Why Frames and Bytes Are Discarded

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Introduction

The lists included in this document state reasons for frame discards and the statistics affected. The numbers in parentheses are the Statistics Types. The * symbol denotes an internal statistic which is kept by the Frame Relay Port (FRP) and is not sent to the PCC.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Frames Discarded Upon Ingress (From the User Device to the Network)

1.	Bad DLCI Format (Bad EA bit)	Port frames invalid (P 0x07 Invalid Format Receive Frames) This occurs when the least significant bits of the first two frame bytes are not 1 and 0, as they should be according to Frame Relay standards.
2.	Unknown DLCI	

		Port unknown DLCI (P 0x11 Receive Frame Undefined DLCI Errors) Last unknown DLCI number (**dspportstats**)
3.	Bad frame size (5 or 4096 on Model C Revision C, 4510 on Model C Revision D and Model D)	Frame too long (P 0x09 Illegal Length Receive Frames) Frame too short (P 0x07 Invalid Format Receive Frames) *PVC min frames *Short frames discarded
4.	Number of frames queued exceeds PVC maximum (probably due to customer exceeding CIR)	Virtual Circuit Queue Overflow (C 0x01 Receive Frames Discarded and C 0x0A Receive Bytes Discarded)
5.	FRP ACP to FPTx queue overflow	(C 0x01 Receive Frames Discarded and C 0x0A Receive Bytes Discarded) *Muxbus queue full (Due to insufficient muxbus bandwidth. May be caused by over−utilization.) Also pegs **dspportstats**
6.	FRP DMA to ACP queue overflow	Resource Overflows (**dspportstats**) (C 0x01 Receive Frames Discarded and C 0x0A Receive Bytes Discarded) Resource Overflows (**dspportstats**)
7.	Frame CRC error	Port CRC errors (P 0x06 Receive Frame CRC Errors, also increments C 0x03 & C 0x0C @ egress)
8.	Frame alignment error	Port frame alignment errors (P 0x08 Receive Frame Alignment Errors)
9.	Frame too large	Port frames too large (a subset of three above) (P 0x09 Illegal Length Receive Frames)

10.	DMA frame aborts (When port is reconfigured with **cnffrport**.)	Port frames aborted (P 0x0A Number of DMA Overruns)
11.	PVC purged/eliminated (When PVC is deleted or downed.)	PVC frames/bytes discarded (None)
12.	Invalid LMI frames (Bad LMI field.) **Note:** LMI failures can cause external equipment to fail the port and connections. Typically, an LMI failure has an impact on network traffic.	Port invalid LMI frame received (one of P 0x0E LMI Invalid Status Inquiries, P 0x0F LMI Link Time−out Errors, or P 0x10 LMI Keep−alive Sequence Errors.)
13.	DE frames discarded (Model D)	(P 0x12 Receive DE Frames Discarded and C 0x17 DE Receive Frames Discarded)

*Invalid interface element

Frames Discarded Upon Egress (From the Network to the User Device)

1.	DE (discard eligibility) frame when DE frame threshold reached (Model D)	None
2.	Port Transmit queue overflow/reached Tx threshold (in bytes) (Due to congestion, oversubscription, or loss of clock on DTE)	PVC frames/FPs/bytes discarded (C 0x03 Transmit Frames Discarded, C 0x05 Receive Packets Discarded, and C 0x0C Transmit Bytes Discarded)
3.	Bad CRC or bad length (due to corruption while traversing the network)	PVC CRC errors or PVC length errors (C 0x03 Transmit Frames Discarded and C 0x0C Transmit Bytes Discarded)
4.	Frame timeout/lost EOF (CRC at ingress causes this)	PVC lost EOFs (C 0x03 Transmit Frames Discarded and C 0x0C Transmit Bytes Discarded)
5.	Frame buffer shortage	*Frame buffer shortages (C 0x03 Transmit Frames Discarded and C 0x0C Transmit Bytes Discarded)
6.	DMA aborted frame (when port is reconfigured with	PVC frames/bytes discarded (C 0x03 Transmit Frames

*Queue threshold reached

	cnffrport)	Discarded and C 0x0C Transmit Bytes Discarded)

Note: If the connection fails (due to a card failure or removal or due to an inability to route), frames are received and discarded (unless the card is missing or failed). LMI failures do not cause the connection to fail and do not result in frames being discarded. However, LMI failures can cause external equipment to fail the port and connections. An LMI failure typically has an impact on network traffic.

Note: In this table is some additional information regarding the FRP Cbus event C2, which contains some valuable statistics not displayed on channel or port statistics screens.

Byte	Description
fc	C2, function code
00	Logical channel number
01	Message number, this value indicates which of these definitions applies to the remainder of the C2 event. message number == 2
08−11	Transmit CRC error count, number of frames reassembled from the muxbus that failed CRC verification. (CRC discards are typically caused by trunk errors.)
12−15	Transmit lost SOF count, number of times an SOF FastPacket was apparently lost, MOF received following EOF.
16−19	Transmit lost EOF count, number of times an EOF FastPacket was apparently lost, SOF received following MOF or SOF.
20−23	Transmit length error count, number of frames received from the muxbus that exceeded the maximum valid frame length (probably due to consecutive lost EOF and SOF FastPackets).

Example

```
C2 12 02 xx xx xx xx xx xx 00 00 00 02 00 00 00 33 00 00 00 45 00 00 00 01

transmit CRC error count:       = 02
transmit lost SOF count:        = 33
transmit lost EOF count:        = 45
transmit length error count:    = 01
```

Related Information

- **Frame Discards**
- **Cisco WAN Switching Solutions − Cisco Documentation**
- **Guide to New Names and Colors for WAN Switching Products**
- **Downloads − WAN Switching Software (registered customers only)**
- **Technical Support − Cisco Systems**

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