ECE 435 – Network Engineering Lecture 24

Vince Weaver

http://web.eece.maine.edu/~vweaver

vincent.weaver@maine.edu

7 December 2016

Announcements

- HW#10 – due next week
  Had an accidental old version up for a few hours, be sure have a recent copy.

- Early Final 9 December 3-5PM, same room as usual can bring one piece of paper with notes on it if you want

- Actual final (if not taking early) Friday 16th December 2:45-4:35 same room as usual

HW#10

- Talker

- Hints: 2600 – captain crunch, phreaking

- Extra credit – password hacking, john the ripper, on a Pi cracked it within hour and a half

- DoS (crashing) is a way to mess with a machine, but then you are caught. Best to be sneakier

- Had to install daemon to get randomness to set up GPG

keys

- Should install a "honeypot"

- If you want cool things to appear in "finger" set your .plan (and possibly .project) files.

My Project

- Apple IIe – Apple II dates back to 1977, 64kB RAM, 1MHz 6502 processor

- Uthernet ethernet card

- Wiznet 5100 ethernet chip
  standard ethernet card: program with MAC address, it watches for frames with it, copies it to memory, sends an interrupt

- You can run in this manner, but only so much memory

on Apple II, also interrupt support horrible. Have to program ARP, TCP/IP yourself

- Chip also supports hardware stack. You program MAC, IP, and then you get up to 4 sockets. Handle all of TCP/IP for you. Setup IP parameters, You can get interrupt (or poll) when packet comes in and the data is in a circular buffer

- Writing simple web server. Wrote one in C as a demo with sockets, just a few hundred lines of code

- Challenge: instead of 6502 assembly, doing it in

Applesoft BASIC

- Have it pinging, listening on port80, getting http packet, printing headers to screen

Exam Review

- Cumulative, but focusing on things after the first midterm

- Know the 7 OSI layers

- Ethernet – why it won over token ring, collisions, hubs vs switches

- Wireless Ethernet – handle collisions

- IPv4 – addresses. traceroute output

- IPv6 – addresses, why necessary

- TCP/UDP – why use one over the other?

- Might show packet dumps, not expect you to memorize all the offsets

- Security questions short answer, not related to HW#10 extra credit