



# Secure Remote Access

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# Agenda

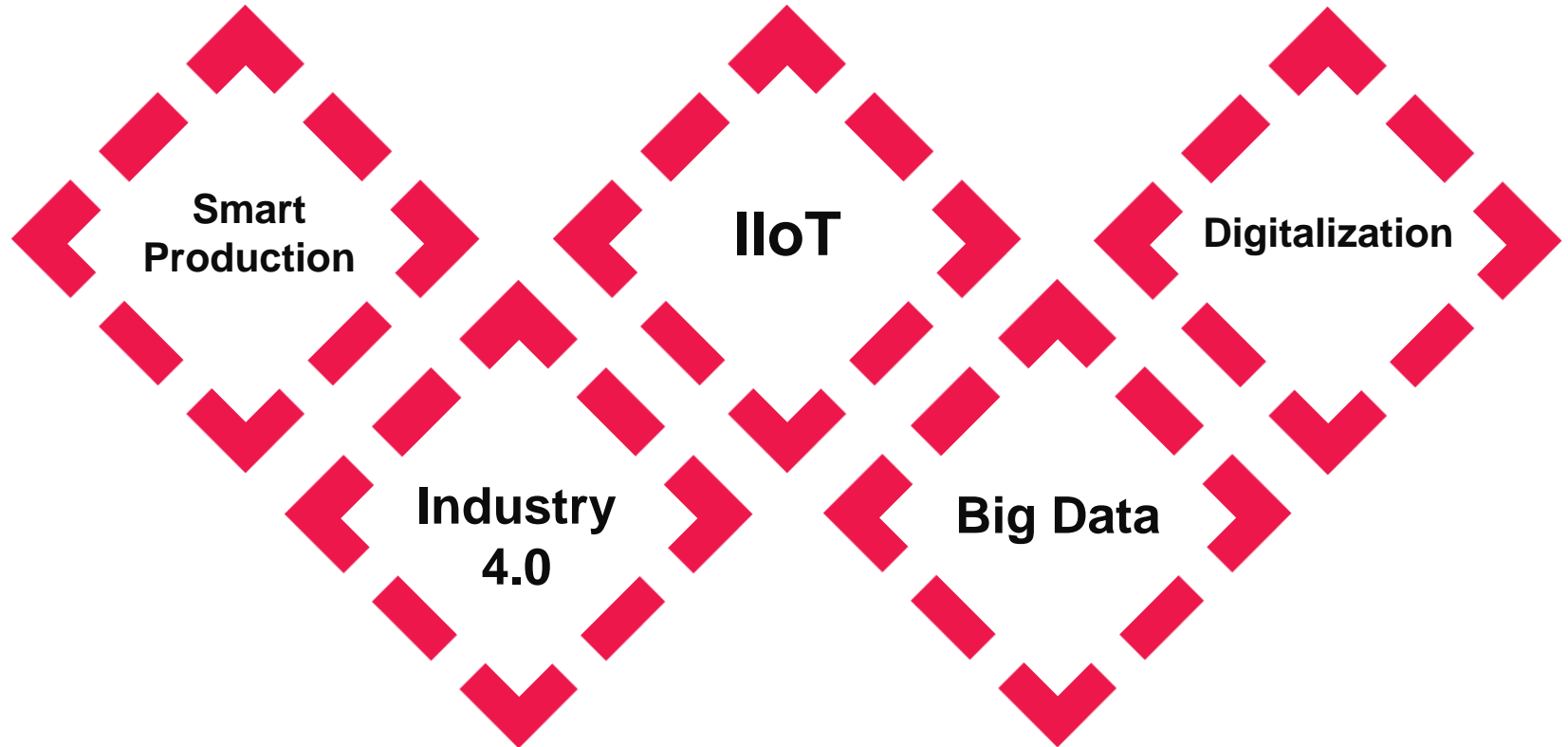
- Trends and Definitions
- ProSoft Connect
  - Secure Remote Access
  - Persistent Data Network
- Use Cases
- Demo



What is remote  
access?



# Remote Access Trends



# What is Remote Access?

- Remote Connectivity
  - Securely access your equipment from anywhere you have internet
    - Monitoring
    - Service/Maintenance
    - Commissioning, etc.
- SCADA
  - Supervisory Control and Data Acquisition
- IIoT Enabler
  - Easily connect to your application



# Why use it?

- Reduce Machine Downtime
- Increase Productivity and Efficiency
- Secure Anytime, Anywhere Remote Access
- Reduce Support and Service Costs
- Increase Profitability



Where it all starts...



# The Connect Platform



**ProSoft** ●  
Secure Remote Access

● **ProSoft**  
Persistent Data Network



# The Connect Platform



## Secure Remote Access

- Customers **manually** create VPN tunnels (on demand)
- Connections are on demand, not permanent
- Best used for troubleshooting machines, servicing and commissioning

