

Network pro essay



You have implemented a network where hosts are assigned specific roles, such as for file sharing and printing. Other hosts access those resources but do not host services of their own.

What type of network do you have?

Client/server

Peer-to-peer

Intranet

Extranet

Client/server

Explanation In a client/server network, hosts have specific roles. For example, some hosts are assigned server roles which allows them to provide network resources to other hosts. Other hosts are assigned client roles which allows them to consume network resources.

In a peer-to-peer network, each host can provide network resources to other hosts or access resources located on other hosts, and each host is in charge of controlling access to those resources.

An intranet is a private network that uses Internet technologies. Services on an intranet are only available to hosts that are connected to the private network. An extranet is a private network that uses Internet technologies, but whose resources are made available to external (but trusted) users. For

example, you might create a Web site on a private network that only users from a partner company can access.

You have implemented a network where each device provides shared files with all other devices on the network.

What type of network do you have?

Multiple access

Peer-to-peer

Polling

Client/server

Peer-to-peer

Explanation In a peer-to-peer network, each host can provide network resources to other hosts or access resources located on other hosts, and each host is in charge of controlling access to those resources.

In a client/server network, hosts have specific roles. For example, some hosts are assigned server roles which allows them to provide network resources to other hosts. Other hosts are assigned client roles which allows them to consume network resources.

Polling is a media access method where a single device grants permission to other devices to access the network. Multiple access describes a media access method where each device determines when the medium is free.

You have a network that uses a logical bus topology. How do messages travel through the network?

Messages are broadcast to all devices connected to the network.

Messages travel from one device to the next until they reached the destination device.

Messages are sent to a central device which then forwards the message to the destination device.

Messages are sent directly to the correct destination device.

Messages are broadcast to all devices connected to the network.

Explanation Messages sent using a physical bus topology are broadcast to all devices in the network. The device in the middle of the star (typically a hub), receives the message and forwards it on to all other devices.

In which of the following topologies does each device on the network act as a repeater, sending the signal to the next device?

Bus

Tree

Star

Ring

Ring

Explanation In ring topologies, each device on the network acts as a repeater to send the signal to the next device.

Which of the following topologies connects each device to a neighboring device?

Bus

Tree

Ring

Star

Ring

Explanation In ring topologies, each device is connected to a neighboring device, until a ring is formed.

You have a network that uses a logical ring topology. How do messages travel through the network?

Messages are sent directly to the destination device only.

Messages are sent to a central device which then forwards the message to the destination device.

Messages travel from one device to the next until they reached the destination device.

Messages are sent to all devices connected to the network.

Messages travel from one device to the next until they reached the destination device.

Explanation In a logical ring topology, messages travel to each device in turn. If the message is not intended for that device, the message is forwarded to the next device on the network.

You have a small network that uses a hub to connect multiple devices. What physical topology is used?

Mesh

Ring

Star

Bus

Star

Explanation A hub creates a network with a physical star topology. The physical star topology uses a logical bus topology, where messages are sent to all devices connected to the hub. A mesh topology is a series of point-to-point links between devices. A ring topology uses a central device called an MSAU.

You have been asked to implement a network infrastructure that will accommodate failed connections. Which of the following network topologies provides redundancy for a failed link?

Star

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Mesh

Bus

Ring

Mesh

Explanation In a mesh topology, each network device is interconnected to all other network nodes. This creates multiple data paths and in the event of a failed link, the data has an alternate route to arrive at its destination. The star topology connects network devices to the network with a single patch cable and the failure of a patch cable will make the connected device unavailable. The bus topology has a single point of failure, if there is a break in the network media, the network will be unavailable. A single break in a physical ring topology will disable the network.

You have implemented an adhoc wireless network that doesn't employ a wireless access point. Every wireless network card can communicate directly with any other wireless network card on the network. What type of physical network topology has been implemented in this type of network?

Mesh

Ring

Star

Tree

Bus

Mesh

Explanation This type of network uses a physical mesh topology. The key characteristics of a mesh topology are:

- There's no central connecting point.
- Any host can communicate directly with any other host on the network.

A mesh network, such as this one, is usually impractical on a wired network. Each host would have to have a separate, dedicated network interface and cable for each host on the network. However, a mesh topology can be implemented with relative ease on a wireless network due to the lack of wires.

You want to implement a fault tolerant topology as you interconnect routers on your wide area network. Which of the following would meet your needs?

Bus

Ring

Mesh

Star

Mesh

Explanation A mesh topology has multiple connections at each node, increasing connectivity fault tolerance. None of the other topologies have native fault tolerance built in.

Which of the following topologies connects all devices to a trunk cable?

Tree

Bus

Star

Ring

Bus

ExplanationThe bus topology connects all devices to a trunk cable.

What device is used to create a physical star topology?

Switch

Firewall

Bridge

Router

Switch

ExplanationA physical star topology uses a switch or a hub. Routers are used to connect multiple subnets together. A firewall is a router that performs filtering on packets or other information contained in network communications.

Which of the following topologies connects each network device to a central hub?

Star

Mesh

Bus

Ring

Star

Explanation Star topologies connect each device on the network to a central hub.

Which of the following protocols stores email on the mail server and gives users a choice to download mail or keep it on the server? (Select 2)

POP3

SMTP

NTP

IMAP4

IMAP4 & POP3

Explanation IMAP4 allows a mail server to hold messages for a client. POP3 is a simpler protocol than IMAP4 that downloads email messages and deletes them from the server by default, but most newer POP3 clients provide an option to leave mail on the server after download. SMTP allows a user to send email to a server. The NTP protocol synchronizes the clocks of all computers on a network.

Which protocol is used on the World Wide Web to transmit Web pages to Web browsers?

SMTP

HTML

HTTP

NNTP

HTTP

Explanation HTTP or HyperText Transfer Protocol is used by Web servers and browsers to transmit Web pages on the Internet. This is often confused with HTML or HyperText Markup Language which is the markup language used to create Web content.

You want to transfer a file from a UNIX server to a Windows 2000 computer. Which of the following utilities could you use to do this? Select all that apply.

