



User Data Consolidation (UDC) 1

Training Programs

Catalog of Course Descriptions



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Introduction

Ericsson has developed a comprehensive Training Programs service to satisfy the competence needs of our customers, from exploring new business opportunities to expertise required for operating a network. The Training Programs service is delineated into packages that have been developed to offer clearly defined, yet flexible training to target system and technology areas. Each package is divided into flows, to target specific functional areas within your organization for optimal benefits.

Service delivery is supported using various delivery methods including:

Delivery Method

Instructor Led Training (ILT)

Web-based Learning (WBL)

Blended Learning/Training (BLD)



Equipment Identity Register Front End (EIR-FE) 1 Operation, Maintenance and Configuration

LZU1082473 R2A

Description:

What are the benefits of EIR-FE? What is the difference between a native and virtual EIR-FE? Which deployment options are there when virtualizing the EIR-FE? Do you need to operate or configure the EIR-FE? Do you need to perform a health check? Do you know how to take advantage of the EIR-FE features in your network?

This course will teach you all of this and more. The students will practice hands-on operation and maintenance on the EIR, including processing GSMA CEIR lists towards the Provisioning Gateway (PG). They will also practice how to configure the EIR-FE service features in the Centralized User Database (CUDB) and verify them in the Front End using Wireshark. This course is applicable for both native and virtual EIR-FE deployments.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Introduce the benefits of EIR-FE
 - 1.1 Explain why an EIR is required
 - 1.2 Show EIR functionalities and benefits
 - 1.3 Explore the EIR platform options
- 2 Practice alarm triggered operations
 - 2.1 Present relevant EIR manuals from Alex
 - 2.2 Discover alarms that EIR can generate
 - 2.3 Practice reading alarms in the GUI and CLI
- 3 Practice routine based operations
 - 3.1 Walkthrough GUI oriented operations
 - 3.2 Monitor performance measurements
 - 3.3 Practice taking backups
- 4 Practice EIR-FE signaling configuration
 - 4.1 Add front end nodes – MSC & MME
 - 4.2 Add back end nodes – CUDB & PG
 - 4.3 Configure CUDB query options
- 5 Practice service logic configuration
 - 5.1 Analyze the service logic decisions



- 5.2 Configure basic & enhanced searches
- 5.3 Configure combined IMEI & IMSI searches
- 6 Present the EIR-FE architecture
 - 6.1 Explore the native and virtual infrastructures
 - 6.2 Discover CUDB & PG interactions
 - 6.3 Compare network deployment options
- 7 Analyze advanced EIR-FE signaling
 - 7.1 Compare MAP and Diameter
 - 7.2 List LDAP object classes for EIR
 - 7.3 Clarify CAI3G messages used by EIR
- 8 Perform maintenance routines
 - 8.1 Perform a health check
 - 8.2 Check data collection logs
 - 8.3 Practice basic troubleshooting

Target audience:

This course is suitable for anyone who needs to operate, maintain and configure the EIR-FE.

Prerequisites:

Successful completion of the following courses:

Ericsson User Data Consolidation (UDC) 1 Overview, LZU1082477

Ericsson Centralized User Database (CUDB) 1 Operation and Service Configuration, LZU1082474

In addition, the students need to be familiar with:

Linux Admin, MySQL Admin, XML, LDAP, MAP and Diameter.

Duration and class size:

The length of the course is 3 days and the maximum number of participants is 8

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely. This course can also be delivered remotely as a 4 day course.



Ericsson Centralized User Database (CUDB) 1 Operation and Service Configuration

LZU1082474 R2A

Description:

Do you want to know more about the Centralized User Database (CUDB)? How to operate it? Do you know each component and functionality inside CUDB? This course will help you on all these and more. It will teach you how to check, operate and configure many aspects in the CUDB system and its components. Also, you will understand the O&M procedures of each part inside the CUDB system and verify its high availability. This release, is now based on EBS 1.0/2.0 HW (GEP3) and BSP HW/DMX 3.1 (GEP5) for upgrades and BSP8100 for new sales. This course is part of the User Data Consolidation (UDC) 1 solution training flow.

This course is valid both for Native and Virtual CUDB.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Present the CUDB system in the UDC solution based on customers' documentation
 - 1.1 Verify the CUDB system function inside the UDC Solution
 - 1.2 Identify the CUDB system components
 - 1.3 List all the hardware and boards used by the CUDB system and its components, such as CMXB, SCXB and GEP5 for instance.
 - 1.4 Verify the database concepts used in the CUDB system
 - 1.5 Clarify the CUDB interfaces inside the UDC solution
- 2 List the main generic database terms and concepts
 - 2.1 Explain DS units and DS groups concepts
 - 2.2 Examine what is Directory Information Tree (DIT) data model
 - 2.3 Verify the cluster configuration for databases
 - 2.4 Check some related commands to the cluster components
 - 2.5 Verify the LOTC and TSP SAF concepts
 - 2.6 List the main system directories
- 3 Detail the CUDB node architecture and functionalities in UDC solution
 - 3.1 Verify the internal and external connections from CUDB view
 - 3.2 Recognize a physical connection inside a CUDB node
 - 3.3 Verify the CUDB hardware implementation and the software components
 - 3.4 Acknowledge internal and external VLANs used in CUDB system
 - 3.5 Identify some LDAP users and its operation types
 - 3.6 Discuss redundancy and data replications implemented in CUDB



- 3.7 State the majority/minority state and acknowledge the even split situation in CUDB
- 3.8 Check some responses from the CUDB system against some possible failures
- 3.9 Identify the Cooperative Load regulation mechanism
- 3.10 Explain process of Migration to vCUDB systems
- 3.11 Explain Dedicated IoT offering
- 3.12 Explain Automatic Mastership Change when master Replica is Degraded

- 4 List the most important operation activities in the CUDB system
 - 4.1 Learn how to access each component in the CUDB system
 - 4.2 View some important CUDB commands
 - 4.3 View the software management in the CUDB system
 - 4.4 Demonstrate backup and restore procedures for all configuration information and storage data
 - 4.5 Verify how operation system backups are done in CUDB
 - 4.6 Make backup and restore at CUDB system level
 - 4.7 List preventative maintenance activities in the CUDB node
 - 4.8 View the configuration structure for CUDB
 - 4.9 Describe Ericsson Network Manager Support
 - 4.10 Describe Subscriptions Reallocation Improvement
 - 4.11 Explain upgrade procedures
 - 4.12 Explain Local Reads process
 - 4.13 Explain Logging function
 - 4.14 Describe Electronic Software License Improvement
 - 4.15 Explain support for Static Routing
 - 4.16 Describe support for Support for HSS-EPC 5G Profile

- 5 Obtain basic statistics and performance data for the CUDB system
 - 5.1 Check how statistics are managed in the CUDB system
 - 5.2 Verify counter concepts and some examples
 - 5.3 View statistics files in the CUDB node
 - 5.4 Verify how application counters are configured in the CUDB system

- 6 Explore Provisioning Gateway (PG) functionality based on customer system documentation
 - 6.1 Verify the functionalities assigned to PG in the UDC solution
 - 6.2 Check PG interfaces towards application Front Ends (FE's)
 - 6.3 Verify the most common provisioning flows
 - 6.4 View both software and hardware for PG
 - 6.5 Recognize the GUI interface for PG O&M

Target audience:

This course is suitable for anyone who is required be able to configure and operate CUDB.

**Prerequisites:**

Successful completion of the following courses:

Successful completion of the following course:

Ericsson User Data Consolidation (UDC) 1 Overview - LZU1082477

The participants should be familiar with Linux Operation System, IP Networks, XML, LDAP and Generic Database Knowledge and EBS/BSP background.