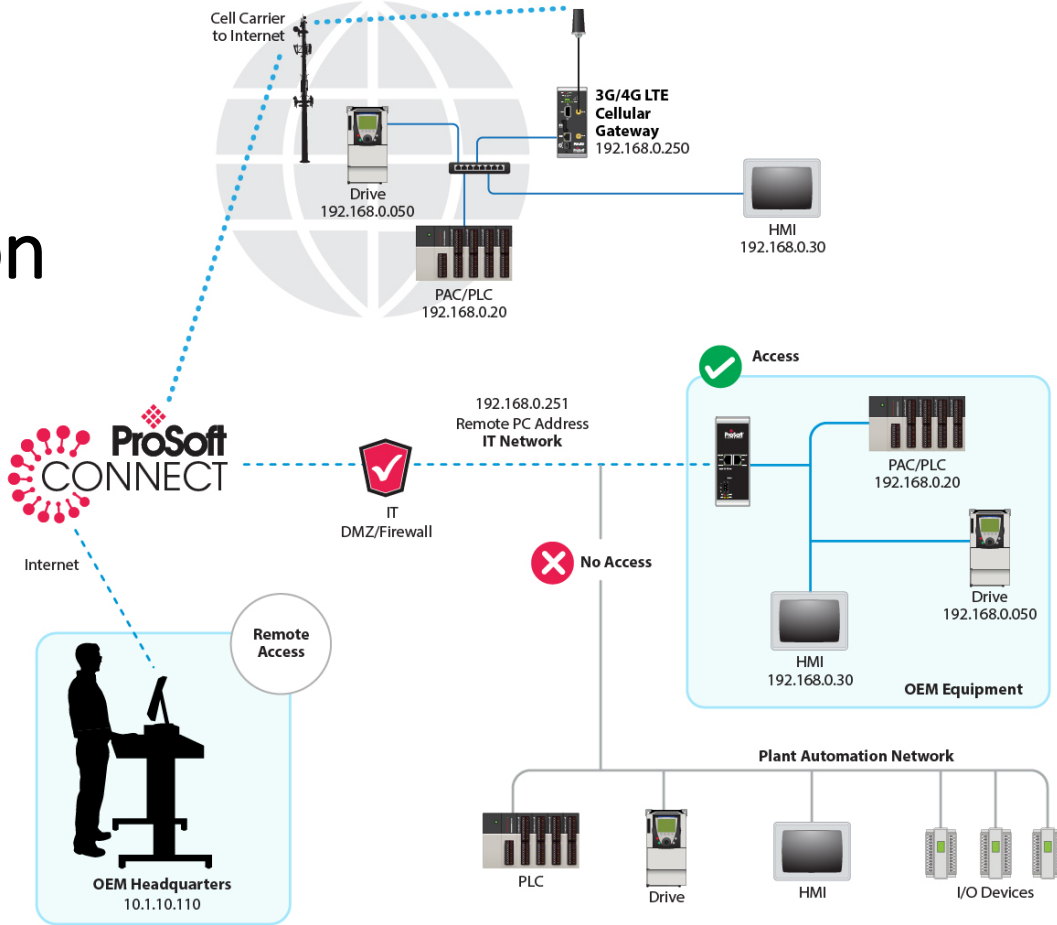
## Persistent Data Network

- *Connect* **automatically** creates VPN tunnels to all sites in the PDN system
- VPN tunnels remain open all the time (peer-to-peer)
- Best used for interconnecting multiple remote sites such as a SCADA-RTU networks



## **Secure Remote Access**

# Remote Access Application



# Secure Remote Access Applications



# Concurrent Connections

- Multiple connections at the same time
  - To different gateways within same organization



# Concurrent Connections

- Multiple connections to the same gateway at the same time.



**Power User Plan**




# ProSoft Connect Products



**ICX35-HWC-A/E**  
Verizon and AT&T /  
International/  
Wired connection as option



**PLX35-NB2**  
Wired version

		
<b>Standard Plan</b>	<b>3 x 3 Plan</b>	<b>6 x 6 Plan</b>
<b>1 GB</b> EasyBridge Data	<b>3 GB</b> EasyBridge Data	<b>6 GB</b> EasyBridge Data
<b>2</b> Standard Projects	<b>10</b> Standard Projects	<b>10</b> Standard Projects
<b>2</b> Concurrent EasyBridge Connections <i>(To Different Gateways)</i>	<b>3</b> Concurrent EasyBridge Connections <i>(To Same or Different Gateways)</i>	<b>6</b> Concurrent EasyBridge Connections <i>(To Same or Different Gateways)</i>
<b>Two-Factor Authentication</b> <i>(Email based)</i>	<b>Two-Factor Authentication</b> <i>(Email/App-based)</i>	<b>Two-Factor Authentication</b> <i>(Email/App-based)</i>
	<b>Enhanced Customer Management Capabilities</b>	<b>Enhanced Customer Management Capabilities</b>

**NO  
CHARGE**

**PSC-PUP-MED-12/24**  
**PSC-PUP-LRG-12/24**

# ICX35 without Connect

- Diagnostic and SMS feature

Name
⊕ AOI_ICX35
⊕ ICX35
⊕ ICX35_MSG_GET_STATUS
⊕ ICX35_MSG_READ_SMS
⊕ ICX35_MSG_RESET_STATUS
⊕ ICX35_MSG_WRITE_SMS

Add-On Instruction  
for ICX35 Industrial  
Cellular Gateway

AOI\_ICX35

Add-On Instruction for ICX35 Industrial Cellular Gateway

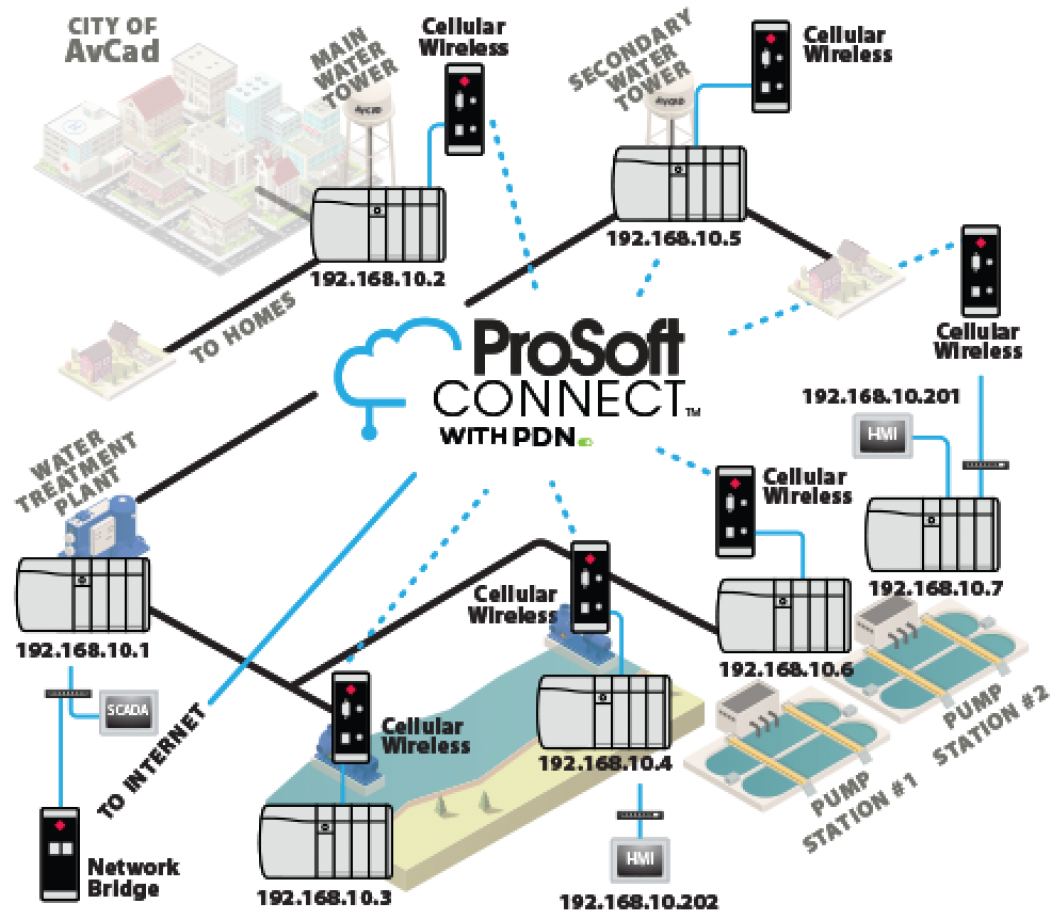
AOI_ICX35	AOI_ICX35	...
ICX35	ICX35	...
ICX35_MSG_GET_STATUS	ICX35_MSG_GET_STATUS	...
ICX35_MSG_RESET_STATUS	ICX35_MSG_RESET_STATUS	...
ICX35_MSG_READ_SMS	ICX35_MSG_READ_SMS	...
ICX35_MSG_WRITE_SMS	ICX35_MSG_WRITE_SMS	...





