CCNA Quick Notes ? Frame Relay

1.What protocol does Frame Relay rely on for error checking? Frame Relay does not rely on any certain protocol for error checking. Instead, it relies on upper-layer protocols to provide error checking. For example, Frame Relay relies on TCP to provide error checking in an IP network. 2.At what layers of the OSI model does Frame Relay operate? Frame Relay operates at the two lower layers of the OSI model (data link and physical). 3.What is the difference between switched virtual circuits (SVCs) and permanent virtual circuits (PVCs)? SVCs are virtual circuits that are dynamically established when data needs to be transferred and that are terminated when data transmission is complete. SVCs consist of four states: call setup, data transfer, idle, and call termination. PVCs are permanently established virtual circuits that operate in one of two states: idle or data transfer. When the PVC is idle, the connection between the DTE devices is still active. 4.What is a Data Link Connection Identifier (DLCI)? A DLCI is a number that identifies the logical circuit between the router and the Frame Relay switch. It is the Frame Relay Layer 2 address. The Frame Relay switch maps DLCIs between each pair of routers to create a PVC. For IP devices at the end of each virtual circuit to communicate, their IP addresses need to be mapped to DLCIs. If you are running Cisco IOS 11.2 or later, mapping is done automatically using Inverse ARP. DLCIs have local significance. Think of DLCIs as the MAC address of the Frame Relay network. 5.What is the committed information rate (CIR)? The CIR is the committed information rate, by the service provider, in bits per second, at which data will be transferred. The service provider sends any data in excess of this rate if its network has capacity at that time. 6.How does Frame Relay use Inverse ARP? Frame Relay uses Inverse ARP as a way to dynamically map a network layer address to a DLCI. With Inverse ARP, the router can discover the network address of a device associated with a VC. 7.What is the Local Management Interface (LMI)? The LMI is a signaling standard between a CPE device (a router) and the Frame Relay switch that is responsible for managing and maintaining status between the devices. It is autosensed with Cisco IOS Release 11.2 and later. 8.In Frame Relay, what is Forward Explicit Congestion Notification (FECN)? The FECN is the bit in the Frame Relay header that signals to anyone receiving the frame (switches and DTEs) that congestion is occurring in the same direction as the frame. Switches and DTEs can react by slowing the rate at which data is sent in that direction. 9.What is Backward Explicit Congestion Notification (BECN)? The BECN is the bit in the Frame Relay header that signals to switches and DTEs receiving the frame that congestion is occurring in the direction opposite (backward) that of the frame. If switches and DTE devices detect that the BECN bit in the Frame Relay header is set to 1, they slow the rate at which data is sent in that direction. 10.In the Frame Relay header, what is the discard eligibility (DE) bit? If congestion is detected on the Frame Relay network, the DE bit is turned on in the Frame Relay header. The DE bit is turned on for frames that are in excess of the CIR. The DE bit tells a switch which frames to discard if they must be discarded. 11.What is the default LMI type for Cisco routers that are configured for Frame Relay? The default LMI for Cisco routers configured for Frame Relay is Cisco. If you are running Cisco IOS Release 11.2 or later, the Cisco router tries to autosense which LMI type the Frame Relay switch is using. If it cannot autosense the LMI type, the router uses Cisco as its LMI type. The three types of LMIs supported by Cisco routers are: Cisco ANSI Q933a 12.When a router receives LMI information, it updates its VC status to one of three states. What are these three states? The three states that a VC uses to update its status are as follows: Active state The connection is active, and routers can exchange data. Inactive state The local connection to the Frame Relay switch is working, but the remote router's connection to the Frame Relay switch is not working. Deleted state Indicates that no LMIs are being received from the Frame Relay switch or that there is no service between the router and the Frame Relay switch. 