



Home Networking Overview

Presented by Joe Chappell - Connected HHI

An elderly couple is sitting at a table in a bright, modern setting. The woman, on the left, has long white hair and is wearing glasses and a light-colored top. She is smiling and looking towards the man. The man, on the right, has short grey hair and a beard, and is wearing a blue t-shirt. He is holding a pencil and looking at a small notebook. In front of them is a white laptop. The background shows a large window with a view of a city or landscape. The overall atmosphere is one of learning and engagement with technology.

The Future is Now

Complimentary
Technology Lecture Series

Presentation Flow



NETWORK OVERVIEW
- WIRED AND
WIRELESS (WIFI)



MEASURING AND
UNDERSTANDING
WIFI PERFORMANCE



LATEST
DEVELOPMENTS



SECURITY
CONSIDERATIONS



Q&A

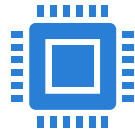


*FULL PRESENTATION
AVAILABLE FOR
DOWNLOAD

Basic Elements of Networks



GLOBAL INTERNET



Local Internet Providers

Hargray
Spectrum (Time-Warner)



Home Network

Modem
Router
Switches
Wired Connection (Ethernet)
Wireless Connection (WiFi)



Connected Devices

Local Internet Providers

Provide our connection to the INTERNET
and govern the **MAXIMUM** performance
that we can expect.



Performance varies greatly dependent on

Physical location of
our homes

Technology available
in that location
(Fiber, Cable,
Telephone/DSL)

Plan that we choose
(Gig, 30MBS, 5MBS)

Local Internet - Hargray



Telephone / DSL transitioning to
Fiber



Download speeds range from
5mbps to 1000 mbps (1 Gig)



Upload speeds range from
1mbps to 300mbps

Local Internet - Spectrum (Formerly Time- Warner)



Cable (Coax) transitioning to
Fiber

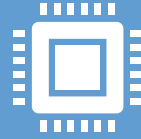


Download speeds range from
30MBS to 400MBS



Upload Speeds range from 5MBS
to 30MBS

Home Network Elements - Wired Connections



Wired connections utilize Ethernet cable (Cat 5, 5e, or 6) or Fiber (extremely rare in residential installations).



Many HHI homes have been pre-wired with Ethernet, although they may not be connected to anything.



Locations are fixed and only work with devices that have an ethernet jack.

What is WiFi?



Home Network Element - WiFi



WiFi is networking using radios instead of wires



WiFi has the same challenges as other radios in and near the home:

