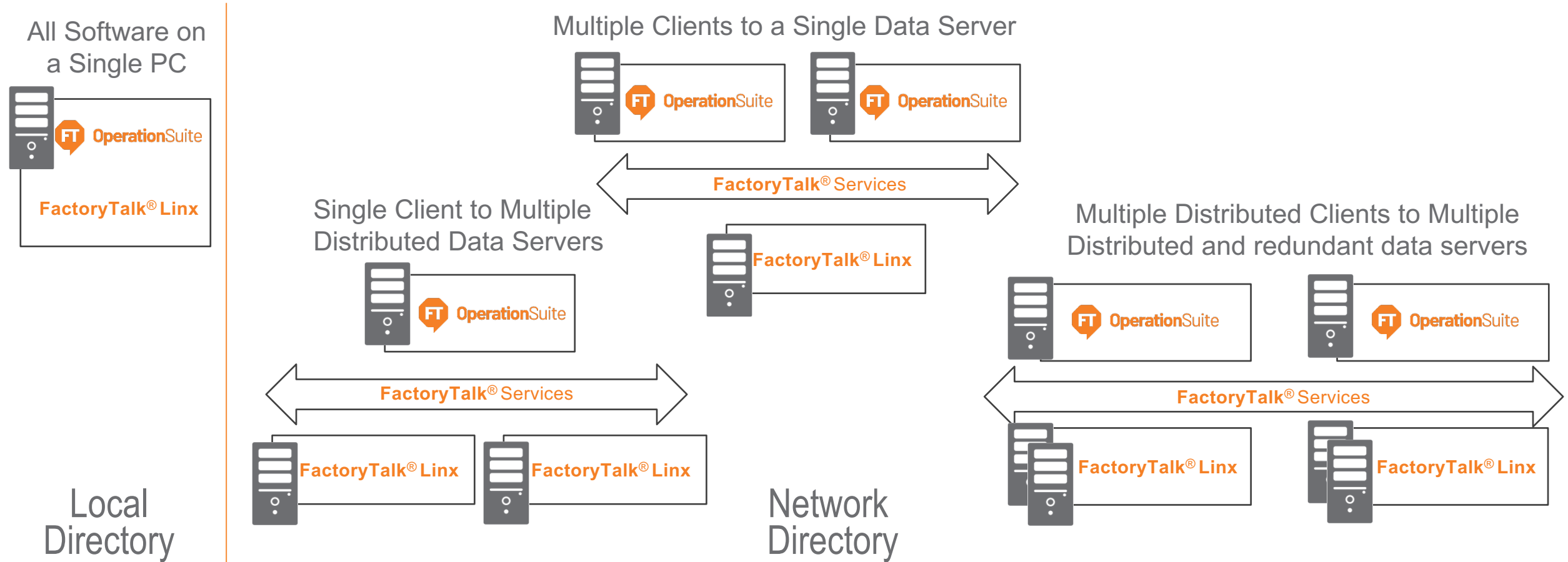- Purchasable Gateway option for third-party OPC DA/UA clients

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FactoryTalk® Linx

Available Data Sources

Processor
(Logix, PLC-5, SLC-500, & Emulate)

Redundant controller path
(two network routes to a single Logix controller)

ControlLogix Redundant Controllers
(resilient communications to ControlLogix redundant Controllers)

Unsolicited
(Receive data sent from Logix via message instructions)

Symbolic
(Micro800 controllers and PowerMonitor 5000)

CIP Object – CIP Energy
(Power usage information from PowerFlex, E300 motor protector and other devices)

New

CIP Object – CIA Message
(CIP messaging to get / set data in most EtherNet/IP or CIP connected device)

EDS Parameter
(Attributed defined in EDS file for EtherNet/IP & CIP devices)

FactoryTalk® Linx communications shortcut options

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Serving Data to FactoryTalk® Operation Suite
FactoryTalk® Linx flexible architecture

