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ASSIGNMENT 3

Give a LAN and WAN diagram. Explain about the same in simple words and with an example.

**LAN (Local Area Network)**

A **LAN** is like a small **private network**. Imagine your **home or office** where devices are close to each other — they can all be connected using Wi-Fi or cables.

**Key Features of LAN:**

* **Short distance**: Covers a building, a room, or a campus.
* **High speed**: Fast data transfer, often 100 Mbps to 1 Gbps or more.
* **Private ownership**: You or your company controls it.
* **Low setup cost**: Equipment is relatively cheap (router, switch, cables).
* **Examples of devices**:
  + Computers
  + Printers
  + Smartphones
  + Network switches
  + Wi-Fi routers

**Use Case:**

In your home:

* Your **laptop prints to a wireless printer**.
* You **stream movies** from your PC to your smart TV. This is all happening **inside your LAN**.

**WAN (Wide Area Network) – In Detail**

A **WAN** connects multiple LANs that are far apart. The biggest WAN is the **Internet** itself!

**Key Features of WAN:**

* **Long distance**: Connects cities, countries, even continents.
* **Lower speed**: Compared to LANs, because it travels longer and uses external networks.
* **Public/leased**: Often managed by ISPs (Internet Service Providers).
* **Expensive setup**: Uses fiber optics, satellite links, undersea cables, etc.
* **Examples of connections**:
  + Broadband internet
  + VPNs (Virtual Private Networks)
  + Leased lines for business.

**Use Case:**

Your **home computer** accesses your company’s server (in another city) to download reports. This happens through the **WAN** (the Internet).

**How LAN and WAN Work Together**

LANs are **like rooms** in your house. WANs are the **roads** and **highways** that connect those rooms to other houses (offices or networks) far away.

When you:

* Send an email from your home (LAN) to a colleague in another country,
* It first goes out of your **LAN**, into the **WAN (Internet)**,
* Then it reaches your colleague’s **LAN**.

