

# Frame-Relay WAN Network Technology (Layer-2)

Frame relay technology is based on using virtual circuits (VCs), two-way, software-defined data paths between two ports that act as private line replacements in the network. There are two types of frame relay connections, switched virtual circuits (SVCs) and permanent virtual circuits (PVCs).

**Forward Explicit Congestion Notification (FECN)** A bit set by a frame relay network to notify an interface device (DTE) that congestion avoidance procedures should be initiated by the **receiving** device.

**Backward Explicit Congestion Notification (BECN)** A bit set by a frame relay network to notify an interface device (DTE) that congestion avoidance procedures should be initiated by the **sending** device.

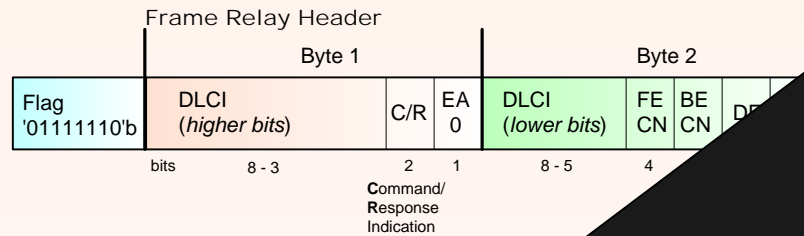
**Committed Information Rate (CIR)** The committed rate (in bits per second) at which the ingress access interface trunk interfaces, and egress access interface of a frame relay network transfer information to the destination frame relay end system under normal conditions. The rate is averaged over a minimum time interval Tc.

**Discard Eligibility (DE)** A user-set bit indicating that a frame may be discarded in preference to other frames *if congestion occurs*, to maintain the committed quality of service within the network. Frames with the DE bit set are considered Be excess data.

**Data Link Connection Identifier (DLCI)** A unique 10-bit number assigned to a PVC end point in a frame relay network. Identifies a particular PVC endpoint within a user's access channel in a frame relay network and has *local significance only* to that channel. Periodically, through the exchange of signalling messages, a network may announce a new virtual circuit with its corresponding DLCI.

**Permanent Virtual Circuit (PVC)** A frame relay logical link, whose endpoints and class of service are defined by network management. Analogous to an X.25 permanent virtual circuit, a PVC (often referred to as a PVC) consists of the originating frame relay network element address, originating data link control identifier, terminating frame relay network element address, and termination data link control identifier.

**Local Management Interface (LMI)** A set of procedures and messages specified by ANSI T1.617 and ITU-T Q.933a, defined to operate between a user device and a frame relay network, that provide status and outage notification for frame relay virtual connections (PVCs).



## Frame Relay Standards

Description	ITU-T	ANSI
Architectural Framework	I.233	T.1617
Data Link Layer Signaling	Q.922	Q.931
Network Layer Signaling (LMI)	Q.933	Q.933
Congestion Management		
Network to Network Interface		

In contrast to the LMI, the current requirements for Annex-D can be implemented on individual PVCs.

## Investment

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## CISCO Frame Relay Configuration

```
interface Serial1/0
encapsulation frame-relay IETF
(RFC1490 encapsulation, defaults to Cisco)
frame-relay lmi-type ansi
(Default to cisco or use ansi - Annex-D)
```

```
interface Serial1/0.123 point-to-point
ip address 172.16.1.101 255.255.255.0
frame-relay interface-dlci 123
```

```
sh frame (memory)
debug frame
```

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