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## Implementing Cisco Unified Wireless Voice Networks (642-742)

**Exam Description:** The Implementing Cisco Unified Wireless Voice Networks (IUWVN) version 2.0 642-742 exam is a 90-minute test with 55–75 questions associated with the Cisco CCNP® Wireless certification. This exam assesses a candidate's ability to integrate VoWLAN services into the WLAN and be able to implement QoS, MPLS, and high-bandwidth applications in the wireless network. The exam is closed book and no outside reference materials are allowed.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. In order to better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

- 27%**    **1.0**    **Describe and Design Voice Over Wireless Architecture**
  - 1.1    Describe voice as it applies to the wireless network
    - 1.1.a    Components (hardware and software)
    - 1.1.b    Call setup/data flow overview
    - 1.1.c    Other wireless voice and video services
    - 1.1.d    Standards (.11r, .11e, .11n, and so on)
    - 1.1.e    Cisco Compatible Extensions (voice features)
    - 1.1.f    WMM
    - 1.1.g    UAPSD
    - 1.1.h    Codecs
    - 1.1.i    Signaling Connection Control Part (SCCP)
    - 1.1.j    SIP
  - 1.2    Design wireless for voice
    - 1.2.a    Minimum speed requirements—RSSI and SNR
    - 1.2.b    Overlap requirements
    - 1.2.c    Cell separations
    - 1.2.d    Traffic separation, QoS, voice VLAN
    - 1.2.e    Delay and jitter reqs
    - 1.2.f    Testing tools (AirMagnet and Veriwave)
    - 1.2.g    CAC and TSPEC
    - 1.2.h    Spectrum
    - 1.2.i    802.11n
    - 1.2.j    Wireless voice client requirements
  - 1.3    Utilize other design considerations, as per the voice design guide
    - 1.3.a    VAD
    - 1.3.b    MOH
    - 1.3.c    Load balancing

- 1.4 Validate wireless network design for voice readiness
  - 1.4.a Utilize the WCS voice readiness tool
  - 1.4.b Validate site survey for voice
- 1.5 Validate infrastructure requirements for end-to-end voice over wireless
  - 1.5.a Cisco Unified Communications Manager
  - 1.5.b Cisco Unified Communications Manager Express
  - 1.5.c QoS
  - 1.5.d ACS
  - 1.5.e DHCP
  - 1.5.f TFTP
  - 1.5.g Routers
  - 1.5.h Security devices
- 1.6 Describe VoWLAN integration with cellular providers
- 23%** **2.0 Implement VoWLAN**
  - 2.1 Configure wireless client devices
    - 2.1.a Reference current best practice guidelines
    - 2.1.b Device security considerations
  - 2.2 Configure the WLAN for VoWLAN
    - 2.2.a Implement current best practice guidelines
    - 2.2.b Security configurations (PEAP, EAP-TLS, EAP-FAST)
    - 2.2.c CCKM/PKC, 802.11r
  - 2.3 Troubleshoot VoWLAN implementation
    - 2.3.a Spectrum Expert
    - 2.3.b AirMagnet VoFi analyzer
    - 2.3.c Traffic stream metrics (TSM)
    - 2.3.d Incremental complexity testing
- 20%** **3.0 Implement QoS for Wireless Applications**
  - 3.1 Describe and implement general considerations for wired QoS
    - 3.1.a Configurations
    - 3.1.b DSCP/802.1p
    - 3.1.c Voice VLAN
  - 3.2 Describe and implement the appropriate wireless QoS deployment schemes
    - 3.2.a WMM
    - 3.2.b 802.11e
    - 3.2.c Mapping—wired to wireless (five and six mismatching)
  - 3.3 Configure WCS/WLC for QoS
    - 3.3.a CAC
    - 3.3.b TSPEC
    - 3.3.c QBSS

- 3.3.d Queues
- 3.3.e Bandwidth reservation
- 3.3.f Disable "DHCP Required"
- 3.3.g Disable Address Resolution Protocol (ARP) unicast
- 3.3.h Enable ARP caching
- 3.3.i Cisco Identity Based Networking (IBN) services
- 3.4 Reference most current best practice guidelines
- 17% 4.0 Implement multicast over wireless**
  - 4.1 Describe general multicast concepts
    - 4.1.a PIM (sparse and dense)
    - 4.1.b Cisco Group Management Protocol
    - 4.1.c IGMP snooping
    - 4.1.d RP
  - 4.2 Describe implications for multicast in 802.11
    - 4.2.a Highest mandatory data rate
    - 4.2.b Unicast and multicast modes
    - 4.2.c Roaming
    - 4.2.d Mesh
    - 4.2.e Controllers having same CAPWAP multicast group
    - 4.2.f Video stream (reliable multicast)
  - 4.3 Configure multicast in a wireless network
    - 4.3.a Infrastructure multicast group
    - 4.3.b IGMP snooping on the controller
    - 4.3.c Video stream (reliable multicast)
    - 4.3.d Mobility group multicast
  - 4.4 Troubleshoot multicast in a wireless network
    - 4.4.a Packet captures
    - 4.4.b Show IPM route
    - 4.4.c Controller logs
    - 4.4.d Debugs
      - 4.4.d (i) debug bcast igmp enable command
      - 4.4.d (ii) debug mobility multicast enable command
- 13% 5.0 Prepare the Wireless Network for Video and High-Bandwidth Applications**
  - 5.1 Describe benefits of 802.11n for video
  - 5.2 Determine bandwidth requirements for specified applications
  - 5.3 Identify application-specific wireless network requirements
    - 5.3.a WLC to wired network
    - 5.3.b Multicast for wireless video
    - 5.3.c Wireless security cameras
    - 5.3.d Real-time video streaming and video conferencing