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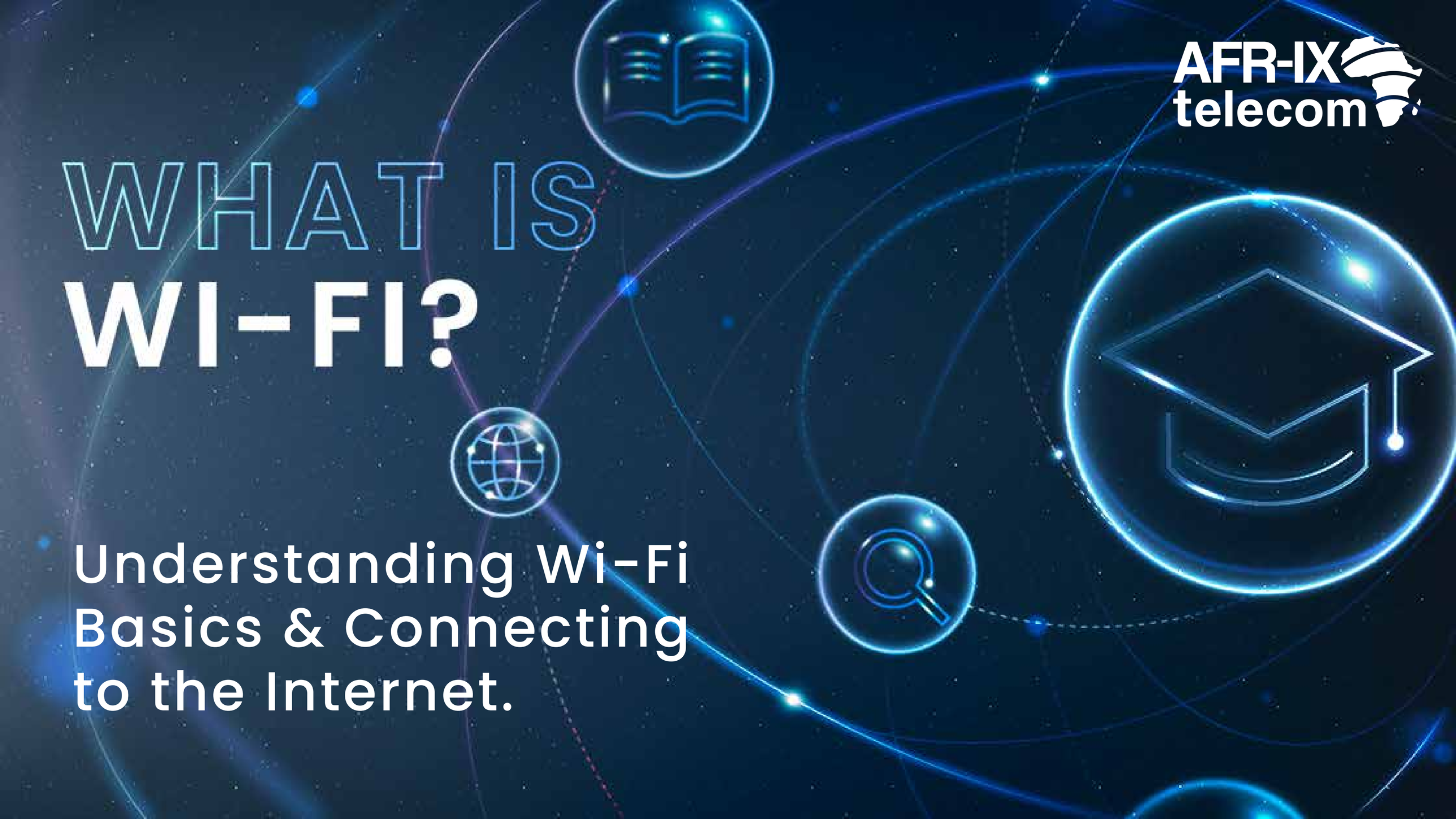
WHAT IS WI-FI?

Understanding Wi-Fi Basics & Connecting to the Internet.



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WHAT IS WI-FI

Wi-Fi stands for 'Wireless Fidelity'.

It lets devices like phones and laptops connect to the internet using radio wave - no cables needed.

