TALK

Do Not Place APs Above The Ceiling

Keith Parsons · WLAN Pros channel · 2020-09-14

A wireless LAN design rule: do not put your access points above the ceiling tiles. Keith Parsons explains why.

Short answer

Because the structure above the tiles makes the signal bounce around more, even when the signal strength looks almost the same. In this talk, Keith Parsons explains that an access point placed dome down on top of a ceiling tile loses less than 1 dB (decibel) through the tile itself. Above the ceiling, the wires, girders, air ducts and metal plates give the signal more to bounce off, which he calls multipath: the same signal reaches the client, the phone or laptop, by more than one path. The direct signal arrives strongest and the bounced copies, which travel further, arrive weaker, so the client receives a mix of highs and lows; the Wi-Fi still works, but not as efficiently.

Key points

- Part of the Wireless LAN Design Rules series: why access points should not go above the ceiling tiles.
- Below the ceiling, the signal leaves the AP through open space and loses strength mainly to distance and walls.
- Signal strength readings that change while nothing moves are a sign of multipath: the same signal arriving direct and bounced, at different strengths.
- Above the tiles, the tile itself costs little signal, but the wires, girders, air ducts and metal up there give the signal more to bounce off, so more weaker copies reach the client and the signal it receives goes up and down.
- The rule can be broken and Wi-Fi will still work, but not as efficiently.

Chapters

1. 00:02 The rule
2. 01:12 Below the ceiling
3. 02:09 Multipath and changing signal readings
4. 04:04 Above the ceiling
5. 06:01 Recap

Watch on YouTube (https://www.youtube.com/watch?v=TdF6SGfujH4). More conference talks: wlan-talks.net (index by Victor Gatuna).

By Keith Parsons, CWNE #3, Wireless LAN Professionals. Free to read and share. Facts