

Input Queue Overflow on an Interface

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Introduction

This document discusses input queue overflow on an interface.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

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

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Input Queue Overflow

Each interface owns an input queue onto which incoming packets are placed to await processing by the Routing Processor (RP). Frequently, the rate of incoming packets placed on the input queue exceeds the rate at which the RP can process the packets.

Each input queue has a size that indicates the maximum number of packets that can be placed on the queue. Once the input queue becomes full (the maximum number of packets is on queue), the interface drops additional incoming packets.

The interface enters a throttling mode in which incoming packets are not accepted. The throttling period allows the RP to process the backlog of packets on the input queue. The input queue overflow scenario occurs most often when a higher speed interface feeds packets to a lower speed interface. This is an example:

packetsIn--> 1.5Mb --> Router --> 9.6Kb -->packetsOut

Note: This situation can become more problematic when you use Cisco Systems Network Architecture (SNA) because of the high-speed Channel Interface Processor (CIP) versus the lower speeds of the other interfaces.

This **show interface** *interface-identifier* output shows the current output queue levels and the number of outgoing packets dropped:

```
dspu-7k#show interface channel 4/2

Channel4/2 is up, line protocol is up
  Hardware is cxBus IBM Channel
  MTU 4472 bytes, BW 98304 Kbit, DLY 100 usec, rely 255/255, load 1/255
  Encapsulation CHANNEL, loopback not set, keepalive not set
  Virtual interface
  Last input 0:00:04, output 0:00:04, output hang never
  Last clearing of "show interface" counters never
  Output queue 0/40, 0 drops; input queue 63/75, 118 drops
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    101646 packets input, 2427760 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    210328 packets output, 5016959 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets, 0 restarts
    0 output buffer failures, 0 output buffers swapped out
```

The **show interface** *interface-identifier* provides this information:

- The **input queue x/y** counter shows the current number of packets on the input queue x and the current size of the input queue y.
- The **drops** counter indicates the number of incoming packets dropped.
- If the current number of packets on the input queue is consistently at or greater than 80 percent of the current size of the input queue, the size of the input queue might require tuning in order to accommodate the incoming packet rate.
- Even if the current number of packets on the input queue never seems to approach the size of the input queue, bursts of packets might still be overflowing the queue.
- If the **drops** counter increases at a high rate, the size of the input queue can require tuning in order to accommodate the bursts.

Note: You can tune the size of the input queue using the **hold-queue** interface configuration command, as this example shows.

```
interface channel 4/2
  hold-queue 125 in
```

Related Information

- [Troubleshooting Switch Port and Interface Problems](#)
- [Technical Support & Documentation – Cisco Systems](#)

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