Troubleshooting Wireless Campus Networks

Network Startup Resource Center
www.nsrc.org

What is different from wired?

- Interfaces/Users not coupled to physical location
- Connections can be more than just

  0 (down) or 1 (up) … they can be …

  … a little bit up, a little down :)
- In general, the physical layer matters more …

  … weather, traffic, construction cranes, walls,

  floors, any reflective/absorptive surfaces

The most common mistakes in wireless are on the wired side!

- Power – unstable, spikes, no UPS, ...
- Cables – crimping mistakes, broken plastic clips, humidity
- IP settings

When we have fixed all these, we can worry about:

- Signal, interference, security, … all the common wireless challenges

The most important principle

- Always think in layers
- Not so important what layer model you use (OSI 7 layer, TCP/IP 4 layer, 5 layers)
- Just be aware where you are

You may start with ping, but ...

- Ping will not tell you about the radio signal - ping is layer ..... ,

  radio signal is layer ....

- You may see a radio signal, but you still cannot associate with access point – because .... (?)
- Ping might work, but you still can not reach a URL – why? .....

Some must-have tools

- ping, traceroute, route, ip, ifconfig, arp, ... etc
- iwconfig, iwlist, nm-tool
- mtr
- ipcalc, sipcalc, ipv6calc
- kismet, netstumbler
- AirView or WiSpy, spectools
- nmap, zenmap
- tcpdump, wireshark

What to use for what?

- To check if we have radio signal, use ....
- To check for a certain 802.11 SSID, use ....
- To check if the internet uplink is working, use ....
- To check if a mail server is up, use ....