CT-assignment -3

Name: Anjom Nour Anika
ID: IT-18013.

Question no-1

a) what is Routing?

solutions

When a device has multiple paths to reach a destination it always selects one path by preferring it over others. This selection process is termed as routing

b) what is different between unicast routing and Broadcast?

solutions

Unicast routing

1) Most of the traffic on the internet and

packets known as unicast data or unicast traffic is sent with specified destination.

ii) unicast data over the internet is called unicast routing.

iii) It is the simplest form of routing because the destination is already known.

Broadcasting

i) By default, the broadcast packets are not routed and forwarded by the routers on any network.

ii) Routes create broadcast domains.

iii) A broadcast message is destined to all networks devices.

iv) A routers creates a data packet and then send it to each host one by one.

(1) Describe unicast routing protocols and multicast routing protocols briefly?

solution:

Unicast routing protocols.

There are two kinds of routing protocols available to route unicast packets:

1) Distance vectors Routing protocol:

Distance vectors is simple routing protocol which takes routing decision on the number of hops between source and destination. A route with less number of hops is considered as the best route

2) Link state Routing protocol:

Link state protocol is slight complicated procol tha

distance vectors. It takes into account the state of links of all the routers in a network. This technique helps routers build a common graph of the entire network.

Multicast Routing protocols

unicast routing protocols use graphs while multicast routing protocals use trees, i.e. spanning tree to avoid loops. The optional tree is called shortest spanning tree.

protocol independent multicast is commonly used now. It has two flavors.

(i) PIM Dense mode: This mode uses source-based trees. It is used in dense environment such as LAN

(ii) PIM sparse Mode: This mode uses shared trees. It is used in sparse environment such as WAN.

d) write down the routing algorithms?

Solution:

The routing algorithms are as follows:

Flooding:

Flooding is simplest method packet forwarding. When a packet is received, the routes send it to all the interfaces except the one on which it was received. This creates too much burden on the network and lots of duplicate packets wandering in the network. Time to live (TTL) can be used to avoid infinite looping of packets. There exists another approach for flooding, which is called selective flooding to reduce to overhe

on the network. In this mood method, the router does not flood out on all the interfaces but selective ones.

Shortest path

Routing decision in networks, are mostly taken on the basis of cost between source and destination. Hop count plays major role here. Shortest path is a technique which uses various algorithms to decide to decide a path with minimum numbers of hops.

Common shortest path algorithms are:

i) Dijkstra's algorithm
ii) Bellman ford algorithm
iii) Floyed warshall algorithm.

Question – 2

a) What is anycast Routing?

Solution:

Anycast packet forwarding is a mechanism where multiple hosts can have same logical address.

b) What do you understand by the word of Internetworking?

Solution:

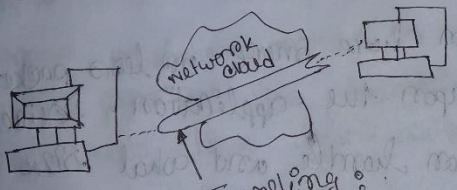
Networks under same administration are generally scattered geographically. There may exist requirement of connecting two different networks of same kinds. Routing between two networks is called Internetworking.

Q1 Describe tunneling mechanism with it's working process?

solution:

Tunneling: Tunneling is a mechanism by which two or more same networks communication with each others, by passing intermediate networking complexities.

working process:



Tunneling:
virtual Direct link.

When the data enters from one end of tunnel, it is tagged. This tagged data is then routed inside the intermediate or transit network to

reach the other end of tunnel. When data exits the tunnel its tag is removed and delivered to the other part of the network. Both ends seem as if they are directly connected and tagging makes data travel through transit network without any modification.

d) "packet Fragmentation" — describe briefly?

Solution:

A data packet can have more or less packet length depending upon the application. Devices on the devices can handle and what size of packet it can process.