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A BRIEF HISTORY OF WI-FI

- 1970s: Radio frequency research by Norman Abramson
- 1997: IEEE introduces 802.11
- Late 1990s: First Wi-Fi products
- 2000s: Faster versions like 802.11g/n
- 2010s+: Wi-Fi 6 (802.11ax)no cables needed

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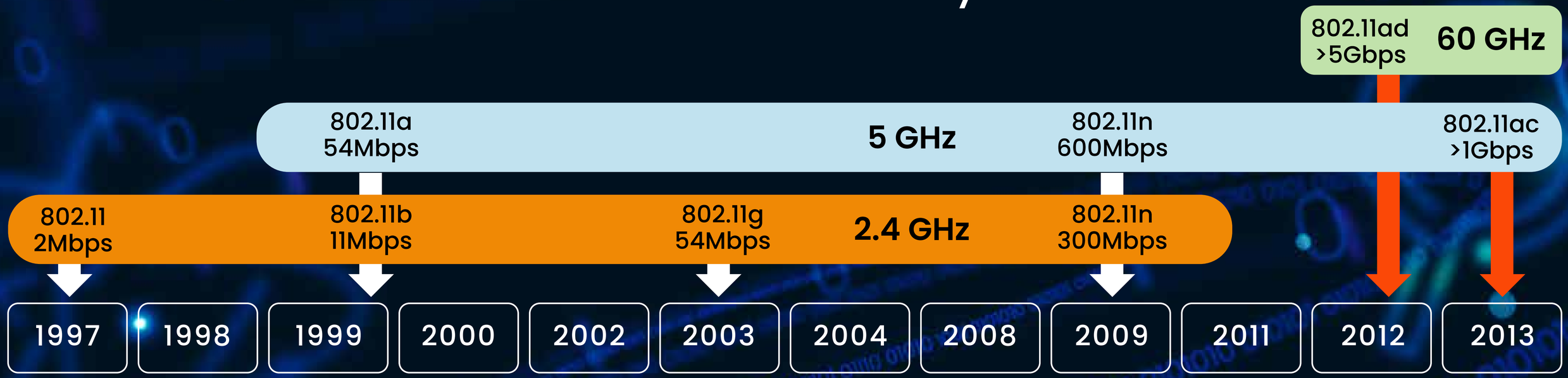
WI-FI STANDARDS EVOLUTION

IEEE 802.11 (Wi-Fi) Timeline

- Faster > 1 Gbps Wi-Fi are now available
- New standards are at 5 GHz and beyond



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WHAT IS AN SSID

SSID = Service Set Identifier

- It's your network's name
- One SSID can span multiple access points, channels, or radios

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FREQUENCY BRANDS & CHANNELS

- 2.4 GHz: Fewer channels, more interference
- 5 GHz: More channels, less interference
- (Availability varies by region)

CONNECTING DEVICES TO THE INTERNET

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- The internet, sometimes simply called the net, is a worldwide system of interconnected computer networks and electronic devices that communicate with each other using an established set of protocols.
- The term Internet stands for Interconnected Networks. There are millions of computers connected around the world via telephone lines or wireless medium of communication

Devices connect to the internet through several methods, primarily using wired or wireless connections. Here's a breakdown of how this works:

1. Wired Connections:

Ethernet: Devices connect to the internet via Ethernet cables plugged into a router or modem. This is common for desktops and gaming consoles, providing a stable and fast connection.

Fiber Optic: Some homes and businesses use fiber optic cables, which offer high-speed internet access through light signals.

2. Wireless Connections:
Wi-Fi: Most devices, like smartphones, laptops, and tablets, connect to the internet through Wi-Fi networks. A router sends and receives data wirelessly, allowing multiple devices to connect without cables.

Cellular Networks: Mobile devices use cellular data networks (3G, 4G, 5G) to connect to the internet when Wi-Fi isn’t available. They communicate with cell towers to access the internet.

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3. Other Technologies:

Bluetooth: While primarily for short-range data transfer, some devices can connect to the internet via Bluetooth when paired with a smartphone or another device with internet access.

Satellite: In remote areas, satellite internet provides access by sending signals to and from satellites orbiting the Earth.

