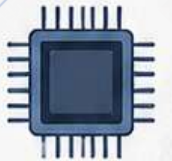


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Unit-I





INTRODUCTION TO NETWORKING

Connecting Computers, Sharing Resources, Building a Better World



1. INTRODUCTION

Computer Networking is the process of connecting two or more computers and devices together so that they can communicate, share data, and resources.

- ▶ It enables devices to exchange information and access shared resources such as files, printers, applications and internet.



2. NEED OF COMPUTER COMMUNICATION NETWORK



1. Resource Sharing

Allows multiple users to share resources like printers, files, applications and internet connection.



2. Data Sharing and Communication

Enables fast exchange of data and information between users anytime, anywhere.



3. Internet Access

Provides access to the internet for information, education, entertainment and more.



4. Cost Effective

Reduces cost by sharing hardware, software and internet connection among users.



5. Centralized Management

Easy to manage, backup and secure data from a central location.



6. Increased Efficiency

Improves productivity and saves time through fast communication and automation.



3. BENEFITS OF NETWORKING



High Speed Communication



Easy Data Access



Better Collaboration



Data Security and Backup



Supports Learning and Research



Global Connectivity

4. EXAMPLES OF NETWORKS

LAN

(Local Area Network)



Connects devices in a small area like home, office or school.

MAN

(Metropolitan Area Network)



Covers a larger area like a city or campus.

WAN

(Wide Area Network)



Covers a large geographical area like a country or the whole world.

KEY POINTS

- Networking connects devices.
- It allows communication and resource sharing.
- It is essential in today's digital world for education, business, healthcare, banking and entertainment.
- Networks make our work easier, faster and more reliable.



In simple words, Networking is the backbone of modern communication and the key to a connected world.



INTRODUCTION TO NETWORKING

Connecting Devices. Sharing Resources. Building the Future.



1. INTRODUCTION

Networking is the process of connecting two or more computers and devices together to share information, resources and services. It allows people and organizations to communicate and collaborate efficiently.



Key Points

- Enables communication and data exchange.
- Allows sharing of resources like files, printers, applications, and internet.
- Forms the backbone of the digital world.

2. NEED OF COMPUTER COMMUNICATION NETWORK



Resource Sharing

Share hardware, software, files, printers and internet connection.



Cost Savings

Reduces hardware and maintenance cost by sharing resources.



Communication & Collaboration

Enables email, chat, video conferencing and teamwork from anywhere.



Centralized Management

Easy to manage, update and secure data from a central location.



Reliability & Backup

Data backup and recovery become easier, ensuring business continuity.

3. COMMUNICATION PROTOCOL

A communication protocol is a set of rules and standards that define how data is transmitted, received and understood between devices in a network.

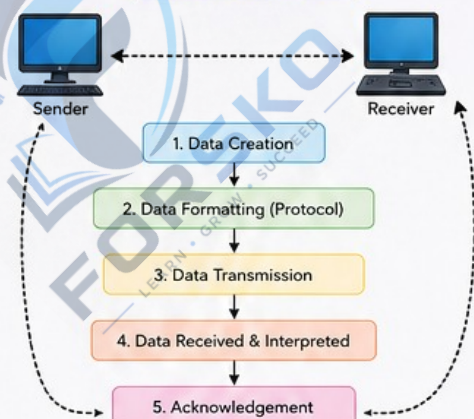
Key Functions of Protocol

- Defines data format
- Controls data transmission
- Detects and corrects errors
- Manages connection and disconnection

Example of Protocols

	TCP	Transmission Control Protocol – ensures reliable delivery of data.
	IP	Internet Protocol – handles addressing and routing of data.
	HTTP	HyperText Transfer Protocol – used for web data transfer.
	FTP	File Transfer Protocol – used for transferring files.
	SMTP	Simple Mail Transfer Protocol – used for sending emails.

How Protocols Work



4. TYPES OF NETWORKS

LAN (Local Area Network)

Covers a small geographical area like a room, building or campus.



- **Range** : Up to a few kilometers
- **Ownership** : Private (Owned by organization or individual)
- **Speed** : High (up to Gbps)
- **Examples** : Home network, Office network, School/College network
- **Technologies** : Ethernet, Wi-Fi

MAN (Metropolitan Area Network)

Covers a city or metropolitan area. It connects multiple LANs.



- **Range** : 10 to 100 kilometers
- **Ownership** : Usually by organizations or government
- **Speed** : High (upto Gbps)
- **Examples** : Cable TV network in a city, University network across city
- **Technologies** : Fiber Optic, Metro Ethernet

WAN (Wide Area Network)

Covers large geographical areas like country, continent or whole world.



