



Comparison of Data Transmission Using Light and Wireless Fidelities (Li-Fi vs. Wi-Fi)

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Abstract

Wi-Fi has been great but it's already being outdone in 5G tests and now on a more local scale Li-Fi is 100 times faster, and more secure.

The 4G or 5G Long Term Evolution (LTE) would finish off Wi-Fi once and for all, Li-Fi appears on the scene to rock its status.

Introduction

Data transmission is the process of sending/receiving digital or analog data over a communication medium to one or more computing, network, communication or electronic devices

Wi-fi it stands for "wireless fidelity" it's a radio transmission technology that's built upon a set of standards to allow high-speed and secure communications between a wide variety of digital devices, access points, and hardware

It makes it possible for Wi-Fi capable devices to access the internet without the need for restrictive wires

Li-Fi it stands for "Light Fidelity" technology It is a new kind of wireless connection that uses light sources instead of microwaves to transmit data

LED bulbs in our home and office will work as a router just by placing a transmitter modulator.

And that it could reach a speed of 10 Gbps, ie, multiply by a thousand the current speed of Wi-Fi.

Methods and Materials



Li-Fi (light fidelity) is a bidirectional wireless alternative to Wi-Fi that uses visible light to transmit data. Using LED light bulbs to access the Internet, Li-Fi has several advantages over Wi-Fi

including speed, energy efficiency, safety and security.

Data transmission speeds of up to 224 gigabits per second have been achieved in research labs, that's equivalent to a download of 18 movies in one second.

Energy efficient LED lights can become data access points, providing both light and wireless Internet transmission.

Unlike Wi-Fi, Li-Fi does not transmit radio frequencies

which is considered by many to be harmless to humans and nature.

Results

Efficiency: Li-Fi works on visible light technology. Since homes and offices already have LED bulbs for lighting purposes, the same source of light can be used to transmit data ,it is very efficient in terms of costs and energy

Security: One main advantage of Li-Fi is security. Since light cannot pass through opaque structures, Li-Fi Internet is available only to the users within a room and cannot be breached by users in other rooms or buildings.

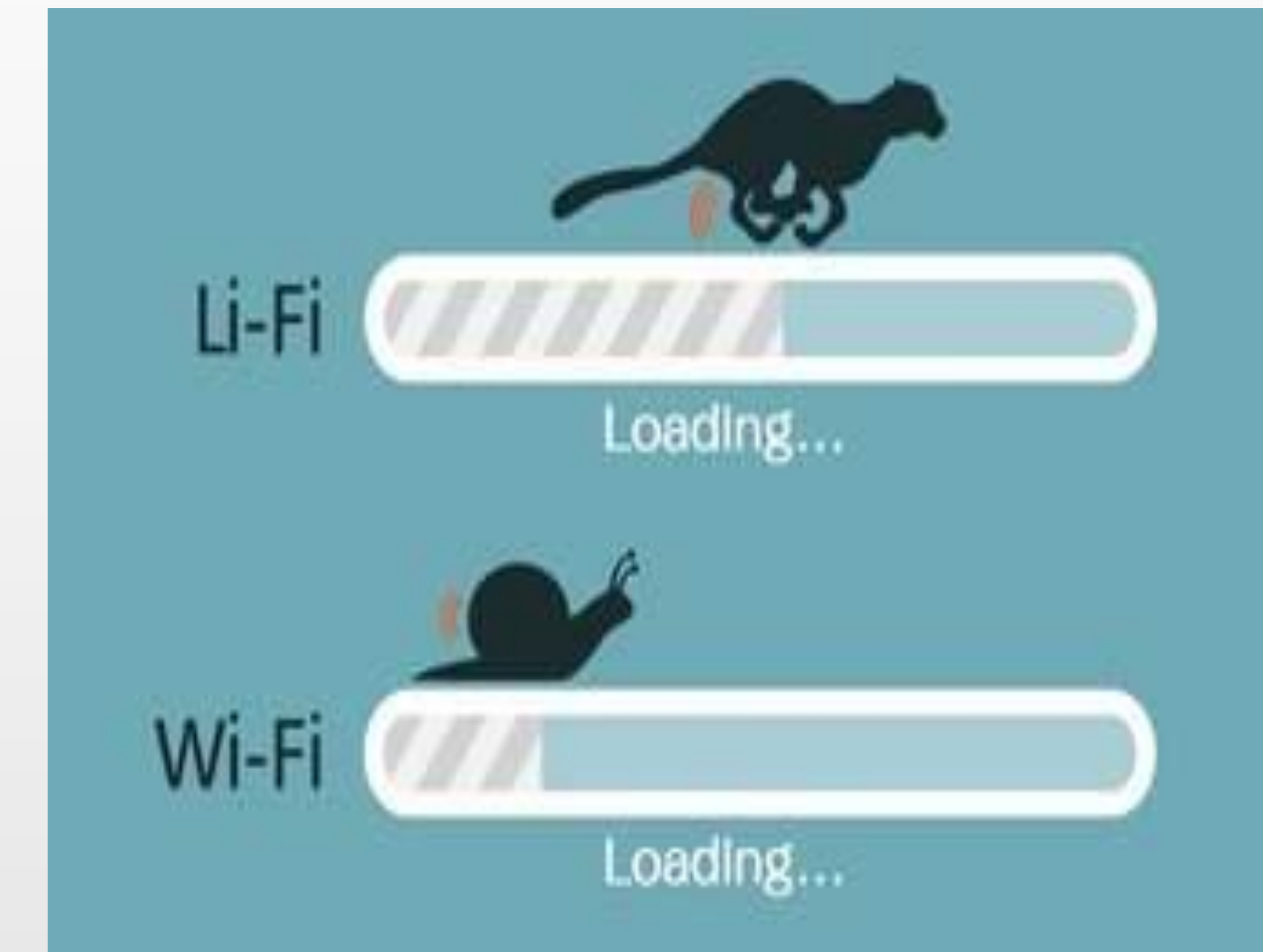
Internet cannot be used without a light source, because it uses visible light.

Wi-Fi can be connected at any convenient location within premises. Wi-Fi technology has standardized for all countries, it helps for the mobile devices to connect the Wi Fi. Wi Fi signal depends on the interference, Concrete wall will reduce the signal strength Also, there is a limit for distance to connect Wi Fi signals.

Wi Fi router has various encryption methods to secure our network password.



Conclusion



Li-Fi is the most ideal solution for effective data

transmission data by : Light.

accurate, fast, safe and cost effective Li-Fi could potentially be the successor of Wi-Fi

uses in critical fields like military and medicine. Further research on Li-Fi

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