All Software on
a Single PC

OperationSuite

FactoryTalk® Linx

Multiple Clients to a Single Data Server

OperationSuite   **OperationSuite**

FactoryTalk® Services

Single Client to Multiple
Distributed Data Servers

OperationSuite

FactoryTalk® Linx

Multiple Distributed Clients to Multiple
Distributed and redundant data servers

OperationSuite   **OperationSuite**

FactoryTalk® Services

FactoryTalk® Services

FactoryTalk® Linx   **FactoryTalk® Linx**

FactoryTalk® Linx   **FactoryTalk® Linx**

Local
Directory

Network
Directory

Scalable solution from small to large and redundant system configurations

Rockwell
Automation

FactoryTalk® Linx
OPC UA Connector

FT **Operation**Suite ⟷ OPC UA ⟷ Third-party Hardware / Software (e.g. KEP Server Enterprise)
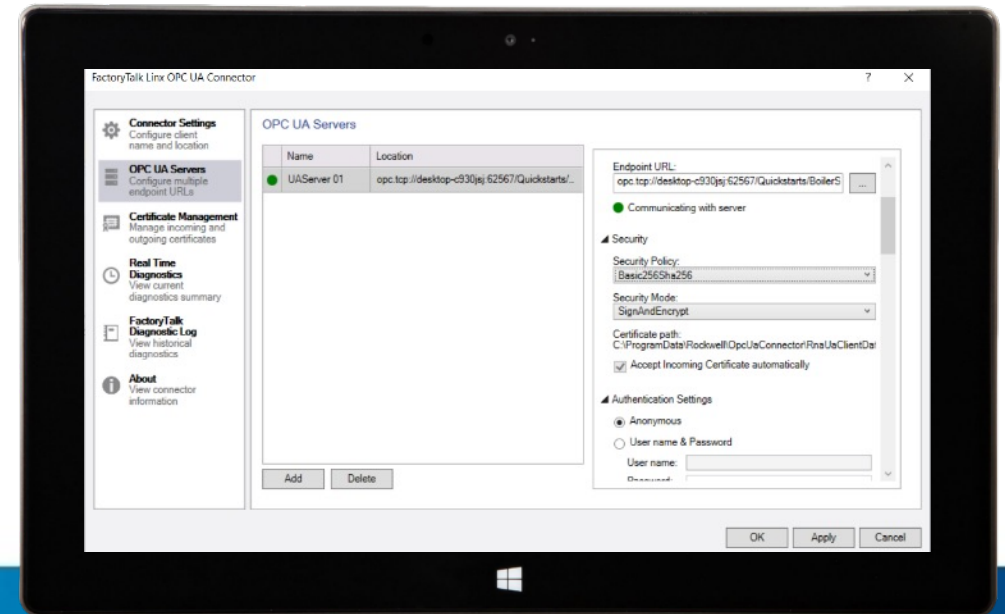
OPC UA Client

- Interface with up to 20 third-party OPC Servers from a single workstation (200 max)

- Supports UID/PW authentication and certificate-based encryption

- Redundant high availability planned for v6.20

Software Acquisition

- Included with most FactoryTalk® software (nothing extra to purchase)

- Coexist on workstation with other FactoryTalk® software
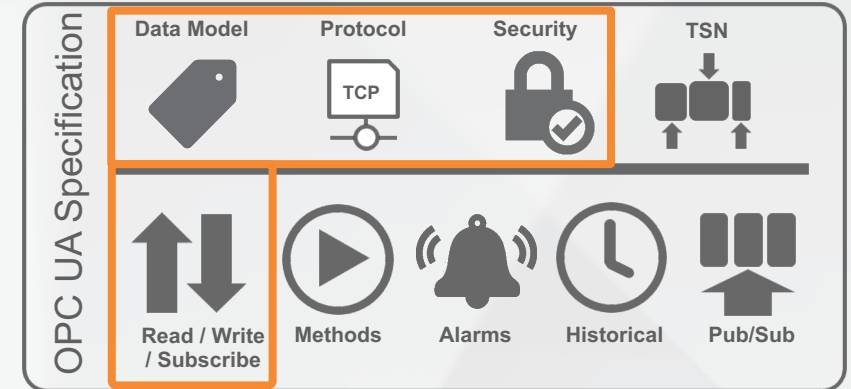
Data Access

