

Learn with Yasir

Learn Python, Microsoft 365 and Google Workspace

[</> View Learn with Yasir on GitHub](#)

Computer Basics: Networking Basics

Connect with me: [Youtube](#) | [LinkedIn](#) | [WhatsApp Channel](#) | [Web](#) | [Facebook](#) | [Twitter](#)

- [Download PDF](#)
- To access the updated handouts, please click on the following link:
<https://yasirbhutta.github.io/computer-basics/docs/networks.html>

What is a Computer Network?

- A computer network is a group of two or more devices or nodes that can communicate with each other.
- These devices can be connected by physical or wireless connections.

See also:

- [Computer Network - techtarget.com](#)

Types of networks

Local Area Network (LAN)

- A local area network (LAN) is a collection of devices connected together in one physical location, such as a building, office, or home.

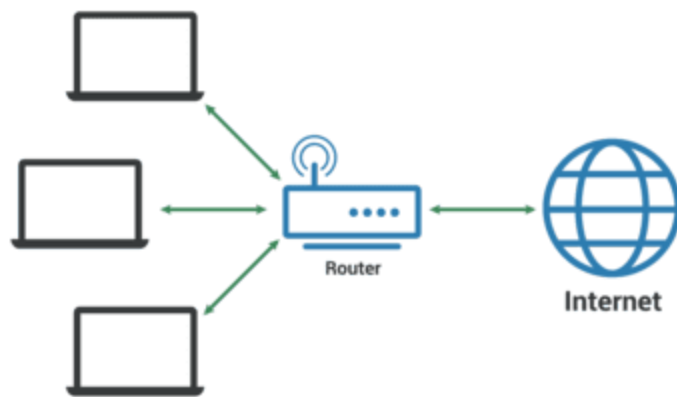


Image Source: cloudflare.com

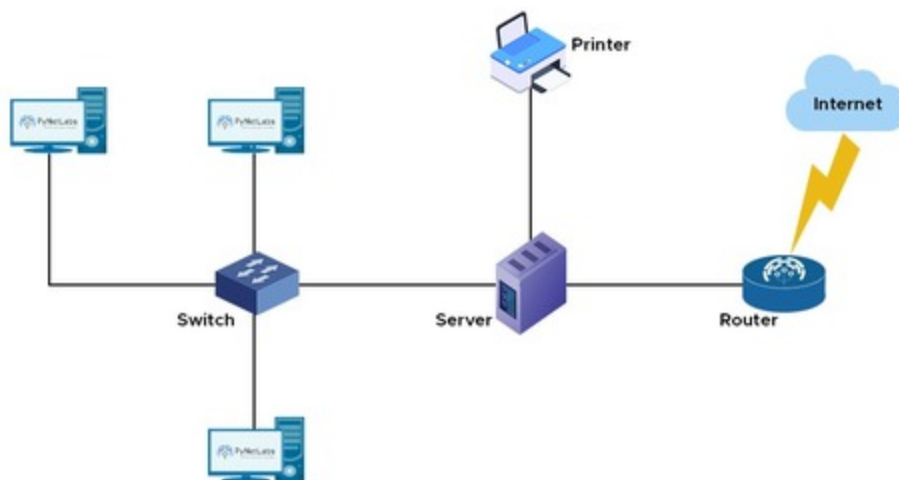


Image source: pynetlabs.com

See also:

- [What Is a LAN? - cisco](#)
- [What is a LAN \(local area network\)? - cloudflare](#)

Wide Area Network (WAN)

- A wide-area network (WAN) is a collection of local-area networks (LANs) or other networks that communicate with one another.
- A WAN is essentially a network of networks, with the Internet the world's largest WAN.

- These connect LANs across geographically dispersed locations, often using the internet as the backbone. Think of connecting all the branches of a bank across different cities – that's a WAN!

WAN network

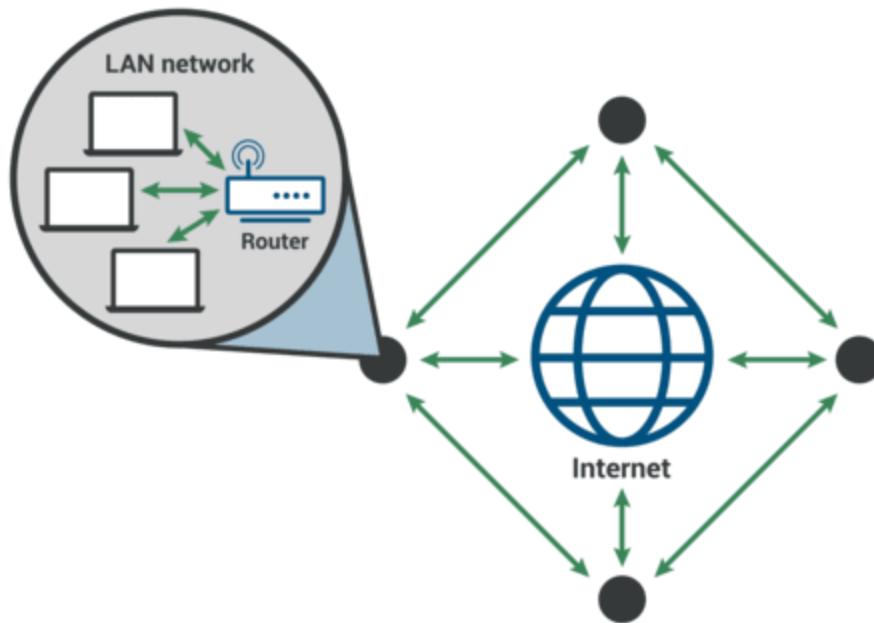


Image source:cloudflare.com

See also:

- [What Is a WAN? Wide-Area Network - cisco.com](https://www.cisco.com)
- [What is a wide area network \(WAN\)?](#)

Network components

Network Switch

- A network switch forwards data packets between devices. Switches send packets directly to devices, rather than sending them to networks like a router does.
- Unlike a router, a switch only sends data to the single device it is intended for (which may be another switch, a router, or a user's computer), not to networks of multiple devices.



