

# SPLTE (IMPLEMENTING CISCO SERVICE PROVIDER MOBILITY LTE NETWORKS) 1.0

---

## Objetivo

After taking this course, you should be able to: Describe and understand these LTE architecture fundamentals: radio access network, packet core components and operations, and interworking with UMTS and CDMA Implement Cisco MME solution and configure MME features Implement Cisco SGW solution and configure SGW features Implement Cisco PGW solution and configure PGW features Describe and implement Quality of Service (QoS) Describe and configure data network Access Point Names (APNs), security, and routing pools Discuss Voice over LTE (VoLTE) Discuss LTE interworking Describe and configure Cisco ASR 5000 Series inline Enhanced Charging Service (ECS) Discuss security and management

## Público Alvo

Network administrators Network engineers Network managers Anyone preparing for the Cisco Service Provider Mobility Code Division Multiple Access (CDMA) to LTE Specialist certification or the Cisco Service Provider Mobility UMTS to LTE Specialist certification

## Pré-Requisitos

We recommend that you have the following knowledge and skills before taking this course: In-depth knowledge of UMTS or CDMA 3G mobile cellular technologies Good knowledge of routing and switching Basic knowledge of tunneling and packet-switched VPNs Basic knowledge of Global System of Mobile Communications (GSM) and GPRS networks Basic knowledge of radio mobile network functions Basic knowledge of packet core supporting functions for Authentication, Authorization, and Accounting (AAA), charging, and billing Basic knowledge of tunneling protocols such as Generic Routing Encapsulation (GRE), Layer 2 Tunneling Protocol (L2TP), and Internet Protocol Security (IPsec) Familiarity with and basic knowledge of configuring the Cisco ASR 5000 Series system Knowledge of organizations that develop technologies used in the mobile packet core such as the Internet Engineering Task Force (IETF) and 3rd Generation Partnership Project (3GPP)

## Carga Horária

40 horas (5 dias).

## Conteúdo Programático

### Introduction to LTE, EPC, and System Architecture Evolution (SAE)

Introduction to LTE, EPC, and SAE

Introducing GPRS Tunneling Protocol (GTP) Services

Evolved Packet System Key Concepts

Basic LTE Mobility Principles

## **Protocols in the EPC**

Understanding IPv6? Understanding GTP  
Understanding Radius and AAA Services  
Diameter Protocol  
Understanding Mobile IP and Dual Stack Mobile IPv6 (DSMIPv6) Protocols

## **EPC Network Entities, Interfaces, and Configuration**

Long-Term Evolution and EPC Network Entities  
Introduction to LTE Radio Components  
Cisco MME Functionality, Interfaces, and Configuration  
Cisco SGW Features, Functionality, and Configuration  
PGW Features, Functionality, and Call Flows

## **LTE Call Flows**

Mobility Management States and Attach-Detach Call Flows  
Packet Data Network Connectivity and Service Request Flows  
Intra- and Inter-Tracking Area Updates and Integrated Services Router (ISR) Call Flows

## **EPC Network Entity Selection Function**

EPC Network Entity Selection Function

## **QoS Architecture**

QoS Architecture  
MME and QoS Architecture  
SGW and QoS Architecture  
PGW and QoS Architecture

## **Charging and Policy Control**

Policy Charging and Control (PCC) Functions

## **Implementing VoLTE**

Introduction to VoLTE  
Circuit Switch Fallback  
VoLTE Applications Messages and Protocols  
VoLTE Applications Messages and Protocols  
VoLTE End-To-End Call Flow  
VoLTE and QoS  
VoLTE Supplementary Services  
Interworking in VoLTE

## **Interworking**

Interworking with UMTS  
High-Rate Packet Data (HSPA)-Based Interfaces  
Implementing Non-3GPP Access

## **Security**

Introduction to Security Services  
Lawful Intercept

## **Management Protocols**

Terminal Access Control Services

Fault Management

Access Security Management

Network Time Protocol Management

Performance Management and Key Performance Indicators

## **Lab outline**

Flow Trace

Configuring Cisco MME Connectivity

Configuring Cisco SGW Connectivity

Configuring Cisco SGW Services and Support

Configuring Cisco PGW Connectivity

Configuring Cisco PGW Services and Support

Configuring ECS