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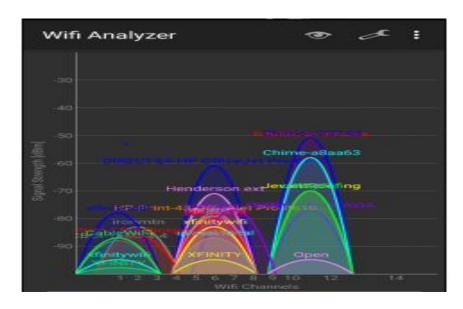www.hrenow.com | 844.547.3669 | Colorado Springs • Denver • Longmont • Phoenix

Wireless vs Wired

Much attention is given to the proliferation of wireless technology. Many think it eliminates the need for wired Ethernet connections, and in many cases it does. What are the advantages of going wireless? For most people the lack of a wired Ethernet connection at the TV location makes a wireless (WiFi) connection the most practical choice, eliminating the need for costly retro-fit wiring and the attendant hassles of patching and painting. Most smart home products are designed to connect wirelessly, so adding these devices is easy and their bandwidth requirements are well within the capabilities of WiFi.

Is there a downside to wireless? Yes. WiFi doesn't always provide adequate coverage throughout the house, so your video doorbell doesn't work as advertised because it's at the fringe of your WiFi network range. The other problem is WiFi throughput, which is the capability to pass data in an environment full of radio frequency interference and competing network devices. WiFi throughput is significantly lower than a wired connection. Here is a comparison of the capabilities of wired vs wireless connections:

Connection Medium	Typical Throughput	Maximum Throughput
CAT6 Cable	1,000 Mbps	10,000 Mbps
CAT5e Cable	400 Mbps	1,000 Mbps
802.11ac Wireless	70 - 100 Mbps	650 Mbps
802.11n Wireless	40 - 50 Mbps	225 Mbps

Here is a snapshot of the many WiFi signals encountered in a client's home:

A wired Ethernet connection is the fastest, most reliable connection to the Internet in your home. It suffers none of the radio frequency interference that can plague a WiFi network, and it's not subject to range limitations. There are three situations where wired Ethernet ports are highly recommended:

1) Smart TVs require fast Internet connections. If you are streaming HD content over your WiFi network, you probably experience occasional buffering, which causes the picture to freeze or pixilate while the WiFi network struggles to keep up with the amount of data streaming over the network. As we transition to 4K (Ultra HD TV) this problem will get worse.

2) A single Wireless Access Point (WAP), such as the one built into the wireless router used by most people, may not cover your entire home. If you need additional coverage, you should plan for wired connections to additional WAP locations rather than using repeaters, which are significantly inferior to hard-wired WAPs. The number of recommended additional locations will depend on the size and layout of your house.

3) If you use your home computer for high data downloads, you should provide a wired connection for the computer. That way you are using the best Ethernet connection where the data rate is high, and removing that burden from the WiFi network.

Summary:
If you are building a new home, you should provide a wired Ethernet jack at every TV, home office, and WAP location. Your high-demand devices will work better, and your WiFi will work better, creating the best of both worlds.