If the data packet size is less than or equal to the size of packet the

transit network can handle, it is processed neutrally. If the packet is larger, it is broken into smaller piece and then forwarded This is called packet fragmentation.

Question-3

a] what is address resolution protocal?

solutions

address ressolution protocal is a locw level network protocal for translation network layers address into link layers addresses.

b] what is IPV_4 resolation? How it is works?

solutions

It is used when IPV_4 is used overs Ethernet

The term address resolution refers to the process of finding an address of a computer in a network. The address is "resolved" using a protocol in which a piece of information is sent by a client process executing on the local computer to a server process executing on a remote computer.

Q) Are IPv_4 and IPv_6 packets interoperable?

Solution: IPv_4 and IPv_6 packets are interoperable. because the headers of IPv_4 packets and IPv_6 packets are significatly different, the two protocols are not interoperable.

d] What is the difference between IPv_4 and IPv_6 ?

Solution:

Comparison with IPv_4. On the Internet, data is transmitted in the forms of network packets. IPv_6 specifies a new packet format, designed to minimize packet header processing by routers. Because the headers of IPv_4 packets and IPv_6 packets are significantly different, the two protocols are not interoperable.

Difference

1) IPv_6 have a lot more usable addresses Compared to IPv_4

2) IPv_6 makes the routers's task more simple Compared to IPv_4

3] IPv_6 is better suited to mobile networks than IPv_4.

Question-4

a) what does end-to-end encryption mean?

Solutions:

Etymology of the term "end-to-end" encryption" originally only meant that the communication is never decrypted during its transport from the senders to the receivers.

b) what is end-to-end principle?

Solutions

The end-to-end principle is a network design method in which application-specific features are kept at communication end points. The principle in contrast to features existing on

intermediate points between the client and end points, like gateways and routers. In this method, intermediate nodes pass data round only

c] what is end-to-end solutions?

Solution:

Generally, end-to-end solutions are used with vendors that offer comprehensive system that keep pace with a business' ever-changing infrastructure requirements and the changing demands of the IT sectors itself.

d] what is the principle of end to end communication?

Solutions: The fundamental notion behind the end-to-

end principle is that, for two processes communicating with each other via some communication means, the reliability obtained from that means cannot be expected to be perfectly aligned with the reliability requirements of the processes.

Question-5

a) What is the application layer?

Solutions

Techopedia explains application layer. The application layer is the seventh layer of the OSI model and the only one that directly interacts with the end users. The

application layer provides many services, including application layer provides full end-users access to a variety of shared network services for efficient OSI model data flow.

b] what is application layer in DCN?

Solution:

DCN - application layer introduction. Application layer is the top most layer in OSI and TCP/IP layered model. This layer exists in both layered models because of its significance, as interacting with users and user applications. This layer is for applications which are involved in communication system.

c) Is http considered application layer?

solution:

Designing software are text editors cannot be considered as application layer programs. On the hand, when we use a web browser, which is actully using Hyper text transfer protocol (HTTP) to interact with the network. HTTP is application layer protocol.

d) what is application layer in OSI model?

The application layer in the OSI model is the closet layers to the end users which means that the application layers and end users can interact directly

with the software application. The application layer programs are based on client and servers.

Briefly describe the function of application layers in OSI model.

1. File transfer: It allows a users to access. retrive and manage files in a remote computer

2. Mail services: It provides the basis for email forwarding and storage facilities.

3. Directory services: It provides distributes database sources and access for global information about various objects and services.

Question – 6

a) What is client-server networking model?

solutions

This model is known as client server networking model. The application programs using the client-server model should follow the given below strategies: An application program is known as a client program, running on the local machine that requests for a service from an application program known as a server program, running on the remote machine.

b) what is client-server connection?

solutions

The client-server connection is established through a network or the Internet.

The client-server model is a core network computing concept also building functionality for email exchange and web/database access. web technologies and protocols built around the client-server model are:

Q] what are some example of client-server application?