## **Persistent Data Network**

# Persistent Data Network Application



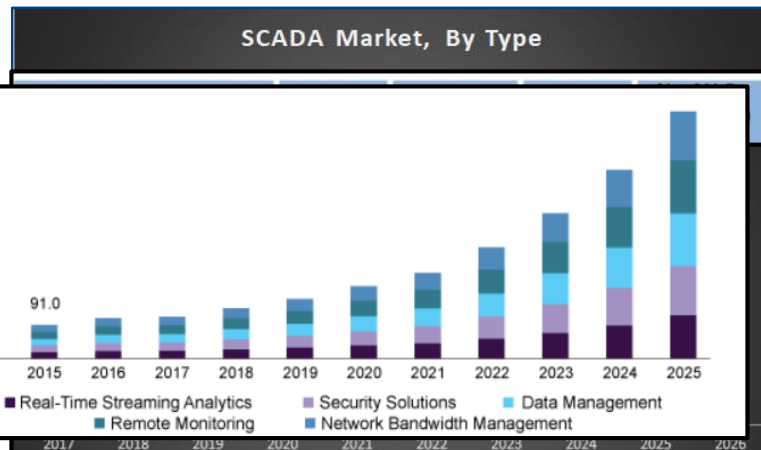
# What does the target market look like?

- SCADA/Telemetry – expected to be \$40B by 2025, globally
- Water Market
- Oil & Gas
- Industrial Automation – B2B, Machine Monitoring and other...

## ❖ Key Takeaways:

❖ **The identified target markets show significant growth over the next several years...**

❖ **Multiple applications within these sectors**



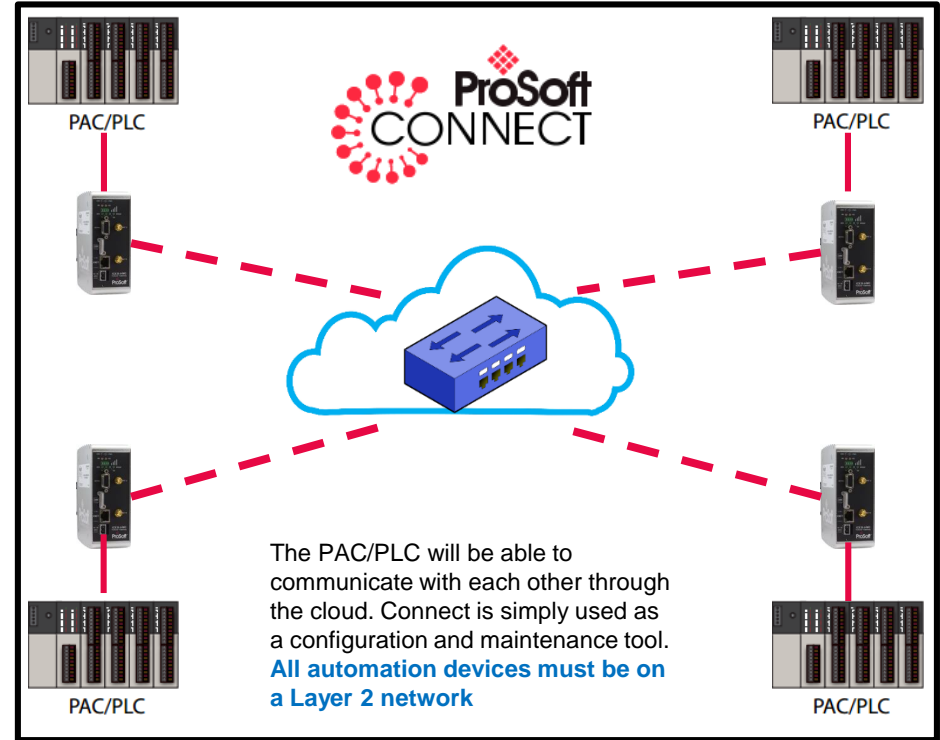
**Figure 2.4: Cellular IoT gateway shipment forecast, by region (World 2017–2023)**

Thousands	2017	2018	2019	2020	2021	2022	2023
Europe	970	1,130	1,320	1,530	1,750	2,000	2,270
Americas	1,080	1,230	1,400	1,580	1,770	1,990	2,230
Asia-Pacific	990	1,300	1,670	2,110	2,610	3,170	3,770
Middle East & Africa	120	150	180	220	260	310	360
Total all world regions	3,170	3,820	4,570	5,430	6,400	7,470	8,640
YoY growth rate	22 %	20 %	20 %	19 %	18 %	17 %	16 %

■ Transportation Fuel ■ Power Generation ■ Mining & Industrial

# Persistent Data Network (PDN) – Main Features

- Simplicity. PDN is the easiest way to set up a secure network between remote sites
- No complex routing tables
- No local software installation or licensing
- Comprehensive audit trail for forensic review
- Simplified single platform for device and network management
- A virtual switch in the cloud