Dial-up: An older method that uses a phone line to connect to the internet, although it's largely outdated.

TYPES OF CABLES

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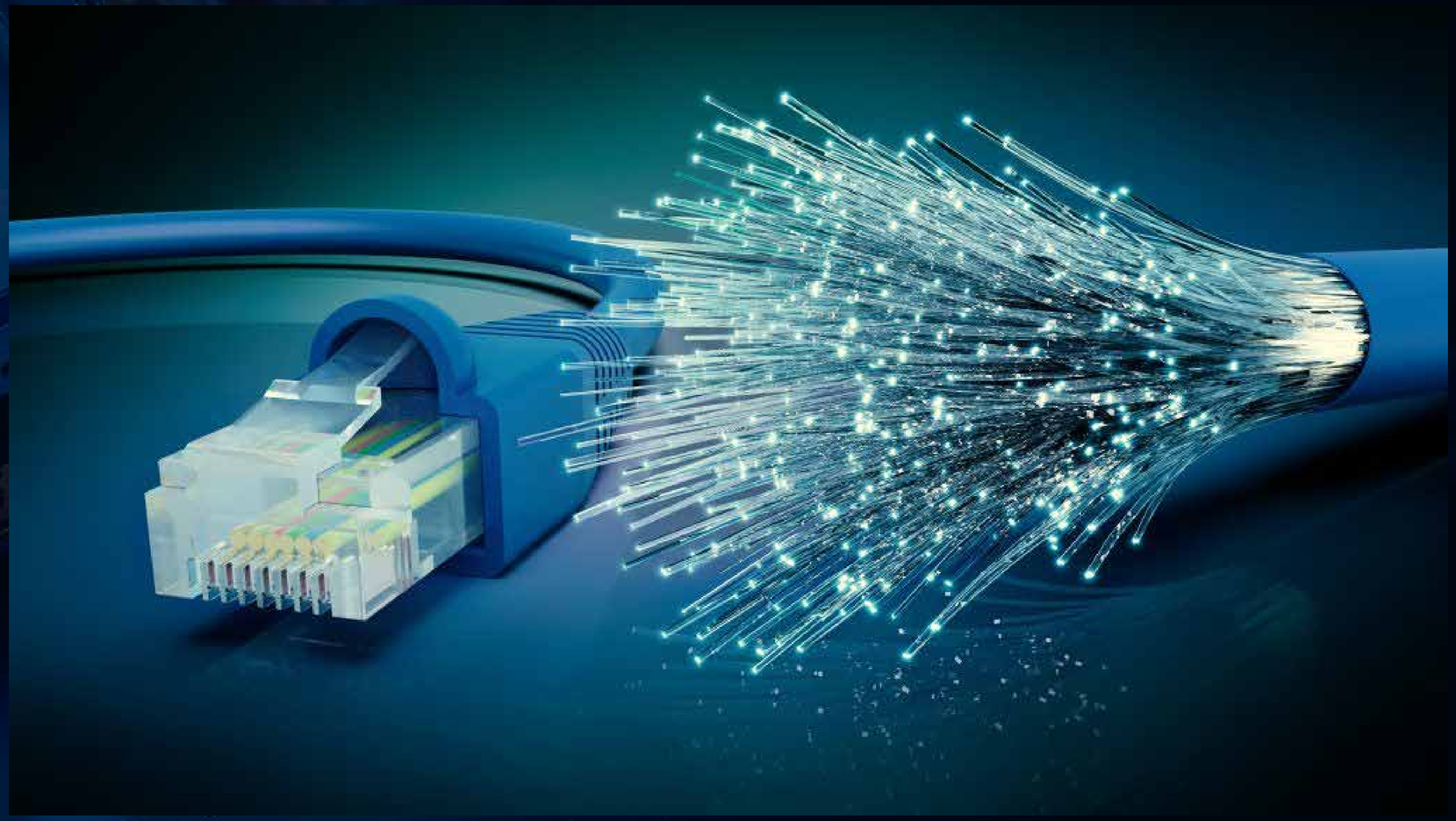
Ethernet vs Fibre Optics



TYPES OF CABLES

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Fibre Optics vs Ethernet

- Fibre optic cables use light to send data, making them very fast and ideal for long distances.
- Ethernet cables (like Cat5 or Cat6) use electrical signals to transfer data.
- Fibre can carry more data at higher speeds than Ethernet.
- Ethernet is more affordable and easy to install, which is why it's still commonly used.
- Fibre is often used for big networks and internet connections, while Ethernet is used more in homes and offices.

