

ECE 435 – Network Engineering

Lecture 36

Vince Weaver

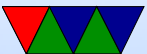
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Announcements

- Final is Monday, May 4th, 8am, here
- Will briefly go over HW#11 today
- Don't forget course reviews! (currently at 23%)
- Working on getting homeworks graded and back



HW#11 Review – Bridges/Switches

- How does switch find destination it hasn't seen?
Broadcasts
- Why separate VLANs? Bandwidth, security. Excessive broadcast traffic



HW#11 – Wifi Power

- 31dbm – 1.26W

$$P = 1W * 10^{P_{dbm}/10} / 1000$$

$$P = 1W * 10^{3.1} / 1000 = 1.26W$$

- That's a bit high for a Wifi transmitter?
- How is CSMA/CA different than CSMA/CD?
mostly can't reliably detect collisions so tries to avoid collisions pre-emptively and tells if frames got through via ACKs



HW#11 – Frame Decode

- This is a bit tricky, as the bits are backwards and everything else
- A frame I gathered on my old network that was still WEP which explains the WEP-ICV data at end
- Decoding – 0x08 0x42 0x2c 0x00

Frame Control Field: 0x0842

.... ..00 = Version: 0

.... 10.. = Type: Data frame (2)

0000 = Subtype: 0

Flags: 0x42

.... ..10 = DS status: Frame from DS to a STA via AP
(To DS: 0 From DS: 1) (0x2)



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.... .0.. = More Fragments: This is the last fragment
.... 0... = Retry: Frame is not being retransmitted
...0 .... = PWR MGT: STA will stay up
..0. .... = More Data: No data buffered
.1.. .... = Protected flag: Data is protected
0... .... = +HTC/Order flag: Not strictly ordered
.000 0000 0010 1100 = Duration: 44 microseconds

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- Next 3 are MAC addresses
Transmitter=Cisco/Linksys router Destination=Apple
device Source=Cisco/Linksys router
- 30 e9 = fragment/sequence number
- Didn't ask for, but next was WEP Initialization Vector:
0xd210bf



- encrypted data
- At end – WEP-ICV
- Checksum