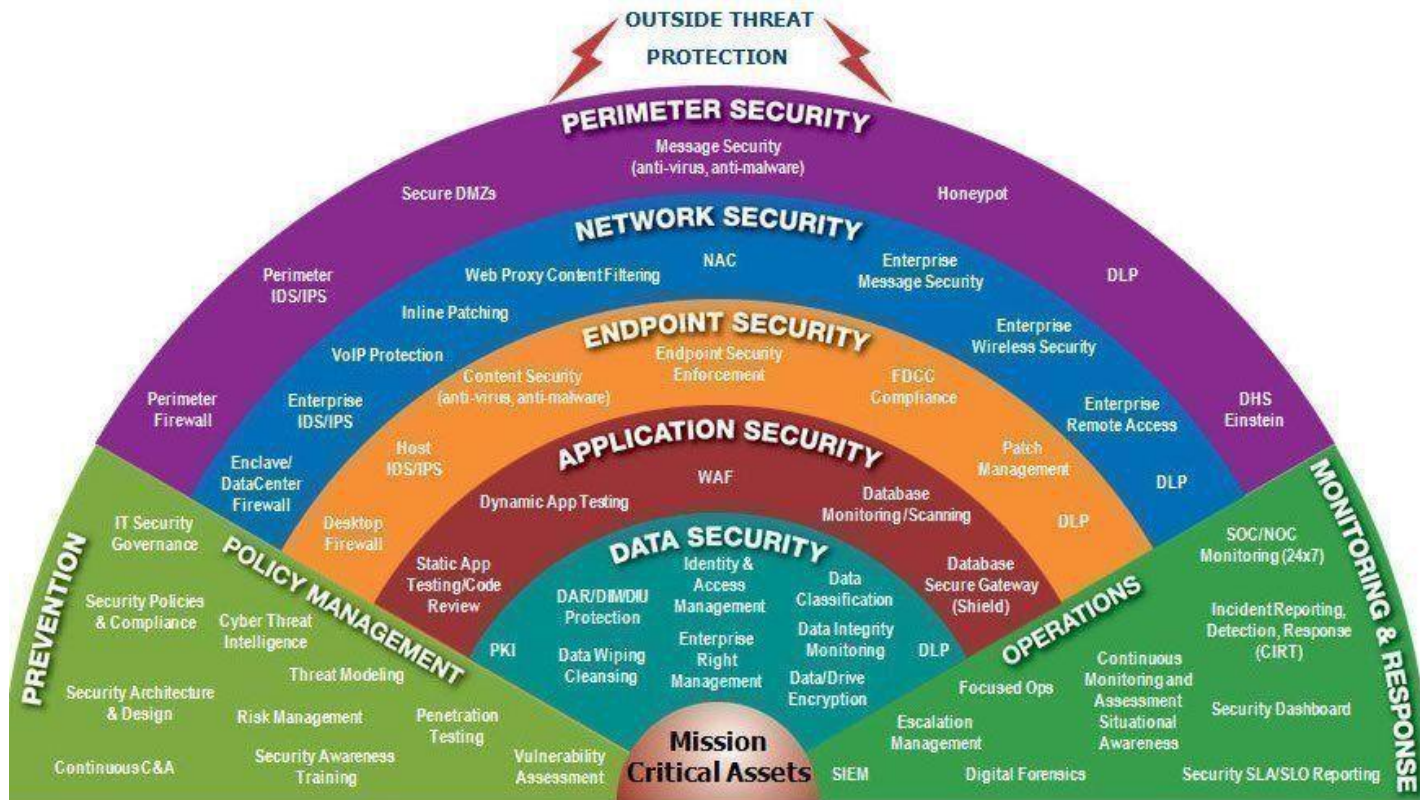
# Persistent Data Network Applications



# Cyber Security Considerations

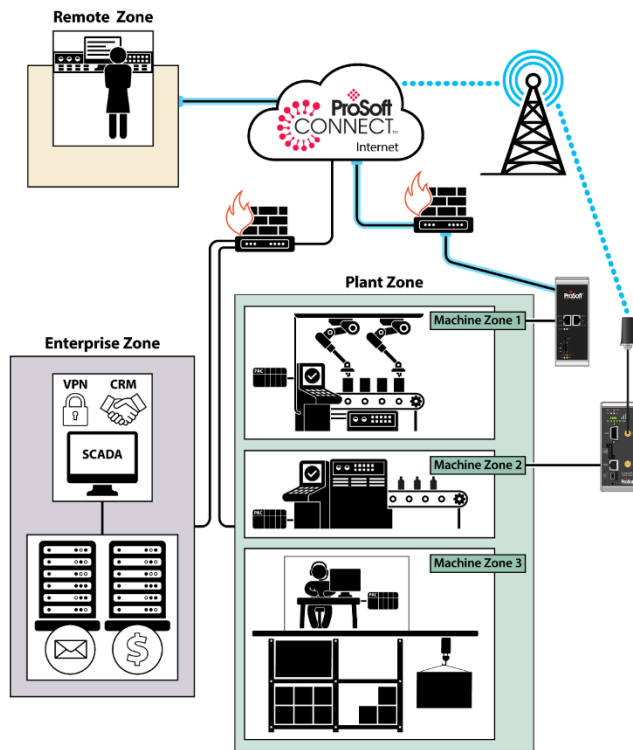


# Cyber Security Considerations - Defense-in-Depth



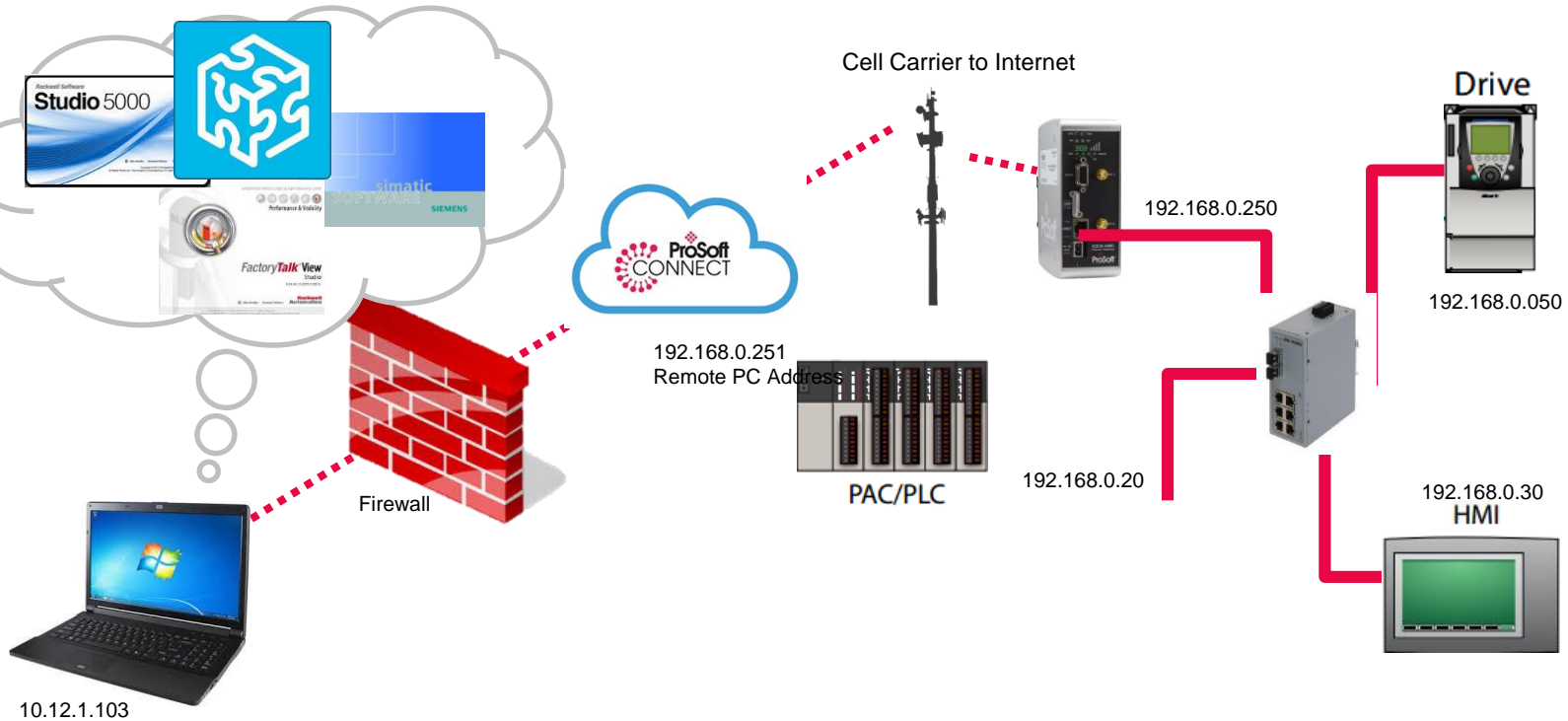
# Cyber Security Considerations - Features

