

Preface

Converged Plantwide Ethernet (CPwE) is a collection of tested and validated architectures. 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 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.

Deploying Scalable Time Distribution within a Converged Plantwide Ethernet Architecture CRD (CPwE Time), which is documented in this Design Guide (DG), outlines several use cases for designing and deploying Scalable Time Distribution technology throughout a plant-wide Industrial Automation and Control System (IACS) network infrastructure. CPwE Time highlights the key IACS application requirements, technology, and supporting design considerations to help with the successful design and deployment of these specific use cases within the CPwE framework. CPwE Time was architected, tested, and verified by Cisco Systems and Rockwell Automation with assistance by Panduit.

Document Organization

This document is composed of the following chapters and appendices.

Chapter/Appendix	Description
CPwE Scalable Time Distribution Overview	Overview of CPwE Time.
CPwE Scalable Time Distribution Design Considerations	Describes primary design considerations when choosing how to implement CPwE Time in an IACS architecture.
CPwE Scalable Time Distribution Configuration	Describes how to configure CPwE Time within the CPwE architecture based on the design considerations and recommendations of the previous chapter.

Chapter/Appendix	Description
Test Hardware and Software	Lists the Cisco and Rockwell Automation hardware and software used in testing the CPwE Time solution.
References	Links to documents and websites that are relevant to Deploying Scalable Time Distribution within a Converged Plantwide Ethernet Architecture Design Guide.
Acronyms	List of all acronyms and initialisms used in this document.
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 and CIP Sync™, see [odva.org](http://www.odva.org) at the following URL:

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