

# Internet & Internet Protocols Questions

## Latest Internet & Internet Protocols MCQ Objective Questions

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### Question 1:

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Which of the following is (are) Meta search engine(s) ?

- (i) Mamma
- (ii) Dogpile
- (iii) Netscape
- (iv) CNN

1. Only (ii) is correct.

2. Only (iii) is correct.

3. Only (i) and (ii) are correct.

4. Only (i), (ii) and (iv) are correct.

**Answer** (Detailed Solution Below)

Option 3 : Only (i) and (ii) are correct.

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## Internet & Internet Protocols Question 1 Detailed Solution

The correct answer is **Only (i) and (ii) are correct.**

### Key Points

- **Meta search engines** do not have their own database of web pages.
- Instead, they aggregate search results from multiple search engines, providing a comprehensive list of results.
- **Mamma** and **Dogpile** are well-known examples of meta search engines.
- **Mamma** was one of the earliest meta search engines, launched in 1996.
- **Dogpile** aggregates results from major search engines like Google, Yahoo!, and Bing.

### Additional Information

- **Netscape**
  - **Netscape** was primarily known as an early web browser, not a search engine.
  - It was a pioneer in the 1990s but was eventually overshadowed by Internet Explorer.
- **CNN**
  - **CNN** (Cable News Network) is a major news network, not a search engine.
  - It provides news coverage and information on various topics globally.

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Question 2:

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What is the primary purpose of Internet Key Exchange (IKE) protocol ?

- What is the primary purpose of Internet Key Exchange (IKE) protocol?
1. Encrypting Web Traffic
  2. Secure, authenticated communications channel
  3. Routing packets across the internet
  4. Managing domain names

**Answer** (Detailed Solution Below)

Option 2 : Secure, authenticated communications channel

### Internet & Internet Protocols Question 2 Detailed Solution

The Correct answer is **Secure, authenticated communications channel**.

#### **Key Points**

- **Internet Key Exchange (IKE) is fundamental to secure network communication, chiefly used for establishing and managing VPN connections.**
- IKE uses a blend of encryption algorithms, key exchange methods, and security policies to authenticate and secure network links, thereby ensuring data confidentiality and integrity.

History of IKE:

- **1998:** ISAKMP (Internet Security Association and Key Management Protocol), the progenitor of IKE, was introduced as part of the IPSec standard.
- **1999:** IKEv1 emerged, enhancing the efficiency and security of key exchanges, simplifying VPN connection setups.
- **2005:** IKEv2 was introduced, addressing IKEv1's limitations, improving compatibility, and adding support for various cryptographic algorithms.
- **2010s:** IKEv2 became the standard for most VPN deployments due to its robust security and flexibility.
- **Ongoing:** IKE continues to evolve to address the evolving demands of cybersecurity, ensuring confidentiality and integrity in network communications.

IKE operates mainly through two methods, Manual and Automated Key Exchange:

- **Manual Key Exchange (IKEv1):**
  - Operation: Security administrators manually configure and exchange cryptographic keys.
  - Advantages: Precise control over security parameters.
  - Disadvantages: Labor-intensive and prone to human error.
  - Use Cases: Suitable for small-scale deployments or systems requiring compatibility with legacy infrastructure.

- **Automated Key Exchange (IKEv2):**

- Operation: Uses predefined protocols and algorithms to establish secure connections.
- Mechanism: Involves a series of negotiations and cryptographic processes to create and maintain VPN tunnels.
- Advantages: Seamless establishment of secure connections, reducing manual effort and errors.

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### Question 3:

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In the context of URI, the 'Identifier' is a / an

1. Protocol

2. Address

3. Resources

4. Object

**Answer** (Detailed Solution Below)

Option 3 : Resources

### Internet & Internet Protocols Question 3 Detailed Solution

The correct answer is **Resources**.

#### **Key Points**

- A **URI (Uniform Resource Identifier)** is a string of characters that unambiguously identifies a particular resource.
- It is used in web technologies to identify and interact with resources on the internet.
- In the context of URI (Uniform Resource Identifier), the '**Identifier**' refers to a resource.


- Uniform Resource Locators were defined in RFC 1738 in 1994 by Tim Berners-Lee, and IETF.
- Every HTTP URL conforms to the **syntax** of a generic URI.
- An Internationalized Resource Identifier (IRI) is a form of URL that includes Unicode characters
- Protocol-relative links (PRL), also known as **protocol-relative URLs (PRURL)**, are URLs that have no protocol specified.
- A **persistent uniform resource locator (PURL)** is a uniform resource locator (URL) that is used to redirect to the location of the requested web resource


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### Question 4:

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In a Personal Computer, the Network Interface Card (NIC) is connected with the internet switch through \_\_\_\_\_ connector.