- vLOTO™ Dynamic Authorization
- Outbound connections ONLY
- 2F Authentication (Email and App based)
- **Unique and one time use tunnel credentials**
- HTTPS for data viewing
- SSTP or L2TP/IPSec over HTTPS tunneling protocol
- 256-bit AES encryption
- **Audit trail of user activity and changes**
- Aligned with IEC-62443 and NIST 800-82
- **Regular Pen Testing**
- See our [Remote Access Security White Paper](#)





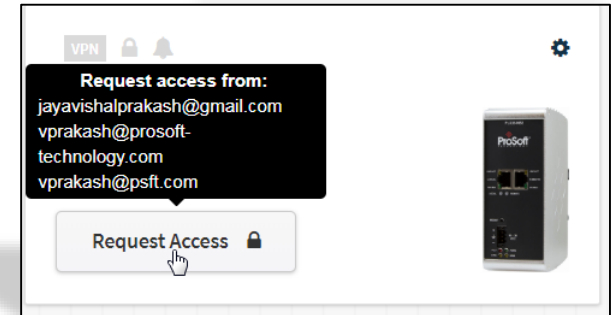
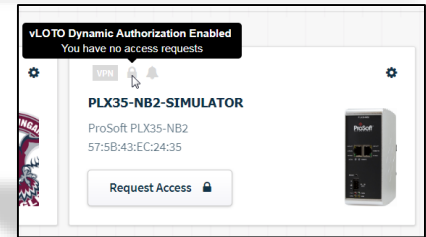
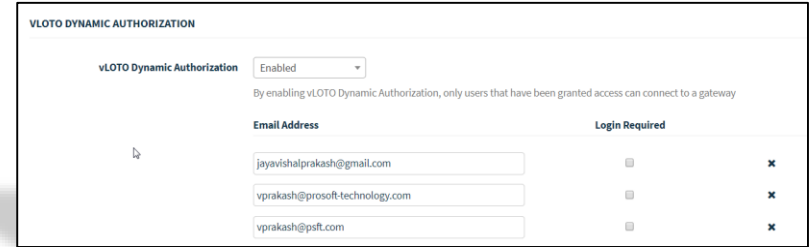
# EasyBridge™ - Advanced Networking



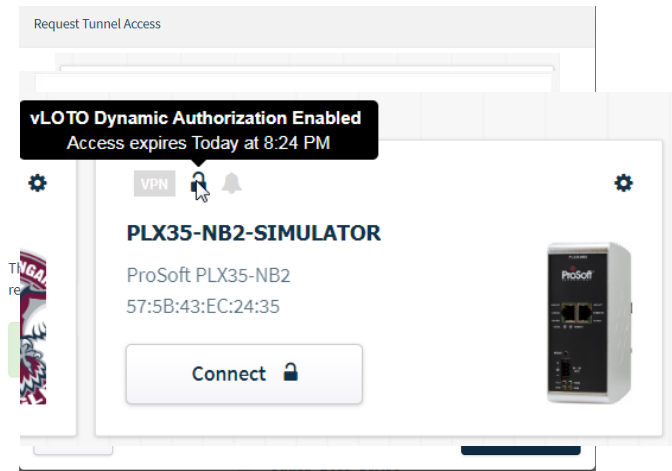
# vLOTO™ Dynamic Authorization

## A new paradigm for Secure Remote Access

- vLOTO enables the access that OT needs and the control that IT requires
- Authorized plant personnel control when and how machines are accessed
- Authorized Approvers hold the Key
  - Must approve each remote access session
  - Approve access for specific amount of time
  - Can deny or revoke access at any time
  - Un-editable activity log of permissions, acceptance, denials
- Authorized Approvers do not have to be ProSoft Connect users
  - Can be the IT Manager, Plant Engineer, Shift Supervisors, etc.



# vLOTO™ Dynamic Authorization



## Requesting Access with vLOTO

- ❖ Remote User requests access for specific amount of time, and notes the reason
- ❖ Access to the machine requires approval
- ❖ All Authorized Approvers receive access request email
- ❖ Approvals from Authorized Approvers are logged in ProSoft Connect
- ❖ Once approved, the Remote User can access the machine

# Is Connect free?

- The simple answer is yes...
  - Anyone can go to [www.prosoft.io](http://www.prosoft.io) and create a account
  - Cannot do much without hardware!
- For SRA applications:
  - every gateway comes with 1GB of data per month – sufficient for most remote access applications
  - For additional data or advanced security features, it is a subscription service
- For PDN applications:
  - Subscription based on number of gateways
  - Starting from 3€ per month

# ProSoft Connect Hardware

## PLX35 Network Bridge



- Easy and secure wired connection to the internet
- Enable / Disable remote access locally via an EtherNet/IP message
- The network bridge does not support routing. This secures communication is only established to the target LAN
- EasyBridge™ secure remote access provides the easiest way to connect to remote PLCs

## ICX35 Cellular Gateway



- 4G LTE compatibility with all cell carriers globally (3G fallback)
- Ethernet port can be configured as a LAN/WAN port – wired or wireless connection to ProSoft Connect
- EtherNet/IP and Modbus TCP/IP support. Your PAC/PLC can easily read diagnostic data from the gateway

# RLX2 Wireless Product Highlights

IEEE 802.11n functionality for reliable wireless transmission in both the 2.4 and 5 GHz bands.

Industry leading Ultra Fast Roaming of less than 10ms to avoid communication loss.



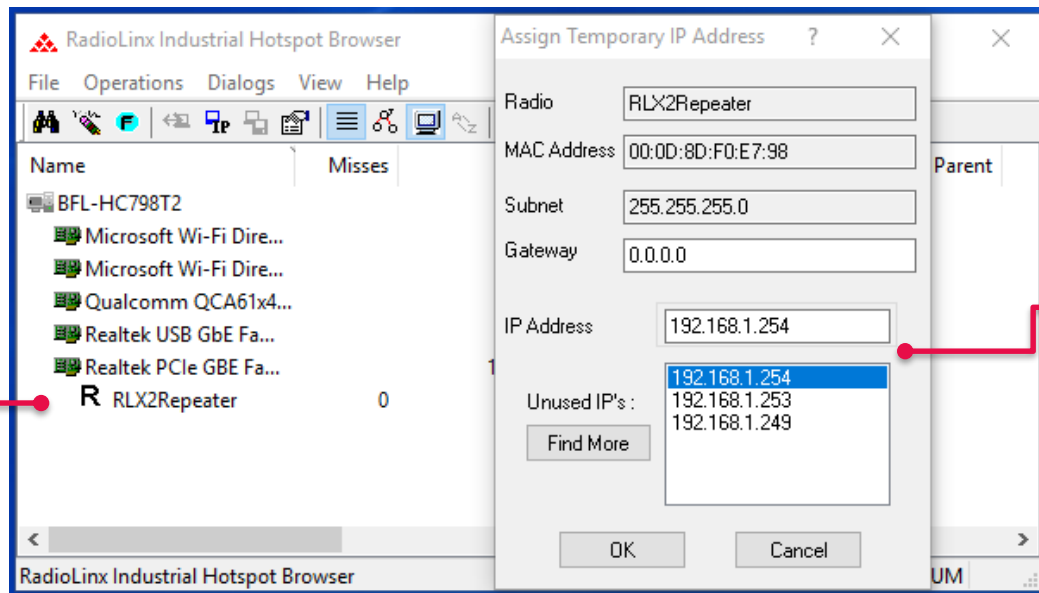
User friendly configuration and diagnostics for quick and easy deployment.

