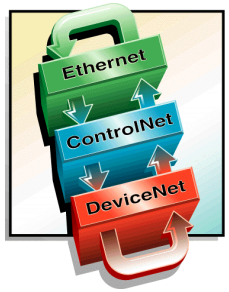


NetLinx™ Communication Technologies

Ethernet Enhancements: SLC, PLC5, Sidecar Communication to ControlLogix™

Andreas Somogyi

Networks Product Manager

Allen-Bradley
RELIANCE ELECTRIC
DODGE
ROCKWELL SOFTWARE
Rockwell Automation

NetLinx Philosophy

"The future demands advanced network technology, greater system performance, and higher productivity. Connect to the future today with a common set of communication technologies and interfaces on networks ***connecting the plant-floor device all the way to the Internet***.

This set of technologies, referred to as **NetLinx**, takes advantage of readily available Producer/Consumer networking services and standard hardware and software interfaces.

NetLinx brings you advanced communication features, flexibility, and performance when you need them, *today*."

- Steve Biegacki,
Networks Business Manager

Netlinx™ Communication Technologies

NetLinx Communication Technologies are:

- Derived from the highly efficient Producer/Consumer Model of communication
- A common set of advanced communication technologies optimized for Industrial Automation
  - to control, configure and collect data
- Media independent
  - same advanced communication services despite the wire
    - Flat Media, Round Media - DeviceNet
    - RG6 Coax, Fiber Optic - ControlNet
    - Twisted Pair, Fiber Optic - Ethernet
- OPEN interoperability from multiple suppliers, many whom participate in reputable vendor associations such as:

Ethernet Platforms

- **Established Platforms:** SLC5/05, PLC5E, Ethernet Sidecar
  - These products use TCP/IP and Client Server Protocol (CSP) in the application layer
  - CSP was designed prior to the new ControlLogix architecture, therefore it can not take advantage of NetLinx Services
- **NEW NetLinx-based Platform:** ControlLogix
  - 1756-ENET, the Ethernet communication module for the ControlLogix system, uses TCP/IP and CIP (Control and Information Protocol) in the application layer

Ethernet Upgrade / Protocol Migration

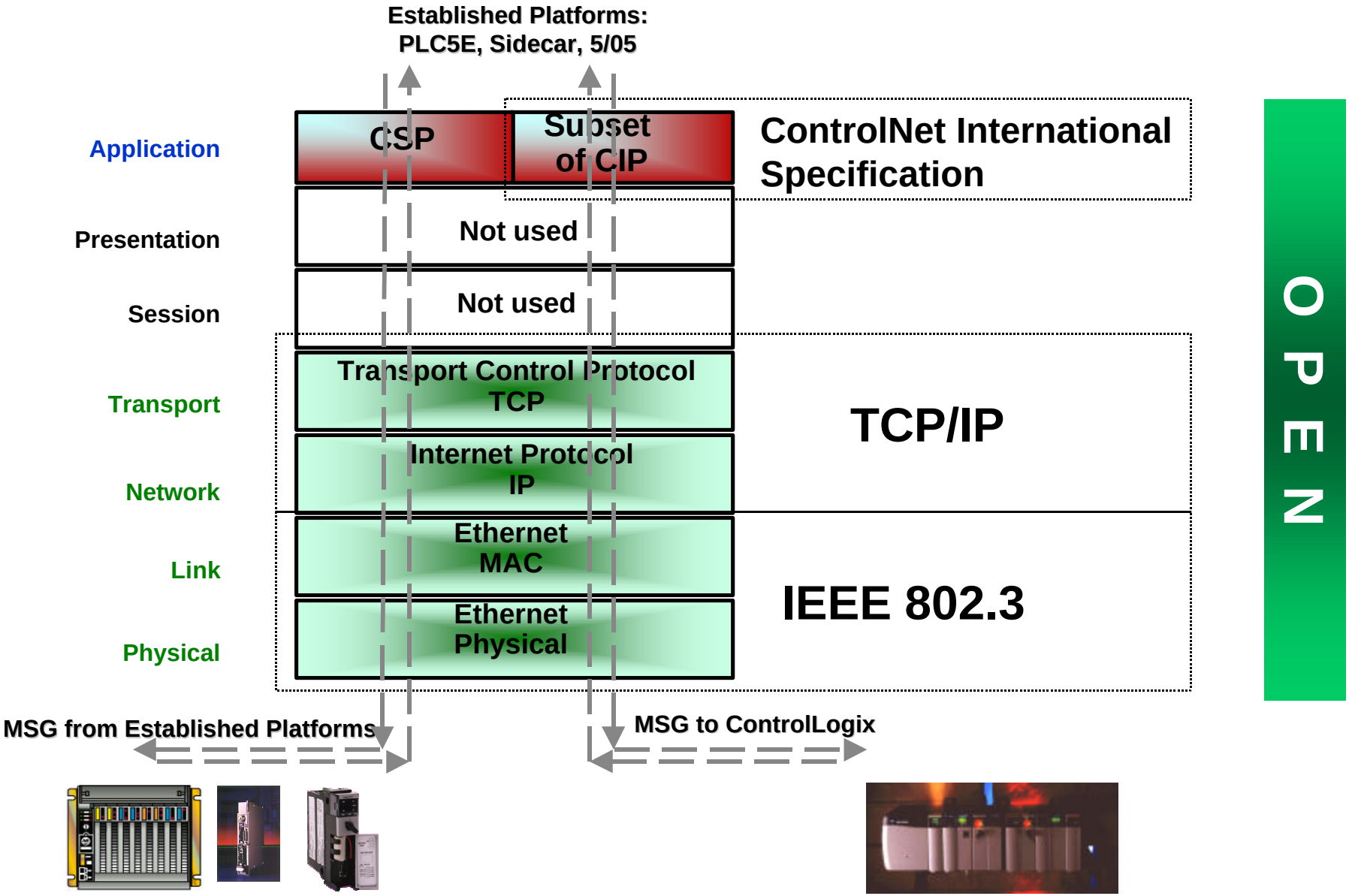
- **Firmware Updates:**
  - Existing, established Ethernet products will need firmware upgrades to communicate with the ControlLogix Ethernet module
  - Firmware upgrades are provided for SLC 5/05, PLC5E and the Ethernet Sidecar
  - The firmware upgrade will load both protocols (Dual Stack)
  - A firmware upgrade is not needed if there is no need to exchange information with the ControlLogix Platform

