L02 - Applying Basic EtherNet/IP Features in Converged Plantwide Ethernet Architectures
EtherNet/IP Technology

- The same Ethernet technology...
  - as email, voice, video, the Internet, web pages
  - as the corporate network
  - known by IT professionals
  - on your home and office computers

- Running Common Industrial Protocol (CIP):
  - The most widely used standard, application layer industrial protocol globally
  - Standardized through IEC, ISO, ODVA, and others
  - Same technology as DeviceNet and ControlNet
  - Rockwell Automation and Cisco and other major vendors like Schneider, Omron, Bosch-Rexroth & 300+

One Standard Network Technology
Convergence of Industrial Automation Technology (IAT) with Information Technology (IT)
The Stratix™ product line provides advanced switching, routing and security features for simple, to complex networks applications. The portfolio includes wireless, “On-Machine™” and rack mount options for increased flexibility in hard-to-wire and remote areas. Products are configured using common IT tools for a customized, integrated Plant floor and Enterprise system.
Stratix Managed Switch Positioning

Stratix 5700™ / ArmorStratix™ 5700
Support layer 2 switching with NAT, PoE and integrated DLR

Stratix 8000™ / Stratix 8300™
Supports layer 2 and layer 3 routing with expansion modules for maximum flexibility

Stratix 5400™
Supports layer 2 and layer 3 routing capabilities with an all Gigabit (GE) platform

Stratix 5410™
19" rack mount design with layer 2 or layer 3 routing and 10 gig support
Configure, Manage and Diagnose your network with familiar tools

- Automation (OT) Professionals
  - FactoryTalk® Services tightly integrate into the Integrated Architecture® system
  - Studio 5000® AOP, Predefined Logix tags
  - FactoryTalk® View Faceplates – Sample Code website
  - Device Manager web Interface

- IT Professionals
  - Cisco IOS software and Command Line Interface (CLI)
  - IT management tools: Cisco CNA, CiscoWorks, Cisco Prime, SNMP-based tools
  - Tight integration into joint Cisco and Rockwell Automation Converged Plantwide Ethernet (CPwE) Architecture
Stratix 5700™
Layer 2 Managed Switch Platform

- 3 base platforms that offer 25 configurations
  - 6, 10 and 20-port base units
  - 2 Gig port option
- SFP slots support multi- and single mode fiber
  - Wide variety of SFPs available
- SecureDigital update card (optional)
  - Stores configuration and IOS of switch
- Power over Ethernet (PoE)
  - 4 ports PoE and PoE+ (port configurable)
- Two software packages
  - Lite and Full software versions
- Advanced feature set
  - Integrated DLR (on select versions)
  - Integrated NAT functionality (selected versions)
  - Connected and static routing

*Combo ports can be either copper or SFP
SD card for back-up
Stratix 8000™ and Stratix 8300™
Layer 2 and Layer 3 Modular Managed Switches

- Configurable up to 26 ports
  - Base unit - 6 or 10 port
  - Expansion Modules
    - Cooper, Fiber, SFP and PoE
- SFP for multi- and single mode fiber
- Power over Ethernet (PoE)
  - 8 ports PoE and PoE+ (port configurable)
- CompactFlash card
  - Stores configuration and IOS for easy device replacement
- Advanced feature set to address:
  - EtherNet/IP applications
  - Security
  - Resiliency and Redundancy
  - Layer 3 routing
- Operating Temp: -40 ºC to 60 ºC
Stratix 5400™
Layer 2 and 3 all Gig Managed Switch Platform

- 18 catalog items supporting:
  - 4 gig port versions (8–20 ports)
  - All gig versions (12–20 ports)
- Secure Digital (SD) update card
  - Stores configuration and IOS of switch
- Power over Ethernet (PoE)
  - Up to eight ports of PoE and PoE+
- Up to 12 ports of gig fiber
- Dual power inputs (9.6–60 VDC)
- Expanded temp range (-40 to 70°C)
- Advanced features including:
  - Full gig Layer 3 (routing)
  - NAT
  - IEEE 1588
  - PRP
Stratix 5410™ Distribution Switches

Advanced Networking Features
- High performance capabilities with Four 10 Gigabit (GE) uplink ports and 24 Gigabit downlink ports
- Power over Ethernet (PoE/PoE+) support for up to 12 ports
- Network Address Translation (NAT) support for up to eight ports simultaneously
- Enhanced security options

Design Flexibility
- 19" rack mount for increased port density with front, rear and wall mounting options
- Rugged design to help withstand harsh environmental conditions
- Support for up to two integrated power supplies with AC and DC voltage ranges
- Fiber support for applications where longer distance connectivity is required
Lab Agenda

- This hands-on lab will cover various techniques, best practices, software and products that use EtherNet/IP
  - Stratix 5700™ and Stratix 8000™ hardware familiarization
  - How to configure a Stratix 5700™ switch in Studio 5000® software and review its Add-on Profile (AOP) and controller tags
  - How to configure Stratix 5700™ Add-On Instructions and diagnostic faceplates and reviewing the Device Manager web page interface
  - Review Device Level Ring (DLR) topology and diagnostic that use AOP and DLR tool
Cable number with connection detail
1. Machine CLX EN2TR Slot 1 to Stratix 5700 Fa 1/2
2. Machine CLX EN2TR Slot 3 Port 1 to 1734-ENENTR Port 2
3. 1734-ENENTR Port 1 to 1783-ETAP Port 2
4. Stratix 5700 Fa 1/8 to Machine CLX EN2TR Slot 3 Port 2
5. 1783-ETAP Port 2 to Stratix 5700 Fa 1/7
6. ArmorBlock I/O to Stratix 5700 Fa 1/3
7. Line CLX EN2TR Slot 1 Port 1 to Stratix 8000 Fa 1/5
8. Stratix 8000 Gi 1/1 to Stratix 5700 Gi 1/1
9. PC connected to Stratix 8000 Fa 1/1
Industrial IP Advantage

- A ‘go-to’ resource for educational information about industrial network communication and using standard Internet Protocol (IP) for industrial applications
- Community of like-minded companies – Cisco, Panduit, and Rockwell Automation
- Receive monthly e-newsletters with articles and videos on the latest trends
Thank You. Questions?