Access Point (master) and Client Repeater mode for flexible use in the field.

IP67 and HazLoc variants for the most rugged applications.

# RLX2 Ease of Use

Open IH Browser,  
and find the RLX2  
Repeater



Set IP Address

# RLX2 Ease of Use

All that is required create WLAN network:

- SSID
- Security Mode
- Encryption
- WPA phrase

**ProSoft** TECHNOLOGY **RadioLinx** Industrial Hotspot™

Radio Name: RLX2Repeater Signal Strength: Scanning...  
Radio MAC: 00.0D.8D.F0.E7.98 Parent MAC: none Available Parents  
Radio Type: RLX2-IHNF-A Branch Length: n/a Address Table  
Update every: 15 sec # Radios Linked: 0 Port Status  
Up Time: 0 Day 0 Hr. 5 Min. 13 Sec. Current Channel: 116  
Link Time: n/a Link Mode: 802.11n 20MHz channel

Basic Settings | Advanced Settings | Parent Link | Advanced Network Settings | Serial Settings | QoS | VLAN | NAT | About

**Basic Wireless Settings** | **Wireless Security Settings** | **Access Settings**

Radio Name: RLX2MASTER  
Network SSID: Network1  
802.11 Mode: 802.11n  
 Master 48 (5240 MHz)  
 Repeater Parent Auto Select  
 Bridging Client  
 Client  Auto  Specify  
Client MAC: 00.00.00.00.00.00

Security Mode: WPA/WPA2 Personal  
Encryption: AES  
WPA Phrase: \*\*\*\*\*  
 MAC Filter Edit Filter  
 Hide Network SSID

Obtain IP address - DHCP  
 Use the following IP address  
IP Address: 192.168.1.254  
Subnet Mask: 255.255.255.0  
Def. Gateway: 192.168.1.254  
Primary DNS: 0.0.0.0  
Secondary DNS: 0.0.0.0  
Download Config

Apply Changes | Cancel Changes | Factory Defaults | Help

MAC Filter: Check to allow only certain MAC IDs to link to this radio. Click button to edit MAC list