Ericsson User Data Consolidation (UDC) 1 Overview - LZU1082477

Duration and class size:

The length of the course is 2 days and the maximum number of students is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



Ericsson Certificate Administration Server (ECAS) 1 Operation

LZU1082475 R2A

Description:

Do you know how to perform the daily operation, such as: taking backup, checking alarms and the health of the virtual Certificate Administration Server (ECAS)?

This course will teach you all this and more. The students can practice hands-on operation on the ECAS. In addition they will get familiar with existing security topics that apply for both Embedded SIM (eSIM) and No-SIM Devices. This course can also be adapted on request to suit a specific operator security solution.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Present secure communication with ECAS
 - 1.1 Explain why secure communication needs the ECAS
 - 1.2 Show the high level architecture for Multi-Device Solution
 - 1.3 Analyze how ECAS authenticates No-SIM devices
- 2 Manage ECAS hardware and security
 - 2.1 Acknowledge hardware options
 - 2.2 Explore Public Key Infrastructure (PKI)
 - 2.3 Clarify hardware security operation
- 3 Operate ECAS virtual machines
 - 3.1 Administrate Front-End EJBCA GUI
 - 3.2 Review alarms, health-check and redundancy
 - 3.3 Explain backup and restore procedures
- 4 Present ECAS performance aspects
 - 4.1 List performance counters
 - 4.2 Show performance configuration
 - 4.3 Describe performance characteristics

Target audience:

This course is suitable for anyone who is required be able to operate ECAS.

**Prerequisites:**

Successful completion of the following courses:

Successful completion of the following course:

Wi-Fi Calling Solution Overview, LZU1089981

Experience with Cloud O&M using either: KVM, CEE or WMWare. The participants should be familiar with Linux and SSL/TLS certificates.

Duration and class size:

The length of the course is 2 days and the maximum number of participants per session is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



Ericsson Dynamic Activation (EDA) 1 Operation and Resource Configuration

LZU1082552 R1A

Description:

Ericsson Dynamic Activation 1.0 release offers the next generation provisioning solution for Resource activation and resource configuration. It comes with the revolutionary model driven configuration technology which is the corner stone to replace programing with configuration.

Do you want to understand the full potential of the Ericsson Dynamic Activation product, how to design and implement service configuration solution for wireline and enterprise services on network devices, how to operate and maintain the system, how to trouble shoot system and service configuration related issues? If so, then this is the course for you.

With the help of this course the participant will be able to design a service configuration solution for new products and offerings in SDN/NFV networks and IP/VPN services, perform system administrative tasks as well as trouble shooting.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Introduce EDA product
 - 1.1 Outline the challenges operator face and how Ericsson Dynamic Activation can help
 - 1.2 Describe the Resource Configuration concept and solution overview
 - 1.3 Describe the adaptability of the product and the integration process principles for introduction of a new product/offer
- 2 Describe the EDA Resource configuration Deployment and System Architecture
 - 2.1 Examine EDA 1 system administration, alarm handling and license management
 - 2.2 Demonstrate system administration tasks
 - 2.3 the alarm handling architecture (ESA) and configuration
 - 2.4 Examine the License Management and view licenses in the GUI
 - 2.5 Virtual Machine management
 - 2.6 User Management
- 3 Describe the Resource Configuration concept and solution overview
 - 3.1 Describe the end to end process for Resource Configuration
 - 3.2 Model Driven Asynchronous Activation Engine
 - 3.3 Manage feature model
 - 3.4 Manage vendor template
 - 3.5 Manage devices



- 3.6 Service Visualization
- 3.7 Configure Service Model using Designer Studio
- 3.8 Perform end-to-end test
- 3.9 Troubleshoot Resource Configuration request

Target audience:

This course is suitable for anyone who is required to be able to operate and provision EDA.

Prerequisites:

Successful completion of the following courses:

Participants should have the following knowledge:

General IS/IT knowledge

Basic UNIX knowledge

Duration and class size:

The length of the course is 2 days and the maximum number of participants is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



Ericsson Dynamic Activation (EDA) 1 Operation and Provisioning

LZU1082551 R1A

Description:

Ericsson Dynamic Activation offers the next generation provisioning solution for Resource Activation and Resource Configuration. In addition to off-the-shelf support for Ericsson network elements and solutions and multi-vendor/multi domain provisioning capability, It comes with the revolutionary model driven configuration technology which is the corner stone to replace programming with configuration.

Do you want to understand the full potential of the Dynamic Activation product, how to design and implement activation and configuration solution for new products/offerings, how to operate and maintain the system, how to trouble shoot the system and provision related issues? If so, this is the course for you.

With the help of this course the participant will be able to design provisioning solution for new products and offerings, perform system administrative tasks as well as trouble shooting.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Introduce EDA product
 - 1.1 Discuss how Ericsson Dynamic Activation help the Operators transformation and faced challenges
 - 1.2 Discuss the provisioning principles and their respective features
 - 1.3 Describe model driven configuration concept and introduce the EDA SCM
 - 1.4 Highlight the evolving support for SDN/NFV networks and IP/VPN services
 - 1.5 Describe the adaptability of the product and the integration process principles for introduction of a new product/offer
 - 1.6 Describe the deployment alternatives and characteristics
- 2 Discuss Ericsson Dynamic Activation configuration
 - 2.1 Explain the purpose of activation logic and configure its properties
 - 2.2 Define network elements, NE groups, NE cluster and routing methods
 - 2.3 Define Loose Error Handling
 - 2.4 Configuring Resilient Activation
 - 2.5 Create different User types, with user restrictions/authorities
- 3 Describe the EDA Deployment and System Architecture
 - 3.1 Examine EDA 1 system administration, alarm handling and license management



- 3.2 Demonstrate system administration tasks
- 3.3 Describe the alarm handling architecture (ESA) and configuration
- 3.4 Examine the License Management and view licenses in the GUI
- 3.5 Virtualized development
- 4 Discuss end to end process for Resource Activation
- 4.1 Describe the CAI3G interface
- 4.2 Configure Service Model using Designer Studio
- 4.3 Perform end-to-end test
- 4.4 Trouble shoot provisioning request
- 5 Describe the Resource Configuration concept and solution overview
- 5.1 Describe the end to end process for Resource Configuration
- 5.2 Model Driven Asynchronous Activation Engine
- 5.3 Manage feature model
- 5.4 Manage vendor template
- 5.5 Manage devices
- 5.6 Service Visualization
- 5.7 Configure Service Model using Designer Studio
- 5.8 Perform end-to-end test
- 5.9 Trouble shoot Resource Configuration request

Target audience:

This course is suitable for anyone who is required be able to operate and provision EDA.