TYPES OF CABLES

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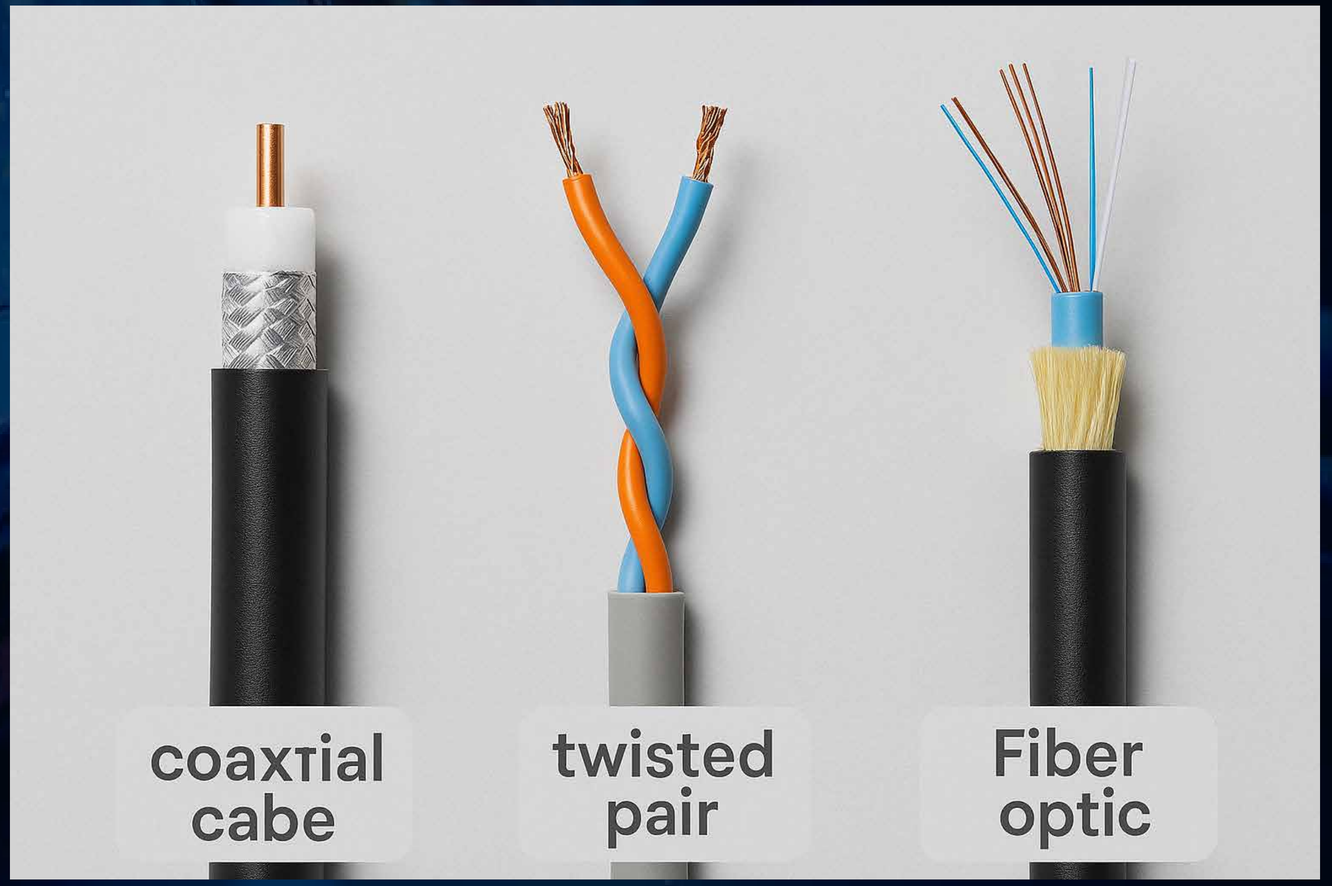