- **Range** : 100s to 1000s of kilometers
- **Ownership** : Usually by service providers (Telecom Companies)
- **Speed** : Relatively lower than LAN/MAN
- **Examples** : Internet, Bank networks, Government networks
- **Technologies** : Leased lines, Satellite, MPLS, VPN





INTRODUCTION TO NETWORKING

Connecting Devices. Sharing Resources. Building the Future.



1. INTRODUCTION

A computer network is a collection of interconnected devices that can communicate and share data, resources and services with each other using communication media and protocols.



2. NEED OF COMPUTER COMMUNICATION NETWORK



Resource Sharing

Share hardware, software, files, printers and internet connection.



Cost Savings

Reduces hardware and maintenance cost by sharing resources.



Communication & Collaboration

Enables email, chat, video conferencing and teamwork from anywhere.



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4. TYPES OF NETWORKS

LAN (Local Area Network)

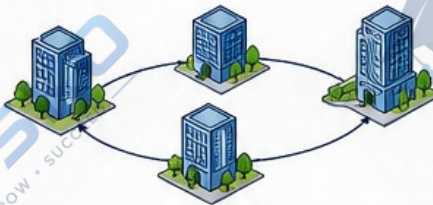
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5. NETWORK TOPOLOGIES

1. RING TOPOLOGY



Each device is connected to two other devices, forming a closed loop.

Advantages

- Easy to install and extend
- No central device required
- Equal access to network

Disadvantages

- Failure of one device can affect entire network
- Troubleshooting is difficult

2. BUS TOPOLOGY



All devices are connected to a single backbone cable.

Advantages

- Simple and inexpensive
- Requires less cable
- Easy to install

Disadvantages

- Backbone failure stops the entire network
- Limited cable length and number of devices

3. STAR TOPOLOGY



All devices are connected to a central hub/switch.

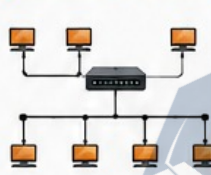
Advantages

- Easy to install and manage
- Failure of one link doesn't affect others
- Easy to detect faults

Disadvantages

- More cable required
- Hub/Switch failure stops the entire network

4. HYBRID TOPOLOGY



Combination of two or more topologies.

Advantages

- Flexible and scalable
- Reliable and efficient
- Easy to troubleshoot

Disadvantages

- Complex design
- Costly installation
- Difficult to manage

5. HIERARCHICAL TOPOLOGY



Organized in a tree-like structure (top-down approach).

Advantages

- Highly scalable
- Easy management
- Fault isolation is easy

Disadvantages

- More cabling required
- Higher cost

6. MESH TOPOLOGY



Each device is connected to every other device.

Advantages

- Very reliable
- No single point of failure
- High security

Disadvantages

- Expensive
- Complex installation
- Requires more cabling



KEY TAKEAWAY

Networking connects the world by enabling communication, sharing and collaboration. Different types, protocols and topologies help us build efficient and reliable networks for every need.



CONNECT



COMMUNICATE



COLLABORATE



SECURE



GROW

INTRODUCTION TO NETWORKING

CONNECTING DEVICES, SHARING INFORMATION, BUILDING A CONNECTED WORLD



1. INTRODUCTION

Networking is the process of connecting two or more computers and devices to share information, resources and services.



Key Points

- Enables communication between devices.
- Allows sharing of resources like files, printers, applications and internet.
- Helps people and organizations to communicate and collaborate efficiently.
- Forms the backbone of the digital world.

2. NEED OF COMPUTER COMMUNICATION NETWORK



SHARING OF RESOURCES

Allows multiple users to share hardware, software, files, printers and internet connection.



EFFECTIVE COMMUNICATION

Enables fast and easy exchange of information between users, anywhere in the world.



IMPROVED EFFICIENCY

Reduces time and effort by allowing quick access to data and resources, leading to better productivity.



COST SAVING

Reduces cost by sharing resources and internet connection instead of having separate setups for each user.



RELIABILITY

Provides reliable communication and data transfer, ensuring that information is accurate and available when needed.



SCALABILITY

Networks can grow and adapt easily as more users and devices are added.

INTRODUCTION TO NETWORKING



1. COMMUNICATION PROTOCOL

A communication protocol is a set of rules and standards that define how data is transmitted, received and understood between devices in a network.

