AFRICAN ADVANCED LEVEL TELECOMMUNICATIONS INSTITUTE (AFRALTI)

ADVANCED IP NETWORKING FOR THE SERVICE PROVIDERS

COURSE CONTEXT AND OVERVIEW

This course emphasizes theoretical concepts and practical application, while providing opportunities for participants to gain the skills and hands-on experience needed to design, install, operate, and maintain advanced enterprise and service provider networks. The course builds on the Intermediate course on IP Networking for service providers.

TARGET AUDIENCE

This course targets staff in telecom operators (fixed and mobile), service providers, and regulatory authorities, and any other organizations that have implemented, or are intending to implement advanced enterprise level IP networking solutions. In particular, it targets Switching Technicians/ Engineers, transmission technicians/engineers, data communications technicians/engineers, systems and Network Administrators, telecommunications management personnel seeking IP knowledge.

PREREQUISITES

Participants should have gone through the Intermediate IP Networking for Service Providers course.

METHODOLOGY

The course will be a mixture of lectures, assessment and practical exercises based on Cisco routing and switching devices.

DURATION

The course will be offered on full-day basis over a period of two weeks.

COURSE MODULES

Implement EIGRP operations.

- Explain the functions and operations of EIGRP (e.g., DUAL).
- Configure EIGRP routing. (e.g., Stub Routing, authentication, etc.)
- Verify or troubleshoot EIGRP routing configurations.

Implement multiarea OSPF operations.

- Explain the functions and operations of multiarea OSPF.
- Configure multiarea OSPF routing. (e.g., Stub, NSSA, authentication, etc.)
- Verify or troubleshoot multiarea OSPF routing configurations.

Describe integrated IS-IS.

- Describe the features and benefits of integrated IS-IS.
- Configure and verify integrated IS-IS.

Implement Cisco IOS routing features.

- Describe, configure or verify route redistribution between IP routing IGPs. (e.g., route-maps, default routes, etc.)
- Describe, configure or verify route filtering (i.e., distribute-lists and passive interfaces).

Implement BGP for enterprise ISP connectivity

- Describe the functions and operations of BGP.
- Describe the functions and operations of BGP.
- Configure or verify BGP operation in a non-transit AS (e.g., authentication).
- Configure BGP path selection. (i.e., Local Preference, AS Path, Weight or MED attributes).

Implement basic teleworker services.

- Describe Cable (HFC) technologies.
- Describe xDSL technologies.

Implement Frame-Mode MPLS.

- Describe the components and operation of Frame-Mode MPLS (e.g., packet-based MPLS VPNs).
- Configure and verify Frame-Mode MPLS.

Implement a site-to-site IPSec VPN

- Describe the components and operations of IPSec VPNs and GRE Tunnels.
- Configure a site-to-site IPSec VPN/GRE Tunnel with SDM (i.e., preshared key).
- Verify IPSec/GRE Tunnel configurations (i.e., IOS CLI configurations).
- Describe, configure, and verify VPN backup interfaces.
- Describe and configure Cisco Easy VPN solutions using SDM.

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