NETWORKS, SWITCHES & ROUTERS

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NETWORK DIAGRAM

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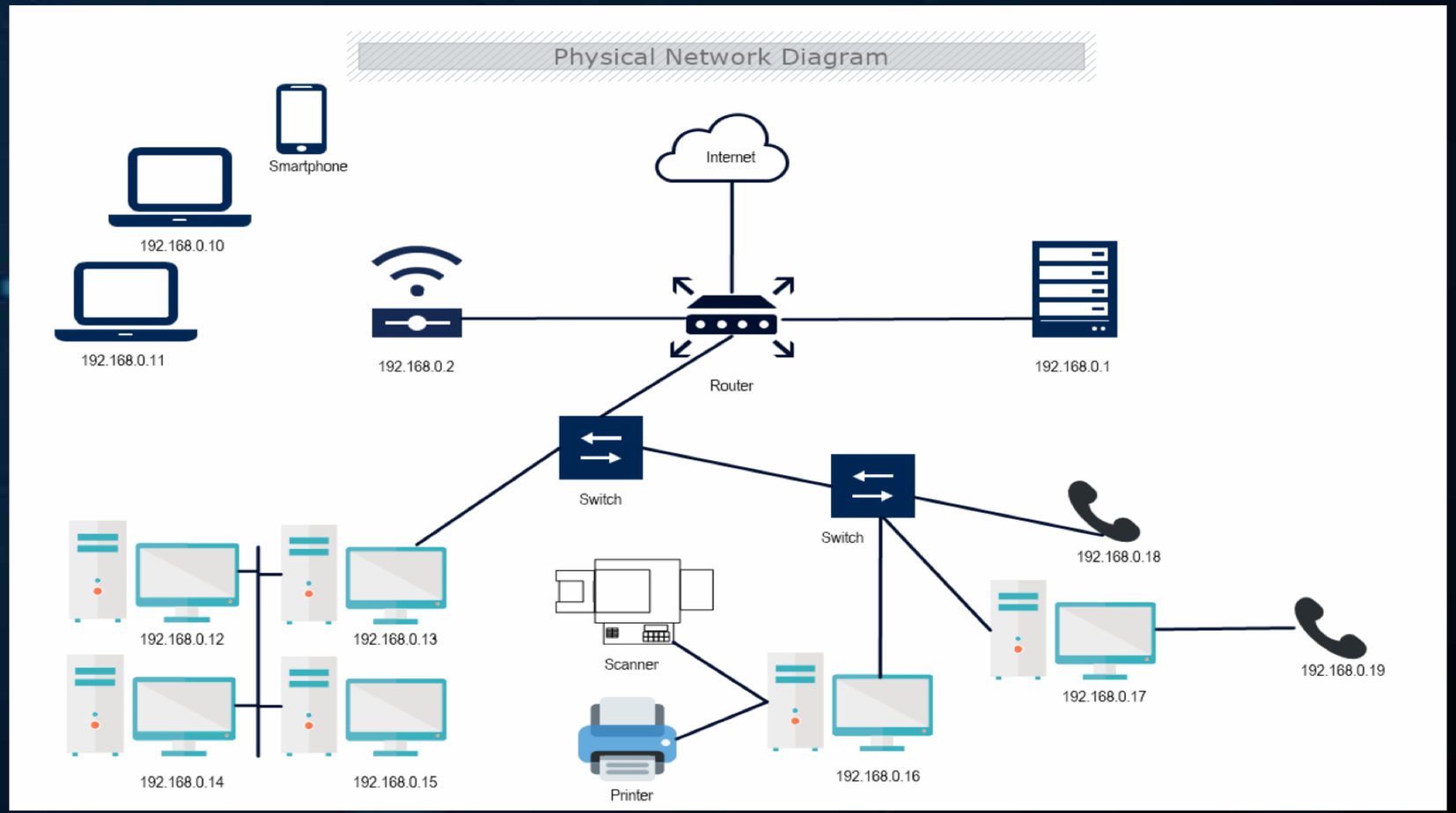

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THANK YOU