Interference from other radios and electronic devices

Physical barriers that impede signals

Weakening over distance



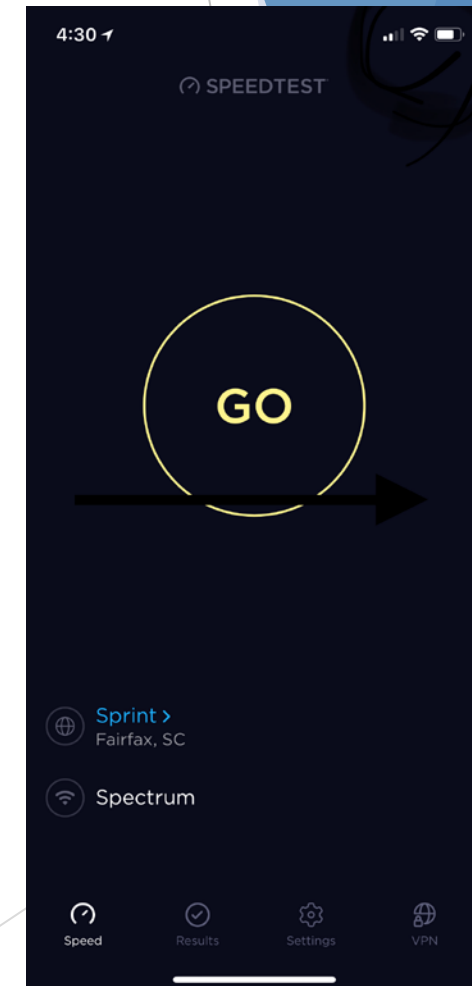
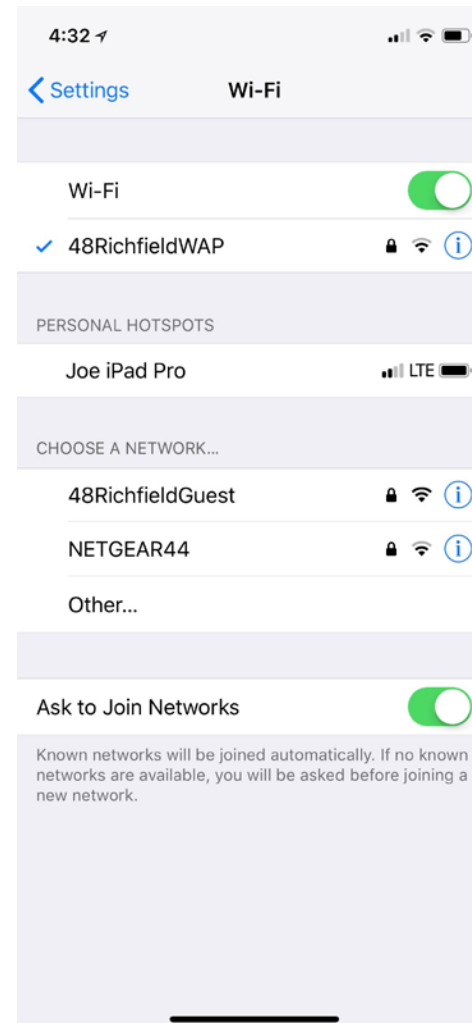
Not all WiFi devices are equal - power, antennas, processors, and versions (a,b, g.n. ac) determine speed and reach.

How fast is my WiFi?

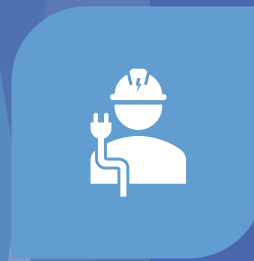


Measuring WiFi Speed

- ▶ Speedtest.net
- ▶ Netspot and other Network Analyzers
- ▶ Okay as a relative indicator, but not an absolute measurement!
- ▶ Often devices used to measure WiFi speed are “slower” than the actual WiFi connection.



