

Rockwell Automation/Phoenix Digital Corporation

Distributed Stacked Core, 2 Channel, Redundant, Fiber Optic Ring Topology

Rockwell Automation can now support 2 channel, redundant, fiber optic, self-healing IACS networks for customers that require robust, high availability solutions that support the CPwE – Converged Plantwide Ethernet referenced architecture.

Working in collaboration with Encompass Partner; Phoenix Digital Corporation, Rockwell Automation can now provide dual fiber optic ring applications that conforms to the CPwE and provides customers easier integration and support while providing superior network robustness.

The PDC Distributed Stacked Core application delivers superior IACS deployment where high availability, redundant networking is required with minimal set-up, configuration and test.

Key benefits of the PDC based system include:

1. No software configuration
2. Single Dip Switch Set Up
3. No convergence time
4. No data loss on failure or ride through
5. Can be applied with any version of standard modified or unmodified ethernet
6. Supports a MTTR of less than 30 seconds by the end user maintenance technician

PDC systems have been deployed on a wide variety of IACS application where high availability is critical to system performance. Typical industries include, Oil and Gas, Mining, Water and Wastewater, Pulp and Paper, Power Generation and Energy.

The PDC Distributed Stacked Core system should be considered on Layer 0-2 applications and work in conjunction with the Rockwell Automation CPwE. The PDC systems is suitable for applications that require very low convergence times (less than 3ms)

- Controller to Controller
- Controller to I/O
- Controller to HMI
- Controller to Instrumentation
- Controller to Drives
- Controller to MCC's

For IACS applications that require specific deterministic time dependent applications it is recommended that appliances that support CIP Sync and CIP motion be used such as Stratix Managed Switches

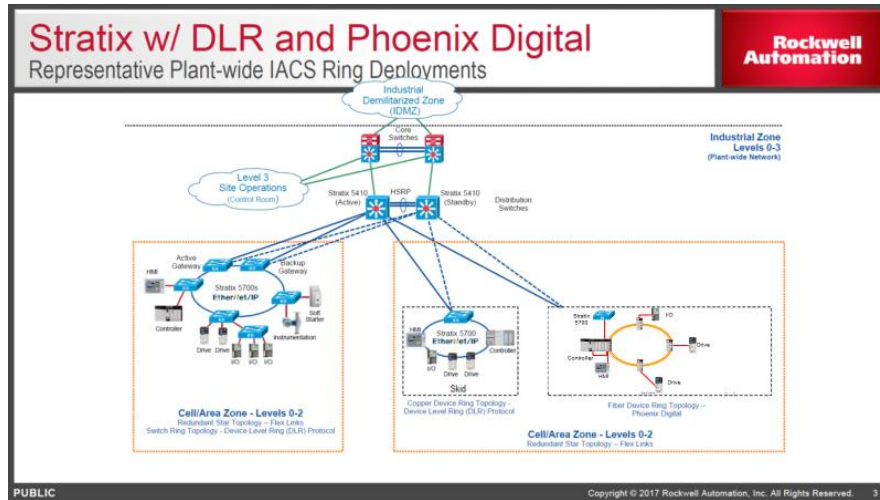
- Integrated motion applications using CIP Sync and CIP Motion

Considerations/Guidance

- PDC System should be used as a complimentary Ethernet Industrial IoT communication appliance for Rockwell Automation sales and distributors to win orders where complexity and cost are unmanageable obstacles to the sale
- PDC is a subnet appliance that supports a Stratix application where high available 2 channel redundancy is required
- PDC should be considered for layer 0-2 applications
- PDC is a PLC I/O based communication appliance
- PDC should be used where customers desire an in-chassis fiber optic communication solution
- PDC appliance supports any version of standard ethernet Industrial IoT protocols
- PDC appliance provides 3 levels of security
- PDC is not a Router

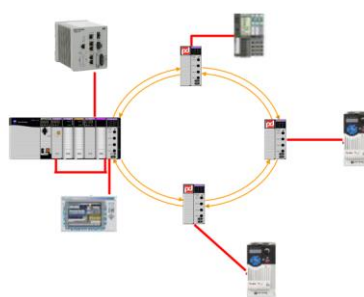
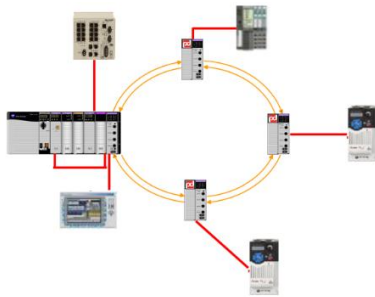
Resiliency Protocol	Mixed Vendor	Ring	Redundant Ring	Redundant Star	Network Convergence > 250ms	Network Convergence Sub 250ms	Network Convergence 50-150ms	Network Convergence 1-3ms	L3	L2
STP (802.1D)	X	X		X						X
RSTP (802.1w)	X	X		X	X					X
MSTP (802.1s)	X	X		X	X					X
RPVST+		X		X	X					X
REP		X					X			X
EtherChannel (LACP 802.3ad)	X			X		X				X
Flex Links				X			X			X
DLR (IEC & ODVA)	X	X						X		X
PDC DSCT	X	X	X					X		X
StackWise		X		X		X			X	X
HSRP		X		X	X				X	
GLBP		X		X	X				X	
VRRP (IETF RFC 3768)	X	X		X	X				X	

Reference Architectures



Stratix w/PDC DSC

5950 Security Appliance w/PDC DSC



IACS w/PDC DSC

