



Basic Characteristics of Computer Networks

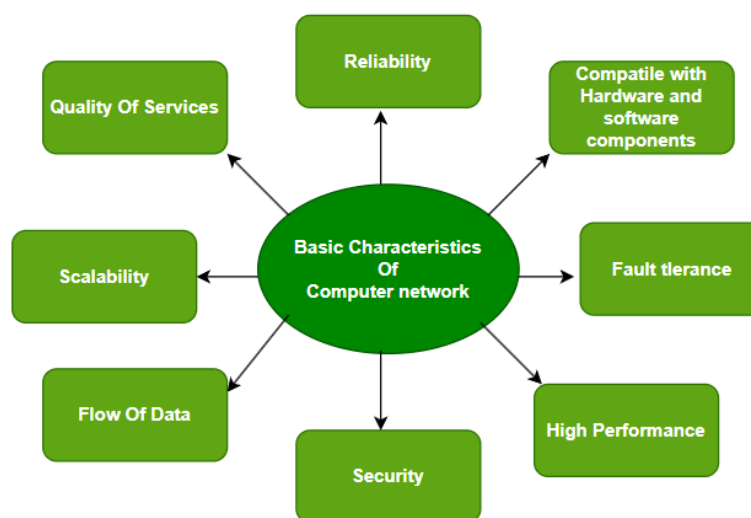


Last Updated : 12 Jun, 2024

Computer networks allow multiple devices to connect and share resources like files, printers, and internet access. Key characteristics include the network's size (like local or wide area), the way data is transferred (wired or wireless), and the network's layout (such as star or mesh). These features help determine how well the network performs and meets the needs of its users.

Computer networks are a system of interconnected computers and other devices that allow for the sharing of information and resources. They can range in size from a few connected devices in a small office to millions of devices spread out across the globe. In this article, we are going to discuss some basic characteristics of Computer Networks.

Basic Characteristics of Computer Network



characteristics of Computer Networks

1. Security

Security is one of the most important characteristics of a computer network. Most businesses nowadays depend on computers, which are accessed by using network. If computer network technology is not secure, then any one can able to access companies data and this is not good for any company, because those who unauthorized data can misuse of the data . However, nowadays, computer networking tools primarily provide the highest level of security and prevent any unauthorized access.

Computer networks are vulnerable to [security threats](#) such as hacking, viruses, and data breaches. Security measures such as firewalls, encryption, and user authentication are essential to protect network resources and data.

2. Reliability

Computer networks must be reliable to ensure that data and resources are always available when needed. Redundancy and [backup](#) systems can help to ensure that the network remains operational in the event of a failure.

3. Scalability

Scalability means a network can grow and handle more users or devices without losing performance. The internet is a great example of this: even as millions of new users connect and communicate with other devices, the network continues to work well.

Computer networks must be scalable to accommodate growth and changing needs. As the number of devices and users on the network increases, the network must be able to handle the additional traffic and data.

4. Flow of Data

Computer networks let users access and share data like files and documents between devices. This feature is essential because it enables data to move smoothly from one device to another.

5. High Performance

Performance is measured by how quickly a command is executed. If data transfers fast and responses are quick, it benefits users by making data sharing and resource usage more efficient. Using multiple processors can further enhance performance.

The performance of a computer network is determined by factors such as bandwidth, latency, and throughput. These factors affect the speed and responsiveness of the network and can impact the user experience.

6. Fault Tolerance

[Fault tolerance](#) is a valuable feature of computer networks. For example, if two devices are connected by both wired and wireless means, and the

wireless connection fails, the data can still be sent through the wired connection. This ensures that communication continues smoothly even if part of the network is down or damaged.

7. Quality of Service (QoS)

It means people can choose what data gets sent first and how it's sent, making sure it goes fast. If some data doesn't make it through, the system can handle that too. This makes sure users get a good experience when using the network.

8. Compatible With Hardware and Software Components

Another important characteristics of computer network is that it lets lots of devices use the same software. This means you can use the same program on different [hardware](#). This makes things work better together and makes software easier to use. Plus, it helps make the most out of the stuff you have.

Other Characteristics of Computer Network

Connectivity

The primary purpose of a computer network is to enable devices to communicate with each other. Connectivity is established through a variety of wired and wireless technologies, such as Ethernet cables, [Wi-Fi](#), and [Bluetooth](#).

Standards and Protocols

Computer networks rely on standards and protocols to ensure that devices can communicate with each other. Standards such as TCP/IP and Ethernet, and protocols such as [HTTP](#) and [SMTP](#), are used to ensure interoperability between devices and networks.

Management and Administration

Computer networks require ongoing management and [administration](#) to ensure that they continue to function properly. This includes tasks such as monitoring network performance, configuring devices, and troubleshooting issues.

Computer networks are essential for enabling communication and resource sharing between devices and users. They must be scalable, secure, reliable, and performant, and rely on standards and protocols to ensure interoperability. Effective management and administration are also critical to ensuring the ongoing operation and maintenance of the network.

