

PCC - Policy and Charging Control in 4G – 2 days

CONTENTS

The PCC - Policy and Charging Control in 4G course offers a comprehensive – yet easily understandable – description of the purpose, principles, architecture for Policy and Charging Control as specified by 3GPP. The course focuses on PCC used with LTE/EPS/4G (with GTP-based core network). Relevant functional entities, protocols and interfaces are described, and signalling flows are used to illustrate the PCC mechanisms.

PREREQUISITES

General knowledge about the architecture, terminology and modes of operation of the LTE/EPS/4G access and core networks is recommended. Basic knowledge of the Internet Protocol (IP) family is useful.

3GPP System Overview

- GPRS/UMTS network architectures and mode of operation
- LTE/EPS/4G network architecture and mode of operation
- PDNs (Packet Data Networks)
- QoS handling in LTE

PCC Introduction

- IP Connectivity Access Networks (IP-CANs)
- PCC high level principles
- PCC nodes/functions (PCRF, SPR, AF, PCEF and OCS)
- Protocols and Reference points used for PCC
- IP-CAN Sessions, IP-CAN Bearers and Service Data Flows (SDF)

The Diameter Protocol

- The Diameter protocol
- Commands and Attribute Value Pairs
- Diameter routing principles
- Diameter use case for PCC

Policy Control Part 1 – Creating and Installing Rules

- What does Policy Control include?
- Role of PCRF, PCEF, TDF, AF, OCS and SPR
- Generation of PCC Rules
- Contents of PCC Rules – SDF description, Charging and QoS parameters
- ADC - Application Detection and Control
- Signalling flows on Gx, Rx, Sd and Sy

Policy Control Part 2 – VoLTE Example

- VoLTE traffic case from a PCC point of view
- Establishment of Default EPS Bearer for SIP and Dedicated EPS Bearer for Audio / Voice

Policy Control Part 3 – Policy Enforcement

- User plane handling in PCEF
- QoS authorization and control for Service Data Flows and IP-CAN Bearers
- Gating and Redirect

- Event reporting and Usage monitoring
- Relevant signalling flows
- Roaming scenarios with local breakout or home routed access

Online Charging

- Online Credit Control
- Flow Based Charging (FBC) activities
- The Gy/Ro reference point
- Usage and Event reporting
- Diameter for Online Charging

Offline Charging

- Offline Charging principles
- Flow Based Charging (FBC) activities
- Usage reporting and Event reporting
- Relevant signalling flows
- Protocols (Diameter, GTP' and FTP)
- Reference points (Gz, Ga, Rf)
- CDR content