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Designing Cisco Wireless Networks

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Question: 1

A wireless engineer must design a backhaul link. The engineer has a mesh access point that has a wired connection back to the infrastructure. What must be changed in the AP role before a change is made in the AP mode?

A. monitor
B. RAP
C. bridge
D. local

Answer: B

Explanation:
In Cisco mesh networking architecture, access points are classified into two primary roles: Root Access Points (RAP) and Mesh Access Points (MAP). A RAP is an access point that maintains a wired Ethernet backhaul connection back to the network infrastructure, while a MAP operates wirelessly, relying on mesh backlinks to upstream RAPs. When an engineer needs to change an AP mode — such as switching to bridge mode to extend the mesh — the AP role must first be defined correctly. The AP must be designated as a RAP before any mode-level configuration changes are applied. This sequencing is critical because the AP role defines the fundamental backhaul path; changing the mode without first establishing the role results in misconfiguration and potential connectivity loss. The RAP communicates directly with the wired infrastructure via its Ethernet port, making it the gateway for all downstream MAPs in the mesh topology. Options A (monitor), C (bridge), and D (local) refer to AP modes, not roles, and cannot be configured until the role is properly defined. WLSD Study Guide — Mesh Networking Fundamentals, Outdoor Wireless Design, AP Role and Mode Configuration.

Question: 2

A customer is planning to replace older access points with Cisco 4800 Series Access Points. Unaware of the infrastructure requirements, the client has an engineer investigate the inline power requirement. Which IEEE 802.3 standard complies with the Cisco 4800 Series Access Points?

A. 802.3bt
B. 802.3af
C. 802.3ac
D. 802.3at

Answer: A

Explanation:
The Cisco Aironet 4800 Series Access Point is a tri-radio, high-performance access point designed for high-density environments. It draws significantly more power than older dual-radio APs and requires IEEE 802.3bt (also known as PoE++), which provides up to 90W per port at the Power Sourcing Equipment. IEEE 802.3af (Type 1 PoE) delivers only 15.4W and 802.3at (Type 2 PoE+) provides up to 30W — both are insufficient for full functionality of the 4800 series. The dedicated third security radio on the 4800 pushes the power budget beyond what 802.3at can reliably support. IEEE 802.3ac is a VLAN tagging standard entirely unrelated to Power over Ethernet. Engineers designing wired infrastructure for Cisco 4800 deployments must ensure switches support 802.3bt Type 3 or Type 4 to guarantee full AP functionality across all three radios simultaneously. WLSD Study Guide — Wired Infrastructure Design, PoE Standards and Power Budget Planning, Cisco 4800 Series AP Specifications.

Question: 3

During a site survey for a new wireless deployment in a multifloor office building, an engineer must identify sources of interference and ensure optimal AP placement for 5 GHz coverage. While walking the site with a spectrum analyzer, the engineer notices periodic spikes in the noise floor on several channels and inconsistent signal strengths reported by the survey tool, despite visually unobstructed paths. Which action must the engineer take next to accurately assess and mitigate the Layer 1 interference?

A. Increase the transmit power of all APs to compensate for the signal fluctuations and re-run the survey to verify the visual line-of-sight and signal strength measurements.
B. Use the wireless controller monitoring tools in combination with the site survey tool heatmap output to determine AP locations and capture the Layer 1 spectrum analysis for ongoing analysis.
C. Document the affected channels and locations, then attempt to adjust the channel plan to avoid the frequencies that experience the most interference during initial deployment.
D. Use the spectrum analyzer to document the time, frequency, and location of the noise spikes, then correlate them with possible non-Wi-Fi interferers and adjust AP placement accordingly.

Answer: D

Explanation:
Layer 1 interference analysis is foundational to the Cisco site survey methodology. When a spectrum analyzer reveals periodic noise floor spikes across multiple channels with no clear line-of-sight obstruction, the root cause is almost certainly a non-802.11 device — candidates include cordless phones, video cameras, microwave equipment, or radar systems triggering DFS events. The correct engineering response is systematic documentation: capture the time of occurrence, the specific frequency or frequency range, and the geographic location of the

interference signature. This triangulation data enables correlation with physical devices present in the facility. Simply increasing transmit power (Option A) raises the noise floor for neighboring cells and worsens co-channel interference. Using WLC monitoring tools (Option B) is insufficient because the WLC cannot detect non-802.11 energy at Layer 1. Adjusting the channel plan (Option C) without fully characterizing the interferer is premature. Only Option D follows the correct Cisco survey methodology for Layer 1 analysis, leading to actionable AP placement adjustments. WLSD Study Guide — Wireless Site Survey Methodology, Layer 1 Spectrum Analysis, Interference Identification and Mitigation.

Question: 4

An engineer must identify the network requirements for a company that has a main office and 10 branch offices. The network must be able to support data, voice, video, and location tracking. Which two factors must be considered? (Choose two.)

A. security policy of the company for building access
B. number of wireless devices that require access
C. type of site for which the survey will be performed
D. business type of the company
E. available power sockets in the IT room

Answer: B, C

Explanation:
When designing a wireless network to support diverse services — including data, voice, video, and location tracking — across a distributed enterprise with a main office and 10 branch locations, the two primary design factors directly shaping the RF and capacity architecture are the number of wireless devices requiring access and the type of site where the survey will be performed. The device count (Option B) drives AP density, channel reuse planning, capacity modeling, and controller licensing requirements. Each service type — particularly VoWLAN and video — imposes strict per-client throughput and latency constraints that must be multiplied across the concurrent device population. The type of site (Option C) determines the survey approach, attenuation characteristics, coverage requirements, and antenna selection. A warehouse, hospital, or open-plan office each demands a fundamentally different RF design. Options A and D are organizational considerations, not technical RF design inputs. Option E (power sockets) is an installation logistics concern, not a wireless design factor. WLSD Study Guide — Requirements Gathering, Site Survey Planning, Capacity and Coverage Design Methodology.

Question: 5

A small customer has a legacy autonomous mode Wi-Fi deployment that provides a low-density and low-capacity service. The customer wants to update and replace this deployment with the latest Wi-Fi technology but has a fixed budget that will pay only to replace the APs. Which architectural controller deployment model suits this requirement?

A. embedded
B. unified
C. fabric
D. cloud

Answer: A

Explanation:
Cisco's Embedded Wireless Controller (EWC) architecture is the ideal solution for small deployments with strict budget constraints where only the access points can be replaced. EWC is a controller function that runs directly within the Cisco Catalyst 9100 Series access point itself — eliminating the need for a dedicated physical or virtual WLC appliance. The APs serve dual roles as both the wireless radio infrastructure and the controller platform. The unified model (Option B) requires a dedicated hardware WLC such as the 9800 series, exceeding the customer's budget. Fabric (Option C) requires Cisco DNA Center and SD-Access infrastructure, making it cost-prohibitive for a small deployment. Cloud (Option D) requires ongoing subscription fees that may not fit a fixed one-time budget. EWC provides enterprise-grade features including centralized SSID management, RRM, and client mobility within the AP cluster — all without additional controller hardware investment. This makes it the canonical solution for SMB migrations from autonomous deployments. WLSD Study Guide — Controller Deployment Models, Embedded Wireless Controller Architecture, SMB and Branch Wireless Design.

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