- Enables browsing of OPC UA Server namespace from FactoryTalk® software

- Initially limited to scalar tags, v6.11 added array access

- Interface to KEPServer Enterprise to access third-party protocols

Rockwell Automation

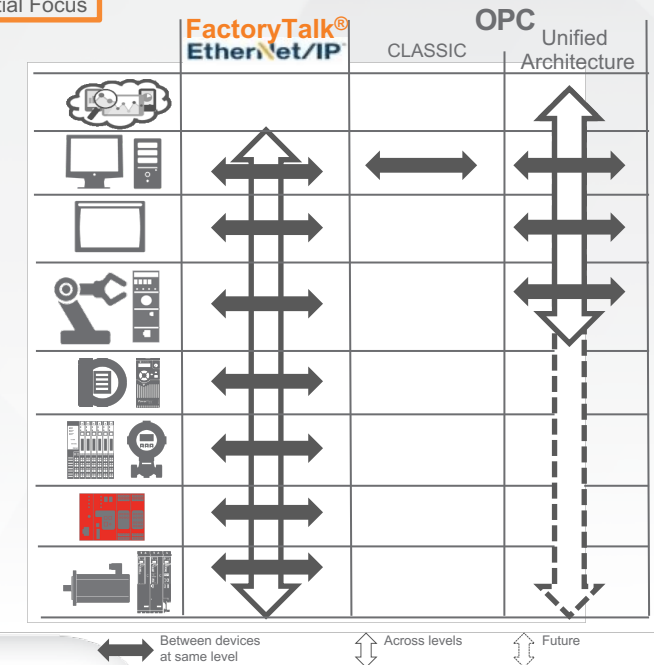# OPC Unified Architecture (UA) Introduction

Technology Overview

Robust and evolving capabilities to enabling automation system components to share information

- Released in 2006

- OPC UA provides open communications for industrial automation

- Improved security, capacity, performance and stability over OPC DA / Classic

- Scalable / multi-platform and internet capable (uses TCP vs DCOM in Classic OPC DA)

- Microsoft using UA Data Model with Azure and embedding stack in Universal Windows Platform

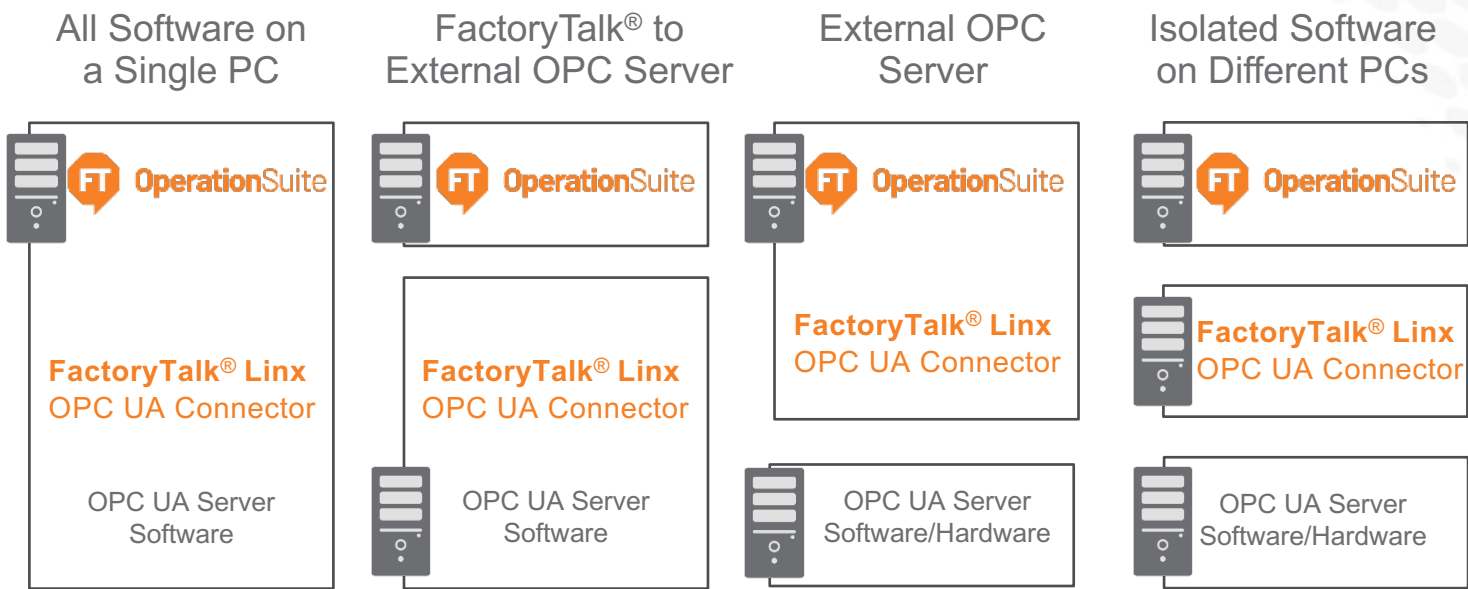- In 2018 Field Level Communications (FLC) initiative started to expand lower into control systems