Netstat

TFTP

FTP

Tracert

Telnet

NBTSTAT

FTP & TFTP

Explanation UNIX computers use TCP/IP, as do Windows 2000 computers. Therefore, the TCP/IP utilities FTP and TFTP will both allow you to transfer files.

Which of the following TCP/IP protocols do email clients use to download messages from a remote mail server?

SNMP

POP3

SPC

FTP

SMTP

POP3

Explanation The POP3 protocol is part of the TCP/IP protocol suite and used to retrieve email from a remote server to a local client over a TCP/IP connection. SNMP is a protocol used to monitor network traffic. SMTP is a TCP/IP protocol used to send email. FTP is used to transfer files.

You want to allow your users to download files from a server running the TCP/IP protocol. You want to require user authentication to gain access to specific directories on the server. Which TCP/IP protocol should you implement to provide this capability?

HTML

FTP

IP

HTTP

TFTP

TCP

FTP

Explanation You should implement the File Transfer Protocol (FTP). It enables file transfers and supports user authentication. The Trivial File Transfer Protocol (TFTP) enables file transfer, but does not support user authentication.

Which of the following protocols allows hosts to exchange messages to indicate problems with packet delivery?

IP

TCP

ARP

DHCP

IGMP

ICMP

ICMP

ExplanationThe Internet Control Message Protocol (ICMP) allows hosts to exchange messages to indicate the status of a packet as it travels through the network.

Your company has just acquired another company in the same city. You are given the task of integrating the two email systems so that messages can be exchanged between the email servers. However, each network uses an email package from a different vendor. Which TCP/IP protocol will enable messages to be exchanged between systems?

IMAP4

SMTP

ICMP

POP3

FTP

SMTP

ExplanationThe Simple Mail Transfer Protocol (SMTP) specifies how messages are exchanged between email servers. POP3 and IMAP4 are used by email clients to download email messages from email servers. FTP is a file transfer protocol. ICMP is used in ping and traceroute for communicating network communication information.

You have a large TCP/IP network and want to keep hosts' real time clock synchronized. What protocol should you use?

SMTP

NNTP

SAP

NTP

SNMP

NTP

ExplanationThe network time protocol (NTP) lets you keep clocks synchronized.

What protocol sends email to a mail server?

SNMP

POP3

SMTP

FTP

TFTP

SMTP

ExplanationSMTP sends email to a mail server.

You are asked to recommend an email retrieval protocol for a company's sales team. The sales team needs to access email from various locations and possibly different computers. The sales team does not want to worry about transferring email messages or files back and forth between these computers. Which email protocol was designed for this purpose?

IMAP

SMTP

MFTP

POP4

POP3

IMAP

Explanation The Internet Message Access Protocol (IMAP) is an email retrieval protocol designed to enable users to access their email from various locations without the need to transfer messages or files back and forth between computers. Messages remain on the remote mail server and are not automatically downloaded to a client system. POP3 is an email retrieval protocol that downloads and then deletes messages from a mail server. POP3 is well suited for reading email offline; however, you need to go online when you want to receive and send new messages. Once your new messages have been downloaded to your computer you can log off to read them. This option is often used when email is received over a dialup connection.

Which OSI model layer is responsible for guaranteeing reliable message delivery?

Transport

Application

Data Link

Session

Transport

ExplanationThe Transport layer is responsible for connection services that provide reliable message delivery through error detection and correction mechanisms. Specifically, the TCP protocol provides these services. The Application layer integrates network functionality into the host operating system, and enables network services. The Session layer's primary function is managing the sessions in which data is transferred. The Data Link layer defines the rules and procedures for hosts as they access the Physical layer.

You are an application developer and are writing a program to exchange video files through a TCP/IP network. You need to select a transport protocol that will guarantee delivery. Which TCP/IP protocol would you implement that provides this capability?

RIP

TCP

IP

FTP

UDP

TFTP

TCP

Explanation Write the application to use the Transmission Control Protocol (TCP). TCP guarantees delivery through error checking and acknowledgments.

Which three of the following functions are performed by the OSI Transport layer?

Reliable message delivery

Format packets for delivery through the media

Data segmentation and reassembly

End-to-end flow control

Path identification and selection

Control media access, logical topology, and device identification

Consistent data formatting between dissimilar systems

Reliable message delivery, Data segmentation and reassembly, & End-to-end flow control

Explanation The Transport layer is responsible for taking upperlayer data, breaking it into segments, and providing for reliable communications through end-to-end flow control and error correction and detection. Transmitting messages through the media is performed at the Physical layer. Media access, logical topology, and device identification occurs at the Data Link layer. Path identification and selection is a function of the Network layer. Data formatting is performed at the Presentation layer.

In the OSI model, what is the primary function of the Network layer?

Transmits data frames

Ensures that packets are delivered with no loss or duplication

Routes messages between networks

Allows applications to establish, use, and end a connection

Routes messages between networks

Explanation The Network layer is responsible for routing messages between networks.

Which of the following functions are performed at the Physical layer of the OSI model?

Data translation

Movement of data across network cables

Conversation identification

Enablement of network services

Provision of an environment in which to run network applications

Movement of data across network cables

ExplanationThe Physical layer is concerned with how to transmit data and how to connect network hosts.

In the OSI model, which of the following functions are performed at the Application layer? (Select all that apply.)

Data translation

Enabling communication between network clients and services

Conversation identification

Integration of network functionality into the host operating system

Enabling communication between network clients and services

Integration of network functionality into the host operating system

ExplanationThe Application layer enables network services, and integrates network functionality into the host operating system. Applications actually run above the OSI Application layer. Conversation identification is accomplished at the Session layer through connection or transaction ID numbers. Data translation is performed at the Presentation layer.

Which two of the following are included as part of Data Link layer specifications?

Composition of electrical signals as they pass through the transmission medium.

Controlling how messages are propagated through the network.

Synchronizing individual bits as they are transmitted through the network.

Identifying physical network devices.

