

5 Minutes Course - Frame Relay

Frame Relay is packet switched WAN technology for transporting Data across Connection oriented Virtual Circuits using Public Data Networks (PDN). It is a high performance alternative to overly reliable / slow X.25 Wan Protocol. It has no Error Recovery but has smart flow control (fecn becn). It can support up to T3 line (44.736 Mbps) in 1984 FRAME RELAY started to develop. Frame Relay delivers variable size data frames to multiple WAN sites. Multi Access is the most obvious difference between Frame Relay and Leased lines. Leased lines are used as access link of Frame Relay. In 1990 FRAME RELAY CONSORTIUM was created by following four companies. 1 CISCO 2 STARTDACOM 3 NORTEL 4 DEC. (AKA: GANG OF FOURs) to standardize the Frame Relay this consortium started working later ANSI & ITU-T also like the idea. DTE --> Data Terminating Equipment DCE-->Data Circuit Terminating Equipment NOTE: Router operates on Layer 3 and Switch operates on Layer 2. When Frame Relay Network a Router is working as a Frame relay switch then it's operating on Layer 2. LMI some LMI type is required between DTE and DCE (Switch). LMI autosense enabled in IOS 11.2 & greater. 1 LMI exists per serial Interface. Data Link Connection Identifier. DLCI In header there is a single DLCI field. No Source or Destination field like LAN addresses. LOCAL DLCI Global DLCI A Practical Way to identify between Global and Local DLCI is. If two Virtual Circuits terminate at a DCE and a single DLCI is shown, it's most probably a GLOBAL DLCI. If one DLCI is shown per VC then it's depicting Local DLCI. FRAME RELAY PACKET consist of 2 Bytes. 6 Bits of First Bytes are called High Order Bits 4 Bits of Second Bytes are called Low Order Bits. DLCI number consists of 6+4 Bits of high and low order bits. 7th Bit is CR (Committed RATE) -- First Byte 8th Bit is EA----- 5th Bit is FORWARD EXPLICIT CONGESTION NOTIFICATION (FECN) -- Second Byte 6th Bit is BACKWARD EXPLICIT CONGESTION NOTIFICATION (BECN) -- Second Byte 7th Bit is Discard Eligibility----- Second Byte 8th Bit is EA----- Second Byte Plz note that FECN-BECN is always set by (DCE) Frame Relay Switch and Discard Eligibility is set by Sending Router Broadcast are not supported over a frame relay network so this is done in 2 steps. 1. IOS sends copies of Broadcast across each VC it instructs. 2. Router Places these Broadcast in Different Queues then the ordinary user traffic. TYPE OF CONFIGURATION-----SPLIT HORIZON IS No Subinterfaces---P2P-----Enable No Subinterfaces Multi Point-----Disabled Subinterfaces-----P2P-----Enable Subinterfaces Multi Point-----Disable if#ip split horizon if#no ip split horizon Address Mapping 1 Static Config Mapping 2 Dynamically Mapping Dynamic Mapping uses a process called INVERSE ARP. Each router announces its layer 3 address + DLCI to its adjacent Routers. INVERSE ARP is enabled by default at 11.2 and greater versions unless point to point subinterfaces are used.