13.How do you enable Frame Relay on a Cisco router? To enable Frame Relay on a Cisco router, you must first enable the serial interface for Frame Relay encapsulation with the encapsulation frame-relay interface command: RouterB(config)#int s 0 RouterB(config-if)#ip address 192.168.1.1 255.255.255.0 RouterB(config-if)#encapsulation frame-relay 14.The default encapsulation for a serial interface configured for Frame Relay is cisco. If you are connecting to a non-Cisco router, how do you change the encapsulation type? If you are connecting to a non-Cisco router in a Frame Relay network, you need to specify ietf as the encapsulation type: RouterB(config-if)#ip address 192.168.1.1 255.255.255.0 RouterB(config-if)#encapsulation frame-relay ietf 15.If you are using Cisco IOS Release 11.1 or earlier, or if you do not want to autosense the LMI type, how do you define the LMI type on a Cisco router? To define the LMI type on a Cisco router, use the frame-relay lmi-type {ansi cisco q933a} interface command: RouterB(config-if)#ip address 192.168.1.1 255.255.255.0 RouterB(config-if)#encapsulation frame-relay RouterB(config-if)#frame-relay lmi-type ansi 16.If Inverse ARP is disabled on your router, how do you reenable it? Inverse ARP is enabled by default on a Cisco router. If it is disabled, reenable it by using the following command: RouterB(config-if)#frame-relay inverse-arp [protocol] [dlci] Supported protocols indicated by the protocol option include ip, ipx, decnet, appletalk, vines, and xns. 17.If a remote router does not support Inverse ARP, you must define the address-to-DLCI table statically. How do you create these static maps? To define static maps on a Cisco router, use the following

command: RouterA(config-if)#frame-relay map protocol protocol-address dlci [broadcast] [ietf cisco] [payload-compress packet-by-packet] where: · protocol defines the supported protocol bridging or LLC. · protocol-address is the remote router's network layer address. · dlci defines the remote router's local DLCI. · broadcast specifies whether you want to forward broadcasts over the VC, permitting dynamic routing protocols over the VC.· ietf cisco is the encapsulation type. 18.How do you display the encapsulation type, DLCI, LMI type, and whether the device is a DTE or DCE on a serial interface? To display the interface's encapsulation type, DLCI number, LMI type, and whether the device is a DTE or DCE, use the show interface interface-type interface-number command: RouterA#show int s0 Serial0 is up, line protocol is up Hardware is HD64570 Internet address is 192.168.1.2/24 MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec, rely 255/255, load 1/255 Encapsulation FRAME-RELAY, loopback not set, keepalive set (10 sec) LMI enq sent 3, LMI stat recvd 0, LMI upd recvd 0, DTE LMI up LMI enq recvd 5, LMI stat sent 0, LMI upd sent 0 LMI DLCI 1023 LMI type is CISCO frame relay DTE Broadcast queue 0/64, broadcasts sent/dropped 0/0, interface broadcasts 0 Last input 00:00:05, output 00:00:07, output hang never Last clearing of "show interface" counters never Input queue: 0/75/0 (size/max/drops); Total output drops: 0 Queueing strategy: weighted fair 19.What Cisco IOS command displays the LMI traffic statistics and LMI type? The show frame-relay lmi command displays the LMI traffic statistics and LMI type: RouterA#show frame-relay lmi LMI Statistics for interface Serial0 (Frame Relay DTE) LMI TYPE = CISCO Invalid Unnumbered info 0 Invalid Prot Disc 0 Invalid dummy Call Ref 0 Invalid Msg Type 0 Invalid Status Message 0 Invalid Lock Shift 0 Invalid Information ID 0 Invalid Report IE Len 0 Invalid Report Request 0 Invalid Keep IE Len 0 Num Status Enq. Rcvd 1748 Num Status msgs Sent 1748 Num Update Status Sent 0 Num St Enq. Timeouts 0 routera# 20.How do you display the current Frame Relay map entries and information about these connections on a Cisco router? To view the current map entries and information about the connections, use the show frame-relay map command: RouterA#show frame-relay map Serial0 (up): ip 192.168.1.2 dlci 100(0x64,0x1840), dynamic, Broadcast, status defined, active 21.How do you clear dynamic Frame Relay maps that were created by Inverse ARP? Use the clear frame-relay-inarp privileged EXEC command to clear dynamic Frame Relay maps created by Inverse ARP. PDF Version | Download