Flexible Industrial Computing and Networking

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**Products and Solutions for the Electrical Industry**

So… Who is this guy?

- Frank Aponte Alsina, Smart Manufacturing Business Development Lead

- Started at SYD in May 2021

- I have previously worked as a System Integrator for 18 years (three different companies) before working as a plant engineer for 8 years (two different companies)

- Based out of the Harrisburg, PA branch

- Responsible for the business development of SYD's Industrial Networking and Automation Software Products and Services

How I think I look explaining Industrial Networking
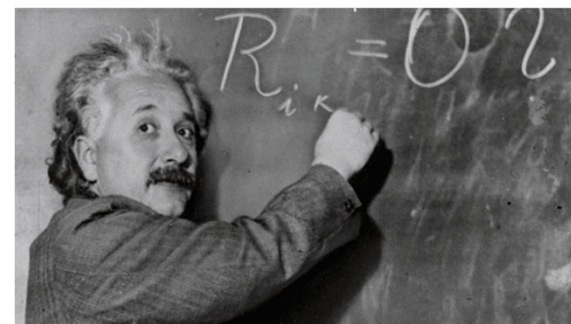
How I actually look
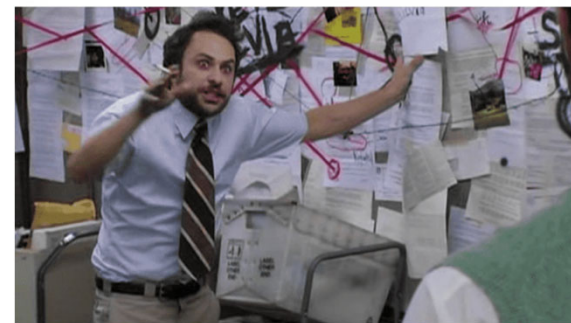
What are we going to learn about today?

- Industrial networking beyond the PLC, HMI, and I/O

- Keeping flexibility, scalability, and high availability in mind while simplifying the design of your Industrial Control Systems and Operation Technologies

- Learn how to leverage networks, virtualisation, SaaS, and Thin Clients to get the right solution for your needs

- How to use this technology to keep you competitive while limiting your total cost of ownership

Industrial Networking

- What was the start of it?

- In factory automation, we have moved from each manufacturer having its own proprietary communications networks to a commodity level infrastructure that wasn't specifically designed for real-time Automation, Motion Control, Security, and Safety.

- With all the cons against Ethernet as an infrastructure for Industrial Control Systems, how has it grown to become the de facto standard for modern Plant Floor communications?

Current State of Industrial Ethernet

- Managed and unmanaged switches

- CIP Framework, CPwE

- CIP Security and CIP Safety

- Wi-Fi, even CIP Safety over Wi-Fi

- DMZ, IDMZ, ICS, OT

- Network convergence and digital transformation

Tools

- Virtualization

- SaaS and Cloud Services
  - A lot of IT services have move Off-Prem (the "Cloud" – though not always at the end of an Internet connection)
  - What is the outlook for OT? Partly Cloudy!
  - FactoryTalk HUB

- High Availability Networking

- Data Collection and Analytics / Visualisation tools

- Automatic Device Configuration (ADC and IO-Link)

- Thin Clients and Edge Computing

There is no cloud
it's just someone else's computer

Gotchas

- CIA triad for IT becomes AIC for OT

- Proliferation of Global APTs targeting critical infrastructure

- IT / OT convergence

- How serviceable does your system need to be and who will be supporting it?

Things to keep in mind as you design

- Is this a new system, an upgrade, or a tie-in to an existing network?

- What are your goals?
  - High Throughput?
  - High Availability?
  - High Security / Confidentiality?
  - Maybe "all the above" to one degree or another?

- What industry are you in?
  - Is it regulated?
  - If so, does your industry have a framework or standard that you can or are required to use?

Questions?

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