Nokia GMPLS-controlled Optical Networks

Course outline

This course is designed for network engineers, IT personnel, and network planning personnel who need to learn the principles and best practices related to optical network control based on Generalized Multi Protocol Label Switching (GMPLS). Participants are introduced to the GMPLS protocol, architecture, and control plane features.

This course introduces the skills and knowledge required to control and manage optical networks using the Nokia GMPLS routing engine implementation (GMRE). The course includes lab exercises and multiple case studies where participants can familiarize themselves with GMRE and Network Functions Manager for Transport (NFM-T) to perform provisioning and restoration in optical networks.

Course number
ER00838-V-1803

Duration
4 days

Exam
Nokia GMPLS-controlled Optical Networks (4A0-220)

Credit toward certification
Nokia Optical Network Services Expert

Recommended pre-requisites
• Nokia Optical Networking Fundamentals (ER00835-V-1803)
• Nokia Optical Network Management with NFM-T (ER00836-V-1803)
Course objectives
After completing the course, students should be able to:

• Explain the main behavior and features of the GMPLS protocol
• Illustrate the control plane architecture
• Explain the concept of the Label Switched Path (LSP) and its metrics
• Highlight the handling of LSP information in single-layer and multi-region networks
• Derive the key advantages of GMPLS
• Describe the working principles of the main GMPLS protocols, including OSPF-TE, RSVP-TE, LMP
• Work with the Nokia GMPLS routing engine (GMRE)
• Check the GMPLS messages with sniffing tools
• Identify the differences between protection, restoration and protection-restoration-combined (PRC)
• Compare the restoration mechanisms at the different layers using GMRE and NFM-T
• Implement restoration at Layer 0 (L0), Layer 1 (L1), and across multiple layers
• Describe and implement advanced survivability features, such as priority and pre-emption mechanisms
• Describe the fundamentals of GMPLS maintenance and operations

Course modules
• Module 0 – Course Introduction
• Module 1 – GMPLS CP Concept and Architecture
• Module 2 – GMPLS Protocols
• Module 3 – Protection and Restoration
• Module 4 – GMPLS Maintenance and Operations

Learn more at networks.nokia.com/onc

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