Established Platforms

Firmware Upgrade

ControlLogix Platform with Communications Modules

Ethernet Dual Stack Solution



Firmware Updates

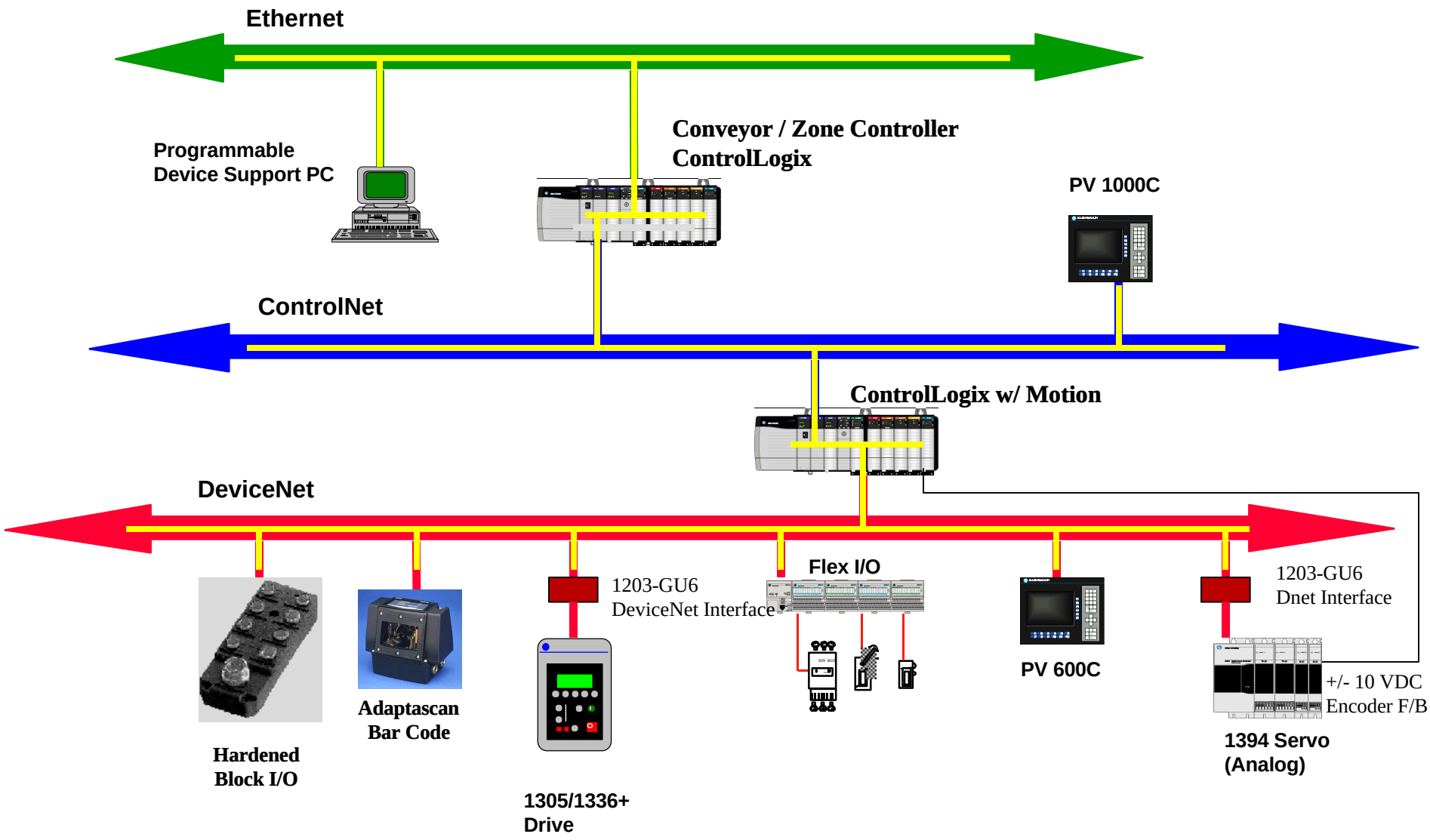
Platform	Catalog Number	Description	AFS	Price USD	Programming software
SLC	1747-DU501	Firmware Upgrade Kit	Mid June	$150	RSLogix500 v3.1
PLC5	F1785-L20E	Module Firmware Upgrade Kit	Shipping	$360	RSLogix5 v3.21
	F1785-L20EN	Processor Flash Update	Shipping	$400	RSLogix5 v3.21
	F1785-L40E	Module Firmware Upgrade Kit	Shipping	$490	RSLogix5 v3.21
	F1785-L40EN	Processor Flash Update	Shipping	$545	RSLogix5 v3.21
	F1785-L80E	Module Firmware Upgrade Kit	Shipping	$595	RSLogix5 v3.21
	F1785-L80EN	Processor Flash Update	Shipping	$595	RSLogix5 v3.21
Sidecar	F1785-ENET	Firmware Upgrade Kit	Shipping	$250	RSLogix5 v3.21

