

Wireless Internet

WiFi

Mesh WiFi

Wireless Internet Services

- *Verizon Internet and WiFi (cellular)*
- *T-Mobile 5G Home Internet and WiFi (cellular) **
- *Starlink (SpaceX) Internet (satellite) **
- *Viasat (satellite)*
- *Hughes (satellite)*
- *Direct TV and Internet (satellite)*
- *Dish TV and Internet (satellite)*

Coverage and costs are location dependent

Speed and Bandwidth vary from 25 mbps to 1 gbs +

Cellular Standards

5G - 5th Generation (NS) T-Mobile

5G - 5th Generation (NSA) combo LTE/NS (Verizon/ATT)

5G - 5th Generation (mmW) Millimeter Wave (Verizon)

4G/LTE- 4th Generation (All Carriers)

3G - 3rd Generation (discontinued)

WiFi Standards (802.11)

- *WiFi 7 (802.11 be) three channels 2.4G 5G & 6G proposed*
- *WiFi 6 (802.11ax) three channels 2.4G 5G & 6G current*
- *WiFi 5 (802.11ac) two channels 2.4G 5G*
- *WiFi 4 (802.11n) two channels 2.4G 5G*
- *WiFi 3 (802.11g) two channels 2.4 G 5G*
- *WiFi 2 (802.11a) one channel 2.4G*
- *WiFi 1 (802.11b) on3 channel 2.4G*

Note: WiFi 802.11 is backward compatible. If your equipment (Computer, Phone & etc) is of a older standard it will still work, but will pull the the network down to the older standard. If you have a older computer with 802.11g, with a WiFi Router WiFi 6, your network will operate a 802.11g. Bluetooth is the same.

Mesh WiFi Networks

A Mesh network refers to a rich interconnection of nodes.

A Mesh network consist of two or more nodes in continuous communications with the host router. Most Nodes cover about 1200 to 1600 sq. ft. of unobstructed space. The most common Mesh System are WiFi 5 with newer equipment coming on line WiFi 6+

The importance of a Mesh System is extended coverage, with a greater bandwidth. With greater bandwidth a slight reduction of up & down speeds.

My Usage

Summer Home (no wired internet) Home is completely electric

Internet is via Starlink (SpaceX). Comprises of a dish (tracking) and modem and several hundreds of dollars. I use two Mesh Nodes to cover the house (2000 sq. ft.)

Winter Home (each room is wired for internet) Home has access to two wired internet providers. The Winter Home is not fully automated, max. was 53 smart devices. When I added #54 the lack of bandwidth would randomly drop out a device. It did not matter Mesh or Traditional, not enough bandwidth for \$100 a month for 1gb service. I changed to T-Mobile Internet Service, because it is not a Broadband but Cellular. It appears that I have no limit of bandwidth (completed with 75 smart devices)

My Usage

Winter Home - T-Mobile WiFi (Modem/Router) is WiFi 6 and my Mesh System is WiFi 5. I split out home automation to the Mesh Network (extended range) while all other devices are connected via ethernet or WiFi 6.

Up/Down speeds for home automation are not important, bandwidth is.