Prerequisites:

Successful completion of the following courses:

Participants should have the following knowledge:

General IS/IT knowledge

Basic UNIX knowledge

Duration and class size:

The length of the course is 3 days and the maximum number of participants is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



Ericsson HLR-Front End (FE) 1 Configuration

LZU1082621 R1A

Description:

Do you want to know how the HLR-Front End works? How to provision subscriber's data and add services or restrictions? Do you want to know how HLR-Front End interacts with Centralized User Database nodes and the Provisioning Gateway in the Ericsson User Data Consolidation solution and all about the core network connectivity? This course will bring you all these answers. By engaging in theoretical and practical sessions with the trainer, you will have the opportunity to explore the HLR-Front End, its functionalities and configuration data and verify the subscriber authentication procedures in the network. This includes network node configuration, subscription definition, basic and supplementary services for Ericsson HLR-Front End, based on the Ericsson Blade hardware structure. This course is part of a Ericsson User Data Consolidation solution and is valid both for native and virtual HLR.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Verify HLR Overview
 - 1.1 Introduce main concepts of HLR
 - 1.2 Explain HLR function in Mobile Network
 - 1.3 Acknowledge main HLR components
- 2 Compare Monolithic HLR with Layered HLR
 - 2.1 Describe HLR Monolithic aspects
 - 2.2 Compare HLR with HLR-FE functions in Mobile Network
- 3 Distinguish HLR-DB from HLR-BC
 - 3.1 Demonstrate main HLR DB characteristics
 - 3.2 Describe HLR-BC structure
 - 3.3 Explain HLR-BC interfaces with external nodes
- 4 Explain Normal HLR-FE Configuration
 - 4.1 Describe main HLR-FE configuration parameters
 - 4.2 Explain HLR-FE interfaces configuration with external nodes
 - 4.3 Define the different MAP versions
 - 4.4 Identify SCCP congestion control function
 - 4.5 Setup the LDAP signaling towards Centralized User Database System
 - 4.6 Configure SS7 signaling path towards the mobile network
- 5 Compare Native to Virtual Delta
 - 5.1 Describe main characteristics of Virtual HLR-FE



- 5.2 Explain Virtual HLR-FE components
- 5.3 Describe interface of Virtual HLR-FE with external Networks
- 5.4 Describe HLR-FE Virtual Appliance
- 5.5 Explain VNF Verification in the NFV-i reference configuration
- 5.6 Investigate Certified Level Testing with VMWare
- 5.7 Analyze TUAK algorithm in HLR-FE/AuC-FE
- 5.8 Explain standalone AuC-FE for cloud deployments

- 6 Common Subscription
 - 6.1 Describe nodes involved in HLR-FE subscription
 - 6.2 Explain Access to Mobile in Services in the HLR-FE

- 7 Explain HLR-FE Data for GSM/WCDMA
 - 7.1 Investigate 2G/3G authentication process for HLR-FE
 - 7.2 Describe GPRS in HLR-FE
 - 7.3 Describe 2G Roaming Restrictions in HLR-FE
 - 7.4 Explain Mobile Number Portability handling in HLR-FE for 2G/3G Networks
 - 7.5 Explain SAE Mobility support for HLR-FE in GSM/WCDMA/LTE Networks

- 8 Explain HLR-FE Data for LTE
 - 8.1 Clarify roaming procedures for HLR-FE in LTE Networks
 - 8.2 Explain 4G related parameters for HLR-FE

- 9 Describe HLR-FE Geo Redundancy
 - 9.1 Analyze HLR-FE Geo Redundancy parameters
 - 9.2 Describe redundant scenarios for HLR-FE
 - 9.3 Explain MNP-FE in redundant configurations

- 10 Explain Statistics Measurements in HLR-FE
 - 10.1 Describe statistic parameters in HLR-FE
 - 10.2 Acknowledge statistics measurements process for HLR-FE

**Target audience:**

This course is suitable for anyone who is required be able to configure HLR-FE.

Prerequisites:

Successful completion of the following courses:

Successful completion of the following courses:

Ericsson User Data Consolidation (UDC) 1 Overview, LZU1082477

Ericsson Centralized User Database (CUDB) 1 Operation and Service Configuration, LZU1082474

Ericsson Multi Activation (EMA) 16 Operation and Provisioning, LZU1082290

APG43L Operation and Maintenance, LZU1089484

According to the deployed HLR in the customer, the following courses are also mandatory:

For HLR-FE on APZ 214 10 – i.e. BSP (GEP5) HW:

BSP8100 Operation and Maintenance, LZU1089779

Blade Cluster on BSP 8100 Overview, LZU1082242

Blade Cluster Platform Operation and Maintenance (BSP), LZU1089750

For HLR-FE on APZ 214 03 – i.e. IS (GEP2) HW:

IS 3.1 Overview, LZU1087566

MSC-S Blade Cluster Overview, LZU1089007

Blade Cluster Platform Operation and Maintenance, LZU1088005

For HLR-FE on APZ 212 60x – Dual Blade HW:

APZ 212 60F Operation and Maintenance, LZU1089746

Additionally, for students without experience of HLR Monolithic:

MSS Overview, LZU1082437

Home Location Register (HLR) 15A Operation, LZU1089880

Duration and class size:

The length of the course is 3 days and 24 hours and the maximum number of participants is 8

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



Ericsson User Data Consolidation (UDC) 1 Overview

LZU1082477 R2A

Description:

Do you want to know what Ericsson User Data Consolidation (UDC) is? And how the subscribers' databases can be smoothly combined into a central database? How this new data architecture can provide easier launch of services, high availability and efficient capacity? What nodes can be used in this solution?

This course is a must for those who want to know about the new data layered architecture and the advantages of the Ericsson User Data Consolidation solution. The course also takes a look into the native and virtual UDC components such as Ericsson HLR-Front End, HSS-Front End, Service Aware Policy Control-Front End, Centralized User Data Base and Provisioning Gateway and more.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Outline the market trends and drivers for operators to optimize subscriber data handling and introduction of new services
 - 1.1 Identify today's network and subscriber handling
 - 1.2 Acknowledge the market situation and market background
 - 1.3 Discuss the introduction of new services
 - 1.4 Stress the benefits of the UDC solution for VoLTE, M2M and other types of businesses
- 2 Analyze how the Ericsson User Data Consolidation solution is introduced in mobile networks
 - 2.1 Describe the new data layered architecture in the mobile networks
 - 2.2 List the interfaces and protocols used in the solution
 - 2.3 Recognize the benefits of Ericsson User Data Consolidation
 - 2.4 Describe Authentication Procedures in UDC
 - 2.5 Identify the HSS/SLF-FE functions
 - 2.6 Outline the Ericsson Service Aware Policy Control-Front End functionality
 - 2.7 Identify the EIR-Front End functions
 - 2.8 Explore the functionality of Ericsson User Profile Gateway
 - 2.9 Describe the IPWorks functionality
 - 2.10 Check the Centralized User Data Base node functions
 - 2.11 Illustrate the Provisioning Gateway functions
 - 2.12 Examine how signaling distribution function impacts in Ericsson User Data Consolidation
 - 2.13 Describe Ericsson Network Manager
- 3 Describe the User Data Consolidation Front End nodes hardware using the customer documentation



- 3.1 List the benefits of the Native and Virtual UDC Deployments
- 3.2 Categorize the HLR-FE End node hardware with the AUC and MNP application
- 3.3 Check Native and Virtual HSS-FE, EIR-FE, SAPC-FE, and other FEs
- 4 Identify the Centralized User Data Base node described in the system documentation
 - 4.1 Briefly name the platform and software used in the Centralized User Data Base nodes
 - 4.2 Define the main elements that compose the Centralized User Data Base nodes
 - 4.3 Recognize the Centralized User Data Base database mechanisms
 - 4.4 Express how the data redundancy is applied in the Ericsson Centralized User Data Base nodes
 - 4.5 List the Centralized User Data Base data model used in the Ericsson User Data Consolidation solution
 - 4.6 Verify the Centralized User Data Base behavior in splits situation in an overview level
- 5 Outline the Provisioning Gateway and the User Profile Gateway in the Ericsson User Data Consolidation solution
 - 5.1 Describe the native and virtual Provisioning Gateway node
 - 5.2 Verify the native and virtual User Profile Gateway node
 - 5.3 Recognize the data information tree in the Centralized User Data Base node
 - 5.4 Define how individual provisioning, massive requests, and schedule procedures are handled in Ericsson User Data Consolidation solution for the HLR, HSS, Service Aware Policy Control, and EIR applications
 - 5.5 Explain how the LDAP protocol interacts during subscriber handling
- 6 View Ericsson User Data Consolidation deployment and use cases
 - 6.1 Recognize some different deployment scenarios for the UDC implementation
 - 6.2 Examine location update procedures in Ericsson User Data Consolidation
 - 6.3 Verify the mobile GSM/WCDMA call procedures in Ericsson User Data Consolidation

Target audience:

This course is suitable for anyone who is required to be familiar with UDC.