Image by [victor217](#) on Freepik

See also:

- [What is a network switch? - cloudflare.com](#)

Router

- A router is a device that connects two or more IP networks or subnetworks.

It serves two primary functions:

1. Managing traffic between these networks by forwarding data packets to their intended IP addresses
2. Allowing multiple devices to use the same Internet connection.



Image by [Freepik](#)

See also:

- [What is a router? - https://www.cloudflare.com/](https://www.cloudflare.com/)

Basic network protocols

- the set of rules that governs how data is transmitted across networks.

TCP/IP: This suite of protocols defines how data is formatted, addressed, transmitted, and received across networks. It's like the set of rules that everyone on the network follows to communicate effectively.

The internet: How it works and how to access it

Internet

- The Internet is a network of networks.
- The internet is a global network of interconnected computers, servers, phones, and other devices.
- The internet works by using a packet routing network that follows Internet Protocol (IP) and Transport Control Protocol (TCP).

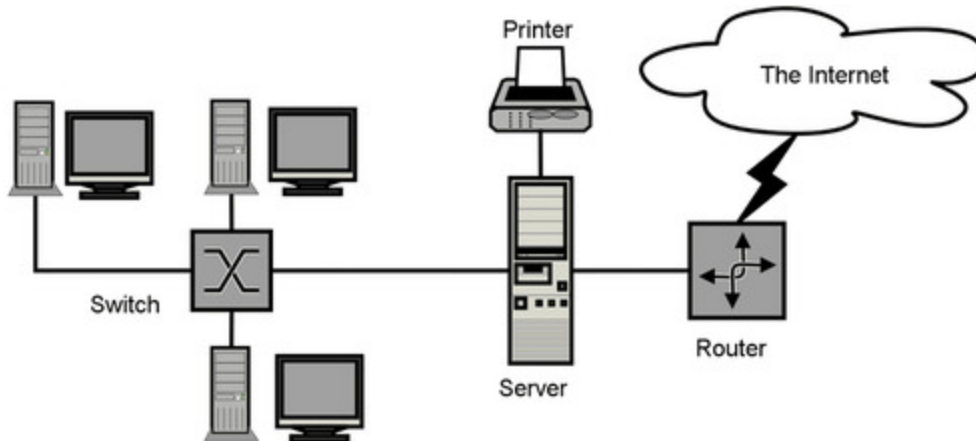


Image Source: cloudinary.com

Understanding the Web:

Imagine the internet as a massive highway system, but instead of cars, it's data packets zipping back and forth. These packets carry information like emails, videos, and website content. Here's the basic flow:

Your Action: You search for something online, type an email, or watch a video. **Data**

Breakdown: Your device converts your action into digital data and breaks it into smaller

packets. **Addressing:** Each packet gets a unique IP address, like a street address, identifying

its origin and destination. **Routing:** Routers, acting as traffic cops, guide the packets through the network of interconnected computers and cables. **Reaching the Destination:** The packets arrive at the targeted server (a computer storing the information you requested). **Reassembly:** The server reassembles the packets back into the original data. **Delivery:** You receive the information on your device – website content loads, email displays, or video plays.

Accessing the Internet:

Connection: Wi-Fi, Ethernet cable, cellular data, or satellite. **Device:** Smartphone, computer, tablet, smart TV, etc. **Internet Service Provider (ISP):** A company that grants you access to the internet for a fee.

Ways to Connect:

Wi-Fi: Most convenient, connects wirelessly to a router. **Ethernet:** Faster and more reliable, uses cables for direct connection. **Cellular Data:** Access the internet anywhere with mobile network coverage. **Satellite:** Reaches remote areas but can be slower and expensive.

See also:

- [Internet Basics: What is the Internet? - GCFGlobal](#)

True/False (Mark T for True and F for False)

Multiple Choice (Select the best answer)

Exercises

Review Questions

- What is a wide area network (WAN)?
- What is a LAN (local area network)?
- What is a Network switch?
- What is a router?
- What is the difference between a LAN and a WAN?

Answer:

A WAN, or wide area network, is a collection of connected LANs. It is a widespread network of local networks. A WAN can be any size, even thousands of miles wide; it is not restricted to a given area.

References and Bibliography

- What Is a LAN? - cisco
- What is a LAN (local area network)? - cloudflare
- What Is a WAN? Wide-Area Network - cisco.com
- What is a wide area network (WAN)?
- What is a network switch? - cloudflare.com
- What is a router? - www.cloudflare
- Internet Basics: What is the Internet? - GCFGlobal



View *yasirbhutta* on *GitHub*