

Ethernet Communication Design with PREEvision

Agenda VectorAcademy

Delivery Format:	This course is offered in Classroom or in Blended Format
Duration:	Classroom: 4 days Blended: 22 hours
Target Group:	Architects and engineers in charge of designing communication in Ethernet-based architectures.
Prerequisites:	Understanding serial communication systems in the automotive area
Goal:	Modeling Ethernet communication in PREEvision

1. Concepts of PREEvision

- > PREEvision as a product for the whole architecture management
- > Development process
- > Layer model

2. Introduction to PREEvision

- > Starting PREEvision the first time
- > Projects
- > Windows and diagrams
- > Perspectives and views
- > Traceability and navigation

3. PREEvision in Multi User Mode

- > Lock / Commit
- > Reuse
- > Check in / Check out

4. Introduction to Ethernet in ISO/OSI Layers

- > Motivation for Ethernet and IP in vehicles
- > Overview of used physical layers, Topologies and network architectures
- > Ethernet II Frame, bus access methods, addressing, VLAN, switch
- > IP Basics: IP packet, IP addresses, IP routing
- > TCP segments and UDP packets, ports, connection-oriented and connectionless communication
- > Introduction to service-oriented communication with SOME/IP

5. Overview Software Design

- > Software Architecture Structure
- > Library approach: Type – Prototype – Instance
- > Services and Service Interfaces
- > Service Implementation

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6. Network Topology Design

- > Creation of components
- > Design of switched networks
- > Using types and clusters
- > High Performance Computer design

7. Service Deployment

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- > SWC mapping

8. Ethernet Socket Adapter

- > Signal routing (data synthesis)
- > Socket adapter configuration

9. ECU communication definition

- > Ethernet Controller specific settings
- > VLAN creation and assignment
- > IP address definition
- > Socket address definition

10. Switch Configuration

- > VLAN Tagging
- > Quality of Service Switch Configuration

11. Service Discovery

- > Service Discovery configuration
- > Export Communication to CANoe

12. Outlook

- > Introduction to AUTOSAR Adaptive and combined systems