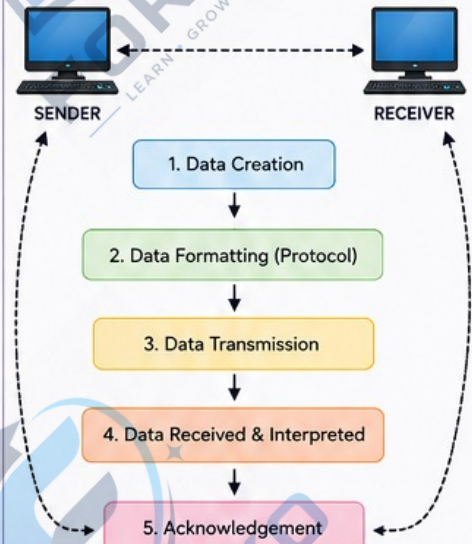
EXAMPLES OF PROTOCOLS

PROTOCOL	DESCRIPTION
 TCP (Transmission Control Protocol)	Ensures reliable delivery of data by establishing a connection and checking for errors.
 IP (Internet Protocol)	Handles addressing and routing of data between networks.
 HTTP (HyperText Transfer Protocol)	Used for transferring web pages and data on the World Wide Web.
 FTP (File Transfer Protocol)	Used for transferring files between client and server.
 SMTP (Simple Mail Transfer Protocol)	Used for sending emails from one mail server to another.

KEY FUNCTIONS

-  Defines data format
-  Controls data transmission
-  Detects and corrects errors
-  Manages connection and disconnection

HOW PROTOCOLS WORK



2. TYPES OF NETWORKS

LAN (LOCAL AREA NETWORK)

Covers a small area like a room, building or campus.



-  **Range** : Up to a few kilometers
-  **Ownership** : Private (Owned by organization or individual)
-  **Speed** : High (up to Gbps)
-  **Examples** : Home network, Office network, School/College network
-  **Technologies** : Ethernet, Wi-Fi

MAN (METROPOLITAN AREA NETWORK)

Covers a city or metropolitan area. It connects multiple LANs.



-  **Range** : 10 to 100 kilometers
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Covers large geographical areas like country, continent or whole world.



-  **Range** : 100s to 1000s of kilometers
-  **Ownership** : Usually by service providers (Telecom Companies)
-  **Speed** : Relatively lower than LAN/MAN
-  **Examples** : Internet, Bank networks, Government networks
-  **Technologies** : Leased lines, Satellite, MPLS, VPN



Networks connect devices and people, enabling communication, resource sharing and information exchange across distances.





TYPES OF NETWORKS:

LAN, MAN, WAN



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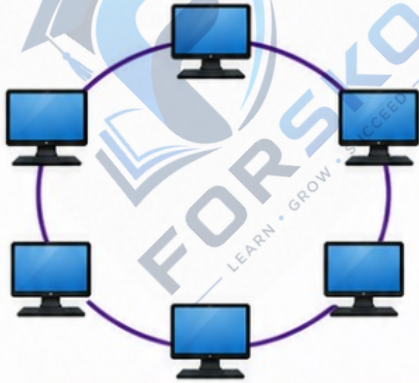
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NETWORK TOPOLOGIES

Different ways in which devices are connected in a network.



1. RING TOPOLOGY



- Each device is connected to exactly two other devices, forming a closed loop.

2. BUS TOPOLOGY



- All devices are connected to a single backbone cable.

3. STAR TOPOLOGY



- All devices are connected to a central hub or switch.

4. HYBRID TOPOLOGY



- Combination of two or more topologies.

5. HIERARCHICAL TOPOLOGY



- Organized in a tree-like structure (top-down approach).

6. MESH TOPOLOGY

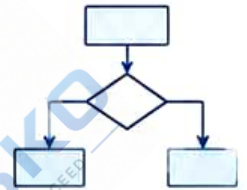


- Each device is connected to every other device.

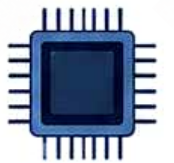


Network topologies define the layout of connections between devices in a network.

