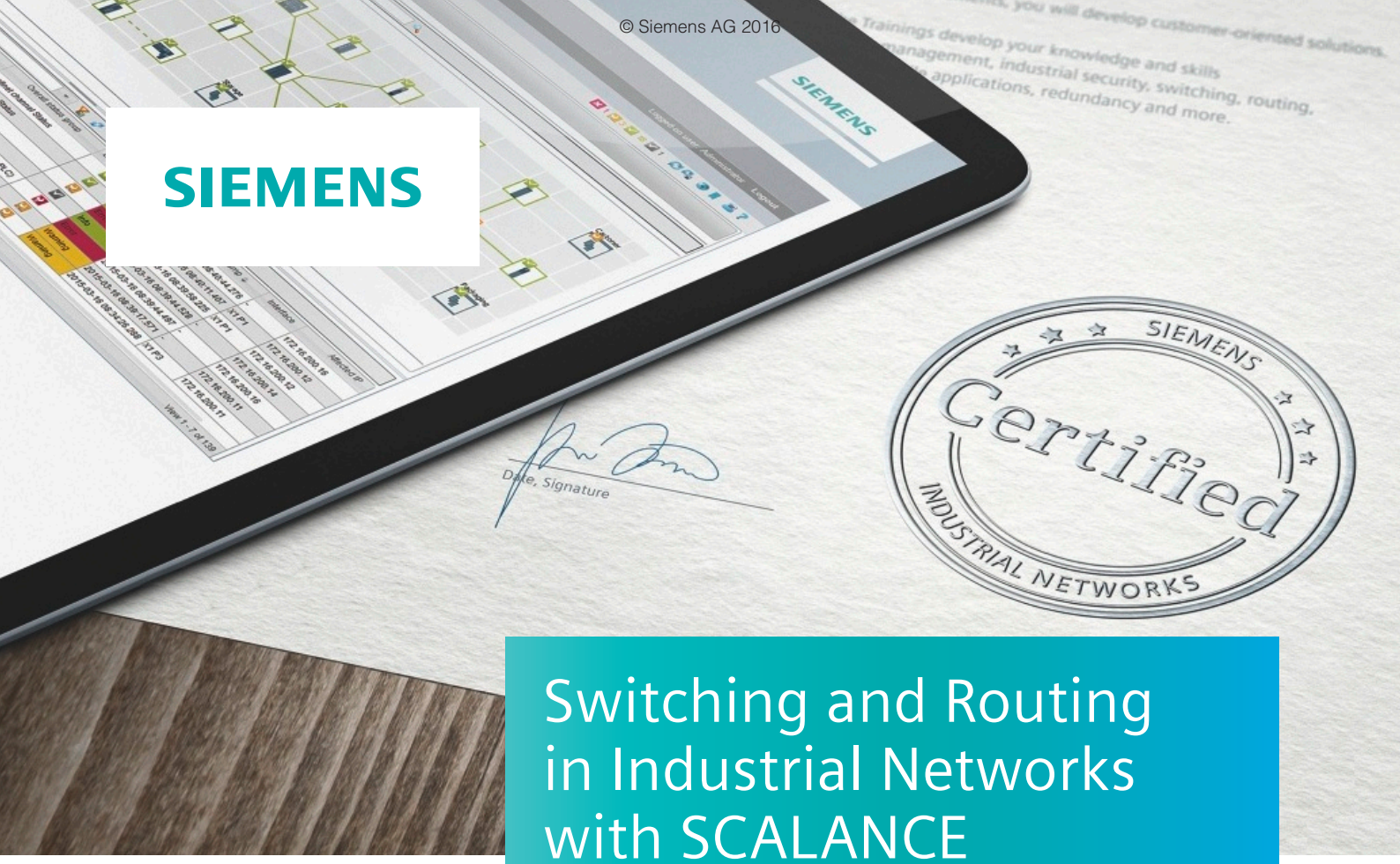
SIEMENS



Switching and Routing in Industrial Networks with SCALANCE

Industrial Networks Education

Description

An industrial or industry-related environment without Ethernet is no longer conceivable. A high degree of reliability and sufficient capacities are demanded from hard-wired industrial networks, because otherwise downtimes would be a constant threat and costs would be incurred. At the same time, Ethernet networks in industrial and industry-related environments must be securely connected via interfaces to a wide variety of machines and the existing network structure. Connecting the industrial network to the corporate network should be a seamless process.

With Industrial Ethernet/PROFINET networks from Siemens, such solutions are not a problem if you are familiar with the basic of such networks.

Objective

Switching
In the Switching part of the course you will learn Switched Network solutions and how they connect to real-time-capable systems in theory and in practice. You not only gain an insight into industrial switching concepts, you also implement them in ample practical exercises. At the end of the course, you are not just familiar with the requirements of such solutions. With the knowledge you will have gained, you can plan, implement, and provide support for plain industrial networks.

Routing
The Routing section will teach you the fundamentals and knowledge required for planning, configuring, and operating network solutions in industrial environments, which are structured by routing, and their connection to company networks. You will become familiar with the special requirements of routing solutions in industry and the required fundamentals of IP communication, static routing, routing protocols, and redundancy mechanisms in order to independently plan, implement and maintain such solutions.

You can deepen your theoretical knowledge with numerous practical exercises on products from the SCALANCE X product line.

Contents

Switching
- Comparison of Ethernet and Industrial Ethernet
- Typical topologies
- Redundancy mechanisms (MRP, HRP, Standby Redundancy Protocol, RSTP, Passive Listening, HSR, PRP)
- Network segmentation with VLANs
- Special industrial functions
- Diagnostics and troubleshooting

Routing
- IPv4 basics (addressing, data exchange, important protocols)
- Static routing
- Router redundancy (VRRP)
- Dynamic routing (RIP, OSPF)
- Diagnostics and troubleshooting

Target Group

Technical sales personnel
Industry: COOs, commissioning engineers, project engineers, maintenance and service technicians
IT: CIOs, network architects, administrators, service personnel

Requirements

Knowledge according to course “Ethernet Fundamentals in Industrial Networks”: You should have basic knowledge of the topic „Ethernet“ and should be familiar with topologies, transfer processes, addressing, data transport, and understand the associated technical vocabulary. It is also helpful if you are familiar with the principles of operation of routers, switches, hubs and the OSI reference model.

Certification (Siemens CPIN-LEVEL)

This training prepares for the certification „Siemens Certified Professional for Industrial Networks - Switching and Routing“. A voluntary certification examination which consists of two sections will take place at the end of the training. As an option, the examination may be taken at a later time.

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