OPC UA Specification

| Data Model | Protocol | Security | TSN |

| Read / Write / Subscribe | Methods | Alarms | Historical | Pub/Sub |

*RA Initial Focus

FactoryTalk® EthernetIP — OPC CLASSIC — OPC Unified Architecture

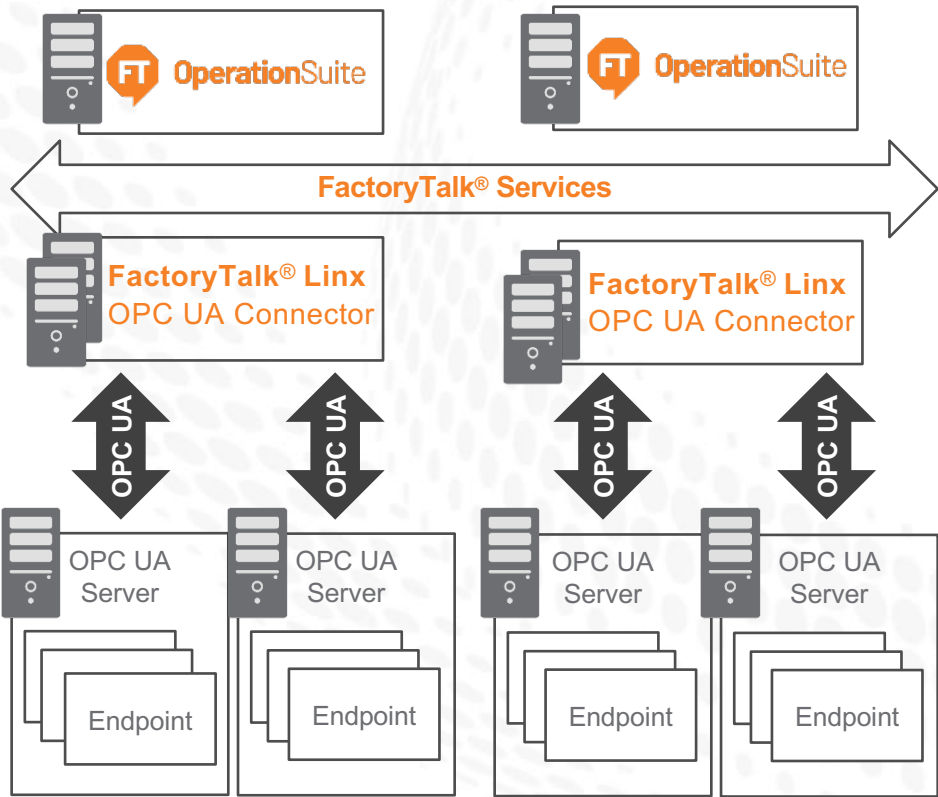Between devices at same level | Across levels | Future

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Connecting FactoryTalk® Software to OPC UA Servers

The FactoryTalk® Linx OPC UA Connector provides access to information from third-party hardware or software