Controlling how messages are propagated through the network.

Identifying physical network devices.

ExplanationThe Data Link layer controls identifying devices on a network as well as how messages travel through the network (the logical topology). The other functions listed here are performed by the Physical layer.

Which of the following tasks is associated with the Session layer?

Connection establishment

Acknowledgement coordination

Transmission synchronization

Host ID number assignment

Connection establishment

ExplanationConnection establishment is controlled through Session layer protocols.

What is the basic purpose of the OSI Physical layer?

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Defines basic physical structures, such as disks.

Coordinates rules for managing network servers.

Coordinates rules for routing packets.

Coordinates rules for transmitting bits.

Coordinates rules for transmitting bits.

ExplanationThe OSI Physical layer coordinates rules for transmitting bits.

Which of the following are functions of the MAC sublayer? (Select two.)

Mapping hardware addresses to linklayer addresses

Defining a unique hardware address for each device on the network

Creating routing tables based on MAC addresses

Letting devices on the network have access to the LAN

Defining a unique hardware address for each device on the network

Letting devices on the network have access to the LAN

ExplanationThe MAC sublayer defines a unique MAC or datalink address for each device on the network. This address is usually assigned by the manufacturer. The MAC sublayer also provides devices with access to the network media.

The Data Link Layer of the OSI model is comprised of two sublayers. What are they? (Select two.)

LLC

DLC

LAT

MAC

SAN

Explanation

The Data Link layer is split into the following sublayers: • Logical Link Control (LLC) Sublayer Provides the operating system link to the device driver. • Media Access Control (MAC) Sublayer Translates generic network requests into device specific terms.

In the OSI model, which of the following functions are performed at the Presentation layer? (Select two.)

Maintain separate client connections

Handle general network access, flow control, and error recovery

Encrypt and compress data

Transmit data frames

Specify data format (such as file formats)

Provide network services

Encrypt and compress data

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Specify data format (such as file formats)

ExplanationThe Presentation layer encrypts data, changes and converts character sets, and compresses data. File formats (such as .jpg, .wmv, and .wav) are part of the Presentation layer. The Application layer provides network services. The Session layer maintains separate clientconnections through session IDs, and maintains those sessions. Flow control and error detection are provided at both the Transport layer and the Data Link layer. Transmitting frames happens at the Physical layer.

Which of the following protocols includes extensive error checking to ensure that a transmission is sent and received without mistakes?

TCP

UDP

UDB

UCP

TCP

ExplanationThe TCP protocol includes error checking.

The UDP transport protocol provides which of the following features? (Select all that apply.)

Guaranteed delivery

Low overhead

Sequence numbers and acknowledgements

Connectionless datagram services

Low overhead

Connectionless datagram services

Explanation UDP is a connectionless protocol used by applications that need low overhead and do not require guaranteed delivery.

You are adding new wires in your building for some new offices. The building has a false ceiling that holds the lights. You would like to run your Ethernet cables in this area. Which type of cable must you use?

Plenum

PVC

Fiber optic

Cat 5e or Cat 6e

STP

Plenum

Explanation Plenum cable is fire resistant and nontoxic; it must be used when wiring above ceiling tiles. PVC cable cannot be used to wire above ceilings because it is toxic when burned. Cat 5e cables provide better EMI protection than Cat 5 cables, and Cat 6e cables are an improvement over Cat 6 specifications, but neither are a requirement for using in a ceiling area. If the

area has a lot of EMI, you might consider using STP or fiber optic cables, but this would not be a requirement just because wires were in a ceiling area.

Typically, you can avoid EMI sources by rerouting cables.

In which of the following situations might you use an RJ11 connector?

You want to connect the 10BaseT network card in your computer to a switch.

You want to connect your computer to the Internet with a dialup connection.

You want to upgrade your 10BaseT network to 100BaseT.

You want to test a network cable to see if there is a break in the line.

You want to connect your computer to the Internet with a dialup connection.

Explanation RJ11 connectors are typically used for telephones and modems.

You are installing networking wiring for a new Ethernet network at your company's main office building. The project specifications call for Category 5 UTP network cabling and RJ45 wall jacks. Near the end of the project, you run out of wire before the last few runs are complete. You have a spool of Category 3 network cable in storage. Upon investigation, it appears very similar to Category 5 wiring. Should you substitute Category 3 cabling for Category 5 cabling to finish the project?

No, the sheath surrounding Category 5 cable is much thicker; creating an extra layer of shielding to reduce crosstalk and support higher data rates.

Yes, you can substitute Category 5 wiring with Category 3 wiring, as they are electrically identical.

No, Category 5 cabling has more twists per inch than Category 3 cabling to reduce crosstalk and support higher data rates.

No, Category 3 cabling doesn't support RJ45 connectors.

No, Category 5 cabling uses a thicker copper wire than Category 3 cable; enabling higher data transmission rates.

No, Category 5 cabling has more twists per inch than Category 3 cabling to reduce crosstalk and support higher data rates.

Explanation While Category 3 and Category 5 cabling may appear similar physically, they are electrically different. Category 5 cabling is twisted much tighter than Category 3 cabling. This reduces

When would you typically use an RJ11 connector?

When using single mode fiber optic cables.

When connecting a phone to a phone line.

When using multimode fiber optic cables.

When using RG6 cables.

When using Cat 3 cables.

When using Cat 5 or higher cables.

When connecting a phone to a phone line.

Explanation An RJ11 connector is used for connecting analog telephones to the telephone jacks. Cat 3, Cat 5, and higher twisted pair cables use RJ45 connectors. Coaxial cables use Ftype or BNC connectors. Fiber optic cables use a variety of connectors (RC, RT, LC, MTRJ).

Which of the following applications is more likely to justify the investment in Category 6 cable?

Instant Messaging

Printing

Email

Streaming video

Streaming video

Explanation Category 6 cable is specified to extend the available bandwidth from 100 MHz to 200 MHz. This serves as the basis for greater capacity, throughput and reliability. Producing high quality streaming multimedia usually requires consistent highspeed network bandwidth. Email and messaging are typically low bandwidth applications consisting of small, brief transmissions. Printing typically consists of greater amounts of data being transferred, however printing is highly amenable to delays and buffering and usually will not suffer any noticeable effects with decreased bandwidth.