1. RJ11

2. RJ25

3. RJ14

4. RJ45

**Answer** (Detailed Solution Below)

Option 4 : RJ45

### Internet & Internet Protocols Question 4 Detailed Solution

The Correct answer is **RJ45**.

 **Key Points**

- In a Personal Computer, the Network Interface Card (NIC) is connected to the internet switch through an RJ45 connector.
- RJ45 stands for **Registered Jack 45** and is the most common connector for wired networks, primarily used to connect devices in a Local Area Network (LAN).
- Originally designed for telephone use, it has become standard in Ethernet networking. The "45" refers to its specific listing number.
- RJ45 connectors are wider than traditional telephone jacks and offer higher bandwidth, typically up to 10 Gbps.
- Due to their speed and security, they are widely used to connect personal computers, servers, and routers, particularly in Star Topology networks.

#### **Additional Information**




- **RJ11:** Commonly used for telephone connections.
- **RJ25:** Less common, also used for telephone lines, with additional wires compared to RJ11.
- **RJ14:** Another variant for telephone connections, typically supporting two lines.


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#### Question 5:

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Among the following what is the default port number of SMTP Secure (SMTPS) protocol presently?

1. 521

2. 587

3. 259

4. 463

**Answer** (Detailed Solution Below)

Option 2 : 587

## Internet & Internet Protocols Question 5 Detailed Solution

The Correct answer is **587**.



### Key Points

- **SMTP (Simple Mail Transfer Protocol):**

- SMTP is a communication protocol used for the transmission of email messages between servers.
- It is part of the application layer protocols in the TCP/IP stack.
- SMTP is responsible for sending emails from a client to a server or between servers.
- It is a fundamental protocol for email communication.
- Originally, the Simple Mail Transfer Protocol (SMTP) used port 25.
- **Today, SMTP should use port 587 for encrypted email transmissions (SMTPS).**
- Though port 465 can be used for SMTPS, it is outdated, and port **587 is preferred**.
- Additionally, some email service providers support SMTP on port 2525 as a backup if other ports are blocked by a network provider or firewall.

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### Question 6

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Internet Protocol version 6 (IPv6) was developed by the \_\_\_\_\_.

1. Internet Engineering Task Force
2. Internet Technical Society
3. Internet Development Task Force
4. Internet Society

Option 1 : Internet Engineering Task Force

## Internet & Internet Protocols Question 6 Detailed Solution

The correct answer is the **Internet Engineering Task Force**.

### Key Points

- IPv6 was **developed by** the **Internet Engineering Task Force (IETF)** to deal with the long-anticipated problem of IPv4 address exhaustion.
- An IPv6 address has a size of **128 bits**.
- **Internet Protocol version 6 (IPv6)** is the most recent version of the Internet Protocol (IP), the communications protocol that **provides an identification and location** system for computers on networks and routes traffic across the Internet.
- Pv6 is intended to replace IPv4.
- **1 Bytes is equal to 8 bit.**

### Additional Information


- **IPv4** (Internet Protocol version 4) uses a **32-bit** addressing scheme.
- This means that IPv4 addresses are composed of 32 binary bits, which are typically represented as four sets of decimal numbers separated by periods (e.g., 192.168.0.1).
- Each decimal number in the address represents an 8-bit segment, also known as an octet, resulting in a total of four octets in an IPv4 address.

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### Question 7

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Theodor Holm Nelson founded Project Xanadu in the year

1. 1958

2. 1960

3. 1972



4. 1979

**Answer** (Detailed Solution Below)

Option 2 : 1960

### Internet & Internet Protocols Question 7 Detailed Solution

The Correct answer is **1960**.

#### **Key Points**


- Ted Nelson founded Project Xanadu in **1960** with the vision of creating a user-friendly computer network.
- Project Xanadu was the first Hypertext Project.
- In an article titled "**The Curse of Xanadu**" Wired magazine referred to Project Xanadu as one of the longest-running stories of unrealized software in the computer industry's history.
- , in 2014, a version known as **OpenXanadu**, described as a functional deliverable, became available.
- In the year **2007**, Project Xanadu introduced **XanaduSpace 1.0**.


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#### Question 8

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Lycos is a search engine which was originally started as a research project at-

1. Stanford University

2. Carnegie Mellon University

3. Harvard University

**Answer** (Detailed Solution Below)

Option 2 : Carnegie Mellon University

## Internet & Internet Protocols Question 8 Detailed Solution

The correct answer is **Carnegie Mellon University**.

