

E-Series Ethernet Cards Unable to Stuff Ethernet Frames

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Introduction

This document describes the inability of E-Series Ethernet cards to stuff Ethernet frames in order to make them a legal 64 bytes. This problem manifests itself in cases where there is a VLAN tagged on a port at one drop of an Ethernet circuit and the same VLAN is untagged at another drop. This document also provides a workaround for this problem.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document applies to all versions of E-series Ethernet cards for the ONS15454 and ONS15327. This includes E100T-4, E100T-12, E100T-G, E1000-2, and E1000-2-G.

It also applies to ALL versions of software and is totally independent of any hardware combinations.

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

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

Problem

The inability to stuff Ethernet frames in order to make them legal (64 bytes) is seen in networks that have untagged ports on one side and tagged ports on the other as this example shows.

```
Switch 1 --- E-Series Tagged --- SONET Ring --- E-Series Untagged --- Switch 2
```

Switch 1 sends a 64-byte Address Resolution Protocol (ARP) for the MAC address of switch 2. The 64 byte frame consists of 60 bytes plus 4 bytes of VLAN tag information. When this ARP arrives at the untagged Ethernet port, the VLAN tag is removed since the port is untagged. This reduces the frame size to 60 bytes, which is illegal for Ethernet. Switch 2 drops the frame and increments the "runt" counter. Most switches are able to detect that the frame is illegal once the VLAN tag is removed and "stuff" the frame with an additional 4 bytes of zeroes in order to make the frame a valid size of 64 bytes.

Solution

Complete these steps in order to resolve this issue:

1. Configure both ends for "tagged" ports.
2. If you are unable to set both ends for tagged ports due to a switch that is not able to understand VLAN tags, you can configure static ARP entries in each switch. This allows the switch to know about the MAC address of the far end switch without a need to perform an ARP.

Related Information

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