TALK

Things You Thought You Knew about Wi-Fi, but Don't

Keith Parsons · Wi-Fi Design Day · 2017-11-15

Keith Parsons at the first Wi-Fi Design Day, 2017, in Churchill's War Rooms in London: things you thought you knew about Wi-Fi, but don't. A tour of what is counterintuitive about Wi-Fi.

Key points

- A tour of the parts of Wi-Fi that work the opposite of what people expect: Wi-Fi is not like a cell network or a wired network.
- Clients make the key decisions: which access point to join (the green diamond) and what data rate to send at. The rate up and the rate down are chosen separately and rarely match.
- Coverage is not capacity: one access point can light up a whole stadium, but tens of thousands of people cannot share it.
- In 2.4 GHz, adjacent channel interference costs more than sharing a channel, so the plan is channels 1, 6 and 11. Bluetooth slows Wi-Fi down but does not stop it.
- Common misreadings: green on a coverage map does not mean good, a negative dBm number means small, not bad, and VLANs are not the same thing as SSIDs (network names).

Chapters

1. 04:04 Wi-Fi is counterintuitive
2. 10:23 Beacons go to broadcast
3. 12:02 How a client picks an AP: the green diamond
4. 14:03 Stickiness, coverage and capacity
5. 16:02 Channels 1, 6 and 11
6. 18:16 How modulation works

7. 24:02 Data rates up and down don't match
8. 28:04 Waiting to transmit
9. 30:05 Bluetooth and Wi-Fi
10. 34:03 One AP for a stadium
11. 38:35 OFDM and the guard interval
12. 55:49 Green does not mean good
13. 58:07 VLANs are not SSIDs
14. 1:01:05 Rate limiting

Watch on YouTube (https://www.youtube.com/watch?v=x0JGjjbEJvU). More conference talks: wlan-talks.net (index by Victor Gatuna).

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