

Deploying Eltex MES Switches (advanced level) v.1

Course Duration: 40 hours (5 days)

Target Audience:

- System Administrators;
- Technical and Engineering Employees;
- Technical Support Engineers;
- Network Software Developers.

Course pre-requisites:

- Knowledge of OSI model and of the role of protocols in data transmission;
- Ability to prepare Eltex MES switches for deployment;
- Understanding of VLAN functioning principles, particularities of switch port modes (Access, Trunk, General, Customer) as well as QinQ technology, ability to use various methods of configuration of above-mentioned technologies in Eltex MES switches;
- Understanding of functioning and ability to configure the access control lists at L2, L4 and L4–7 layers of OSI model;
- Knowledge of basic attacks at L2 layer and such methods of counteracting them as DCHP Snooping, ARP Inspection, and PortSecurity;
- Ability to configure the SNMP protocol in Eltex MES switches to provide basic network monitoring;
- Knowledge of stacking and MLAG principles, understanding of applicability of these technologies in local network, ability to configure them in Eltex MES switches;
- Acquaintance with L1 and L2 diagnostics methods in Eltex MES switches.

As a result of the course, the participants will:

Be able to:

- Plan and deploy the advanced services in Ethernet-based networks;
- Manage VLAN traffic based upon MAC addresses, protocols and policies;
- Optimize the traffic flow in mixed L2-deployments by means of VLAN-compatible spanning-tree protocols such as PVST, RPVST, and MSTP;
- Ensure the uninterruptable functioning of the networks with heavy multicast-traffic load;
- Analyze the traffic flows for further prioritization as well as configure the network switches for ensuring QoS in switched LAN;
- Deploy and optimize the dynamic routing protocols at distribution and core layers of the LAN.

Have the knowledge of:

- Methods of management of VLAN traffic based upon MAC addresses, protocols and network policies;
- Theory of functioning of MSTP, PVST+, PRVST+, ERPS as well as methods of configuring them in Eltex MES switches;
- Principles of deployment of multicast protocols and their configuration in Eltex MES switches;
- Prioritization rules of application traffic, basics of classification and marking of packets and frames, queuing and scheduling algorithms in Eltex MES switches;
- Algorithms of OSPF and BGP dynamic routing protocols and the rules of their deployment in enterprise networks as well as ways to increase the availability of the network by means of BFD protocol;
- Basics of Eltex ECCM cloud configuration and monitoring software and basic configuration of local devices for successful connection to ECCM.

Acquire the following skills:

- Skills of planning and introduction of advanced network services taking into account the business requirements of the participant's organization;
- Skills of management of network devices;
- Skills of configuring the medium and large networks with Eltex network equipment.

Learning Plan

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Activity	Description	Time
Topic:	1. Advanced VLAN management	3 hours
Description:	1.1. MAC- and Protocol-based VLANs 1.2. LLDP-MED, Voice VLAN 1.3. 802.1x	2 hours
Lab:	1.1. Deployment of 802.1x authentication	1 hour

Activity	Description	Time
Topic:	2. Prevention of loops in networks with VLANs	4 hours
Description:	2.1. PVST and RPVST Protocols 2.2. MSTP 2.3. ERPS	3 hours
Lab:	2.1. MSTP Configuration	1 hour

Activity	Description	Time
Topic:	3. Multicast management	7 hours
Description:	3.1. Multicast traffic basics 3.2. Internet Groups Management Protocol (IGMP) 3.3. Protocol Independent Multicast (PIM) 3.4. Configuring IGMP Snooping and PIM	4 hours
Lab:	3.1. Planning of IGMP Deployment 3.2. Configuring IGMP in a Switched Network	3 hours

Activity	Description	Time
Topic:	4. Quality of Service (QoS)	7 hours
Description:	4.1. General Principles and Scope of QoS 4.2. Traffic Classification and Marking 4.3. Queuing, Scheduling and Algorithms of Queue Management 4.4. Configuring Basic QoS 4.5. Configuring Advanced QoS	4 hours
Lab:	4.1. Prioritizing Various Traffic Types for QoS Deployment 4.2. Configuring QoS in Eltex MES Switches	3 hours

Activity	Description	Time
Topic:	5. Advanced Routing Management	8 hours
Description:	5.1. Basics of OSPF implementation and configuration 5.2. Basics of BGP implementation and configuration 5.3. Deploying BFD for Improvement of Network Availability 5.4. Policy-Based Routing and Equal Cost Multipath	4 hours
Lab:	5.1. Deploying OSPF for Routing Inside the Autonomous System 5.2. Deploying BGP for Routing Among Autonomous Systems	4 hours

Activity	Description	Time
Topic:	6. Network Management Automation	4 hours
Description:	6.1. Eltex Cloud Configuration Manager: Solution Elements and Deployment 6.2. Connection and Management of Network Devices by means of ECCM	3 hours
Lab:	6.1. Navigation through ECCM. Connection and Management of Eltex MES Switches by Means of ECCM	1 hour

Intermediary and final controls: 7 hours

One free-of-charge attempt of certification test is provided within the frameworks of this course. The participant may use this attempt on the last day of the course.

In case the test attempt is unsuccessful, the participant may contact the Commercial Department for purchasing the additional attempt.

The participant may use the paid attempt within one calendar month starting from the data of course completion.