Which of the following cable types often includes a solid plastic core?

Cat 3

Cat 6

Cat 5e

Cat 5

Cat 6

Explanation Cat 6 cables include a solid plastic core that keeps the twisted pairs separated and prevents the cable from being bent too tightly.

You have just signed up for a broadband home Internet service that uses coaxial cable. Which connector type will you most likely use?

RJ45

SC

Ftype

BNC

ST

RJ11

F-type

Explanation Use an F-type connector for broadband cable connections that use coaxial cable. Use a BNC connector for 10Base2 Ethernet networks. Use an RJ11 connector for modem connections to a phone line. Use an RJ45

connector for an Ethernet network that uses twisted pair cable. Use ST and SC connectors for fiberoptic cables.

You have a small home network connected to the Internet using an RG6 cable. You need to move the router connecting the network to the Internet, but can't find any RG6 cable. Which cable types could you use instead?

RG8 or RG58

RG58 or RG59

RG8, RG58, or RG59

RG8

RG59

RG58

RG59

Explanation RG6 has an impedance rating of 75 ohms. When using coaxial cables, it is important to use cables with the same impedance rating. Only RG59 is rated for 75 ohms. RG8 and RG58 are rated for 50 ohms.

F-type connectors are typically used with cables using which of the following standards? (Select two.)

RG58

Cat 6e

Cat 5e

RG6

Cat 5

RG59

RG6 & RG59

Explanation F-type connectors are used with coaxial cable, and are typically used for cable TV and satellite installations using RG6 or RG59 cables. RG58 cables typically use BNC connectors and cables are used for 10Base2 Ethernet. Cat 5, 5e, and 6e cables use RJ45 connectors.

Which of the following cable classifications are typically used for cable and satellite networking with coaxial cables? (Select two.)

RG6

RG8

RG58

RG59

RG6 & RG59

Explanation Both RG6 and RG59 can be used for cable and satellite networking applications, although RG6 has less signal loss than RG59, and is a better choice for networking applications, especially where longer distances (over a few feet) are involved. Both RG6 and RG59 have an

impedance rating of 75 ohms. RG8 and RG58 have an impedance rating of 50 ohms and were used with 10 Mbps Ethernet.

Of the following cables, which offer the best protection against EMI?

Cat 5e

Cat 5

Cat 6e

RG6

RG6

Explanation Coaxial cable offers better protection against EMI than twisted pair cables. Coaxial cable has a mesh conductor which provides a ground and protects against EMI. In general, the higher the twisted pair cable standard, the better protection against some forms of EMI (typically crosstalk). For twisted pair, use shielded twisted pair instead of unshielded twisted pair. Use fiber optic for the best protection against EMI.

Which of the following are characteristics of coaxial network cable? (Choose three.)

It uses two concentric conductors made from plastic or glass which conduct light signals.

It has a conductor made from copper in the center of the cable.

It is composed of four pairs of 22-gauge copper wire.

The conductors within the cable are twisted around each other to eliminate crosstalk.

It uses two concentric metallic conductors.

The ends of the cable must be terminated.

It uses RJ45 connectors

It has a conductor made from copper in the center of the cable. It uses two concentric metallic conductors. The ends of the cable must be terminated.

Explanation Coaxial cable is composed of a central copper conductor surrounded by an insulator which is then surrounded by a second metallic mesh conductor. The name coaxial is derived from the fact that both of these conductors share a common axis. When using coaxial cable, both ends of the cable must be terminated.

Which of the following are characteristics of an LC fiber optic connector?

(Choose two.)

They use a stainless steel housing.

They are threaded.

They can be used with either fiber optic or copper cabling.

They use a one-piece bayonet connecting system.

They use a housing and latch system similar to an RJ45 UTP connector.

They are half the size of standard connectors.

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They use a housing and latch system similar to an RJ45 UTP connector.

They are half the size of standard connectors.

Explanation LC fiber optic connectors are small; about half the size of other fiber optic connectors. Their appearance is similar to a typical RJ45 connector used with UTP wiring. Like an RJ45 connector, it uses a small latch to lock the connector in a jack.

Of the following cables, which offer the best protection against EMI?

Cat 5e

Cat 5

RG6

Single mode fiber optic

Single mode fiber optic

Explanation Fiber optic cables offer the best protection against electromagnetic interference (EMI).

Which of the following forms of optical fiber would usually be used to connect two buildings across campus from each other, which are several kilometers apart?

Fibre Channel mode

Multimode

Single mode

Dual mode

Single mode

Explanation In this scenario, use single mode fiber optic cables. Fiber optic is graded as single mode or multimode. Single mode consists of a single very thin core which produces fewer reflections. This provides greater effective bandwidth over greater distances. Multimode is less costly than single mode fiber. Multimode transmits multiple light rays concurrently. Multimode is used to transmit over shorter distances as the rays tend to disperse as the transmission distance increases. Fibre channel is a network topology used in storage area networks.

Which of the following are characteristics of an MT-RJ fiber optic connector?
(Select two.)

They are used with multifiber fiber optic ribbon cables.

They use a nickel-plated housing.

They can be used with multimode fiber optic cables.

They use a keyed bayonet.

They must never be used with singlemode fiber-optic cables.

They use metal guide pins to ensure accurate alignment.

They can be used with multimode fiber optic cables.

They use metal guide pins to ensure accurate alignment.

Explanation MTRJ connectors can be used with either multimode or single-mode fiber optic cabling. The connector is made from plastic and uses metal guide pins to ensure it is properly aligned in the jack.

Which of the following is true about single mode fiber optic network cabling?

It's less expensive than multimode fiber optic cabling.

The central core is smaller than that of multimode fiber optic cabling.

The central core is composed of braided plastic or glass fibers.

It doesn't support segment lengths as long as that supported by multimode fiber optic cabling.

