Overview of IPv6 in LTE Networks

LTE_113d | On-Demand | LTE and VoLTE | Express
Course Duration: 2 hours

Long Term Evolution (LTE) is universally accepted as the next generation broadband wireless system based on an All-IP network. Each LTE device would need at least one IP address to communicate and obtain services like web browsing, machine-to-machine communication, voice and video services, SMS, etc. As the number of IP connected nodes continue to grow, the current IPv4-NAT architecture no longer suffices and we must consider a transition to IPv6 protocol. This eLearning course explores the IPv6 protocol, its features and capabilities. It explains IPv6 address format, assignment of IPv6 address to LTE devices, dual-stack IPv4v6 addressing to facilitate smooth transition, and IPv4-IPv6 interworking. In conclusion, the student will understand the use of IPv6 addresses and IPv6 operations in LTE networks.

Intended Audience

This course is an overview of IPv6 addressing formats and IPv6 assignment operation in LTE networks, and is targeted for a broad audience. This includes those in planning, provisioning, operations, and end-to-end service deployment groups.

Objectives

After completing this course, the student will be able to:

- Sketch LTE-EPC network architecture and identify the role of IPv6
- Analyze the limitations of IPv4 addresses
- List the key aspects of IPv6
- Sketch the IPv6 addressing architecture and addressing formats
- Discuss different UE IP address allocation schemes in LTE
- Describe the use of dual stack IPv4/IPv6 in LTE Networks
- Describe some IPv4 and IPv6 interworking scenarios
- Explain IPv6 address assignment scenarios of LTE networks

Course Prerequisites

No Prerequisites

Outline

1. Setting the Stage
1.1 LTE-EPC network architecture
1.2 PDN connections
1.3 IP address assignment in LTE

2. IPv4 in Wireless Networks
2.1 IPv4 address formats
2.2 Use of public and private addresses
2.3 Mobility support – GTP and mobile IP
2.4 Limitations of IPv4

3. IPv6 Essentials
3.1 Key aspects of IPv6
3.2 Ipv6 header description
3.3 IPv6 addressing

4. IPv6 Assignment in LTE Networks
4.1 Default bearer setup operation
4.2 IPv6 address allocation
4.3 Role of NAS signaling
4.4 Assignment of dual-stack IPv4/IPv6 addresses

5. IPv4/IPv6 Transition Mechanisms
5.1 Dual stack addressing
5.2 Tunnels
5.3 Translators

6. IPv6 Deployment in LTE Networks
6.1 Dual-stack connectivity
6.2 IPv6 migration scenarios
6.3 Put It All Together
6.4 Assess the knowledge of the participant based on the objectives of the course