**Prerequisites:**

Successful completion of the following courses:

Successful completion of the following course:

Mobile Signaling Concepts, LZU1082256 or equivalent work experience.

Also the participants should be familiar with mobile networks GSM/WCDMA/IMS/EPS, classic HLR and HSS nodes and PG.

Duration and class size:

The length of the course is 2 days and the maximum number of participants per session is 16

Learning situation:

This course is based on theoretical instructor-led lessons given in a classroom environment.



Ericsson User Profile Gateway (UPG) 1 Overview

LZU1082479 R2A

Description:

Do you know what the Ericsson User Profile Gateway (UPG) is and how it works? Do you want to know how you can interact with different databases? And do you know that the UPG 1 is now mounted in the BSP platform which provides the possibility to deploy "UDC in a Box (UiB)"? This course is a must for anyone who will work with, or needs to know more about the Ericsson User Profile Gateway product. Upon completion you will be able to list the main functionalities and benefits, describe the main interfaces and verify how Ericsson User Profile Gateway interacts with the Ericsson User Data Consolidation solution.

This course covers both Native and Virtualized UPG node.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Examine the market background
 - 1.1 Identify the market situation
 - 1.2 Define the market potential and market trends
 - 1.3 Discuss how to optimize subscriber data handling and introduce new services
 - 1.4 Show the existing network
- 2 Describe what the Ericsson User Profile Gateway functionalities offer to the applications and to the operators
 - 2.1 Identify the 3GPP Generic User Profile
 - 2.2 Illustrate the UPG Components and Functions
 - 2.3 Describe the Product Overview
 - 2.4 Explain the integration of Applications and Data Source
 - 2.5 Recognize the Standards interfaces
 - 2.6 Describe Initial Load Mechanism enhancement
 - 2.7 Explain Runtime replication mechanism enhancement with auto recovery and auto failover
 - 2.8 Describe Online schema change support
 - 2.9 Explain Additional CAMEL and MTAS attributes support
- 3 List the main benefits of the Ericsson User Profile Gateway to the operator
 - 3.1 Recognize Ericsson User Profile Gateway benefits
 - 3.2 Explore the virtual subscriber profile view
 - 3.3 Interpret how Ericsson User Profile Gateway interacts with Ericsson User Data Consolidation solution



- 4 Identify all interfaces of the Ericsson User Profile Gateway
 - 4.1 State the interfaces used for applications
 - 4.2 Describe the LDAP interface inside Ericsson User Profile Gateway
 - 4.3 Show what the Data Sources nodes interfaces are
 - 4.4 Define the operator maintenance Interfaces
- 5 Explain the Ericsson User Profile Gateway new hardware and software implementation in the BSP platform
 - 5.1 Check the new Ericsson User Profile Gateway Hardware implementation in BSP platform
 - 5.2 Show the implementation of the Ericsson User Profile Gateway with applications using the "UiB" solution
 - 5.3 State the software that is used in Ericsson User Profile Gateway

Target audience:

This course is suitable for anyone who is required to be familiar with UPG.

Prerequisites:

Successful completion of the following courses:

Ericsson User Data Consolidation (UDC) 1 Overview, LZU1082477

The participants should be familiar with GSM/WCDMA/EPC networks. Familiarity with User Profile Capability, Linux, Java, TCP/IP, XML, LDAP and Generic Database Knowledge (e.g. OpenLDAP, MySQL) is also beneficial.

Duration and class size:

The length of the course is 1 day and the maximum number of participants per session is 16

Learning situation:

This course is based on theoretical instructor-led lessons given in a classroom environment.



Ericsson User Profile Gateway (UPG) 1 Operation and Configuration

LZU1082478 R2A

Description:

Do you want to know more about the Ericsson User Profile Gateway (UPG) 1 product? How to operate it? Do you know each component and functionality inside UPG? Do you know about the new UPG functionalities? Do you want to discover more about the UDC Cockpit? This course will help you on all these and more. It will give you a very good knowledge to check, operate and configure many aspects in the UPG product and its components. Also, you will understand some operational and management procedures of each part of UPG and operate the User Profile Viewer.

This course covers both Native and Virtualized UPG node.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Define the UPG architecture in detail.
- 1.1 Describe the main UPG functionalities such as User Profile Viewer, USER.360, APN Management and VoLTE interworking.
- 1.2 Explain the main architecture components such as Application Protocols, Access Control, Identity Mapping, Data Handling and Data Sources.
- 1.3 Demonstrate the importance of the UDC Cockpit for the UPG.
- 1.4 Identify the UPG hardware and software considering the: product architecture, software components and hardware requirements.
- 1.5 Explain virtualized UPG concepts.
- 2 Execute UPG operation and maintenance tasks, such as alarm management and logs.
- 2.1 Demonstrate the GUI access, standard setup workflow, security setup workflow and explain the symbols in the GUI.
- 2.2 Execute access control.
- 2.3 Perform system control.
- 2.4 Execute some maintenance tasks, according to the CPI.
- 2.5 Explain process of Initial Load Mechanism Enhancement.
- 2.6 Describe Runtime replication mechanism enhancement including auto recovery and auto failover.
- 2.7 Explain Online Schema change support.
- 2.8 Describe additional CAMEL and MTAS attributes support.
- 2.9 Describe additional Virtualized Network Functions for UPG.
- 2.10 Explain support of two parallel UPG instances connected to CUDB
- 2.11 Describe Auto installation procedure



- 2.12 Explain Static Routing without BFD
- 2.13 Describe Integration with ENM
- 2.14 Describe centralized user authentication for GUI users and OAM users logon over NBI
- 3 Perform configuration of data sources based on data in example databases.
 - 3.1 Use User Account Configuration.
 - 3.2 Describe the UPG administrative security.
 - 3.3 Initiate a pre-configuration using the Initial Setup tool.
 - 3.4 Use UPG Data Repository Control.
 - 3.5 Run and edit UPG update policies.
- 4 Identify how the User Profile Viewer is managed and operated
 - 4.1 Describe the UPG data view.
 - 4.2 Analyze a UPG deployment.
 - 4.3 Access the User Profile Viewer Tool.
 - 4.4 Operate the User Profile Viewer.
- 5 Examine the standard UPG interfaces.
 - 5.1 Examine the UPG Rg interface.
 - 5.2 Explore UPG CAI3G provisioning system.
 - 5.3 Describe UPG bulk provisioning procedure.

Target audience:

This course is suitable for anyone who is required be able to operate and configure the UPG.

