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Understanding DIAMETER

Covers: DIAMETER architecture and services for 3G/4G networks

Overview

DIAMETER was derived from the RADIUS protocol for authentication and accounting purposes. It is widely used in the 3G/4G network to support interaction between services and the Home Subscriber Service (HSS) over an IP network. The core architecture is designed to provide an AAA framework for applications such as network access, roaming, security and mobility. This program will provide the participant with the understanding of the architecture, message format, security and protocols and procedures used within the DIAMETER framework.

You will be able to

- Explain the rationale & importance of DIAMETER
- Understand DIAMETER architecture and operation
- Understand DIAMETER message format and protocol operation
- Understand DIAMETER interworking with legacy protocols & usage between operators
- Explain the role of the DIAMETER Routing Agent
- Explain DIAMETER related applications

Who can benefit

Technical managers, consultants, communications professionals, Access and Core system engineers, network planners for 3G/4G.

Pre requisite knowledge

It is essential that the participants have a good knowledge of the fundamentals of IP and 3G networks.

Outline

Introduction to DIAMETER

- Concept of AAA model
- Concept of RADIUS
- Standards and Specifications
- DIAMETER architecture: clients, servers & agents
- The need of DIAMETER
- DIAMETER in 3GPP networks

DIAMETER Base Protocol

- Terminology and Acronyms
- Message format
- AVP structure

DIAMETER Operations in 3G & 4G/LTE

- 3G & LTE core network architecture
- IMS architecture
- DIAMETER interfaces
- DIAMETER messages
- DIAMETER transaction states and user sessions
- Error handling
- Key 3GPP messages
- Key applications in 3G/4G:
  - Mobility management/MAP replacement
  - IP Multimedia Subsystem (IMS)
  - Policy Control & Charging (PCC)

DIAMETER Transport & Security

- Network and Transport layers
- TCP usage by DIAMETER
- SCTP
- Security Considerations
- IPSec Usage
- TLS Usage

DIAMETER Interworking

- Legacy protocol support MAP, CAMEL and Intelligent network (IN)
- Routing between operators

DIAMETER Routing Agent (DRA)

- What is a DRA?
- What is its role?
- Types of DIAMETER routing
- Network architecture with DRA
- Interoperability issues
- Network Access Server Application
- Credit Control Application
- Session Initiation Protocol Application

Hands-on exercises, review questions & section summaries throughout

DURATION	2 days
MAXIMUM CLASS SIZE	12