All Software on a Single PC

OperationSuite

FactoryTalk® Linx
OPC UA Connector

OPC UA Server Software

FactoryTalk® to External OPC Server

OperationSuite

FactoryTalk® Linx
OPC UA Connector

OPC UA Server Software

External OPC Server

OperationSuite

FactoryTalk® Linx
OPC UA Connector

OPC UA Server Software/Hardware

Isolated Software on Different PCs

OperationSuite

FactoryTalk® Linx
OPC UA Connector

OPC UA Server Software/Hardware

OperationSuite

OperationSuite

FactoryTalk® Services

FactoryTalk® Linx
OPC UA Connector

FactoryTalk® Linx
OPC UA Connector

OPC UA

OPC UA

OPC UA

OPC UA

OPC UA Server

OPC UA Server

OPC UA Server

OPC UA Server

Endpoint

Endpoint

Endpoint

Endpoint

Scalable solution for multiple system configurations

Distribute connectors for larger configurations

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FactoryTalk® Linx Gateway
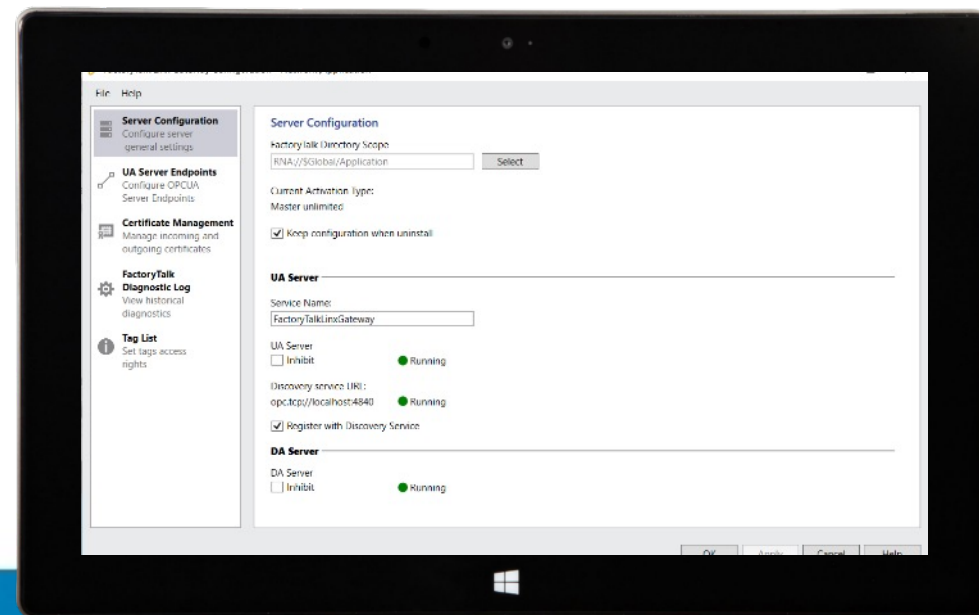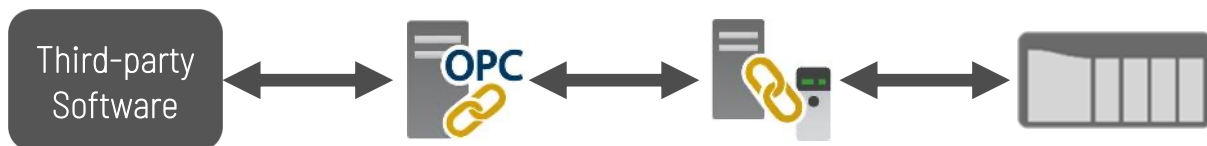
OPC Connectivity

- Provides both OPC Classic DA and UA connectivity
- Options for client authentication with FactoryTalk® Security and certificate-based encryption

Scalable Offering

- Purchased bases on tag capacity, data source location and other included software
- 1K, 5K, 32K, non-limited, local / networked, FactoryTalk® Linx Data Bridge