It transmits multiple rays of light concurrently.

The central core is smaller than that of multimode fiber optic cabling.

Explanation Single mode fiber optic cabling transmits a single ray (or mode) of light through glass or plastic fiber. It supports longer transmission distances than multimode fiber optic cable and is also more expensive. It also has a central core that is much smaller than that of multimode fiber optic cabling.

Which of the following are advantages of using fiber optic cabling for a network, as opposed to other types of cabling? (Select two.)

Immunity to electromagnetic interference

Lower installation cost

Greater cable distances without a repeater

Faster installation

Immunity to electromagnetic interference

Greater cable distances without a repeater

Explanation Compared to other types of cabling, fiber optic cabling allows greater cable distances without a repeater and is immune to electromagnetic interference. However, installation costs more and takes longer.

Which of the following connectors is used with fiber optic cables and connects using a twisting motion?

F-type

SC

BNC

LC

ST

ST

Explanation The ST connector is used with fiber optic cable and uses a twist-type connector. Tip: To remember the difference between ST and SC connectors, associate the T in ST with “twist”. SC and LC connectors are

used with fiber optic cables but plug in instead of twist. F-type and BNC connectors use a twist to connect, but are used with coaxial cables.

Which of the following connectors are used with fiber optic cables and include both cables in a single connector? (Select two.)

SC

BNC

ST

MTRJ

LC

MTRJ

LC

Explanation Both the LC and MTRJ connectors have both fiber optic cables in a single connector. ST and SC connectors hold a single strand of fiber optic cable. A cable using either connector has two connectors on each end. A BNC connector is used with coaxial cable.

Which of the following connectors usually require polishing as part of the assembly process? (Select two.)

BNC

SC

ST

IDC

AUI

SC & ST

Explanation The fiber optic cable assembly process is more complex than other assemblies. It is necessary to polish the exposed fiber tip to ensure that light is passed on from one cable to the next with no dispersion.

Which of the following terms identifies the wiring closet in the basement or a ground floor that typically includes the demarcation point?

Smart jack

IDF

110 block

Horizontal cross connect

MDF

MDF

Explanation The main distribution frame (MDF) is the main wiring point for a building. The MDF is typically located on the bottom floor or basement. The LEC typically installs the demarc to the MDF. An intermediate distribution frame (IDF) is a smaller wiring distribution point within a building. IDFs are typically located on each floor directly above the MDF, although additional

IDFs can be added on each floor as necessary. A horizontal cross connect connects wiring closets on the same floor. A smart jack is a special loopback plug installed at the demarcation point for a WAN service. Technicians at the central office can send diagnostic commands to the smart plug to test connectivity between the central office and the demarc. Use 66 and 110 blocks to connect individual wires within a wiring closet.

Which of the following methods would you use to create a crossover cable?

Use the T568B standard.

Use the T568A standard on one connector, and the BLOG convention on the other connector.

Use the T568A standard on one connector, and the T568B standard on the other connector.

Use the T568B standard on one connector, and the BLOG convention on the other connector.

Use the T568A standard.

Use the T568A standard on one connector, and the T568B standard on the other connector.

ExplanationThe easiest way to create a crossover cable is to arrange the wires in the first connector using the T568A standard and arrange the wires in the second connector using the T568B standard. A crossover cable connects the transmit pins on one connector to the receive pins on the otherconnector (pin 1 to pin 3 and pin 2 to pin 6).

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When using 110 blocks for connecting Cat5 and higher data cables, which recommendation should you follow?

Keep wire pairs twisted up to within one-half of an inch of the connector.

Use C5 connectors.

Connect wires using the T568B standard.

Connect wires using the T568A standard.

Keep wire pairs twisted up to within one-half of an inch of the connector.

Explanation When using for Cat5 (or higher) wiring, be sure to preserve the twists in each wire pair to within one-half of an inch of the connecting block.

Use C4 connectors to connect four pairs of wires. When connecting data wires on a 110 block, you typically connect wires in the following order:

- White wire with a blue stripe, followed by the solid blue wire.
- White wire with an orange stripe, followed by the solid orange wire.
- White wire with a green stripe, followed by the solid green wire.
- White wire with a brown stripe, followed by the solid brown wire.

T568A and T568B are used to connect wires within an RJ45 connector when making drop cables.

You are building network cables and attaching RJ45 connectors to each end. Which tool do you need for this task?

Vampire taps

Crimping tool

Punch down tool

Needle nose pliers

Crimping tool

Explanation You should use a crimping tool designed for RJ45 connectors to attach connectors to UTP cable.

You have a network that occupies both floors of a building. The WAN service provider has installed the line for the WAN service into the building in a wiring closet on the main floor. You have a second wiring closet on the second floor directly above the wiring closet that holds the demarc. Which of the following terms describes the closet on the second floor?

Vertical cross connect

Demarc extension

MDF

IDF

Horizontal cross connect

IDF

Explanation An intermediate distribution frame (IDF) is a smaller wiring distribution point within a building. IDFs are typically located on each floor directly above the MDF, although additional IDFs can be added on each floor as necessary. The main distribution frame (MDF) is the main wiring point for a building. The MDF is typically located on the bottom floor or basement. The LEC typically installs the demarc to the MDF. A vertical cross connect

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connects the MDF on the main floor to IDFs on upper floors. Cabling runs vertically (up and down) between the MDF and the IDFs. A horizontal cross connect connects IDFs on the same floor. Cabling runs horizontally (sideways) between the IDFs. A demarc extension extends the demarcation point from its original location to another location within the building.

What tool should you use to extend network services beyond the demarc?

Media certifier

Tone generator

Crimper

Punchdown tool

Punchdown tool

ExplanationA demarc is the location where the local network ends and the telephone company's network begins. This location is usually at a punch down block in a wiring closet. You use a punchdown tool to attach wires to the punch down block.

Which of the following describes the point where the service provider's responsibility ends and the customer's responsibility begins for installing and maintaining wiring and equipment?