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Unit - II

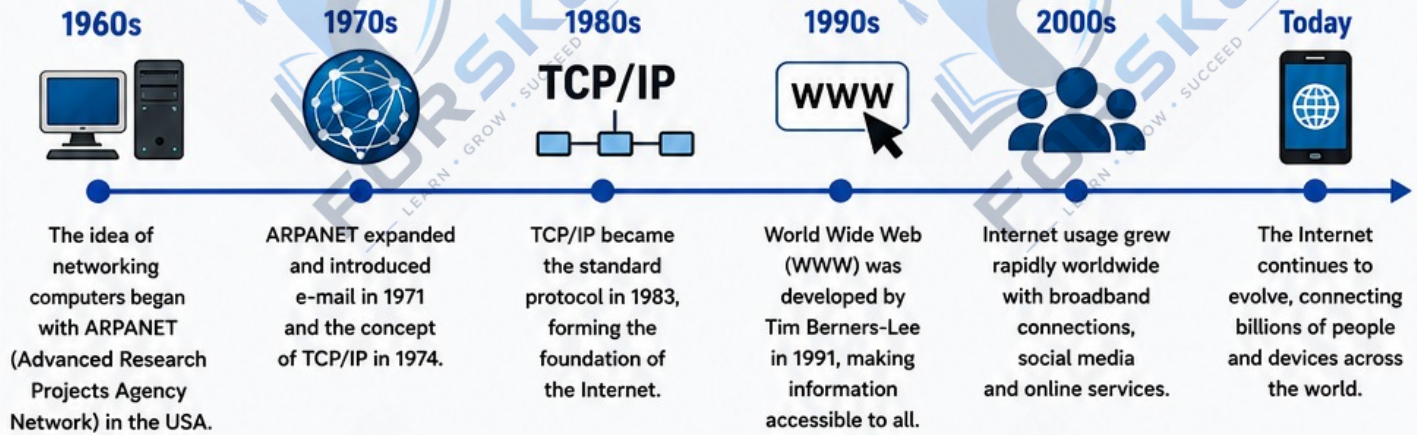


INTERNET

Connecting the World, Sharing Knowledge,
Building Tomorrow.



1. HISTORY OF INTERNET



2. APPLICATIONS OF INTERNET



3. TYPES OF INTERNET

1. Public Internet



The public Internet is open to everyone and can be accessed by anyone anywhere in the world.

Example: Websites, Google, Social Media

2. Private Internet (Intranet)



A private network used within an organization. It is not accessible to the public and is used to share information and resources among employees.

Example: Company internal portals, HR systems

3. Extranet



A network that uses Internet technologies to securely share information with external parties like customers, suppliers or partners.

Example: Partner portals, customer support systems



The Internet is a powerful tool that connects people, resources and opportunities across the globe.





INTERNET & NETWORKING

Connecting the World, Sharing Information, Creating Opportunities.



1. CONNECTION: WIRED AND WIRELESS

WIRED CONNECTION

Devices are connected using physical cables.



FEATURES

- More stable and reliable
- High speed
- More secure
- Not portable

WIRELESS CONNECTION

Devices are connected using radio waves.



FEATURES

- Easy and convenient
- Portable
- Installation is simple
- Speed may vary

2. INTERNET PROTOCOLS

Protocols are rules and standards that enable communication over the Internet.



3. INTERNET PROTOCOLS AND SERVICES



TCP/IP

(Transmission Control Protocol / Internet Protocol)

A set of protocols that allows different devices to communicate and exchange data over the Internet.



Example / Use

Used in all Internet communications.



FTP

(File Transfer Protocol)

A protocol used to transfer files between a client and a server over the Internet.



Example / Use

Uploading or downloading files from a website.



HTTP

(HyperText Transfer Protocol)

A protocol used to transfer web pages and other resources on the World Wide Web.



Example / Use

Used when you open a website in your browser.



URL

(Uniform Resource Locator)

The address of a resource on the Internet. It tells the browser where to find the resource.



Example / Use

<https://www.example.com> is a URL.



E-MAIL ADDRESS

A unique address used to send and receive e-mails over the Internet.



Example / Use

example123@gmail.com is an e-mail address.



WWW

(World Wide Web)

A system of interlinked hypertext documents and resources accessed through the Internet.



Example / Use

Consists of websites and web pages.



WEB BROWSERS

Software applications used to access, retrieve and view web pages on the Internet.



Example / Use

Chrome, Edge, Firefox, Safari, etc.



SEARCH ENGINES

Services that help users find information on the Internet by searching for keywords.



Example / Use

Google, Bing, Yahoo, DuckDuckGo, etc.



These protocols and services work together to make the Internet a powerful and useful tool for communication and information.

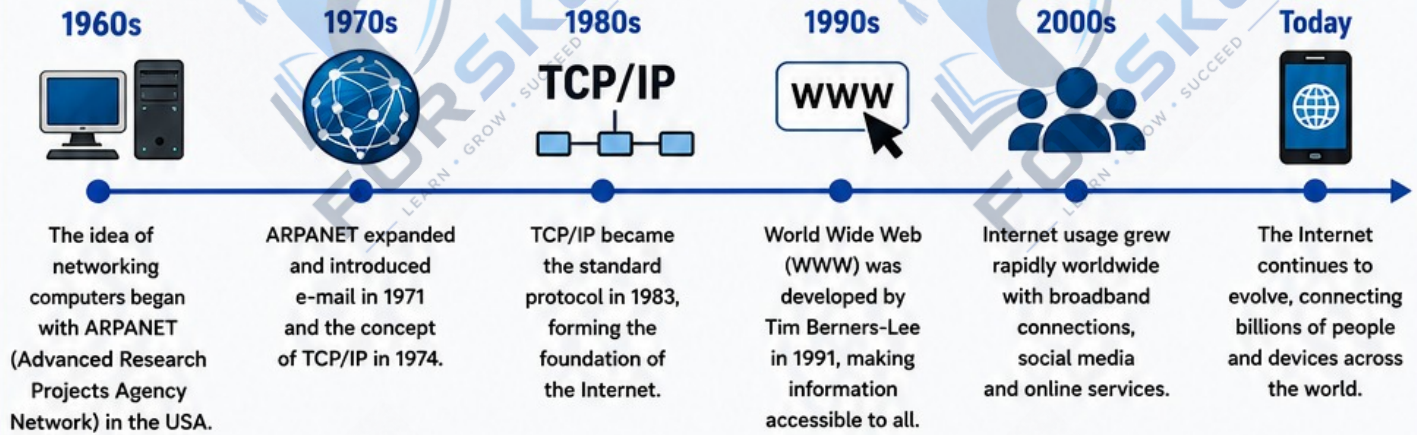


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The Internet is a powerful tool that connects people, resources and opportunities across the globe.



