TK467: E-MBMS

Duration

1.0 Days

Course Content

1. Introduction to Evolved Multimedia Broadcast Multicast Service

1.1. eMBMS overview
1.2. eMBMS vs other Broadcasting technologies
1.3. eMBMS architecture and functional description
1.4. eMBMS transmission modes
1.5. eMBMS network interfaces
1.6. Protocol structure for eMBMS related interface in E-UTRAN: M1, M2, and M3
1.7. eMBMS air interface
1.8. Multicast-broadcast single-frequency network and service areas
1.9. eMBMS traffic and signaling
1.10. eMBMS operational procedures

2. eMBMS Architecture

2.1. MBMS Reference Architecture Model
2.2. eMBMS Reference Points for Evolved Packet System
2.3. eMBMS Service Provision
2.4. Multicast and Broadcast Modes
2.5. Multimedia Broadcast Multicast Service
2.6. eMBMS over a Single Frequency Network (MBSFN)
2.7. Cell-edge problem of MBMS
2.8. Single-Frequency Network (SFN) operation
2.9. MBMS over SFN

3. General Architecture for E-UTRAN eMBMS

3.1. eMBMS Implementation
3.2. PHY: MBSFN, PMCH
3.3. MAC/Transport: MCH
3.4. RLC: MTCH and MCCH
3.5. Core Network: MCE, MBGW, MB-SC

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3.6. MBMS point-to-multipoint control channel (MCCH)
3.7. MCCH and MBSFN Area association
3.8. MCCH Transmission
3.9. Notification Mechanism
3.10. MBSFN Signalling on BCCH
3.11. Resource Allocation for eMBMS
3.12. Multicast group management function
3.13. Content synchronization function
3.14. Setup and configuration update functions
3.15. eMBMS Session management function
3.16. Service context management function
3.17. Link management function
3.18. eMBMS Scheduling Information transfer function
3.19. eMBMS Session management function

4. Functional Entities To Support eMBMS

4.1. MCE (Multi-call/multicast Coordination Entity)
4.2. MBMS Gateway(GW)
4.3. M3 interface: Interface between MME-MCE
4.4. M2 interface: Interface between MCE-eNB
4.5. M1 interface: Interface between MBMS GW-eNB
4.6. Broadcast-Multicast Service Centre (BM-SC)
4.7. Membership Function
4.8. Session and Transmission Function
4.9. Proxy and Transport Function
4.10. Service Announcement Function
4.11. MBMS Security Function

5. New Logical Network Entities and Functions for eMBMS operation

5.1. BM-SC (Broadcast Multicast Service Center)
5.2. Content Provider and the Evolved
5.3. Traffic shaper and authorizing content provider/terminal request
5.4. SYNC protocol to synchronize transmitted data among eNBs
5.5. eMBMS Gw
5.6. BM-SC and all eNBs
5.7. MBMS user data packets to eNBs by means of IP Multicast
5.8. MBMS Session Control Signaling (Session Start/Stop) toward E-UTRAN

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5.9. MCE (Multi-cell Coordination Entity)
5.10. Admission control and allocation of the radio resource using for MBSFN operation
5.11. Distributed MCE architecture

6. Broadcast Multicast Service Center

6.1. Membership
6.2. Session and transmission
6.3. Proxy and transport
6.4. Service announcement
6.5. Security
6.6. Content synchronization

7. MBMS GW (eMBMS Gateway)

7.1. Distribution of MBMS user plane data to eNBs using IP Multicast
7.2. MBMS Session Control Signaling towards the E-UTRAN via MME

8. MCE (Multi-cell/multicast Coordination Entity)

8.1. Admission control
8.2. Allocation of the time/frequency radio resource for eMBMS
8.3. Radio configuration
8.4. Modulation and Coding Scheme (MCS)

9. eMBMS E-UTRAN Interfaces

9.1. Layer for interfaces supporting MBMS within E-UTRAN
9.2. Signaling transport for interfaces supporting MBMS within E-UTRAN
9.3. E-UTRAN M1 Data Transport
9.4. E-UTRAN M2 Application Protocol (M2AP)
9.5. E-UTRAN M3 Application Protocol (M3AP)
9.6. E-UTRAN MBMS synchronization protocol

10. eMBMS Content Transfer

10.1. eMBMS User Service MBMS
10.2. Bearer Services
10.3. Data Sources and Content Provider
10.4. Functional Elements for the Evolved Packet System
10.5. eMBMS GW
10.6. eMBMS Control plane function
10.7. eMBMS Attributes and Parameters

11. eMBMS UE Context

11.1. eMBMS Bearer Context

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11.2. Quality-of-Service for EPS
11.3. eMBMS QoS distribution tree
11.4. Temporary Mobile Group Identity
11.5. IP Multicast distribution
11.6. IP Multicast distribution for E-UTRAN and UTRAN for EPS

12. eMBMS over a Single Frequency Network (MBSFN)

12.1. eMBMS Service Area
12.2. MBSFN Synchronization Area
12.3. MBSFN Area
12.4. MBSFN Transmission and advertisement
12.5. MBSFN Area Reserved Cell
12.6. Synchronization Sequence
12.7. Syncronizsation Period
12.8. A cell within a MBSFN
12.9. MBSFN Area and eNB example

13. eMBMS Procedures and Operation

13.1. Session Start/Stop
13.2. Procedures between UE, eNB, MCE and MME
13.3. Multicast and Broadcast Notification
13.4. Multicast Service Activation
13.5. Session Start Procedure
13.6. Session Start Procedure for E-UTRAN and UTRAN for EP
13.7. Registration Procedure
13.8. Session Stop Procedure
13.9. Session Stop Procedure
13.10. De-Registration Procedure
13.11. BM-SC initiated eMBMS De-Registration Procedure
13.12. eMBMS Multicast Service Deactivation
13.13. eMBMS Session Update procedure
13.14. BM-SC initiated Session Update for EPS with E-UTRAN and UTRAN
13.15. Security
13.16. Charging

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