# Problem

- ❖ Huge install base of Allen Bradley Remote I/O Systems

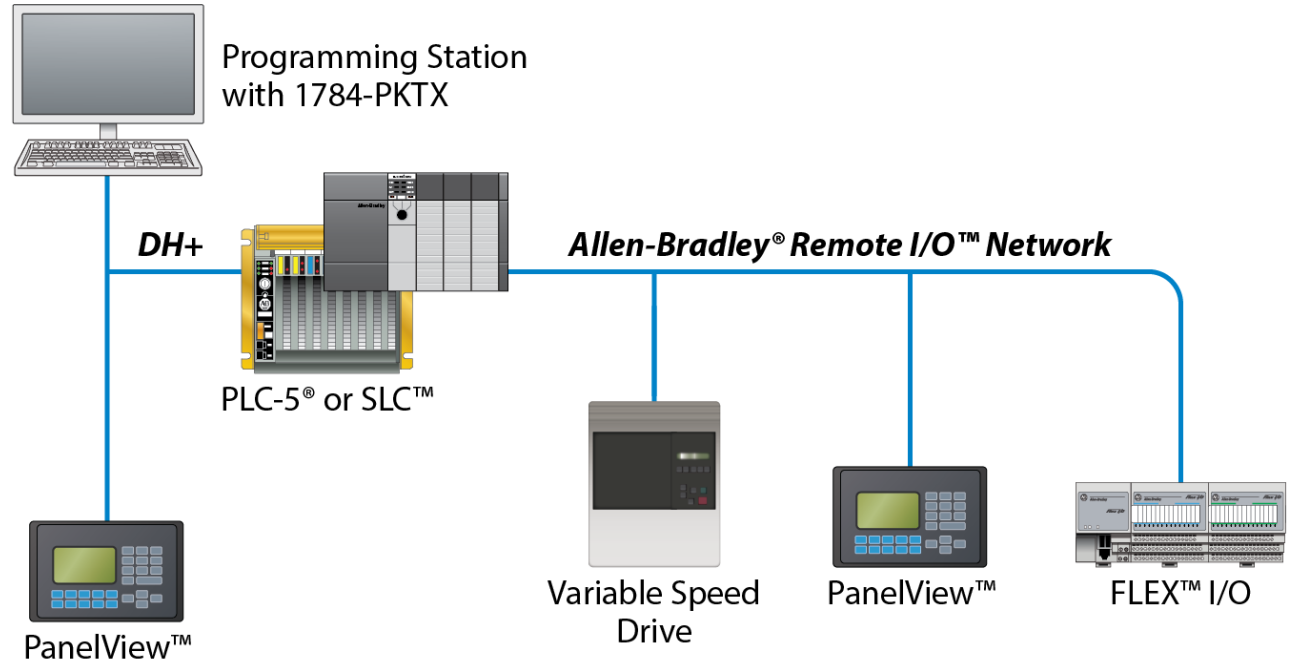


- ❖ Most of the products pictured above are Discontinued

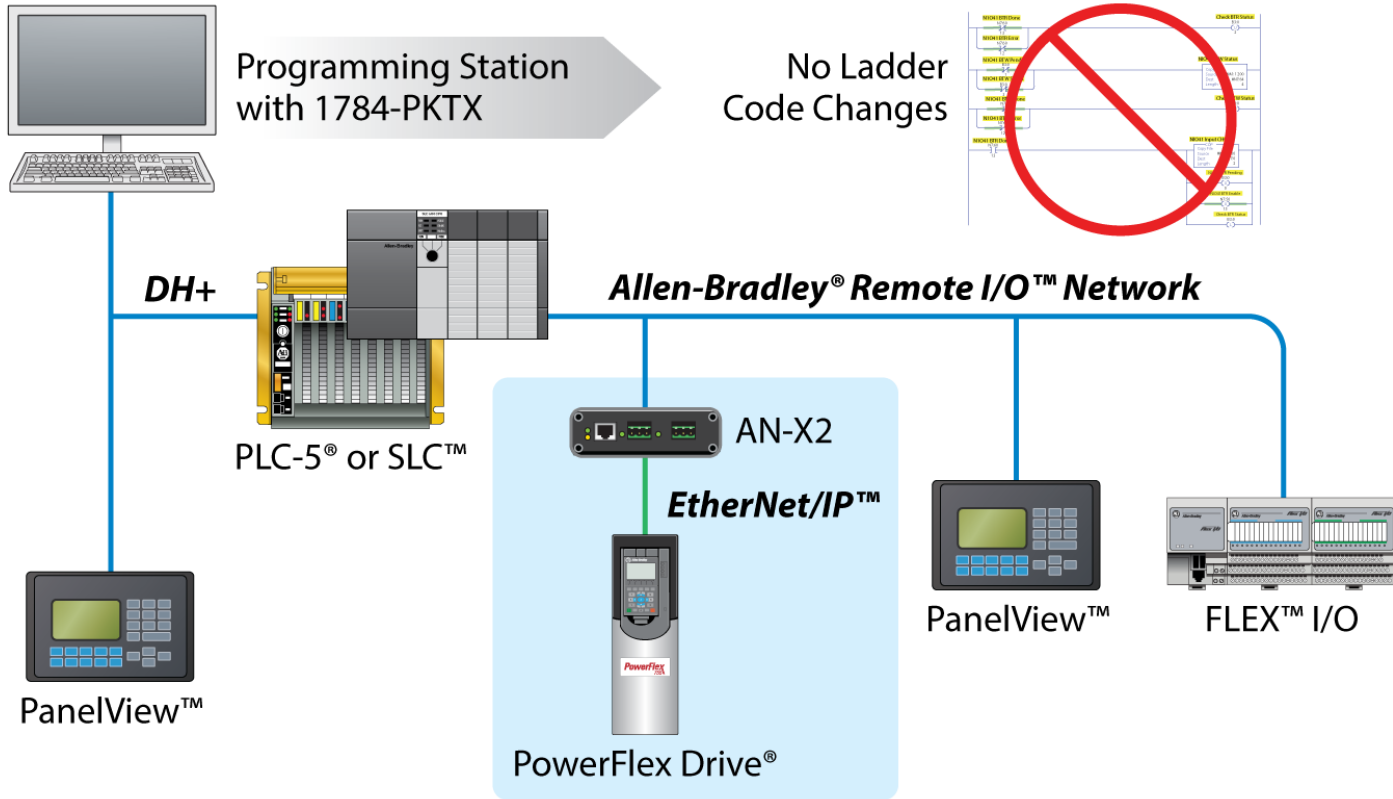
# Phased migration approach

- ❖ A new EtherNet/IP based system can be introduced with the existing DH+ or RIO networks assets in a phased manner.
- ❖ Legacy assets can be migrated one node at a time in a scheduled downtime saving time and money.
- ❖ Once a legacy asset has been updated it can be used elsewhere in the plant as a spare minimizing downtime.
- ❖ During commissioning if something goes wrong, you can put the legacy asset back in place.

