Technical Papers Networking Concepts: Networking Concepts Part II

What is the difference between TFTP and FTP application layer protocols?

The Trivial File Transfer Protocol (TFTP) allows a local host to obtain files from a remote host but does not provide reliability or security. It uses the fundamental packet delivery services offered by UDP.

The File Transfer Protocol (FTP) is the standard mechanism provided by TCP/IP for copying a file from one host to another. It uses the services offer by TCP and so is reliable and secure. It establishes two connections (virtual circuits) between the hosts, one for data transfer and another for control information.

What are major types of networks and explain?

Server-based network

Peer-to-peer network

Peer-to-peer network, computers can act as both servers sharing resources and as clients using the resources.

Server-based networks provide centralized control of network resources and rely on server computers to provide security and network administration

What are the important topologies for networks?

BUS topology:

In this each computer is directly connected to primary network cable in a single line.

Advantages:

Inexpensive, easy to install, simple to understand, easy to extend.

STAR topology:

In this all computers are connected using a central hub.

Advantages:

Can be inexpensive, easy to install and reconfigure and easy to trouble shoot physical problems.

RING topology:

In this all computers are connected in loop.

Advantages:

All computers have equal access to network media, installation can be simple, and signal does not degrade as much as in other topologies because each computer regenerates it.

What is mesh network?

A network in which there are multiple network links between computers to provide multiple paths for data to travel.

What is difference between baseband and broadband transmission?

In a baseband transmission, the entire bandwidth of the cable is consumed by a single signal. In broadband transmission, signals are sent on multiple frequencies, allowing multiple signals to be sent simultaneously.

Explain 5 – 4 – 3 rule?

In a Ethernet network, between any two points on the network, there can be no more than five network segments or four repeaters, and of those five segments only three of segments can be populated.

What MAU?

In token Ring, hub is called Multistation Access Unit (MAU) .

What is the difference between routable and non-routable protocols?

Routable protocols can work with a router and can be used to build large networks. Non-Routable protocols are designed to work on small, local networks and cannot be used with a router

Why should you care about the OSI Reference Model?

It provides a framework for discussing network operations and design.

What is logical link control?

One of two sublayers of the data link layer of OSI reference model, as defined by the IEEE 802 standard. This sublayer is responsible for maintaining the link between computers when they are sending data across the physical network connection.

What is virtual channel?

Virtual channel is normally a connection from one source to one destination, although multicast connections are also permitted. The other name for virtual channel is virtual circuit.

What is virtual path?

Along any transmission path from a given source to a given destination, a group of virtual circuits can be grouped together into what is called path.

What is packet filter?

Packet filter is a standard router equipped with some extra functionality. The extra functionality allows every incoming or outgoing packet to be inspected. Packets meeting some criterion are forwarded normally. Those that fail the test are dropped.

What is traffic shaping?

One of the main causes of congestion is that traffic is often busy. If hosts could be made to transmit at a uniform rate, congestion would be less common. Another open loop method to help manage congestion is forcing the packet to be transmitted at a more predictable rate. This is called traffic shaping.

What is multicast routing?

Sending a message to a group is called multicasting, and its routing algorithm is called multicast routing.

What is region?

When hierarchical routing is used, the routers are divided into what we will call regions, with each router knowing all the details about how to route packets to destinations within its own region, but knowing nothing about the internal structure of other regions.

What is silly window syndrome?

It is a problem that can ruin TCP performance. This problem occurs when data are passed to the sending TCP entity in large blocks, but an interactive application on the receiving side reads 1 byte at a time.

What are Digrams and Trigrams?

The most common two letter combinations are called as digrams. e. g. Th, in, er, re and an. The most common three letter combinations are called as trigrams. e. g. The, ing, and, and ion.

Expand IDEA.

IDEA stands for International Data Encryption Algorithm.

What is wide-mouth frog?

Wide-mouth frog is the simplest known key distribution center (KDC) authentication protocol.

What is Mail Gateway?

It is a system that performs a protocol translation between different electronic mail delivery protocols.

What is IGP (Interior Gateway Protocol) ?

It is any routing protocol used within an autonomous system.

What is EGP (Exterior Gateway Protocol) ?

It is the protocol the routers in neighboring autonomous systems use to identify the set of networks that can be reached within or via each autonomous system.

What is autonomous system?

It is a collection of routers under the control of a single administrative authority and that uses a common Interior Gateway Protocol.

What is BGP (Border Gateway Protocol) ?

It is a protocol used to advertise the set of networks that can be reached with in an autonomous system. BGP enables this information to be shared with the autonomous system. This is newer than EGP (Exterior Gateway Protocol) .

What is Gateway-to-Gateway protocol?

It is a protocol formerly used to exchange routing information between Internet core routers.

What is NVT (Network Virtual Terminal) ?

It is a set of rules defining a very simple virtual terminal interaction. The NVT is used in the start of a Telnet session.

What is a Multi-homed Host?

It is a host that has a multiple network interfaces and that requires multiple IP addresses is called as a Multi-homed Host.

What is Kerberos?

It is an authentication service developed at the Massachusetts Institute of Technology. Kerberos uses encryption to prevent intruders from discovering passwords and gaining unauthorized access to files.

What is OSPF?

It is an Internet routing protocol that scales well, can route traffic along multiple paths, and uses knowledge of an Internet's topology to make accurate routing decisions.

What is Proxy ARP?

It is using a router to answer ARP requests. This will be done when the originating host believes that a destination is local, when in fact is lies beyond router.

What is SLIP (Serial Line Interface Protocol) ?

It is a very simple protocol used for transmission of IP datagrams across a serial line.

What is RIP (Routing Information Protocol) ?

It is a simple protocol used to exchange information between the routers.

What is source route?

It is a sequence of IP addresses identifying the route a datagram must follow. A source route may optionally be included in an IP datagram header.

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