Smart jack

Punchdown block

IDF

Demarc

Vertical cross connect

Demarc

Explanation When you contract with a local exchange carrier (LEC) for data or telephone services, they install a physical cable and a termination jack onto your premises. The demarcation point (demarc) is the line that marks the boundary between the telco equipment and the private network or telephone system. Typically, the LEC is responsible for all equipment on one side of the demarc, and the customer is responsible for all equipment on the other side of the demarc. A smart jack is a special loopback plug installed at the demarcation point for a WAN service. Technicians at the central office can send diagnostic commands to the smart plug to test connectivity between the central office and the demarc. A punchdown block is a block used to connect individual copper wires together. While the demarc might terminate in a punchdown block, punchdown blocks are used within other locations at the customer site. An intermediate distribution frame (IDF) is a smaller wiring distribution point within a building. IDFs are typically located on each floor directly above the main distribution frame (MDF), although additional IDFs can be added on each floor as necessary. A vertical cross connect connects the IDF to the MDF on a different floor.

You are preparing to attach wires in a 110 block. You want to connect the wires and trim off the excess at the same time. Which of the following should you do? (Select two.)

Use a butt set with clips.

Use a punchdown tool with a notched blade.

Point the cut side of the tool towards the connected end of the wire.

Use a punchdown tool with a straight blade.

Use a butt set with a jack.

Point the cut side of the tool towards the wire end.

Use a punchdown tool with a notched blade.

Point the cut side of the tool towards the wire end.

Explanation Use a punchdown tool to connect wires to a 110 or 66 block.

When using a punchdown tool, choose the right blade for the job:

- Use a notched blade for a 110 block.
- Use a straight blade for a 66 block.
- For both blade types, you can use the end without a cutting blade if you want to punch down without cutting the wire. When using the cutting blade, point the cut side of the punchdown tool towards the wire end that you want to trim.

You are making Ethernet drop cables using Cat5e cable and RJ45 connectors. You need to remove the plastic coating over the cable to expose the individual wires. Which tool should you use?

Snips

Punchdown tool

Butt set

Cable stripper

Cable stripper

Explanation Use a cable stripper to remove the plastic covering for a cable.

Note: When making drop cables or using punchdown blocks, do not remove the plastic covering for individual wires. Use snips to cut cables. Use a punchdown tool to push wires into 66 or 110 blocks and cut wires at the same time. Use a butt set to connect to phone lines to monitor, make, or answer phone calls.

You have a network that occupies the top floor of a three story building. The WAN service provider has installed the line for the WAN service into the building in a wiring closet on the main floor. What would you use to relocate the WAN line into a wiring closet on your floor?

Horizontal cross connect

Demarc extension

66 block

Smart jack

110 block

Demarc extension

Explanation A demarc extension extends the demarcation point from its original location to another location within the building. The demarc extension typically consists of a single wire bundle that attaches to the existing demarc and supplies a termination point to a different location. You might need a demarc extension if your network occupies an upper floor of a building. The LEC will typically install the demarc into the MDF on the bottom floor, and you will need to install an extension to place the demarc into the IDF on your floor. A horizontal cross connect connects IDFs on the same floor. Cabling runs horizontally (sideways) between the IDFs. A smart jack is a special loopback plug installed at the demarcation point for a WAN service. Technicians at the central office can send diagnostic commands to the smart plug to test connectivity between the central office and the demarc. Use 66 and 110 blocks to connect individual wires within a wiring closet. These blocks can be used to connect devices to the WAN service wiring, but are not typically used for installing a demarc extension.

You have a network that occupies all three floors of a building. The WAN service provider has installed the line for the WAN service into the building in a wiring closet on the main floor. You have a wiring closet on the two remaining floors directly above the wiring closet on the main floor. What would you use to connect the wiring closets together?

Demarc extension

Horizontal cross connect

Vertical cross connect

Smart jack

Vertical cross connect

Explanation A vertical cross connect connects the main distribution frame (MDF) on the main floor to intermediate distribution frames (IDFs) on upper floors. Cabling runs vertically (up and down) between the MDF and the IDFs. A horizontal cross connect connects IDFs on the same floor. Cabling runs horizontally (sideways) between the IDFs. A smart jack is a special loopback plug installed at the demarcation point for a WAN service. Technicians at the central office can send diagnostic commands to the smart plug to test connectivity between the central office and the demarc. A demarc extension extends the demarcation point from its original location to another location within the building. The demarc extension typically consists of a single wire bundle that attaches to the existing demarc and supplies a termination point to a different location. You might need a demarc extension if your network occupies an upper floor of a building. The LEC will typically install the demarc into the MDF on the bottom floor, and you will need to install an extension to place the demarc into the IDF on your floor.

Which pins in an RJ45 connector are used to transmit data when used on a 100BaseT Ethernet network? (Choose two.)

Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6 Pin 7 Pin 8

Pin 1 & Pin 2

Explanation On a 100BaseT network cable, the RJ45 pinouts are as follows:•

Pin 1: Tx+• Pin 2: Tx-• Pin 3: Rx+• Pin 4: Unused• Pin 5: Unused• Pin 6: Rx-
• Pin 7: Unused• Pin 8: Unused

You want to use the T568A standard for adding connectors to your Cat5 cable. Starting with pin 1, which order should you use for the wires within the connector?

White/orange, orange, white/green, blue, white/blue, green, white/brown, brown

White/green, green, white/orange, blue, white/blue, orange, white/brown, brown

White/orange, orange, white/green, green, white/blue, blue, white/brown, brown

White/blue, blue, white/orange, orange, white/green, green, white/brown, brown

White/green, green, white/orange, blue, white/blue, orange, white/brown, brown

Explanation The T568A standard uses the following order of wires in the connector: White/green, green, white/orange, blue, white/blue, orange, white/brown, brown. The T568B standard switches the orange and green wires (along with their corresponding white wires). Use the order Blue-Orange-Green-Brown (BLOG), with the white wire first, for connecting wires on a 110 punchdown block.

Which of the following uses metal clips placed over plastic slots for connecting individual copper wires?