Prerequisites:

Successful completion of the following courses:

Successful completion of the following courses:

Ericsson User Data Consolidation (UDC) 1 Overview, LZU1082477

Ericsson User Profile Gateway (UPG) 1 Overview, LZU1082479

Duration and class size:

The length of the course is 2 days and the maximum number of participants per session is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



HSS-FE 1 Operation and Configuration for EPC and IoT

LZU1082584 R1A

Description:

This course provides participants with the knowledge and skills necessary to perform Surveillance, Operation and Configuration activities on the virtual HSS-FE 1 node in the Evolved Packet Core environment. The course covers both virtual and native HSS-FE.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Describe HSS-FE node functions and interworking
 - 1.1 Describe the network solutions that Ericsson HSS-FE is a part of
 - 1.2 Describe HSS-FE functions in a Packet Core environment
 - 1.3 Describe HSS-FE functions in Narrowband IoT
 - 1.4 Explain HSS-FE interworking, interfaces and protocols
- 2 Explain the HSS-FE node architecture
 - 2.1 Explain HSS-FE implementation as a VNF
 - 2.2 Explain External Connectivity and eVIP functionality
 - 2.3 Perform Scaling Management
- 3 Explain HSS-FE Operation and Maintenance Principles
 - 3.1 Describe O&M Interface
 - 3.2 Perform Compute Resources Check
 - 3.3 Explain Fault Management principles
 - 3.4 Perform HSS-FE Health Check
 - 3.5 Explain Performance Management principles
 - 3.6 Perform Backup and Restore
- 4 Configure EPC HSS-FE components and interfaces
 - 4.1 Configure ESM parameters (ESM Configuration Container)
 - 4.2 Configure Narrowband IoT parameters
 - 4.3 Configure the interface between HSS-FE and CUDB
 - 4.4 Configure the S6a interface between HSS-FE and MME
 - 4.5 Configure MAP interface between HSS-FE and HLR
 - 4.6 Configure SWx interface between HSS-FE and AAA
- 5 Configure AVG Module in HSS-FE
 - 5.1 Configure AVG in HSS-FE

**Target audience:**

This course is suitable for anyone who is required be able to operate and configure HSS-FE.

Prerequisites:

Successful completion of the following courses:

Virtual EPC Overview LZU1082264

EPC Signaling LZU1087580

The following course is a prerequisite for native HSS-FE 1:

BSP 8100 Operation and Maintenance LZU1089779

The following course is a prerequisite for virtual HSS-FE 1:

Virtual IMS Concepts LZU1082227

The following courses become prerequisites if HSS-FE 1 is a part of Ericsson Certified Cloud offering:

BSP 8100 Operation and Maintenance LZU1089779

Cloud Execution Environment 16A (CEE), LZU1082354

Ericsson Cloud Execution Environment 16A (CEE) System Administrator, LZU1082353

Duration and class size:

The length of the course is 2 days and the maximum number of participants is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



HSS-FE 1 Operation and Configuration for VoLTE

LZU1082587 R1A

Description:

This course provides participants with the knowledge and skills necessary to perform Surveillance, Operation and Configuration activities on the HSS-FE 1 node in the VoLTE environment. The course covers both virtual and native HSS-FE.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Describe HSS-FE node functions and interworking
 - 1.1 Describe network solutions Ericsson HSS-FE is a part of
 - 1.2 Describe HSS-FE functions in VoLTE environment
 - 1.3 Explain HSS-FE interworking, interfaces and protocols
- 2 Explain the HSS-FE node architecture
 - 2.1 Explain the native HSS-FE implementation
 - 2.2 Explain the HSS-FE implementation as a VNF
 - 2.3 Explain External Connectivity and eVIP functionality
 - 2.4 Perform Scaling Management
- 3 Explain HSS-FE Operation and Maintenance Principles
 - 3.1 Describe O&M Interface
 - 3.2 Perform Compute Resources Check
 - 3.3 Explain Fault Management principles
 - 3.4 Perform HSS-FE Health Check
 - 3.5 Explain Performance Management principles
 - 3.6 Perform Backup and Restore
- 4 Describe the role of HSS-FE in IMS
 - 4.1 Describe how HSS-FE supports basic IMS procedures
 - 4.2 Configure Cx/Dx interface between HSS-FE and CSCF
 - 4.3 Configure Sh/Dh interface between HSS-FE and Application Servers
 - 4.4 Configure Service Profiles containing Triggers in HSS-FE
 - 4.5 Configure Charging Profiles in HSS-FE
- 5 Describe the role of HSS-FE in EPC
 - 5.1 Describe how HSS-FE supports basic EPC procedures
 - 5.2 Configure ESM parameters (ESM Configuration Container)
 - 5.3 Configure the S6a interface between HSS-FE and MME
 - 5.4 Configure SWx interface between HSS-FE and AAA
 - 5.5 Configure MAP interface between HSS-FE and HLR



- 6 Describe the role of HSS-FE in VoLTE
- 6.1 Describe how HSS-FE supports VoLTE specific procedures
- 6.2 Configure VoLTE specific parameters on HSS-FE
- 7 Explain HSS-FE common functions
- 7.1 Configure the interface between HSS-FE and CUDB
- 8 Configure AVG Module in HSS-FE
- 8.1 Configure AVG in HSS-FE

Target audience:

This course is suitable for anyone who is required be able to operate and configure HSS-FE.

Prerequisites:

Successful completion of the following courses:

IMS Overview LZU1082585

Virtual EPC Overview LZU1082264

IMS Signaling LZU1087193

EPC Signaling LZU1087580

VoLTE Concepts LZU1089425

VoLTE e2e Use Cases LZU1089426

Virtual IMS Concepts LZU1082227

The following course is a prerequisite for native HSS-FE 1:

BSP 8100 Operation and Maintenance LZU1089779

The following courses become prerequisites if HSS-FE 1 is a part of Ericsson Certified Cloud offering:

BSP 8100 Operation and Maintenance LZU1089779

Cloud Execution Environment 16A (CEE), LZU1082354

Ericsson Cloud Execution Environment 16A (CEE) System Administrator, LZU1082353

Duration and class size:

The length of the course is 3 days and the maximum number of participants is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



IPWorks 2 Operation and Maintenance for IMS

LZU1082659 R1A

Description:

Do you need to know how to configure a virtualized IPWorks, do basic maintenance tasks, and learn some tips and tricks? IPWorks is an advanced product with several user interfaces, a layered architecture, and a combination of disk-based and memory-based databases. This course provides practical knowledge on the operation and maintenance of IPWorks. The course emphasizes the understanding of virtualized IPWorks deployment on the IMS network and the knowledge of configuring the DNS and ENUM (with Number Portability) services as well as the Active Select DNS and DHCP. The students are introduced to fault, node and performance management of the system.

Learning objectives:

On completion of this course the participants will be able to:

- 1 List the purpose of IPWorks and the services it provides
 - 1.1 Introduction to IPWorks features and functions
- 2 Explain the architecture of IPWorks
 - 2.1 Explain Virtualization concepts
 - 2.2 Describe Component Based Architecture and name relevant supporting components
 - 2.3 Review of Hardware and Software Architecture
- 3 Recount IPWorks redundancy options
 - 3.1 Describe the redundancy options
- 4 Describe IPWorks deployment scenarios in IMS network
 - 4.1 Relate IPWorks importance in IMS network
- 5 Work with IPWorks interfaces
 - 5.1 Apply COM CLI
 - 5.2 Get familiar to Netconf
- 6 Configure various parts of the system
 - 6.1 Configure DNS server
 - 6.2 Configure ASDNS
 - 6.3 Operate ENUM server
 - 6.4 Operate DHCP server
- 7 Execute fault management
 - 7.1 Inspect alarms and work with the SNMP agents
 - 7.2 Configure and view logs



- 8 Practice maintenance tasks
 - 8.1 System backup and restore
 - 8.2 Configure and view statistics reports
- 9 Handle User management
 - 9.1 Managing User Profile and Access Control

Target audience:

This course is suitable for anyone who is required be able to operate and maintain IPWorks.

Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585

Virtual IMS Concepts, LZU1082227

The following courses become prerequisites if IPWorks Virtualized is a part of Ericsson Certified Cloud offering:

BSP 8100 Operation and Maintenance LZU1089779

ECM Fundamentals, LZU1089914

Duration and class size:

The length of the course is 2 days and the maximum number of participants is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



IPWorks 2 Operation and Maintenance for EPC

LZU1082660 R1A

Description:

Do you need to know how to configure IPWorks, do basic maintenance tasks, and learn some tips and tricks? IPWorks is an advanced product with several user interfaces, a layered architecture, and a combination of disk-based and memory-based databases.

This course provides practical knowledge on the operation and maintenance of IPWorks. The course emphasizes the understanding of virtualized IPWorks deployment on the EPC network and the knowledge of configuring the DNS, Active Select DNS, Radius AAA, Diameter AAA and DHCP services and understanding the role of these services in an EPC network. The students are introduced to fault, node and performance management of the system. With the help of the manual provided in this course, and the guidance of the instructor, the attendees will be able to learn the most efficient ways of performing operation and maintenance procedures. Considerable part of the course is dedicated to WiFi Calling solution support.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Understand the purpose of IPWorks and the services it provides
 - 1.1 Introduction to IPWorks features and functions
- 2 Explain the architecture of IPWorks
 - 2.1 Explain Virtualization concepts
 - 2.2 Describe Component Based Architecture and name relevant supporting components
 - 2.3 Review of Hardware and Software Architecture
- 3 Recount IPWorks redundancy options
 - 3.1 Describe the redundancy options
- 4 Describe IPWorks deployment scenarios in EPC networks
 - 4.1 Understand IPWorks importance in EPC network
- 5 Work with IPWorks interfaces
 - 5.1 Apply COM CLI
 - 5.2 Get familiar to Netconf
- 6 Configure various parts of the system
 - 6.1 Configure DNS server
 - 6.2 Operate AAA server
 - 6.3 Configure ASDNS
 - 6.4 Operate DHCP Server
- 7 Execute fault management



- 7.1 Inspect alarms and work with the SNMP agents
- 7.2 Configure and view logs
- 8 Practice maintenance tasks
 - 8.1 System backup and restore
 - 8.2 Configure and view statistics reports
- 9 Handle User management
 - 9.1 Managing User Profile and Access Control

Target audience:

This course is suitable for anyone who is required be able to operate and maintain IPWorks.

Prerequisites:

Successful completion of the following courses:

EPC System Survey, LZU1087977

Fundamental knowledge of IP protocol suite and Linux OS

Duration and class size:

The length of the course is 2 days and the maximum number of participants is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



IPWorks 1 (Virtual) Operation and Maintenance for IMS

LZU1082430 R1A

Description:

Do you need to know how to configure a virtualized IPWorks, do basic maintenance tasks, and learn some tips and tricks? IPWorks is an advanced product with several user interfaces, a layered architecture, and a combination of disk-based and memory-based databases.

This course provides practical knowledge on the operation and maintenance of IPWorks. The course emphasizes the understanding of virtualized IPWorks deployment on the IMS network and the knowledge of configuring the DNS and ENUM (with Number Portability) services as well as the Active Select DNS feature. The students are introduced to fault, node and performance management of the system.

Learning objectives:

On completion of this course the participants will be able to:

- 1 List the purpose of IPWorks and the services it provides
 - 1.1 Introduction to IPWorks features and functions
- 2 Explain the architecture of IPWorks
 - 2.1 Explain Virtualization concepts
 - 2.2 Describe Component Based Architecture and name relevant supporting components
 - 2.3 Review of Hardware and Software Architecture
- 3 Recount IPWorks redundancy options
 - 3.1 Describe the redundancy options
- 4 Describe IPWorks deployment scenarios in IMS network
 - 4.1 Relate IPWorks importance in IMS network
- 5 Work with IPWorks interfaces
 - 5.1 Apply COM CLI
 - 5.2 Get familiar to Netconf
- 6 Configure various parts of the system
 - 6.1 Configure DNS server
 - 6.2 Configure ASDNS
 - 6.3 Operate ENUM server
- 7 Execute fault management
 - 7.1 Inspect alarms and work with the SNMP agents
 - 7.2 Configure and view logs



- 8 Practice maintenance tasks
 - 8.1 System backup and restore
 - 8.2 Configure and view statistics reports
- 9 Handle User management
 - 9.1 Managing User Profile and Access Control

Target audience:

This course is suitable for anyone who is required be able to operate and maintain IPWorks.

Prerequisites:

Successful completion of the following courses:

IMS 17 Overview, LZU1082426

Virtual IMS Concepts, LZU1082227

The following courses become prerequisites if IPWorks Virtualized is a part of Ericsson Certified Cloud offering:

BSP 8100 Operation and Maintenance LZU1089779

ECM Fundamentals, LZU1089914

Duration and class size:

The length of the course is 2 days and the maximum number of participants is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



IPWorks 1 (Virtual) Operation and Maintenance for EPC

LZU1082428 R1A

Description:

Do you need to know how to configure IPWorks, do basic maintenance tasks, and learn some tips and tricks? IPWorks is an advanced product with several user interfaces, a layered architecture, and a combination of disk-based and memory-based databases. This course provides practical knowledge on the operation and maintenance of IPWorks. The course emphasizes the understanding of virtualized IPWorks deployment on the EPC network and the knowledge of configuring the DNS and AAA services and understanding the role of these services in an EPC network. The students are introduced to fault, node and performance management of the system. Furthermore, the course covers some security aspects of IPWorks. With the help of the manual provided in this course, and the guidance of the instructor, the attendees will be able to learn the most efficient ways of performing operation and maintenance procedures. Considerable part of the course is dedicated to WiFi Calling solution support.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Understand the purpose of IPWorks and the services it provides
 - 1.1 Introduction to IPWorks features and functions
- 2 Explain the architecture of IPWorks
 - 2.1 Explain Virtualization concepts
 - 2.2 Describe Component Based Architecture and name relevant supporting components
 - 2.3 Review of Hardware and Software Architecture
- 3 Recount IPWorks redundancy options
 - 3.1 Describe the redundancy options
- 4 Describe IPWorks deployment scenarios in IMS network
 - 4.1 Relate IPWorks importance in EPC network
- 5 Work with IPWorks interfaces
 - 5.1 Apply COM CLI
 - 5.2 Get familiar to Netconf
- 6 Configure various parts of the system
 - 6.1 Configure DNS server
 - 6.2 Operate AAA server
 - 6.3 Configure ASDNS
- 7 Execute fault management



- 7.1 Inspect alarms and work with the SNMP agents
- 7.2 Configure and view logs
- 8 Practice maintenance tasks
 - 8.1 System backup and restore
 - 8.2 Configure and view statistics reports
- 9 Handle User management
 - 9.1 Managing User Profile and Access Control

Target audience:

This course is suitable for anyone who is required be able to operate and maintain IPWorks.

Prerequisites:

Successful completion of the following courses:

EPC System Survey, LZU1087977

Fundamental knowledge of IP protocol suite and Linux OS

Duration and class size:

The length of the course is 2 days and the maximum number of participants is 8.

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.



Native UDC to Virtual UDC Delta

LZU1082623 R1A

Description:

Are you making the transition from native User Data Consolidation (UDC) to virtual UDC? Are you planning to deploy any virtual UDC related product, such as virtual vCUDB, vSAPC, vHLR-FE, vEIR-FE, vHSS-FE, vEDA or vUPG? Have you already started to use vUDC, and need to know what has changed? Are you concerned that the cloud is secure and reliable enough?

Then this course is for you, since it explains how the virtualization has impacted the UDC related nodes. It also prepares the students to review the requirements on the Cloud infrastructure, in order to guarantee that the virtual UDC nodes work as expected.

