

XTran for Network Designers – Course Description

Target Audience

People who are responsible for designing XTran networks.

Course Prerequisites

The engineering course ('XTran for Network Engineers') is not a mandatory prerequisite. Sufficient knowledge of networking and some design knowledge is recommended.

Course Objectives

After completing the training, students will be able to:

- Design an XTran network step-by-step—from physical layout to service integration—based on customer requirements.
- Key topics include service configuration, protocol and feature selection, external factors, and scalability analysis.
- Practical case studies and exercises via TXCare help reinforce the design process and apply concepts in real-world scenarios.

Exercises

Paper exercises and offline TXCare hands-on practice are included.

Duration

3 days if 'Foundations' need to be included, 2 days otherwise.

Content

Foundations

- MPLS-TP is introduced and justified as the ideal OT network technology, while XTran – developed by Belden – is presented as the optimal solution.
- The functionality of all XTran hardware components is discussed, to allow the students to introduce these parts judiciously in a network design.
- TXCare is introduced as XTran's Network Management System. For this target group, we will focus on TXCare functionality that assist in the network design phase.
- Tunnels, protection schemes and basic Ethernet services are explained and demonstrated.

XTran Network Design

- We begin by explaining the general workflow for designing an XTran network, starting on the physical layer.
- Based on the customer's overall requirements, an initial Bill of Materials (BoM) and design (physical topology) can be proposed. This design will be refined in the subsequent steps of the iterative design process.
- The second step involves a more detailed design of the various service types, by gathering and applying the necessary information—starting with Ethernet services, followed by Circuit Emulation services, and, if applicable, other types of services.
- Next, we analyze the Feature and Protocol Matrix to determine which features are required and assess their impact on the current design.
- We also take external factors into account as part of the design considerations.
- In a last stage, we check if the design is within the limits defined in the Scalability Matrix, and find solutions if not.

Case Studies

- Case studies and design exercises help to make network design topics more tangible and practical.