25 pair

66 block

100 pair

110 block

110 block

Explanation A 110 block is a punchdown block that uses metal clips fitted over plastic pins. When connecting wires using a 110 block, place the wires in the plastic slots, attach the metal clip, then punch down the connecting cable on the top of the clip. A 66 block uses metal pins for connecting wires. Wires are placed in the pins, and pins within a row are electrically connected. 25 pair and 100 pair are cable bundles that include multiple pairs of copper wires (either 25 pairs of wires or 100 pairs of wires).

You are connecting Cat5e cables to a 110 block. In what order should you connect the wires to follow standard wiring conventions?

White/orange, orange, white/green, blue, white/blue, green, white/brown, brown

White/green, green, white/orange, blue, white/blue, orange, white/brown, brown

White/blue, blue, white/orange, orange, white/green, green, white/brown, brown

White/brown, brown, white/blue, blue, white/orange, orange, white/green, green

White/blue, blue, white/orange, orange, white/green, green, white/brown, brown

Explanation When connecting data wires on a 110 block, you typically connect wires in the following order:

- White wire with a blue stripe, followed by the solid blue wire.
- White wire with an orange stripe, followed by the solid orange wire.
- White wire with a green stripe, followed by the solid green wire.
- White wire with a brown stripe, followed by the solid brown wire.

Tip: Use BLOG (blue-orange-green) to remember the wire order, and remember to start with the white striped wire first.

When adding RJ45 connectors to a drop cable, use one of the following orders, based on the standard you want to follow:

- T568A- To use this standard, arrange the wires from pins 1 to 8 in each connector in the following order: GW, G, OW, B, BW, O, BrW, Br.
- T568B- To use this standard, arrange the wires from pins 1 to 8 in each connector in the following order: OW, O, GW, B, BW, G, BrW, Br.

You are working with 25 pair wires and 66 blocks. You have pushed the wires onto the 66 block, but now need to cut off the excess end of each wire.

Which tool should you use?

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Snips

Butt set

Cable stripper

Punchdown tool

Punchdown tool

Explanation Use a punchdown tool to push wires into 66 or 110 blocks and cut wires at the same time. The punchdown tool has a blade on one side that cuts off the excess wires. Use snips to cut cables or wires. However, a punchdown tool would be easier to use for this task than wire snips. Use a cable stripper to remove the plastic covering for a cable. Note: When making drop cables or using punchdown blocks, do not remove the plastic covering for individual wires. Use a butt set to connect to phone lines to monitor, make, or answer phone calls.

Which of the following is used to terminate individual wires from a 25 pair or 100 pair cable using female RJ45 ports?

66 block

110 block

Patch panel

Horizontal cross connect

Patch panel

Explanation A patch panel is a device that typically connects individual stranded wires into female RJ45 connectors. For example, you might connect 4 pairs of wires from a punchdown block to a port on the patch panel. On the patch panel, you then connect drop cables (cables with RJ45 connectors) to the patch panel on one end and a computer on the other end. Use 66 and 110 blocks to connect individual wires within a wiring closet. These punchdown blocks connect the individual wires together, but do not terminate in RJ45 connectors. A horizontal cross connect connects IDFs on the same floor.

You want to use the T568B standard for adding connectors to your Cat5 cable. Starting with pin 1, which order should you use for the wires within the connector?

White/blue, blue, white/orange, orange, white/green, green, white/brown, brown

White/orange, orange, white/green, blue, white/blue, green, white/brown, brown

White/orange, orange, white/green, green, white/blue, blue, white/brown, brown

White/green, green, white/orange, blue, white/blue, orange, white/brown, brown

White/orange, orange, white/green, blue, white/blue, green, white/brown, brown

ExplanationThe T568B standard uses the following order of wires in the connector: White/orange, orange, white/green, blue, white/blue, green, white/brown, brown.

The T568A standard switches the green and orange wires (along with their corresponding white wires). Use the order Blue-Orange-Green-Brown(BLOG), with the white wire first, for connecting wires on a 110 punchdown block.

You have a network that occupies all three floors of a building. The WAN service provider has installed the line for the WAN service into the building in a wiring closet on the main floor. You have a second wiring closet on the main floor. You need to connect the two wiring closets. Which of the following are typically used to connect the two wiring closets? (Select two.)

Demarc extension

25 pair

Horizontal cross connect

Smart jack

Vertical cross connect

25 pair

Horizontal cross connect

ExplanationA horizontal cross connect connects wiring closets on the same floor. 25 pair or 100 pair wiring punched down into 66 or 110 blocks are often used to connect the wiring closets together. A vertical cross connect

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connects the IDF to the MDF on a different floor. The demarcation point (demarc) is the line that marks the boundary between the telco equipment and the private network or telephone system. A demarc extension extends the demarcation point from its original location to another location within the building. A smart jack is a special loopback plug installed at the demarcation point for a WAN service. Technicians at the central office can send diagnostic commands to the smart plug to test connectivity between the central office and the demarc.

A host wants to send a message to another host with the IP address 115. 99. 80. 157. IP does not know the hardware address of the destination device. Which protocol can be used to discover the MAC address?

DNS

IGMP

BOOTP

DHCP

ARP

ICMP

ARP

Explanation Hosts use the Address Resolution Protocol (ARP) to discover the hardware address of a host.

Which of the following is a valid MAC address?

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95ABC2F4. ABC5. 569D. 43BF

AB. 07. CF. 62. 16. BD

FABC. 875E. 9BG6

145. 65. 254. 10

AB. 07. CF. 62. 16. BD

Explanation MAC addresses are comprised of 12 hexadecimal digits (ranging from 09 and AF). They are typically represented as a three sets of four hexadecimal digits or six sets of two hexadecimal digits separated with periods. Regardless of the grouping and separator values, look for 12 hex digits for a valid MAC address.

What device sends signals from a computer onto a network?

Router

Transceiver

Cable

Gateway

Transceiver

Explanation A transceiver (short for transmitter/receiver) sends signals to and receives signals from the network. It translates the parallel data stream of the computer to the serial data stream of the network and vice versa. Most transceivers are now built into network interface cards (NICs).