The course also touches important subjects such as telecom service availability, security, and which virtual UDC deployment strategies and options there are.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Present how UDC has been evolving
 - 1.1 Introduce how to create a future proof HLR
 - 1.2 Clarify how HSS has been prepared for cloud
 - 1.3 Explain how to align the UDC nodes' platform
- 2 Prepare UDC hardware for virtualization
 - 2.1 Align UDC to use common physical hardware
 - 2.2 Discover how tenants use logical hardware
 - 2.3 Identify the Software Defined Infrastructure
- 3 Explore compute, network and the storage
 - 3.1 Discuss compute resource terminology
 - 3.2 Demonstrate network resource architecture
 - 3.3 Evaluate the storage resource requirements
- 4 Summarize UDC virtualization impact
 - 4.1 Review some virtual UDC node aspects
 - 4.2 Analyze infrastructure considerations
 - 4.3 Show Ericsson cloud deployment options



Target audience:

System Technician

Prerequisites:

Successful completion of the following courses:

Successful completion of the following course:

Ericsson User Data Consolidation (UDC) 1 Overview, LZU1082477 or equivalent knowledge.

Duration and class size:

The length of the course is 1 day and the maximum number of participants per session is 16.

Learning situation:

This course is based on theoretical instructor-led lessons given in a classroom environment.



SAPC 1 Online Delta

LZU1082710 R1A

Description:

The SAPC 1 delta course includes a training module covering the new features and feature enhancements corresponding to each deployment package beginning from SAPC 1.0 up to 1.2.

Learning objectives:

On completion of this course the participants will be able to:

- 1 new features and feature enhancements for SAPC releases 1.0, 1.1 and 1.2.

Target audience:

This course is suitable for anyone who is required to be familiar with XXXXXXXX.

Prerequisites:

Successful completion of the following courses:

Successful completion of the following courses:

SAPC 1 Overview - LZU1082609

SAPC 1 Operation, Configuration and Troubleshooting - LZU1082500

Duration and class size:

The length of the course is 1.5 hours and the maximum number of participants per session is 1

Learning situation:

This is a web-based interactive training course with multimedia content.



SAPC 1 Operation, Configuration and Troubleshooting

LZU1082500 R3A

Description:

Mobile broadband is taking off and moving forward to LTE era and Cloud Solutions. It is very important to understand the Fair Usage Policy Control, QoS, Access Policy Control and VoLTE traffic cases. You may need to operate and configure the main equipment in order to manage all these new characteristics using a Classical SAPC or a virtual SAPC.

The SAPC 1 Operation and Configuration course is recommended for those who are working with operation and configuration tasks related to solutions requiring policy management. It defines how SAPC provides centralized policy management for access control and QoS control per subscriber, service and bearer basis according to the 3GPP Policy Charging and Control (PCC) architecture. This course includes the main operation, maintenance and configuration activities using both Physical Node Function (PNF) and/or VNF (Virtual Node Function).

This course consists of two parts – an online Video Recorded Session (Learning Objectives 1-2) and an Instructor-Led Training (Learning Objectives 3-5).

Learning situation:

This is a Blended Learning.

The WBL component(s) is self-paced interactive learning with multimedia content, delivered online and the ILT component is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Discuss the SAPC solutions
 - 1.1 Explain the SAPC reference model
 - 1.2 Describe the SAPC main functions
 - 1.3 Explain the SAPC interfaces and their protocols
 - 1.4 Describe the SAPC in 5G EPC and as well the micro-services-based Policy Controller in 5GC
- 2 List the main features in SAPC 1
 - 2.1 Explain the SAPC 1 architecture
 - 2.2 Describe the virtual SAPC 1 architecture
 - 2.3 Outline the architecture of SAPC 1 on BSP 8100
 - 2.4 Describe the architecture of SAPC 1 on NAP 6.1
- 3 Review the main operation activities in SAPC



- 3.1 Demonstrate the OAM tools for SAPC
- 3.2 Interpret the NETCONF CLI and GUI
- 3.3 Show and explain the ECLI
- 3.4 Review the configuration templates used by SAPC
- 3.5 Execute the SAPC Operation: logging management, fault management and performance management
- 3.6 Describe the main log files in SAPC
- 3.7 Explain the SAPC backup and restore
- 3.8 Outline the restart and reboot alternatives in SAPC
- 4 Describe the SAPC 1 configuration
 - 4.1 Operate and perform the SAPC 1 configuration
 - 4.2 Modify rules and conditions in the SAPC
 - 4.3 Create services (static, dynamic) in SAPC to be installed in PCEF
 - 4.4 Explain the Policy Studio. Explain the use of configuration guides, of profiles for PRA, for mobility-based policies and for event triggers management
 - 4.5 Describe both the GeoRed Active-STB and Active-Active solutions
- 5 Outline the main SAPC troubleshooting activities
 - 5.1 Explain the non-graphical tools available for troubleshooting
 - 5.2 Describe the recommended maintenance intervals
 - 5.3 Outline the license management
 - 5.4 List the main GeoRed troubleshooting activities
 - 5.5 Show the UE trace for SAPC
 - 5.6 Describe the EBM enhancements

**Target audience:**

This course is suitable for anyone who is required be able to configure/operate/maintain SAPC

Prerequisites:

Successful completion of the following courses:

For the Classical SAPC:

- EPC System Survey LZU1087977
- BSP 8100 Operation & Maintenance, LZU1089779
- Basic knowledge on Unix, Cisco SCE, Cisco BRAS and Juniper CRAS configurations or equivalents

For the Virtual SAPC:

- Virtual EPC Overview LZU1082264
- Ericsson Cloud System Overview LZU1089909
- Foundation Series – Ericsson Cloud Execution Environment (CEE) LZU1082364
- Basic knowledge on Unix, Cisco SCE, Cisco BRAS and Juniper CRAS configurations or equivalents

Duration and class size:

The length of WBL component(s) is approximately 1 hour and 30 minutes.

The length of ILT component is 3 days and the maximum number of participants per session is 8.



SAPC 1 Overview

LZU1082609 R1A

Description:

The Ericsson Service-Aware Policy Controller (SAPC) product is conceived based on 3GPP Policy and Charging Rules Function (PCRF). SAPC is responsible for the policy control and charging rules that define the services and applications supported in mobile, fixed and converged telecom networks. SAPC is key to secure the network behavior when users access data services, such as, authorizing the services, assigning the QoS of the data-session and the Charging that shall be applied; and performs a business critical role for monetization and differentiation of operator's mobile and converged broadband commercial packages. The same SAPC software can be deployed as a native Physical Node Function (PNF), also called Classical SAPC, or as a Virtualized Network Function (VNF) on a NFV/Cloud infrastructure (called Virtual SAPC).