Ways to Improve WiFi Reach and Speed



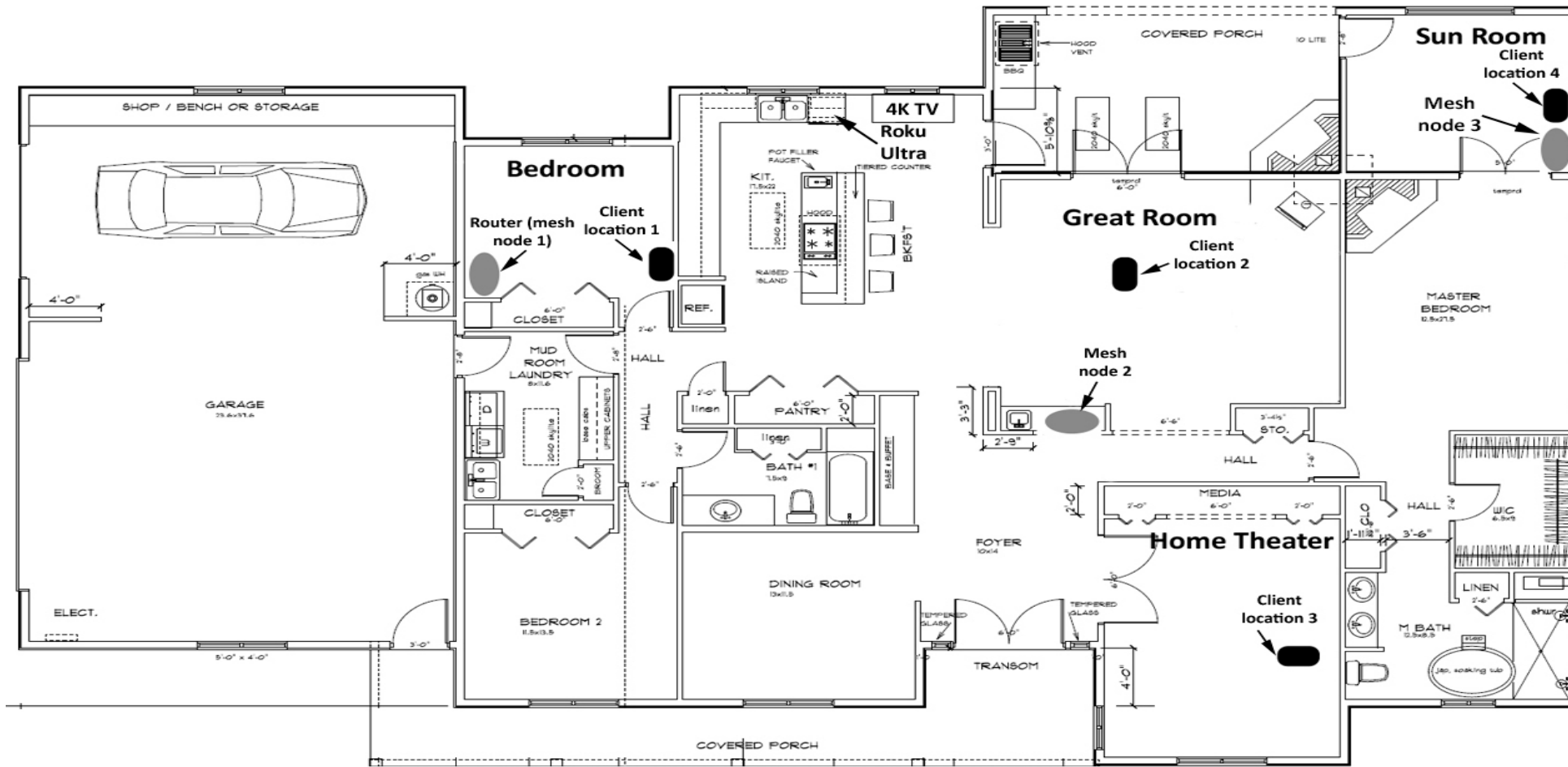
QUALITY OF
EQUIPMENT



LOCATION OF
EQUIPMENT



SPEED OF YOUR
INTERNET SERVICE



When Will You Need Multiple WiFi Access Points



Large homes and homes that “sprawl”



If your internet connection is in the corner of your home



If you have architectural features that reduce or interfere with WiFi radio signals



If you want to reach zones not currently served - pool, bonus room, master suite, garage.

Mesh WiFi Networks

One Wired Connection

One or more wireless Satellites

Single Network Name (SSID)

Network manages your WiFi connection as you move from zone to zone.

Capable of very high speeds

Easy to Configure and Install

Now available from Hargray for a monthly fee!

Mesh Concept



Tested Mesh Network Options

Netgear
Orbi*

Eero*

Google

Linksys

TP-Link
Deco

Hargray
AirTies*

Examples



Check out reviews too

<https://www.pcmag.com/roundup/350795/the-best-wi-fi-mesh-network-systems>

How Secure is my WiFi?



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WiFi Security Considerations

Secure

Use Password Protection - For WiFi and Equipment

- Don't keep default passwords
- Follow password hygiene - nothing easy to guess

Separate

Create a Guest Network

- Limit access to Internet only - no local network access

Isolate

Best Case - Isolate all appliances to Guest or separate network

Update

Keep all software and firmware updated

Protect

Make sure Router Firewall is on and current



Connected HHI

Q&A

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