

INTERNETWORKING II

Chapters 2-3 Study Guide Answers

What is an example of a DCE and DTE?

DCE (data circuit-terminating equipment) example: service provider like a modem.
DTE (data terminating equipment) example: attached device like a computer.

Be able to describe:

- The services WANs provide to LANs

circuit-switched services (POTS, ISDN)

packet-switched services (Frame Relay, X.25)

cell-switched services (ATM, SMDS)

dedicated digital services (T1, T3, E1, E3, xDSL, SONET)

dial-up modems

cable modems

wireless

- The lower level layers of the OSI model in relation to a WAN (i.e., what is each layer's responsibility?)

physical layer – describes the interface between the DTE and DCE equipment.

data link layer – describes the encapsulation used with synchronous serial lines

network layer – describes the addressing scheme of the network and how routing

decisions are made in the WAN

- Some of the protocols used in a WAN environment

PPP – point to point protocol

HDLC – high-level data link control

SDLC – simple data link control protocol

SLIP – serial line interface protocol

LAPD – link access procedure balanced

LAPF – link access procedure frame

- The WAN protocol that supports point-to-point and multipoint configurations

HDLC

- Circuit-switched service

POTS (plain old telephone service)

ISDN (narrowband)

- Cell-switched service

ATM (asynchronous transfer mode)

Describe the different types of memory used in a router; know what software each type of memory normally contains:

- NVRAM

nonvolatile RAM – doesn't "wipe" when router is powered down. It holds the startup configuration file.

- RAM

like regular RAM – it wipes when the router is powered down. It holds the running (current) configuration file.

- ROM

like regular ROM – it doesn't wipe during a power down cycle. It holds the power-on diagnostics, a bootstrap program, and a minimal (basic) IOS image.

- FLASH

a type of EEPROM (electronically erasable reprogrammable ROM) – it doesn't wipe during a power down, but can be updated through software. It holds the entire IOS image.

What protocol does a WAN use to make path determination decisions?

IP

What layer does the router operate at and what kind of address does it use?

Layer 3; it uses logical (IP) addresses

What is the difference between Frame relay service and X.25?

Frame relay is a packet-switched version of ISDN; it's more efficient than X.25 because it doesn't do as much error checking (X.25 is older so it had more error checking features built into it when the Internet wasn't as reliable). Frame relay is a little cheaper than X.25. Frame relay is the standard today. X.25 is going away.

List the basic commands for a Cisco router and what each one does that were in this chapter:

enable – to get into privileged EXEC mode

logout/exit – to exit the router

? – used to get to help mode

List the modes you can work in in a Cisco router. Show the router's prompt for each mode you list.

user EXEC mode – basic mode, not much security here

prompt: router>

privileged EXEC mode – need security to get here

prompt: router#

global configuration mode – to change the router's configuration file

prompt: router(config)#

router configuration mode – to change the routing protocol used by the router

prompt: router(config-router)#

interface configuration mode – to change one of the router's interfaces' configuration

prompt: router(config-if)#