Data Access

- Uses FactoryTalk® Linx, the OPC-DA interface and FactoryTalk® Linx OPC UA Connector to access system data
- Namespace browsing
- Share data with other FactoryTalk® Software
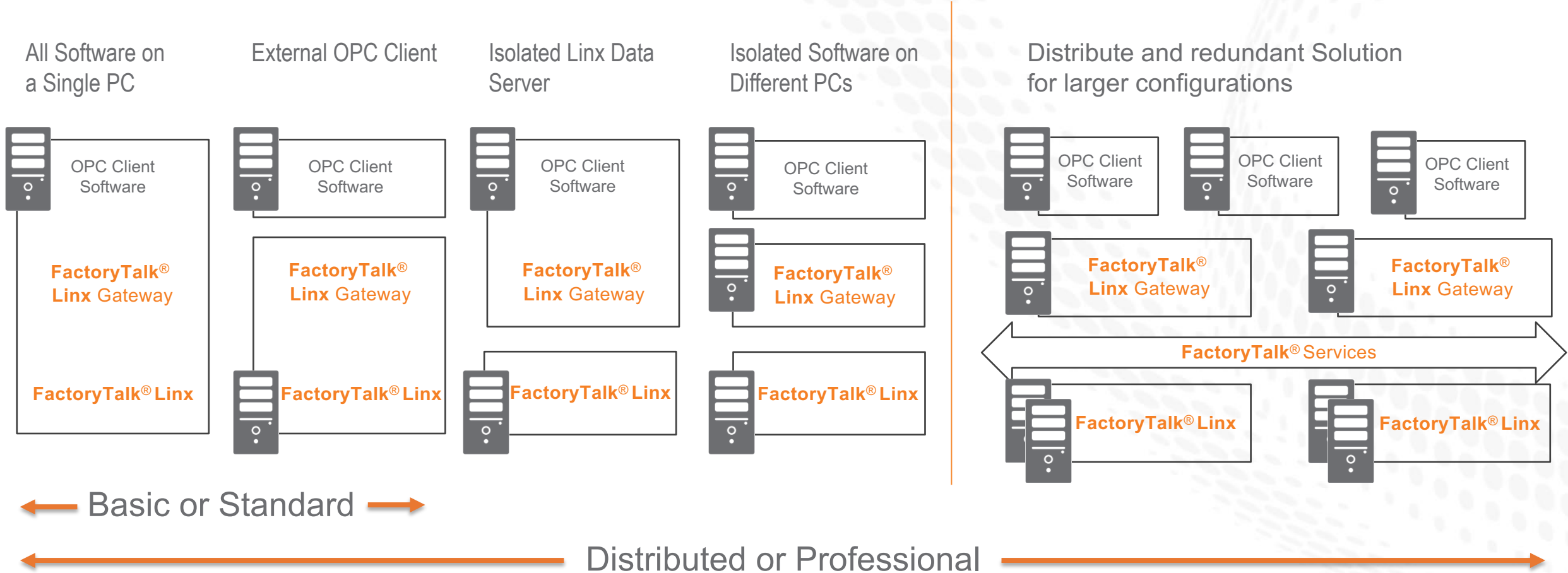
FactoryTalk® Linx Gateway
Where does it fit?

Data usage	Third-party OPC Connected Software		
	HMI	MES	Analytics
Volume	High	Low	Moderate
Speed	Fast	Moderate	Slow
Sources	Moderate	Moderate	High

FactoryTalk® Linx Gateway

Access method	FactoryTalk® Linx	OPC DA / UA

Data sources	Allen-Bradley by ROCKWELL AUTOMATION	Third-Party Hardware	Third-Party Data Severs

Rockwell Automation

Serving Data to External OPC Clients

FactoryTalk® Linx Gateway

All Software on a Single PC	External OPC Client	Isolated Linx Data Server	Isolated Software on Different PCs	Distribute and redundant Solution for larger configurations

All Software on a Single PC

OPC Client Software

FactoryTalk® Linx Gateway

FactoryTalk® Linx

External OPC Client

OPC Client Software

FactoryTalk® Linx Gateway

FactoryTalk® Linx

Isolated Linx Data Server

OPC Client Software

FactoryTalk® Linx Gateway

FactoryTalk® Linx

Isolated Software on Different PCs

OPC Client Software

FactoryTalk® Linx Gateway

FactoryTalk® Linx

Distribute and redundant Solution for larger configurations

OPC Client Software

OPC Client Software

OPC Client Software

FactoryTalk® Linx Gateway

FactoryTalk® Linx Gateway

FactoryTalk® Services

FactoryTalk® Linx

FactoryTalk® Linx

← **Basic or Standard** →

← **Distributed or Professional** →

Scalable solution for multiple system configurations

Rockwell Automation

FactoryTalk® Linx Data Bridge

Connectivity

- Moves data between multiple FactoryTalk® sources

  - Allen-Bradley® control hardware

  - OPC UA Servers

  - OPC-DA Servers

 - Third-party equipment via KEPServer Enterprise

Availability

- Included with FactoryTalk® Linx Gateway Professional edition 9355-LNXGWPROENE (v6.20 enhanced to support 200K tag pairs)

- Purchase standalone 9355-LNXDBENE (2K tag pairs)

Data Access

- User configurable tag groups and update rates

- Includes time stamp and quality status tag both source and destination

- Import / export of configuration

- Enables Logix controllers to access OPC UA server data

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FactoryTalk® Linx Data Bridge Operation