INTRODUCTION TO SOCIAL NETWORKING

Connecting People. Sharing Ideas. Building Communities.



TWITTER



- A microblogging platform
- Share short messages (tweets)
- Real-time updates and news
- Follow people and trends

LINKEDIN



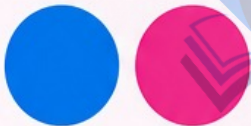
- Professional networking platform
- Connect with colleagues
- Share jobs and business updates
- Build career opportunities

FACEBOOK



- Social networking platform
- Connect with friends and family
- Share posts, photos, and videos
- Join groups and communities

FLICKR



- Photo and image sharing platform
- Store and organize photos
- Share with friends and the world
- Creative exploration and albums

SKYPE



- Voice and video communication
- Call and chat in real time
- Share files and collaborate
- Connect people worldwide

YOUTUBE



- Video sharing platform
- Watch, upload, and share videos
- Educational and entertainment
- Build and grow a community

WHATSAPP



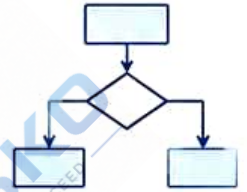
- Instant messaging platform
- Send text, voice, photos, videos
- Group chats and calls
- Stay connected anytime, anywhere



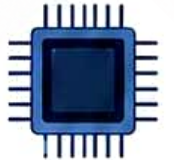
Social networking platforms help us connect, communicate, share ideas, and build communities across the world.



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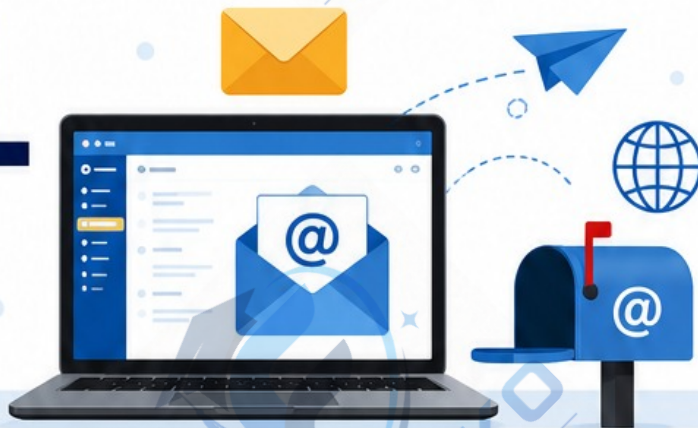




E-MAIL

Electronic Mail

E-mail is a method of exchanging digital messages from one person to another over the Internet.



1. DEFINITION OF E-MAIL



E-mail (Electronic Mail) is a service that allows users to send and receive digital messages, documents, images, audio, video or any other files through the Internet from one e-mail address to another.



Sender



Receiver

2. ADVANTAGES OF E-MAIL



1. FAST COMMUNICATION

E-mail delivers messages within seconds, regardless of distance.



2. COST-EFFECTIVE

Sending e-mails is very inexpensive compared to traditional mail.



3. EASY TO USE

E-mail services are simple and user-friendly.



4. RECORD KEEPING

E-mails can be stored, searched and organized for future reference.



5. ACCESSIBLE ANYWHERE

E-mails can be accessed from anywhere in the world with an Internet connection.



6. FILE SHARING

Attachments can be sent easily, such as documents, images, audio, video, etc.



7. ENVIRONMENT FRIENDLY

It reduces the use of paper, envelopes and physical resources.



8. RELIABLE

E-mails are generally reliable and can be delivered to multiple recipients.

3. DISADVANTAGES OF E-MAIL



1. SECURITY RISKS

E-mails can be intercepted, hacked or may contain viruses and malicious links.



2. DEPENDENCY ON INTERNET

An active Internet connection is required to send or receive e-mails.



3. DELAY IN RESPONSE

E-mails are not real-time; response may be delayed.



4. SPAM

Users may receive unwanted e-mails (spam) in large quantities.



5. MISUSE

E-mail can be misused for fraud, phishing, bullying or spreading false information.



6. STORAGE LIMIT

E-mail accounts have limited storage; large attachments may not be sent.



In Summary

E-mail is a widely used communication tool that is fast, convenient and cost-effective. However, users must be aware of its limitations and use it responsibly and securely.



