

Preface

Converged Plantwide Ethernet (CPwE) is a collection of architected, tested, and validated designs. The testing and validation follow the Cisco Validated Design (CVD) and Cisco Reference Design (CRD) methodologies. The content of CPwE, which is relevant to both operational technology (OT) and informational technology (IT) disciplines, consists of documented architectures, best practices, guidance, and configuration settings to help industrial operations and OEMs achieve the design and deployment of a scalable, reliable, secure, and future-ready plant-wide or site-wide industrial network infrastructure. CPwE can also help industrial operations and OEMs achieve cost reduction benefits using proven designs that can facilitate quicker deployment while helping to minimize risk in deploying new technology. CPwE is brought to market through an ecosystem consisting of Cisco, Panduit, and Rockwell Automation emergent from the strategic alliance between Cisco Systems and Rockwell Automation.

Industrial IoT (IIoT) offers the promise of business benefits by using innovative technology such as mobility, collaboration, analytics, and cloud-based services. The challenge for industrial operations is to develop a balanced security stance to take advantage of IIoT innovation while maintaining the integrity of industrial security and safety best practices. Cloud Connectivity to a Converged Plantwide Ethernet Architecture CRD (CPwE Cloud Connectivity), which is documented in this design guide, outlines several security architecture use cases for designing and deploying restricted end-to-end outbound connectivity from FactoryTalk[®] applications and industrial operations to the Rockwell Automation[®] cloud within a CPwE architecture. CPwE Cloud Connectivity was architected, tested, and verified by Cisco Systems and Rockwell Automation with assistance by Panduit.

Release Notes

This section summarizes the extensions to CPwE Cloud Connectivity in this January 2020 release:

- Extensions to technology use cases
- Extensions to test results and details
- Addition of Cisco Web Security Appliance and related infrastructure configuration
- Addition of technology troubleshooting and verification

Document Organization

This document contains the following chapters and appendices:

Chapter	Description
Chapter 1, “CPwE Cloud Connectivity Overview”	Presents an introduction to CPwE Cloud Connectivity architecture and the security architecture use cases.
Chapter 2, “CPwE Cloud Connectivity Design Considerations”	Presents an overview of CPwE Cloud Connectivity technology and design and deployment considerations, including security policy, architectural, and technology considerations, and FactoryTalk AssetCentre, FactoryTalk Activation Manager, and ControlFLASH Plus™ test cases
Chapter 3, “Configuring the Infrastructure”	Walk-through of the configuration of the various devices and infrastructure used as part of this CRD.
Chapter 4, “Verifying and Troubleshooting the Deployment”	Troubleshooting and verification tips associated with the use of the Cisco Web Security Appliance and the associated redirection technology.
Appendix A, “References”	List of references for CPwE design and implementation guides for network infrastructure services and security.
Appendix B, “Acronyms and Initialisms”	List of acronyms and initialisms used in this document.
Appendix C, “About the Cisco Validated Design (CVD) Program”	Describes the Cisco Validated Design (CVD) process and the distinction between CVDs and Cisco Reference Designs (CRDs.)

For More Information

More information on CPwE Design and Implementation Guides can be found at the following URLs:

- Rockwell Automation site:
 - <http://www.rockwellautomation.com/global/products-technologies/network-technology/architectures.page?>
- Cisco site:
 - http://www.cisco.com/c/en/us/solutions/enterprise/design-zone-manufacturing/landing_ettf.html



Note

This release of the CPwE architecture focuses on EtherNet/IP™, which uses the ODVA, Inc. Common Industrial Protocol (CIP™) and is ready for the Industrial Internet of Things (IIoT). For more information on EtherNet/IP, CIP, CIP Safety™, CIP Security™, or CIP Sync™, see the following URL:

- <http://www.odva.org/Technology-Standards/EtherNet-IP/Overview>