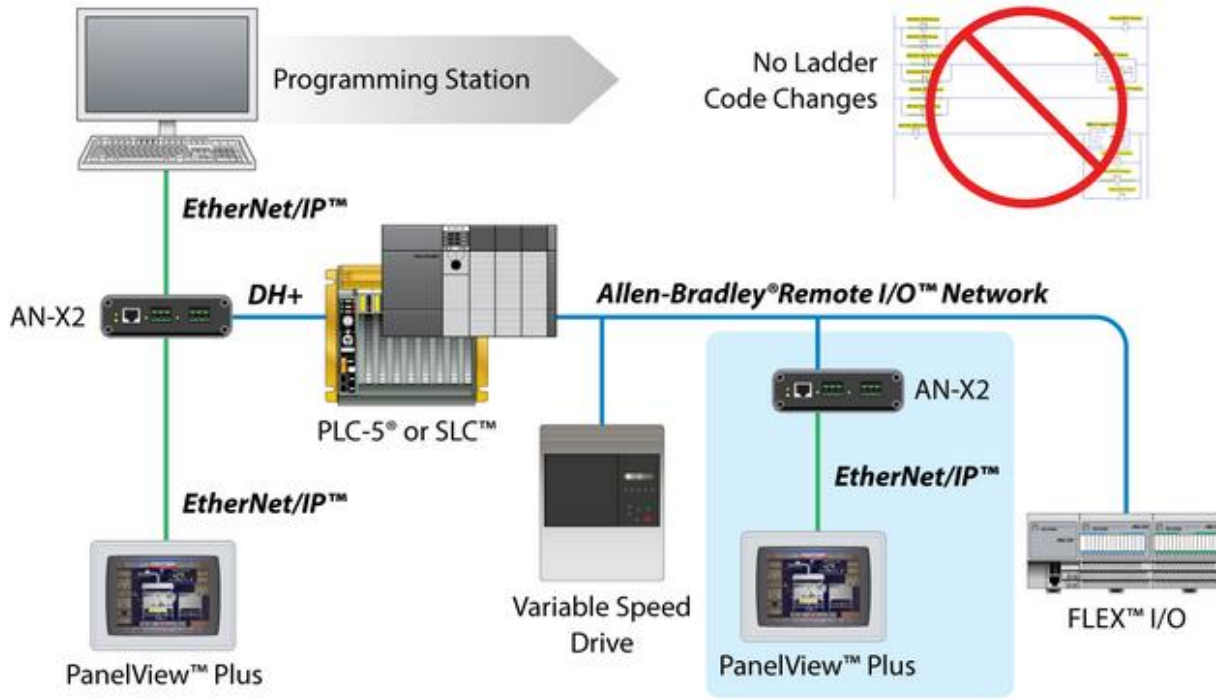
# Existing plant



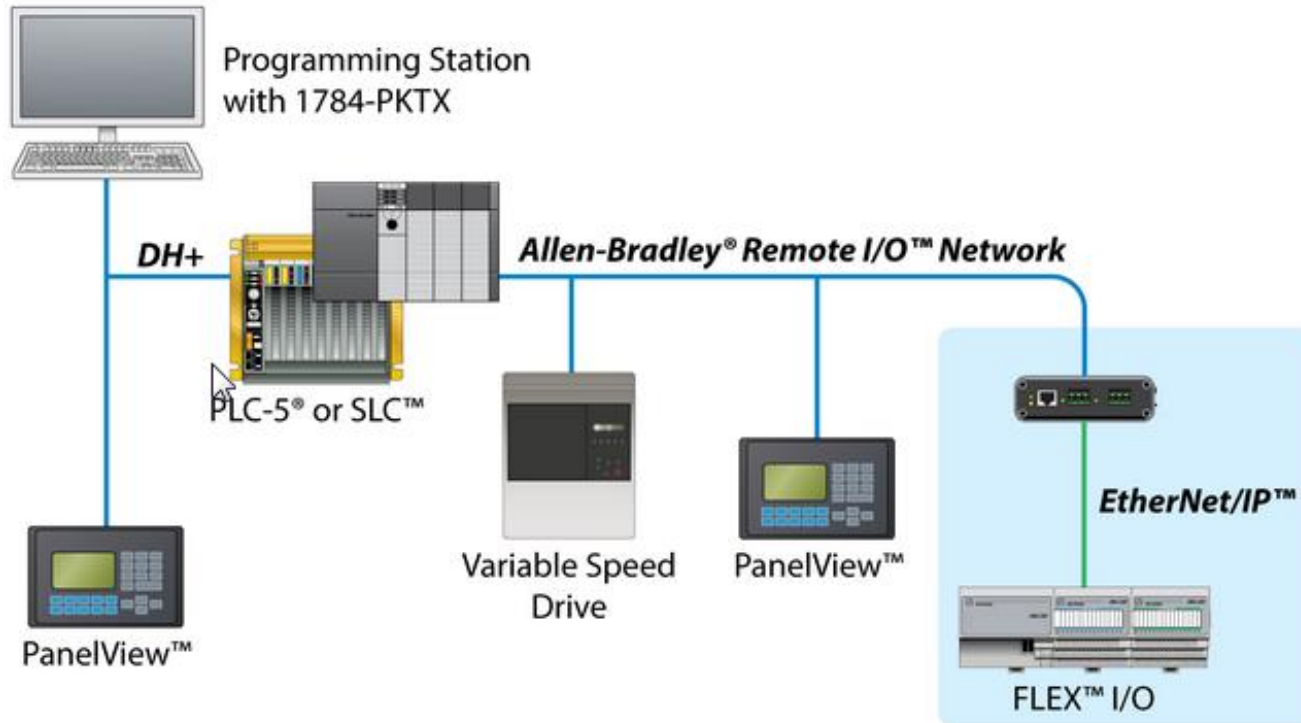
# Need to replace your Drives?



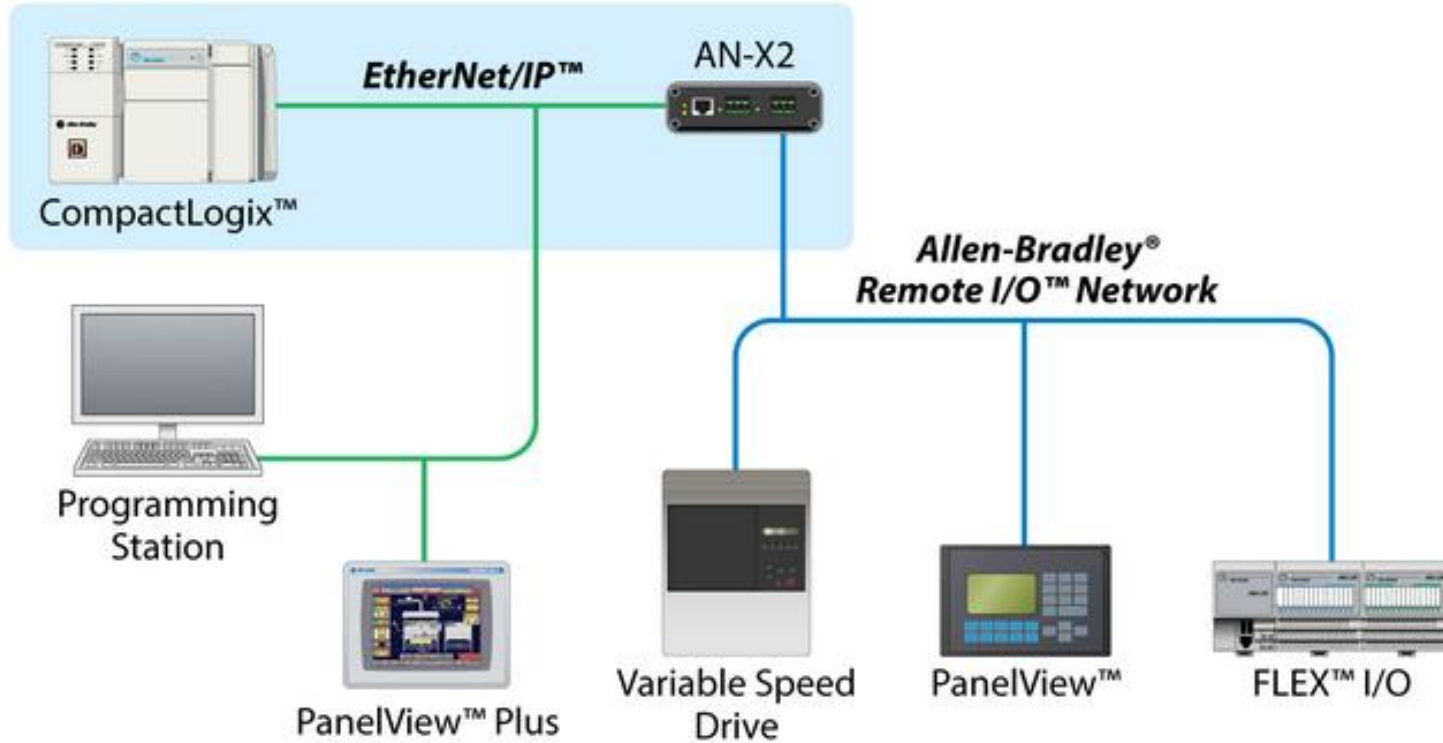
# Are your PanelView™ Terminals or Programming Stations ready for an upgrade?



# Running out of spare FLEX™ I/O Adapters?



# Want to upgrade your PLC-5<sup>®</sup> or SLC<sup>™</sup> to CompactLogix<sup>™</sup>?



# Legacy serial protocol modernization

## ❖ Overview

- ❖ DF1 port has removed from new processors.
- ❖ 1761-NET-ENI module is discontinued  
It was mainly used for
  - ❖ Uploading and downloading between Ethernet and DF1
  - ❖ Messaging between DF1 devices

## ❖ Applications

- ❖ Many WWWW facilities that were built using RA equipment
- ❖ Legacy network (DF1) Water/Waste Water (WWW) networks are distributed over a large area through leased line modems
- ❖ Primary function of the module is DF1 Radio Modem with Store and Forward



# Application example

## ❖ Upgrade legacy DF1 PanelView terminals to newer PanelView Plus terminals

(similar to the AN-X2 with DH+ and RIO)

PLX51-DF1-ENI only



## ❖ PLC to PLC Messaging



# Application example

## ❖ Remote programming over EtherNet/IP



## ❖ 1761-NET-ENI replacement



Thank you



**IT'S**



**DEMO TIME!**

*memegenerator.es*