E-MAIL: KEY CONCEPTS AND COMPONENTS



Understanding the essential elements that make e-mail communication possible.

1. USER IDS



A User ID is a unique name that identifies a user on an e-mail system.

Example:
faizan123

- Used to access e-mail services.
- Usually created by the user during registration.

2. LOGIN



User ID



Password

LOGIN

Login is the process of accessing your e-mail account using your User ID and Password.

- Verifies the user's identity.
- Grants access to e-mail services.

3. PASSWORDS



A Password is a secret code used with your User ID to protect your e-mail account.

- Keeps your e-mail secure.
- Should be strong and hard to guess.
- Do not share your password.

4. EMAIL ADDRESSES



An Email Address is a unique address used to send and receive e-mails.

Example:
faizan123@gmail.com

Username @ Domain Name

5. DOMAIN NAMES



A Domain Name is the address of a website or e-mail system on the Internet.

Example:
gmail.com

- Identifies organizations or service providers.
- Comes after the @ in an e-mail address.

6. MAILERS (E-MAIL CLIENTS)

Mailers are software applications used to send, receive and manage e-mails.



Gmail



Outlook



Thunderbird



Apple Mail

- Help in composing, sending, receiving and organizing e-mails.
- Can be web-based (Gmail, Outlook.com) or desktop-based (Thunderbird, Outlook).

7. MESSAGE COMPONENTS

An e-mail message is made up of the following components:

- From** : Sender's e-mail address
- To** : Recipient's e-mail address
- Cc** : Carbon Copy (others informed)
- Bcc** : Blind Carbon Copy (hidden recipients)
- Subject** : Brief description of the message
- Body** : Main content of the message
- Attachment** : Files or documents attached

8. MESSAGE COMPOSITION

The process of creating and preparing an e-mail to be sent.

New Message

To: faizan.khan@example.com

Cc: team@example.com

Subject: Project Update

Dear Sir,

Please find the project update report attached with this e-mail. Kindly review and let me know your feedback.

Thank you.

Faizan Khan

SEND

- Enter recipients (To, Cc, Bcc).
- Write a clear subject.
- Type the message in the body.

- Attach files if needed.
- Review and send.

9. MAIL MANAGEMENT

Mail Management means organizing and controlling e-mails effectively.

- Inbox** : Received messages
- Sent Items** : Sent messages
- Drafts** : Unfinished messages
- Trash** : Deleted messages
- Spam/Junk** : Unwanted messages
- Folders/Labels** : Organize e-mails
- Read / Unread**
- Reply / Reply All**
- Forward**
- Archive**
- Delete**
- Search**



Good mail management helps you stay organized, save time and protect your data.

HOW E-MAIL WORKS (IN SIMPLE STEPS)



1. Compose

You write and send an e-mail using a mailer.



2. Send

The e-mail is sent to the sender's mail server.



3. Transfer

The e-mail travels across the Internet to the recipient's mail server.



4. Deliver

The recipient's server stores the e-mail in their mailbox.



5. Receive

The recipient logs in to read the e-mail.



E-mail is a powerful communication tool. Use it wisely, responsibly and securely.



G-SUITE

Google



Powerful cloud-based tools by Google to create, store, collaborate and share – anytime, anywhere.



Google Drive

Cloud Storage
and File Management

What is it?

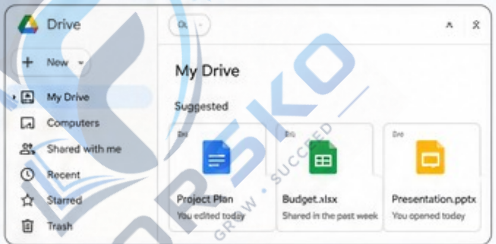
Google Drive is a cloud storage service that lets you store files online and access them from any device.

Key Features

- Store files and folders securely in the cloud
- Access from anywhere, anytime
- Share files and folders
- Set access permissions
- 15 GB free storage for Google account

Use / Example

Store documents, photos, videos, PDFs and more. Share with others and collaborate in real time.



Google Documents

Online Word Processor

What is it?

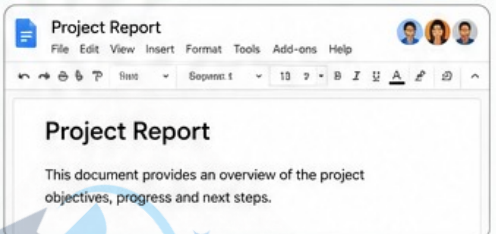
Google Docs is an online word processor that allows you to create, edit and format text documents.

Key Features

- Create and edit documents online
- Real-time collaboration
- Commenting and suggestions
- Auto-save (no data loss)
- Export in multiple formats (DOCX, PDF, etc.)