Solution:

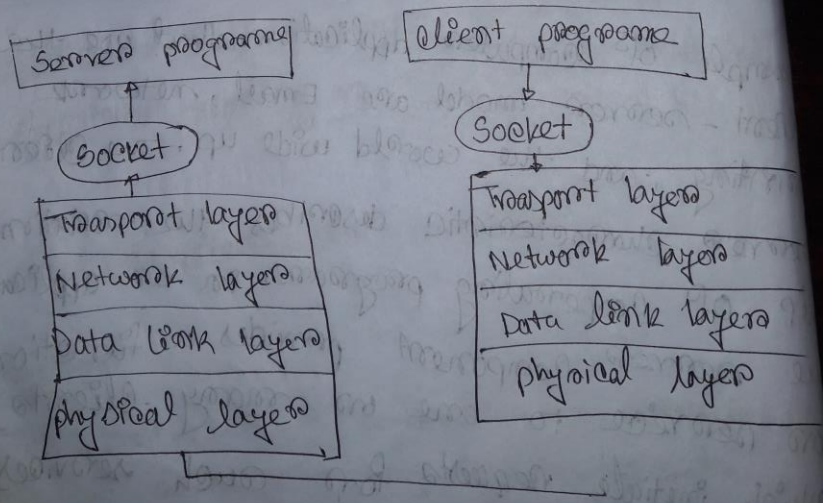
Example of computer applications that use the client-server model are Email, network printing, and the world wide up. The client server characteristic describes the relationship of cooperating programs in an application. The server component provides a function or service to one or many clients, which initiate requests for such services.

21

d] Describe sockets briefly.

Solution:

The process acting as servers opens a socket using a well-known port and waits until some clients request comes. The second process acting as a client also opens a socket but instead of waiting for an incoming request, the client processes request first.



Question – 7

a] What is Domain Name system?

solutions

DNS (Domain Name system) is the name given to the implementation of domain name system services provided in microsoft windows operating system.

b] what is simple transfer protocal?

solutions

The simple mail transfer protocal is used to transfer electronic mail from one users to another. This task is done by means of email client software the users is using.

2)

Q) what is file transfer protocol? How it works?

Solution:

The file transfer protocol is the most widely used protocol for file transfer over the network

FTP uses TCP/IP for communication and it works on TCP port 21. FTP works on client/server model where a client requests file from server and server sends requested resource back to the client.

d) What is main difference between POP and HTTP?

POP

i) The post office protocol version 3 is a simple retrieval protocol used by user agents to retrieval mail servers.

ii) POP3 works in two modes

iii) The most common mode the delete mode, is to delete the emails from remote servers after they are downloaded to local machine

HTTP

i) The Hypertext transfer protocol is the foundation of world wide.

ii) HTTP works on client server model.

iii) a users wants to access any HTTP page on the internet, the client machine at users end initiates a TCP connection to servers on port 80

Question-8

a) what is directory services?

Solutions

These services are mapping name and its value, which can be variable value or fixed. This software system helps to store the information, organize it, and provides various means of accessing it.

b) How does work file service?

solution:

File service include sharing and transferring files over the network.

- File sharing:

One of the reason which gave birth to networking was file sharing. File sharing enables the users to share their data with other users. User can upload the file to a specific server, which is accessible by all intended users.

- File transfer:

This is an activity to copy or move more file from one computer to another computer or to multiple computers with help of underlying network. Network

enable the user to locate other users on the network and transfers files.

Q] Which do communication services we use?

Solutions

We use various type of communication services. Include them

i) Email
ii) Social networking
iii) Internet Chat
iv) Discussion Boards
v) Remote access.

d) Application services:

These are nothing but providing network based services to the users such as web services, database managing and resource sharing.

- Resource sharing:

To use resource efficient and economically, network provides a mean to share them.

Database:

This application service is one of the most important service.

Web service:

It is used to connect to the Internet and accesses files information resource.