Source	Destination
UASrv1:TagZ	Lgx1:TagA
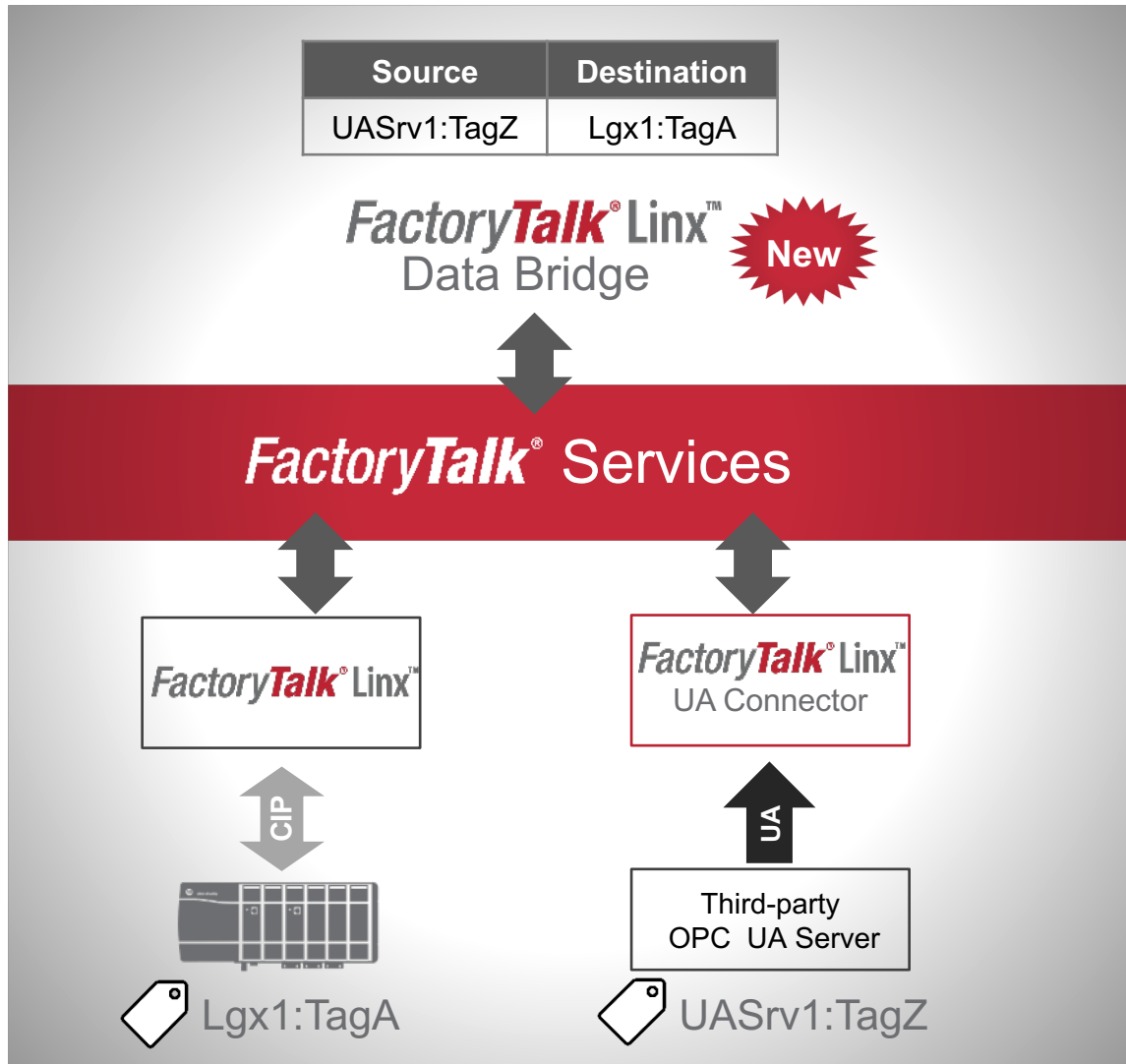
- Windows Application delivered and licensed with FactoryTalk® Linx Gateway (specifics TBD)
  - Operate on single PC or distributed
  - Can share a local activation with FactoryTalk® Linx Gateway Professional
- Utilizes any FactoryTalk® Source
  - Logix controllers via FactoryTalk® Linx
  - OPC UA Servers
  - OPC DA Servers
- User configured tag pairs
  - Subscription to data source based on user selected rate
  - Source data delivered to the Data Bridge is forwarded to destination
  - Optional quality and timestamp values delivered to both source and destination
- Configuration import / export to backup the settings or streamline the setup process