### Key Points

- Lycos, originally a research project by **Michael Loren Mauldin at Carnegie Mellon University**, transitioned into Lycos Inc. in 1994 with \$2 million in venture capital from CMGI.
- In April **1996**, Lycos achieved the fastest NASDAQ IPO in history, reaching a \$300 million market value on its first day.
- Lycos introduced email services in **October 1997** and turned profitable that same year. In 1998, it acquired **Tripod.com** for \$58 million to enter the portal market.
- Due to the dot-com bubble burst, Lycos made a strategic shift in late **2001** by discontinuing its own search crawler and instead began utilizing **FAST** for its search functionality.
- In May **2018**, Lycos Internet underwent a name change and was rebranded as **Brightcom Group**.

### Additional Information

#### Other search engines

- **Yahoo! Inc.**
  - Yahoo was founded by **Jerry Yang and David Filo in January 1994**, and incorporated on March 2, 1995.
  - Yahoo provides cartographic and geographic services through **GeoPlanet**.
  - **Yahoo Next** is an incubator for testing future Yahoo technologies, where Yahoo users can provide feedback to aid in their development.
- **HotBot:**
  - HotBot, a Canadian web search engine, is now owned by **HotBot Limited**, led by **Kristen Richardson**.
  - Initially launched in **1996 by Wired magazine** in North America, it was a popular search engine in the 1990s.
- **Google:**
  - Google was founded on **September 4, 1998**, by computer scientists **Larry Page and Sergey Brin** during their **PhD** studies at Stanford University in California.
  - In 2007, Google launched "**AdSense for Mobile**" to tap into the growing mobile advertising market.

- **Scirus:**
  - Scirus, launched in **2001**, was a **science-specific search engine**, similar to CiteSeerX and Google Scholar.
  - Owned by **Elsevier**, Scirus announced its retirement in **2013**, which took effect in early **2014**. The service was no longer operational by February 2014.
- **Microsoft Bing:**

Microsoft Bing, commonly known as Bing, is a web search engine owned and operated


- Microsoft Bing, commonly known as Bing, is a web search engine owned and operated by **Microsoft**.
- Bing was introduced by Microsoft CEO Steve Ballmer on **May 28, 2009**, and officially launched on **June 3, 2009**.


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### Question 9

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Internet protocol version 6 supports \_\_\_\_\_ bit address.

1. 32
2. 64
3. 128
4. 256

**Answer** (Detailed Solution Below)

Option 3 : 128

### Internet & Internet Protocols Question 9 Detailed Solution

The correct answer is **128**:

#### **Key Points**

- **IPv6 (Internet Protocol Version 6):**

- IPv6 (Internet Protocol version 6) is a set of specifications from the Internet Engineering Task Force (IETF) that is essentially an upgrade of IP version 4 (IPv4), a category of IP addresses in IPv4-based routing.
- **IPv6 addresses are 128 bits long** (16 bytes), including 64 bits for the network number and 64 bits for the host number.
- The specification (RFC8200) for IPv6 was published in **2017**

## Additional Information

- **Internet Protocol (IP):**
  - The Internet Protocol (IP) is a protocol, or set of rules, for routing and addressing packets of data so that they can travel across networks and arrive at the correct destination.
  - **IPv4:**The fourth version of IP (IPv4 for short) was introduced in **1983**.
    - IPv4 uses a **32-bit address space**
- **IP address:**
  - An IP address is a unique identifier assigned to a device or domain that connects to the Internet.

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#### Question 10

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Which set of rules is applicable for exchange of files over Internet?

1. FTP/IP
2. HTML
3. HTTP
4. HYPER LINK

**Answer** (Detailed Solution Below)

Option 3 : HTTP

#### Internet & Internet Protocols Question 10 Detailed Solution

The correct answer is "HTTP".

**Key Points**

## Key Points

### • HTTP-

- It stands for **Hyper Text Transfer Protocol**.
- The protocol is used for communication between the web browser client and the server.
- **For secure applications, Secure Hyper Text Transfer Protocol (HTTPS) is used.**
- HTTP is used universally to access web services all over the Internet.

### • FTP-

- It stands for **File Transfer Protocol**.
- It is a standard communication protocol **used for transferring computer files from a server to a client on a computer network.**
- It is **based on client-server model architecture.**
- The first FTP client applications were **command-line programs.**

### • IP-

- It stands for **Internet Protocol**.
- It is the network layer communication protocol in the Internet protocol suite for relaying datagram across boundaries.
- **It delivers packets from the source host to the destination host based on the IP address in the packet headers.**
- It was **introduced by Vint Cerf and Bob Kahn in 1974.**
- It was the connectionless datagram service in the original Transmission Control Program.