Conclusion

In this article we discussed about characteristics of computer network so there are eight important characteristics of computer network these are reliability, Security, Scalability, Fault tolerance, High performance, [Quality Of Services](#), Flow of data, and compatible with hardware and software.

Frequently Asked Questions on Characteristics of Computer Networks – FAQs

What are the four important network characteristics?

Four important network characteristics are:

- *Fault Tolerance*
- *Scalability*
- *Quality of Service (QoS)*
- *Security*

What are the basic types of computer network?

There are five main type of computer network:

- *LAN (Local Area Network)*
- *MAN (Metropolitan Area Network)*
- *WAN (Wide Area Network)*
- *PAN (Personal Area Network)*
- *VPN (Virtual Private Network)*

What are the main characteristics of a network operating system?

Characteristics of network operating systems are

- *Processor support*
- *Hardware detection and multiprocessing*
- *Printer and Devices sharing*
- *File sharing and database sharing*
- *Network security capabilities*
- *Directory services*
- *Backup and web services*
- *Internetworking.*

"GeeksforGeeks helped me ace the GATE exam! Whenever I had any doubt regarding any topic, GFG always helped me and made my concepts quiet clear." - Anshika Modi | AIR 21

Choose GeeksforGeeks as your perfect GATE 2025 Preparation partner with these newly launched programs

[GATE CS & IT- Online](#)

[GATE DS & AI- Online](#)[GATE Offline \(Delhi/NCR\)](#)

Over 150,000+ students already trust us to be their GATE Exam guide.

Join them & let us help you in opening the GATE to top-tech IITs & NITs!

M maya...

13

Previous Article

[Goals of Networks](#)

Next Article

[Challenges of Computer Network](#)

Similar Reads

Computer Networks - GATE CSE Previous Year Questions

Solving GATE Previous Year's Questions (PYQs) not only clears the concepts but also helps to gain flexibility, speed, accuracy, and...

4 min read

Computer Networks | Set 5

Following questions have been asked in GATE CS 2005 exam. 1) Packets of the same session may be routed through different paths in: (a) TCP, but n...

2 min read

Computer Networks | Set 3

Following Questions have been asked in GATE 2011 CS exam. 1) A layer-4 firewall (a device that can look at all protocol headers up to the transport...

3 min read

Computer Networks | Set 12

Following questions have been asked in GATE CS 2009 exam. 1) Let $G(x)$ be the generator polynomial used for CRC checking. What is the condition...

2 min read

Computer Networks | Set 6

Following questions have been asked in GATE CS 2005 exam. 1) An organization has a class B network and wishes to form subnets for 64...

4 min read

[View More Articles](#)

Article Tags :

[Computer Networks](#)



Corporate & Communications Address:- A-143, 9th Floor, Sovereign Corporate Tower, Sector- 136, Noida, Uttar Pradesh (201305)
| Registered Address:- K 061, Tower K, Gulshan Vivante Apartment, Sector 137, Noida, Gautam Buddh Nagar, Uttar Pradesh, 201305



[Company](#)

[Languages](#)

About Us
Legal
In Media
Contact Us
Advertise with us
GFG Corporate Solution
Placement Training Program
GeeksforGeeks Community

Python
Java
C++
PHP
GoLang
SQL
R Language
Android Tutorial
Tutorials Archive

DSA

Data Structures
Algorithms
DSA for Beginners
Basic DSA Problems
DSA Roadmap
Top 100 DSA Interview Problems
DSA Roadmap by Sandeep Jain
All Cheat Sheets

Web Technologies

HTML
CSS
JavaScript
TypeScript
ReactJS
NextJS
Bootstrap
Web Design

Computer Science

Operating Systems
Computer Network
Database Management System
Software Engineering
Digital Logic Design
Engineering Maths
Software Development
Software Testing

System Design

High Level Design
Low Level Design
UML Diagrams

Data Science & ML

Data Science With Python
Data Science For Beginner
Machine Learning Tutorial
ML Maths
Data Visualisation Tutorial
Pandas Tutorial
NumPy Tutorial
NLP Tutorial
Deep Learning Tutorial

Python Tutorial

Python Programming Examples
Python Projects
Python Tkinter
Web Scraping
OpenCV Tutorial
Python Interview Question
Django

DevOps

Git
Linux
AWS
Docker
Kubernetes
Azure
GCP
DevOps Roadmap

Interview Preparation

Competitive Programming
Top DS or Algo for CP
Company-Wise Recruitment Process

Interview Guide
Design Patterns
OOAD
System Design Bootcamp
Interview Questions

Company-Wise Preparation
Aptitude Preparation
Puzzles

School Subjects

Mathematics
Physics
Chemistry
Biology
Social Science
English Grammar
Commerce
World GK

GeeksforGeeks Videos

DSA
Python
Java
C++
Web Development
Data Science
CS Subjects

@GeeksforGeeks, Sanchhaya Education Private Limited, All rights reserved