- To successfully update an Ethernet Sidecar it is necessary to update the processor as well
- For all PLC5s prior to Series E, use a *Module* Firmware Upgrade Kit
- For PLC5s Series E and newer, use a *Processor* Flash Update
- All upgrade kits are available through tech support
- Visit www.cle.ab.com/cst for in-field demo upgrade information (available June)
- An Upgrade Kit will not be available for the PI Ethernet Interface

Ethernet and ControlLogix System: *Benefits*

- New NetLinx protocol provides enhanced flexibility for designing communication architectures
- Support for peer **DATA ROUTING** between multiple networks and network types
- Use of Ethernet as a true network backbone for overall plant communications
- Expanded Gateway capability within the ControlLogix architecture as compared to the Pyramid Integrator

Routable NetLinx Protocol

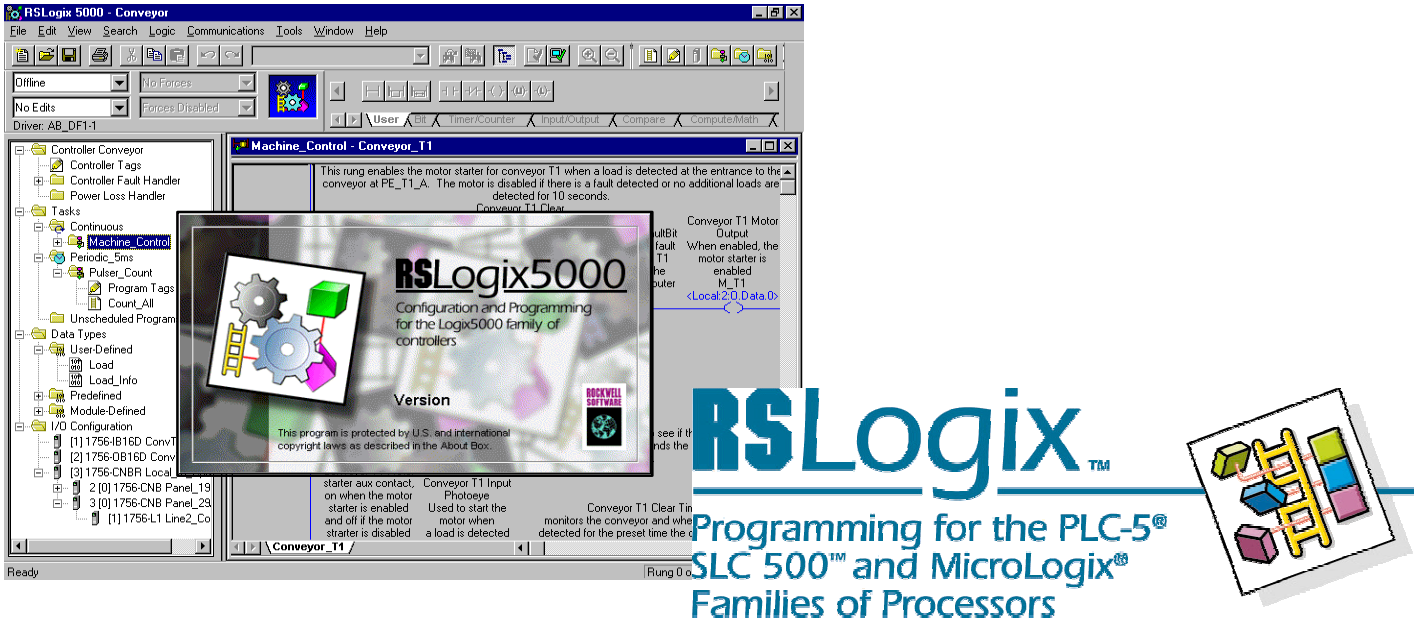


Ethernet and ControlLogix System: *Flexibility*

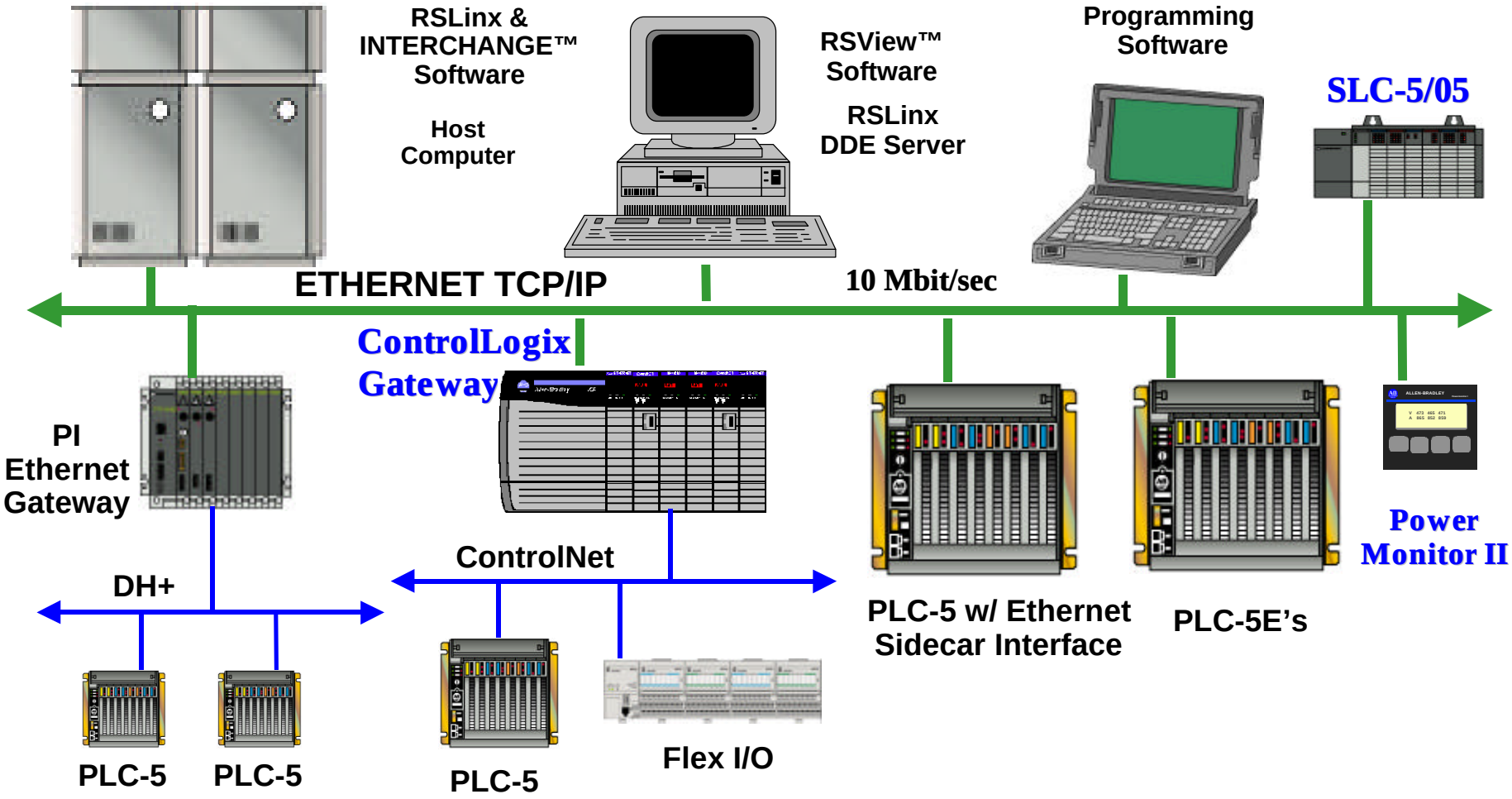
- ControlLogix offers greater flexibility for system and communications configuration
  - Multiple chassis sizes
- 1756-ENET module can reside in any slot in the chassis
- Multiple Ethernet modules can reside in one chassis for redundancy or separation of functional areas
- Support for more than 10 DH+ network segments connected to a ControlLogix chassis, unlike the Pyramid Integrator