### • HTML-

- It stands for **Hyper Text Markup Language**.
- It is the **standard Markup language for documents designed to be displayed in a web browser.**
- HTML defines how documents are to be formatted.

### • HyperLink-

- A Hyperlink is a **digital reference to data** that points to a whole document or to a specific element within a document.
- A hyperlink can be in the form of a Text hyperlink, Image hyperlink, Bookmark hyperlink, and E-mail hyperlink.

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### Question 11

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When the sender and the receiver of an e-mail are on different systems, in order to send message over internet we need \_\_\_\_\_.

- (A) Two UAS
- (B) Pair of MTAS
- (C) MAA

(D) NIME

Choose the correct answer from the options given below:

1. (A) and (C) Only

2. (A) and (B) Only

3. (B) and (D) Only

4. (C) and (D) Only

**Answer** (Detailed Solution Below)

Option 2 : (A) and (B) Only

### Internet & Internet Protocols Question 11 Detailed Solution

The Correct answer is **(A) and (B) Only**.

#### Key Points

- When the sender and the receiver of an email are on different systems, **we need two User Agents (UAs) and two Mail Transfer Agents (MTAs) to send the message over the internet.**
- The email needs to pass through multiple components before it reaches the recipient's system, including UAs and MTAs.
- The sender's UA is used to compose and send the email, and the recipient's UA is used to receive and read the email.
- The first pair of MTAs is used to transmit the email from the sender's system to the recipient's system, and the second pair of MTAs is used to transmit the email from the recipient's system back to the sender's system.
- The sender's MTA sends the email to the recipient's MTA, which then delivers the email to the recipient's UA

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## Question 12

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FaaS stands for \_\_\_\_\_.

1. Fix - as - a - Service
2. Fault repair - as - a - Service
3. Function - as - a - Service
4. FRBR - as - a - Service

**Answer** (Detailed Solution Below)

Option 3 : Function - as - a - Service

## Internet & Internet Protocols Question 12 Detailed Solution

The correct answer is **Function - as - a - Service**

### **Key Points**

- **FaaS, or Function-as-a-Service**, is a cloud computing service that enables customers to execute code in response to events, eliminating the need for them to handle the intricate infrastructure traditionally linked with creating and deploying microservices applications.
- FaaS is an **event-driven model** that operates within stateless containers. These functions handle server-side logic and state-using services provided by a FaaS provider.
- Notable FaaS examples include:
  - IBM Cloud Functions
  - AWS Lambda by Amazon
  - Google Cloud Functions
  - Microsoft Azure Functions (open-source)
  - OpenFaaS (open-source)

### **Additional Information**

- **Software as a Service (SaaS)-**
  - It is a **software licensing and delivery model** in which software is licensed on a subscription basis and is hosted centrally.
  - It is also known as "on-demand software" and Web-based/Web-hosted software.
  - It includes services such as - **Google Doc**, GoogleApps, OpenID, Adobe
- **Platform as a Service (PaaS)-**
  - It is a category of **cloud computing services** that allow customers to instantiate, run, and manage a modular bundle comprising a computing platform and one or more applications.
  - It removes the complexity of building and maintaining the infrastructure typically associated with developing and launching the application(s)

- It allows developers to create, develop, and package such software bundles.
- It includes Cloud Services such as - **LibLime**, OSSLab, N-LARN project in India, Polaris, and Exlibris.
- **Infrastructure as a Service (IaaS)-**
  - It is a **cloud computing service model** by means of which computing resources are supplied by a cloud services provider.
  - This service enables users to free themselves from maintaining an on-premise data center.
  - IaaS involves the use of a cloud orchestration technology like OpenStack, Apache CloudStack, or OpenNebula.
  - It includes services such as - Amazon Elastic Compute Cloud (EC2), **Amazon Simple Storage Solution (S3)**, and Dropbox Cloud storage.

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### Question 13

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Given below are two statements

**Statement I:** Yahoo can explore more count of websites while searching a query than Metacrawler.

**Statement II:** Meatcrawler is a Metasearch engine.

In light of the above statements, choose the most appropriate answer from the options given below

1. Both Statement I and Statement II are correct
2. Both Statement I and Statement II are incorrect
3. Statement I is correct but Statement II is incorrect
4. Statement I is incorrect but Statement II is correct

**Answer** (Detailed Solution Below)

Option 4 : Statement I is incorrect but Statement II is correct



The correct answer is **Statement I is incorrect but Statement II is correct**

**Explanation;**

- **Statement I: Yahoo can explore more count of websites while searching a query than Metacrawler.**
  - Statement I, which claims that Yahoo can explore more websites than Metacrawler when searching, is not necessarily correct.
  - The number of websites explored by a search engine like Yahoo or Metacrawler can vary and depends on various factors such as the search engine's index, algorithms, and other considerations.
  - Therefore, it's not accurate to make a definitive statement about one searching more websites than the other.
- **Statement II: Metacrawler is a Metasearch engine.**
  - Statement II is indeed correct. Metacrawler is a Metasearch engine. Metasearch engines gather results from multiple other search engines and present them to the user, providing a consolidated set of results.

