TALK

Know Your PHY

Keith Parsons · WLAN Pros channel · 2020-10-08

Know your PHY, the physical layer: Keith Parsons explains why you need to know how a network interface card works.

Key points

- Explains why a designer needs to know the PHY (physical layer) and how a Wi-Fi radio differs from a wired network card.
- Wider channels are not a simple multiplier: an 80 MHz channel is not four times better than 20 MHz once noise, contention and overlap with neighboring networks are counted.
- Most of the airtime in a Wi-Fi exchange goes to overhead, not data, because of how the distributed coordination function shares the channel.
- Even the fastest settings shorten only the payload part of the exchange, so the total time saved is far smaller than the headline rate suggests.
- When a captive portal appears, every earlier step of joining the network has already worked; it is the end of the process, not the start.

Chapters

1. 00:02 What the PHY is
2. 01:00 Channel width and the PHY
3. 02:11 Airtime and overhead
4. 03:04 The distributed coordination function
5. 04:25 20 MHz versus 80 MHz
6. 06:00 Fastest versus slowest Wi-Fi
7. 07:04 Where the captive portal fits

Watch on YouTube (https://www.youtube.com/watch?v=V05dSfoopLE). More conference talks: wlan-talks.net (index by Victor Gatuna).

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