Use / Example

Create reports, essays, letters, resumes and more. Work together with others at the same time.



Google Spread Sheets

Online Spreadsheet
Application

What is it?

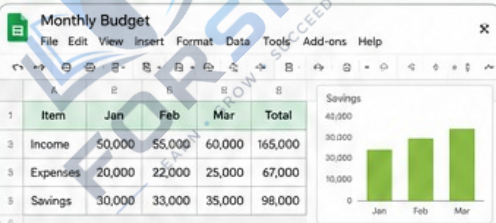
Google Sheets is an online spreadsheet tool used to organize, calculate and analyze data.

Key Features

- Create and edit spreadsheets
- Formulas and functions
- Charts and graphs
- Real-time collaboration
- Import/export with Excel (XLSX) and other formats

Use / Example

Maintain budgets, attendance, data lists, inventory and perform calculations.



Google Slides

Online Presentation
Application

What is it?

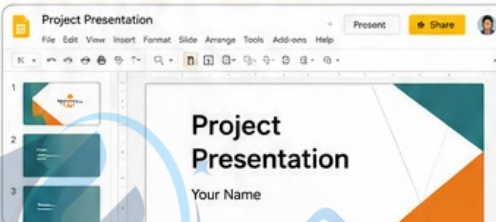
Google Slides is a tool to create, edit and present slide presentations online.

Key Features

- Create attractive presentations
- Themes, layouts and transitions
- Add images, videos, links
- Real-time collaboration
- Present directly from Google Slides

Use / Example

Create class presentations, business pitches, seminars and project presentations.



Google Forms

Online Survey and
Form Builder

What is it?

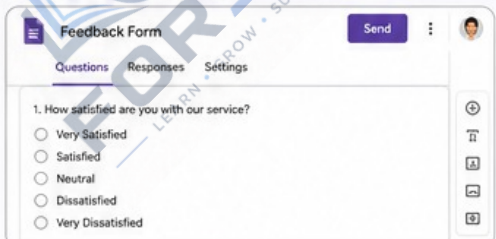
Google Forms is a tool used to create surveys, quizzes, feedback forms and collect responses.

Key Features

- Create forms, surveys and quizzes
- Various question types (MCQ, short answer, etc.)
- Collect responses in real time
- View results in summary charts
- Easy to share via link

Use / Example

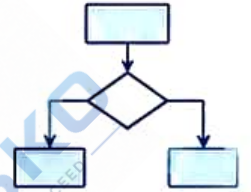
Collect feedback, conduct quizzes, registrations, RSVPs and research surveys.



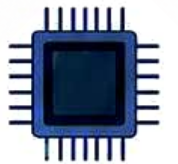
G-Suite tools work together seamlessly in the cloud to help you create, collaborate and achieve more – efficiently and effectively.



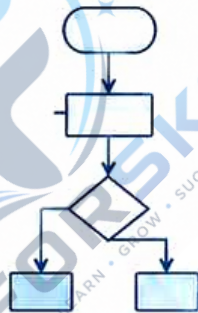
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Unit - IV





INTERNET SECURITY

KEY CONCEPTS AND PROTECTION TECHNOLOGIES

These technologies and practices help protect our data, systems and digital rights in the online world.



1. ANTIVIRUS SOFTWARE

Antivirus software is designed to detect, prevent, remove and protect computers from malicious software (viruses, worms, Trojans, spyware, ransomware, etc.).



Benefits

- ✓ Protects data and privacy
- ✓ Prevents data loss
- ✓ Improves system performance
- ✓ Provides safe browsing

Key Features

- ✓ Detects and removes malware
- ✓ Real-time protection
- ✓ Automatic updates
- ✓ Scans files, emails and websites
- ✓ Quarantine infected files
- ✓ Helps keep the system secure

Examples



Bitdefender



Norton



McAfee



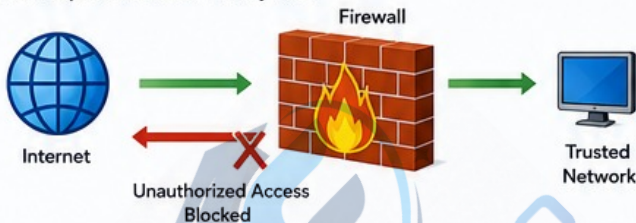
ESET



Microsoft Defender

2. FIREWALLS

A firewall is a security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.



Types

- Network Firewall – Protects an entire network.
- Host-based Firewall – Protects a single device.