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Which of the following is true about the MAC address? (Select two.)

It is typically represented by octets of decimal numbers between 0255.

It is a 32-bit address.

It is a 64-bit address.

It is a 48-bit address.

It is typically represented by hexadecimal numbers.

It is a 48-bit address.

It is typically represented by hexadecimal numbers.

ExplanationThe MAC address identifies the physical address of the network adapter. The MAC address is a 12-digit (48-bit) hexadecimal number (each number ranges from 09 or AF). The address is often written as 00B0D006BCAC or 00B0.D006.BCAC, although dashes, periods, and colons can be used to divide the MAC address parts. An IPv4 address is 32bits and uses octets of decimal numbers between 0255. An IPv6 address is a 64-bit address that uses 32 hexadecimal numbers.

Which network component connects a device with the transmission media and allows it to send and receive messages?

Client

Network interface card

Peripheral

Protocol

Server

Network interface card

ExplanationThe network interface card (NIC) allows a device to send and receive messages over the transmission media.

Which of the following is a valid MAC address?

73-99-12-61-15

192. 168. 12. 15

34-9A-86-1G-B3-24

C0-34-FF-15-01-8E

255. 255. 255. 0

83-5A-5B-0B-31-55-F1

C0-34-FF-15-01-8E

ExplanationA MAC or hardware address is a unique identifier hard coded on every network adapter card. A valid MAC address has a total of 12 hexadecimal numbers. Hexadecimal numbers contain the numbers 0 to 9 and the letters A to F. Valid values in a MAC address range anywhere from 00 to FF. Note that one of the answers would be a valid MAC address except it uses a G value, which is beyond the range of a hexadecimal number.

At which OSI model layer does a media converter operate?

Layer 1

Layer 2

Layer 3

Layer 4

Layer 1

ExplanationA media converter operates at the OSI model layer 1 (Physical layer). The media converter translates frames into bits and transmits them on the transmission medium. At layer 2, the MAC address is added to make the data into a frame. At layer 3, the IP address is added to the packet. A media converter does not alter or use the MAC address or the IP address.

You have a server that has a 100BaseFX network interface card that you need to connect to a switch. The switch only has 100BaseTX switch ports. Which device should you use?

Gateway

Bridge

Media converter

Hub

Repeater

Media converter

Explanation Use a media converter to convert from one media type to another media type within the same architecture. Use a bridge to connect two devices that use different network architectures, for example to connect a wired network to wireless clients. A hub or a repeater connect devices using the same media type.

What type of module might a switch use to allow it to modify the media type supported by a switch port? (Select two.)

MPLS

GBIC

OCx

SFP

GBIC & SFP

Explanation Older network adapters used an external transceiver that matched the media type. While nearly all current network adapters come with a built in transceiver type, new devices, such as switches and routers, use transceiver modules that allow you to modify the media type of a port by changing the transceiver. Transceiver modules include the following:

- A GBIC (gigabit interface converter) is a larger sized transceiver that fits in a port slot and is used for Gigabit media including copper and fiber optic.
- An SFP (small formfactor pluggable) is similar to a GBIC but with a smaller size.

An SFP is sometimes called a miniGBIC. • An XFP transceiver is similar in size to an SFP but is used for 10 Gigabit networking.

Which of the following statements accurately describes how a modem works? (Select two.)

It modulates digital data from the PC into analog data and transmits it on a telephone network.

It communicates over a telephone network using digital signals.

It transmits digital signals over ordinary telephone copper wiring at a rate up to 128 Kbps.

It demodulates analog data from a telephone network into digital PC data.

It demodulates analog PC data into digital data that can be transmitted through a telephone network.

It modulates digital data from a telephone network into analog data that a PC can use.

It modulates digital data from the PC into analog data and transmits it on a telephone network.

It demodulates analog data from a telephone network into digital PC data.

Explanation Modem is shorthand for modulator/demodulator. Its job is to convert (or modulate) digital data from a PC into analog telephone signals and transmit them through a telephone network. It also receives analog data

from the telephone network and converts (or demodulates) it into digital PC data.

Which three of the following devices operate at the Data Link layer of the OSI model?

Routers

Bridges

Switches

Repeaters

Network interface cards (NICs)

Hubs

Bridges, Switches & NICs

Explanation Network interface cards (NICs), bridges, and switches all operate at the OSI Data Link layer. They use the physical device address (MAC address) to identify packets. Hubs and repeaters operate at the Physical layer they simply repeat packets without regard to addresses.

Routers function at the Network layer they examine the logical device and network address to perform routing tasks.

Which of the following hardware devices regenerates a signal out all connected ports without examining the frame or packet contents? (Select two.)

Bridge

Hub

Repeater

Switch

Gateway

Router

Hub & Repeater

Explanation A hub and a repeater send received signals out all other ports. These devices do not examine the frame or the packet contents. A switch or a bridge use the MAC address in a frame for forwarding decisions. A router uses the IP address in a packet for forwarding decisions.

Which of the following best describes how a switch functions?

It connects multiple segments of different architectures. It translates frames, and forwards them to the appropriate segment.

It connects multiple segments of different architectures. It translates frames, and broadcasts them to all of its ports.

It connects multiple cable segments (or devices), and forwards frames to the appropriate segment.

It connects multiple cable segments (or devices), and broadcasts frames to all of its ports.

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It connects multiple cable segments (or devices), and forwards frames to the appropriate segment.

Explanation Switches have multiple ports and can connect multiple segments or devices. The switch forwards frames to the appropriate port. They function similarly to a hub, except instead of sending packets to all ports, switches send packets only to the destination computer's port.

A switch is associated with which OSI model layer?

Transport

Network

Data Link

Physical

Data Link

Explanation Switches are associated with the Data Link layer of the OSI model. Switches examine the device address in the packet and forward messages directly to that device.

How do switches and bridges learn where devices are located on a network?

When a frame enters a port, the destination IP address