### **Additional Information**

- **Yahoo! Inc.**
  - Yahoo was founded by **Jerry Yang and David Filo in January 1994**, and incorporated on March 2, 1995.
  - Yahoo provides cartographic and geographic services through **GeoPlanet**.
  - **Yahoo Next** is an incubator for testing future Yahoo technologies, where Yahoo users can provide feedback to aid in their development.
  - **Yahoo Search BOSS** enables developers to create search applications using Yahoo's technology. Early program partners include Hakia, Me.dium, Delver, Daylife, and Yebol.
- **Metacrawler.**
  - MetaCrawler is a registered trademark of InfoSpace and was created by Erik Selberg.
  - Originally developed in **1994** at the University of Washington by graduate student Erik Selberg and Professor Oren Etzioni.
  - It combines search results from various search engines.
  - Originally developed for research purposes, it became a useful service on its own.

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The term 'Internet of Things was first used by:

1. D. W. Lewis
2. Bob Thomas
3. Kevin Ashton
4. Jian Qin

**Answer** (Detailed Solution Below)

Option 3 : Kevin Ashton

### Internet & Internet Protocols Question 14 Detailed Solution

The Correct answer is **Kevin Ashton**.

#### **Key Points**

##### • **Internet of Things-**

- The term IoT, or Internet of Things, refers to the collective network of connected devices and the technology that facilitates communication between devices and the cloud, as well as between the devices themselves.
- **The term "Internet of Things" was coined independently by Kevin Ashton of Procter & Gamble, later of MIT's Auto-ID Center, in 1999.**
- Kevin Ashton, the originator of the term "Internet of Things," saw **Radio Frequency Identification (RFID)** as a crucial component of the IoT, particularly for inventory tracking.
- He believed that by tagging all devices, computers could effectively manage, track, and inventory them.
- In the early 2000s, Walmart and the US Department of Defense were pioneers in adopting Ashton's approach by using RFID and IoT for inventory tracking.

#### **Confusion Points**

### Library Thing-

- LibraryThing is a **social cataloging web application** for storing and sharing book catalogs and various types of book metadata used by authors, individuals, libraries, and publishers.
- The catalog would be available online and can be accessed over the Web and even on mobile phones.

### Features of Library Thing-

- It provides the facility to import catalogs from other sources if the document is already cataloged online e.g. by the Library of Congress or Amazon.
- It enables you to create your own library with a number of collections.

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#### Question 15

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Which protocol is used by ping command?

1. TCP

2. UDP

3. ARP

4. ICMP

**Answer** (Detailed Solution Below)

Option 4 : ICMP

#### Internet & Internet Protocols Question 15 Detailed Solution

The correct answer is **ICMP**.

 **Key Points**

- The ping command operates within an **Internet Control Message Protocol (ICMP)**.
  - Ping (**Packet InterNet Groper**) is a utility that sends a signal to another computer over a network and then receives a reply from the computer that was pinged and sends it back to the first computer.
  - With the ping command, one can quickly determine whether a machine has internet access and can communicate with other computers or network devices.
- ICMP is a fundamental component of any IP network.
  - It is used for error handling in the network layer.
  - It is primarily used on network devices such as routers.

### **User Datagram Protocol (UDP)**

- It is a communications protocol that facilitates the exchange of messages between computing devices in a network.
- In a network that uses the Internet Protocol (IP), it is sometimes referred to as UDP/IP.
- UDP enables process-to-process communication.

### **Transmission Control Protocol (TCP)**

- The Transmission Control Protocol (TCP) is one of the main protocols of the Internet protocol.
- It lies between the Application and Network Layers which are used in providing reliable delivery services.
- It is a connection-oriented protocol for communications that helps in the exchange of messages between different devices over a network.
- TCP supports host-to-host communication.

### **Address Resolution Protocol (ARP)**

- The Address Resolution Protocol (ARP) is a communication protocol used for discovering the link layer address.
- It dynamically translates Internet addresses into the unique hardware addresses on local area networks.