

1: Wi-Fi BASICS

by Francis Chao
fchao2@yahoo.com



Web location for this
presentation:

<http://aztcs.apcug.org>

Click on

“Meeting Notes”

SUMMARY

Understanding the details of Wi-Fi wireless networking can provide you with the ability to resolve problems.

TOPICS

- Many Single Points of Failure/Slowdown in a Wi-Fi Network Configuration
- User Equipment (UEs) Show/See Wireless "Service Set Identifiers" (SSIDs)
- UEs Only Show You a Single SSID
- The Single SSID Can Represent Many Wi-Fi Transmitter Receivers

MANY SINGLE POINTS FOR POSSIBLE
IMPROVEMENT FOR A Wi-Fi CONFIGURATION
Your end-user computer, cell phone, etc -->

- >USB cable or PCIe slot
or motherboard connections
- > External or internal Wi-Fi adapter
- > air, walls, furniture, RF interference
- > Wi-Fi router or Wi-Fi mesh node
- > Optional back-haul cabling, wiring,
- > Optional master mesh node
- > Wi-Fi router (provided by you or your
Internet provider)
- > Internet provider's terminal
- > Internet cloud

A SINGLE SSID CAN REPRESENT ONE OR MANY Wi-Fi TRANSMITTER/RECEIVERS

- Multiple Wi-Fi transmitter/receivers in each wireless Wi-Fi router
- Multiple Wi-Fi transmitter/receivers in each wireless Wi-Fi extender or node that is attached to either other extenders or nodes or to a Wi-Fi router

Wi-Fi TRANSMITTER/RECEIVERS INSIDE A TYPICAL Wi-Fi ROUTER

- 2.45 Gigahertz band transceiver
- 5 Gigahertz band transceiver
- 6 Gigahertz band transceiver
- 2.45 Gigahertz band guest transceiver
- 5 Gigahertz band guest transceiver
- 6 Gigahertz band guest transceiver

Wi-Fi TRANSMITTER/RECEIVERS INSIDE A TYPICAL Wi-Fi EXTENDER OR MESH NODE

- 2.45 Gigahertz band transceiver
- 5 Gigahertz band transceiver
- 6 Gigahertz band transceiver
- 2.45 Gigahertz band guest transceiver
- 5 Gigahertz band guest transceiver
- 6 Gigahertz band guest transceiver

FREQUENCY BAND CAPABILITIES OF USER EQUIPMENT (=UE)

- Most consumer-level cameras and wireless doorbells can only connect to a 2.45 Gigahertz band Wi-Fi transceiver
- Most computers and tablets can connect either a 2.45 Gigahertz transceiver or a 5 Gigahertz transceiver with 5 Gigahertz transceivers providing faster data speeds

FREQUENCY BAND CAPABILITIES OF USER EQUIPMENT (=UE) (continued)

- High-end cell phones and computers can now use the uncrowded 6 Gigahertz Wi-Fi bands

USER EQUIPMENT (=UE) ONLY SHOWS YOU ONE "INSTANCE" OF A "SERVICE SET IDENTIFIER" (SSID)

- When you use a UE device to look at available wireless Wi-Fi networks, any single SSID that is displayed can be 1 to n number of Wi-Fi transmitter receivers in 1 to n number of physical Wi-Fi hardware devices

"BAND STEERING"

- Most routers let you use the same or different "Service Set Identifier" names for the various Wi-Fi transceivers inside them
- "Band steering" is called "Smart Connect" in Netgear and TP-Link routers