If you want to discover the new features available in SAPC 1 release, including both the classical solution and the cloud solution, then this course is for you.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Describe the Ericsson SAPC 1
 - 1.1 Explain the market and technical driving forces behind SAPC.
 - 1.2 Identify the main elements in SAPC reference models for mobile deployments, fixed deployments, BSS/OSS integration and enforcement/APP interfaces.
 - 1.3 Describe the hardware supported by SAPC 1
 - 1.4 Describe the software architecture of SAPC/vSAPC
 - 1.5 Explain the software upgrade path.
 - 1.6 List the main features and improvements in SAPC 1.
- 2 Describe the SAPC information model.
 - 2.1 Explain the main static configuration categories such as subscriber, group, service.
 - 2.2 Identify the main dynamic configuration categories such as locators. Resources, context, policies and rules.
 - 2.3 Describe the policy evaluation in SAPC.
- 3 Identify the main traffic cases related to SAPC.
 - 3.1 Describe the subscriber management.
 - 3.2 Describe the fair usage policies.
- 4 List the main feature in SAPC 1.0
 - 4.1 List the main feature in SAPC 1.0
 - 4.2 Outline the mobility-based policies (Smp)



- 4.3 Describe the 1+1+1 external database GeoRed support
- 4.4 Explain the emergency calls
- 4.5 Outline the flexible output protocol
- 4.6 Describe the multiple RARs & Diameter pending transactions
- 4.7 Explain the Presence Reporting Area (PRA)
- 4.8 Describe the Policy Studio and the PDC & CNOM integration
- 4.9 Outline the VNF enhancements

- 5 Explain the SAPC 1 latest enhancements and features
- 5.1 Outline the Active-Active geographical redundancy
- 5.2 Explain the UE Trace
- 5.3 Describe the active hanging session deletion mechanism
- 5.4 Outline the notification of AF signaling flow status
- 5.5 Explain the IP-CAN type change notification
- 5.6 Describe the IMS restoration
- 5.7 Outline the NetLoc for untrusted Wi-Fi
- 5.8 Explain the Policy Studio
- 5.9 Describe the VNF and PNF enhancements

Target audience:

This course is suitable for anyone who is required to be familiar with SAPC.

Prerequisites:

Successful completion of the following courses:

Successful completion of the following courses:

The participants should be familiar with:

For the Classical SAPC:

EPC System Survey LZU1087977

Basic knowledge on Unix, Cisco SCE, Cisco BRAS and Juniper CRAS configurations or equivalents

For the Virtual SAPC:

EPC System Survey LZU1087977

Basic knowledge on Unix, Cisco SCE, Cisco BRAS and Juniper CRAS configurations or equivalents

Ericsson Cloud System Overview - LZU1089909



Duration and class size:

The length of the course is 1 day and the maximum number of participants per session is 16

Learning situation:

This course is based on theoretical instructor-led lessons given in a classroom environment.



UDC in 5G EPC Introduction

LZU1082649 R1A

Description:

This course will describe the delta of the features and functions between UDC for LTE/EPC networks and UDC for 5G EPC networks. It will look at the 5G RAN (NR) in 5G EPC networks according to the 3GPP release 15 option 3.

Learning situation:

This is a Web-Based Learning.

This is a self-paced interactive learning with multimedia content, delivered online.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Explain the UDC in EPC
- 2 Describe HSS-FE & CUDB in 5G EPC
- 3 Explore the EDA in 5G EPC
- 4 Identify SAPC in 5G EPC

Target audience:

This course is suitable for anyone who is required to be familiar with UDC in 5G EPC.

Prerequisites:

Successful completion of the following courses:

None

Duration and class size:

The length of the course is approximately 30 minutes.



Virtualization Concepts Introduction

LZU1082654 R1A

Description:

The general Telecom Industry trend has been to move from networks that were dedicated and purpose built with hardware and software tightly integrated to support a certain network service to converged networks where different services and applications share the same IP transport functionality. The current evolution of the networks is to evolve into a platform supporting virtualization of applications and Cloud computing.

The course explains the virtualization and the cloud concepts and describes the deployment of applications implemented as Virtualized Network Functions (VNFs). It explores the Network Functions Virtualization (NFV) architecture according to ETSI NFV, the open source platform OPNFV with the OpenStack services and additional services provided by the Ericsson Cloud Execution Environment.

The course is given as a Web Based Learning (WBL).

Learning objectives:

On completion of this course the participants will be able to:

- 1 Explore the virtualization and cloud concepts
 - 1.1 Analyze the virtualization efficiency and revenue opportunities
 - 1.2 Discuss what is meant by a Virtual Machine (VM)
 - 1.3 Examine the cloud concept according to the US National Institute of Standards and Technology (NIST)
- 2 Review the ETSI Network Functions Virtualization (NFV) architecture
 - 2.1 Explore the functionality and interfaces for NFVI, VNF, VNFC, MANO and Hypervisor
 - 2.2 Discuss what is meant by VNF Instantiation and Transition
 - 2.3 Determine what is meant with VNF scaling
 - 2.4 Identify virtual switching
- 3 Review the open source platform OPNFV
 - 3.1 Demonstrate how OPNFV relates to ETSI NFV
 - 3.2 Explore the main OPNFV software components: OpenStack, KVM, OpenFlow, Open vSwitch (OVS) and Open Virtualization Format (OVF)
 - 3.3 Analyze the OpenStack services such as Nova, Neutron, Glance, Cinder, Keystone and Horizon and the Ericsson enhancements
- 4 Identify the additional services provided by Ericsson Cloud Execution Environment
 - 4.1 List additional services provided by CEE such as Fuel, Atlas, security, orchestration, performance and fault management



- 5 Compare Ericsson's VNF offerings
- 5.1 Relate the Ericsson VNFs to ETSI NFV
- 5.2 Determine the VM types for IMS, EPC, UDC VNFs
- 5.3 Discuss high availability and robustness concepts for VNFs
- 5.4 Explore the Ericsson NFV delivery Models

Target audience:

This course is suitable for anyone who is required to be familiar with virtualization concepts.

Prerequisites:

Successful completion of the following courses:

General knowledge of Ericsson IMS, EPC and UDC

Duration and class size:

The length of the course is 1,5 hours and the maximum number of participants per session is 1

Learning situation:

This is a web-based interactive training course with multimedia content.



Virtual UDC Onboarding and Management

LZU1082653 R1A

Description:

Transforming today's networks to 5G is key to keeping pace with the demands of an evolving Networked Society, where opportunities span new high-bandwidth applications, low latency powered Internet of Things (IoT) services and beyond.

The course explains the Ericsson virtualized UDC solution implemented as Virtualized Network Functions (VNFs). It will list the prerequisites of installing the virtual (v)UDC on a cloud infrastructure (NFVI), what preparations are required, and go through the steps for the manual onboarding and instantiation process by using orchestration tools. Practical exercises for onboarding and instantiation of a vHSS-FE will be performed in the course.

Learning objectives:

On completion of this course the participants will be able to:

- 1 Explain the basics of the NFV reference architecture and the Ericsson cloud Execution Environment (CEE)
- 2 Discuss the architecture for Virtual Network Functions included in vUDC
 - 2.1 Explain the VNF architecture for different vUDC network functions
 - 2.2 Explain the Logical Networks needed for the HSS-FE VNF
 - 2.3 Discuss HSS-FE infrastructure requirements
 - 2.4 Explain the HOT templates and environmental files
- 3 Onboard and Instantiate a HSS-FE VNF
 - 3.1 Prepare HOT templates based on the lab setup
 - 3.2 Onboard an HSS-FE VNF using OpenStack CLI
 - 3.3 Instantiate an HSS-FE VNF using OpenStack CLI
- 4 Verify and Scale-Out an HSS-FE VNF
 - 4.1 Check the connectivity for the instantiated HSS-FE VNF
 - 4.2 Verify the instantiated HSS-FE VNF
 - 4.3 Scale-Out the instantiated HSS-FE VNF

Target audience:

This course is suitable for anyone who is required to have detailed knowledge of Virtual UDC Onboarding and Management.

**Prerequisites:**

Successful completion of the following courses:

5G Cloud NFVI Administration

Ericsson User Data Consolidation (UDC) 1 Overview, LZU1082477

Virtualization Concepts Introduction, LZU1082654

Duration and class size:

The length of the course is 1 day and the maximum number of participants is 8

Learning situation:

This course is based on theoretical and practical instructor-led lessons given in a technical environment using equipment and tools delivered either in a classroom or remotely.