Programming Software for EPIC Support

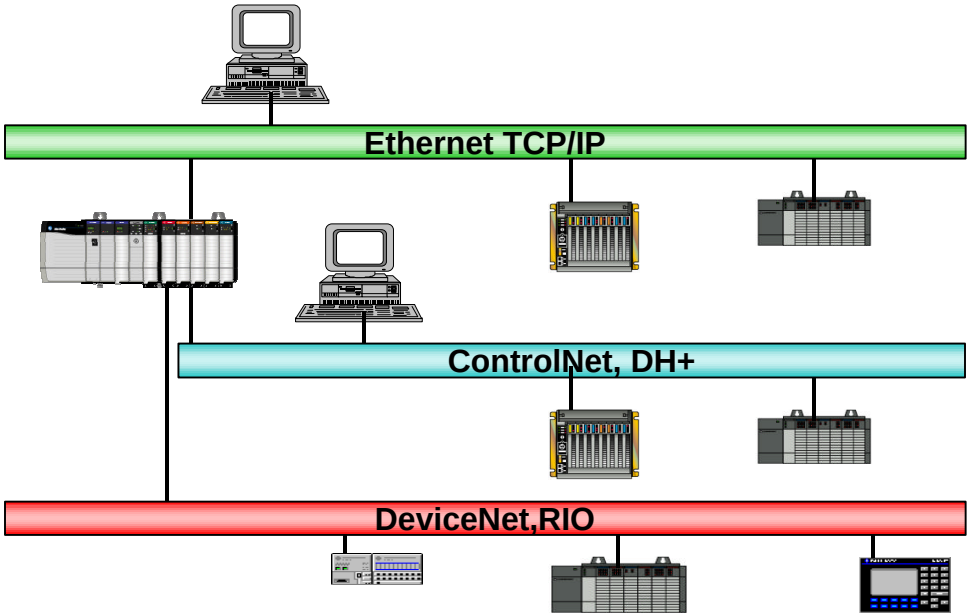
- Programming software updates are available to allow the user to program message instructions in PLC5E, SLC5/05, (and Ethernet Sidecar) to include the necessary Multi Hub configuration for CIP messages.
- Supported in RSLogix 5 and RSLogix 500



Existing Ethernet Products



ControlLogix GATEWAY Routing



Network	Consumer	DH+			EtherNet		ControlNet		DeviceNet
Producer		PLC5	SLC5/04	RSLinx	PLC5E	RSLinx	PLC5C	RSLinx	1756-DNB
DH+	PLC5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	SLC 5/04	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	RSLinx	Yes	Yes	n/a	Yes	n/a	Yes	n/a	Yes
ENet	PLC5E	Yes	Yes	Yes	n/a	n/a	Yes	n/a	No
	SLC 5/05	Yes	Yes	Yes	n/a	n/a	Yes	n/a	No
	Sidecar	Yes	Yes	Yes	n/a	n/a	Yes	n/a	No
	RSLinx	Yes	Yes	n/a	n/a	n/a	Yes	n/a	Yes
CNet	PLC5C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	RSLinx	Yes	Yes	n/a	n/a	n/a	Yes	n/a	Yes