What makes Fiber, Copper, and Wireless Internet different?

Location

Fiber wiring for new areas is an expensive process. On the other hand, the benefits outnumber these costs once the setup has been done, such as in larger cities with more demand for high speed internet.

Copper has been used since ages, so rural and remote areas benefit the most from copper wiring. These areas already have the cables set up to their homes, eliminating any wiring costs.

Wireless transmitters work best when towers are close enough to grant a strong signal. In remote/rural areas this is often not the case. In cities, however, wireless internet such as 4G can be found almost everywhere.

Speed

Fiber internet can reach speeds of up to 1 Gbps through a distance 100x more than with copper. This is because fiber uses light as a medium with almost no resistance.

Copper wire has a natural resistance which hinders the movement of electrons and thus the speed is limited to a few Mbps.

With 4G wireless technology, users can gain speeds of up to 1 Gbps along with the mobility it provides.

Propagation

Fiber has the greatest reach in terms of propagation. With average signal loss of less than 3% per 100 meters, this beats copper which loses 94% of the signal in the same distance.

Even 99.9% pure copper wire offers resistance on an atomic level. This means it cannot travel far without depending on signal renewal or amplification.

Wireless signals are able to reach far and wide if towers are closely spaced, but obstacles such as walls and buildings can affect its strength.

Mobility

Since Fiber cables are linked from server to device, mobility is not an option. Most people have Fiber for their home/office but often rely on mobile applications to carry out their work.

Copper cables also rely on a physical connection to run the internet, so your connectivity is limited to the length of the wire.

Wireless defines mobility, which is why the majority of the population prefers this medium. With the ability to keep you connected anywhere, wireless works best for those always on the move.

Interference & Safety

Fiber optic is made of glass and does not pose fire hazards. Since light is used in this medium, there is zero interference and cables can be placed near any device or equipment without a worry.

If copper cables run close to electric devices or equipment, electromagnetic waves caused by the flow of current may distort the signal and even cause sparks.

Wireless signals can be easily affected by external sources such as nearby power stations, radio waves, and even by using the microwave in close proximity.

Which medium do you prefer?

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