Functions

- ✓ Filters traffic based on rules
- ✓ Blocks unauthorized access
- ✓ Prevents hacking and attacks
- ✓ Logs and monitors activities

Examples



Windows Firewall



pfSense



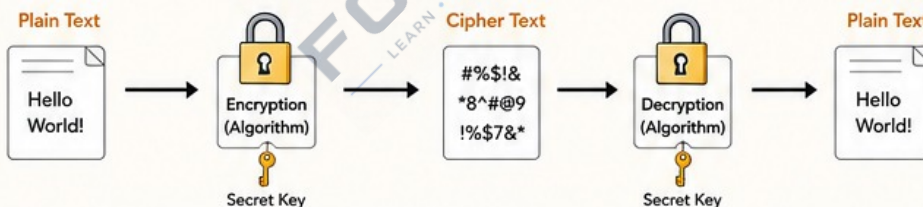
Cisco ASA Firewall



ZoneAlarm Firewall

3. CRYPTOGRAPHY

Cryptography is the art and science of converting information into a secure form so that only authorized persons can read it.



Common Algorithms

- AES (Advanced Encryption Standard)
- DES (Data Encryption Standard)
- RSA (Rivest-Shamir-Adleman)
- SHA (Secure Hash Algorithm)

Benefits

- ✓ Ensures confidentiality
- ✓ Ensures data integrity
- ✓ Provides authentication
- ✓ Protects data during transmission and storage

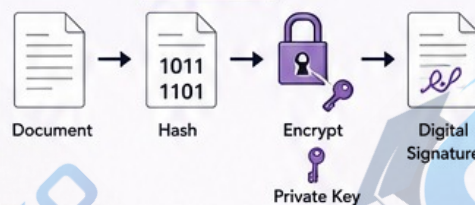
4. DIGITAL SIGNATURES

A digital signature is an electronic form of signature that uses cryptography to verify the authenticity and integrity of a digital message or document.

Benefits

- ✓ Verifies the identity of the sender
- ✓ Ensures the message is not changed
- ✓ Provides non-repudiation
- ✓ Legally valid in electronic transactions

How It Works



Examples of Use

- E-contracts and agreements
- E-banking and financial transactions
- Software distribution and updates
- Government and legal documents

Common Technologies

- Public Key Infrastructure (PKI)
- Digital Certificates
- SSL/TLS Certificates

5. COPYRIGHT ISSUES

Copyright is the legal right given to the creator or owner of original works to control the use of their work.

What Can Be Copyrighted?

- Literary works (books, articles)
- Music, films, and songs
- Software and programs
- Art, photos, and designs
- Web content and databases

Rights of Copyright Owner

- ✓ Right to reproduce the work
- ✓ Right to distribute
- ✓ Right to perform or display
- ✓ Right to create derivative works
- ✓ Right to authorize others

Copyright Issues

- Unauthorized copying or piracy
- Plagiarism
- Illegal downloading and sharing
- Violation of license terms
- Intellectual property theft

How to Stay Compliant

- ✓ Always use licensed software
- ✓ Give credit to original authors
- ✓ Do not copy or share without permission
- ✓ Respect terms of use and licenses
- ✓ Understand fair use policies



Security is not a product, but a process.
Be Aware. Be Secure. Be Safe.





INTERNET & NETWORKING

Connecting the World, Sharing Information, Creating Opportunities.



1. CONNECTION: WIRED AND WIRELESS

WIRED CONNECTION

Devices are connected using physical cables.



FEATURES

- More stable and reliable
- High speed
- More secure
- Not portable

WIRELESS CONNECTION

Devices are connected using radio waves.



FEATURES

- Easy and convenient
- Portable
- Installation is simple
- Speed may vary

2. INTERNET PROTOCOLS

Protocols are rules and standards that enable communication over the Internet.



3. INTERNET PROTOCOLS AND SERVICES



TCP/IP

(Transmission Control Protocol / Internet Protocol)

A set of protocols that allows different devices to communicate and exchange data over the Internet.



Example / Use

Used in all Internet communications.



FTP

(File Transfer Protocol)

A protocol used to transfer files between a client and a server over the Internet.



Example / Use

Uploading or downloading files from a website.



HTTP

(HyperText Transfer Protocol)

A protocol used to transfer web pages and other resources on the World Wide Web.



Example / Use

Used when you open a website in your browser.



URL

(Uniform Resource Locator)

The address of a resource on the Internet. It tells the browser where to find the resource.



Example / Use

<https://www.example.com> is a URL.



E-MAIL ADDRESS

A unique address used to send and receive e-mails over the Internet.



Example / Use

example123@gmail.com is an e-mail address.



WWW

(World Wide Web)

A system of interlinked hypertext documents and resources accessed through the Internet.



Example / Use

Consists of websites and web pages.



WEB BROWSERS

Software applications used to access, retrieve and view web pages on the Internet.



Example / Use

Chrome, Edge, Firefox, Safari, etc.



SEARCH ENGINES

Services that help users find information on the Internet by searching for keywords.



Example / Use

Google, Bing, Yahoo, DuckDuckGo, etc.



These protocols and services work together to make the Internet a powerful and useful tool for communication and information.

