

Understanding Networks

Textbook

Understanding Networks



What Is a Computer Network?

A computer network is a group of connected devices—like computers, phones, and tablets—that can share information and resources. Networks allow people to send emails, stream videos, play games online, and more. Every network has **three main parts**:

- **Connections** (like cables or wireless signals),
- **Connecting points** (such as routers and switches),
- **Devices** that use the network (like computers, printers, or smartphones).

Wired vs. Wireless: How Networks Connect

Networks can be connected in different ways:

- **Wired networks** use physical cables to connect devices. These are often faster and more secure.
- **Wireless networks** (like Wi-Fi) use radio waves instead of cables. They are convenient because you can move around freely.

- **Local Area Networks (LANs)** are small networks in places like homes, schools, or offices.
- **Mobile networks** use cellular towers to connect phones and tablets when you're on the go.

What Is the Internet of Things (IoT)?

The **Internet of Things** refers to devices that connect to the internet and talk to each other—even if they're not traditional computers. Think of smartwatches, security cameras, smart speakers, and even refrigerators that can send you grocery reminders! These devices collect and share data to help make life easier.

Privacy and Security Risks

Even though networks help us stay connected, they also come with risks. When devices are connected to the internet, they can be targeted by hackers. Some common risks include:

- **Privacy loss** (like apps tracking your location),
- **Data theft** (like someone stealing your password),
- **Malware** (software that can damage or spy on your device). Keeping networks safe means using strong passwords, updating software, and being careful about what you share online.

Keeping IoT Devices Safe

IoT devices can make our lives more convenient, but they also bring new security challenges. These gadgets often connect automatically and can be easy targets for hackers. Always make sure your smart devices have:

- Updated software,
- Unique and strong passwords,
- Secure network connections.

Critical Thinking Questions

1. What are the benefits and risks of connecting everyday devices (like watches or fridges) to the internet?
2. How would you explain the difference between a wireless network and a mobile network to a friend who's not tech-savvy?

Questions (5)

1. What are the three major components of a network?

MULTIPLE CHOICE

Choose the correct answer:

- A. Monitor, keyboard, and mouse
- B. Connection, connecting point, and devices
- C. Computer, tablet, and phone
- D. Router, modem, and tower

2. Which type of network is most commonly used in homes and schools?

Choose the correct answer:

- A. Mobile network
- B. Bluetooth network
- C. Local Area Network (LAN)
- D. Cellular network

3. What is one major benefit of wireless networks?

Choose the correct answer:

- A. They never get hacked.
- B. They are faster than fiber cables.
- C. They allow mobility and don't require cables.
- D. They only work with smartwatches.

4. What is the Internet of Things (IoT)?

Choose the correct answer:

- A. Devices that connect to the internet and share data
- B. A new social media platform
- C. A type of video game system
- D. A tool used to fix broken networks

5. Which of the following is a good way to keep IoT devices secure?

Choose the correct answer:

- A. Always use public Wi-Fi
- B. Share passwords with friends
- C. Leave devices turned on all the time
- D. Use strong, unique passwords and keep devices updated

Answer Keys & Solutions

Questions

1. What are the three major components of a network?

MULTIPLE CHOICE

Correct Answer:

- | | |
|--|-------------|
| A. Monitor, keyboard, and mouse | ✗ Incorrect |
| B. Connection, connecting point, and devices | ✓ Correct |
| C. Computer, tablet, and phone | ✗ Incorrect |
| D. Router, modem, and tower | ✗ Incorrect |

2. Which type of network is most commonly used in homes and schools?

MULTIPLE CHOICE

Correct Answer:

- | | |
|-----------------------------|-------------|
| A. Mobile network | ✗ Incorrect |
| B. Bluetooth network | ✗ Incorrect |
| C. Local Area Network (LAN) | ✓ Correct |
| D. Cellular network | ✗ Incorrect |

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| B. They are faster than fiber cables. | ✗ Incorrect |
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| D. They only work with smartwatches. | ✗ Incorrect |

4. What is the Internet of Things (IoT)?

MULTIPLE CHOICE

Correct Answer:

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| A. Devices that connect to the internet and share data | ✓ Correct |
| B. A new social media platform | ✗ Incorrect |
| C. A type of video game system | ✗ Incorrect |
| D. A tool used to fix broken networks | ✗ Incorrect |

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