How to configure Frame Relay over a DS3 interface between two Rapier 24*i* switches

Introduction

This document provides a basic configuration example for configuring Frame Relay over a DS3 interface between two Rapier 24*i* switches.

Frame Relay

Frame Relay is a network service, defined by ITU-T (formerly CCITT), ANSI and vendor standards, to which switches may connect in order to communicate with one another and exchange data. Connections can be made via synchronous lines, DS3 lines, ISDN calls or G.703 TDM (*Time Division Multiplexing*) links.

A Frame Relay network provides *Data Link Connections* (DLCs) between the switches connected to the network. These DLCs are set up by the Frame Relay network administration. One DLC is reserved for the communication of management information between the routers and the Frame Relay network, in a dialogue called the *Local Management Interface* (LMI).

Frame Relay itself exists purely as a way for frames to get from one switch to another in an efficient manner. Frames sent to the network must contain the *Data Link Connection Identifier* (DLCI) of the DLC to use to deliver the frame. Except for LMI frames, the rest of the content of the frame is determined by the switch-to-switch communication and is not used by the network. In order for switches to transport multiple protocols across a single DLC the data being transmitted must be encapsulated to allow the remote switch to identify the type of network protocol packet contained in the frame. A common standard for carrying multiple protocols over Frame Relay is specified by the IETF in RFC 1294. This standard is compatible with the ISO Frame Relay standards.

Frame Relay operates entirely in the lowest sublayer of the OSI data link layer. Frame Relay assumes that the underlying physical medium is reliable and that errors (e.g. lost or corrupt packets) are handled by higher layer protocols such as IP.

For more information on Frame Relay refer to your software reference.

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Digital Signal 3 (DS3)

Digital Signal 3 (DS3) is a classification of digital signals, and sits at Layer One of the OSI model. The purpose of Layer One is to provide a transmission link between two entities and to monitor the quality of the link. In DS3 the link monitoring is achieved by adding overhead information alongside the data payload.

The DS3 interface on the switch is automatically configured by the software modules when the switch sets up. Certain aspects of the DS3 signal can be altered to allow the switch to connect to another vendor's equipment via the DS3 interface.

The configuration of the DS3 interface can be changed with the `SET DS3` command:

For more information on DS3 refer to your software reference.

Configuration Example

Figure 1: Configuring Frame Relay over a DS3 interface
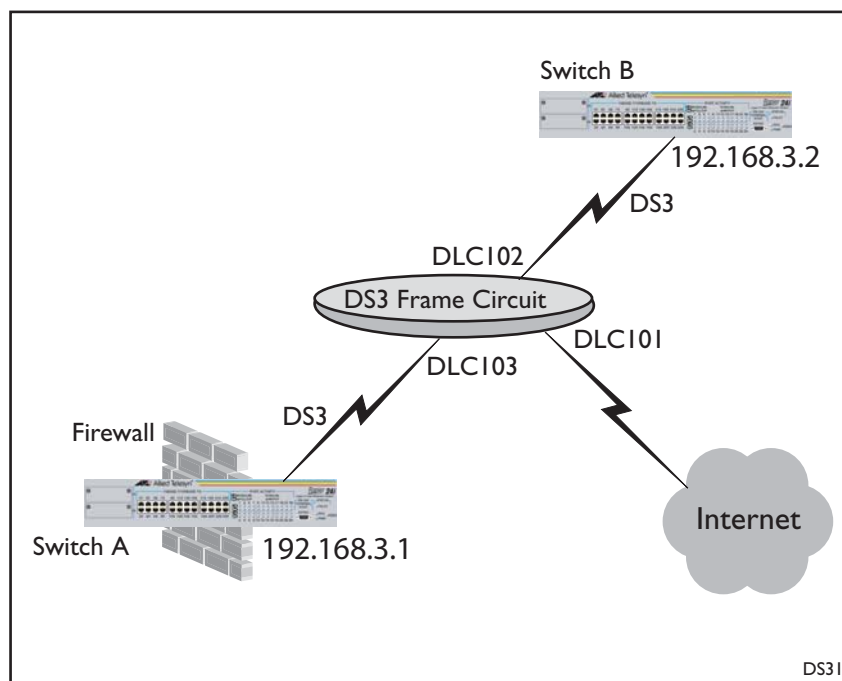
Note that Switch B accesses the Internet via Switch A.

Configure switch A

```
create fr=0 over=ds30 lmi=annexed

add fr=0 li=1 type=ptp

add fr=0 li=2 type=ptp

set fr=0 dlc=102 li=1

set fr=0 dlc=101 li=2

ena ip

add ip int=fr0.1 ip=192.168.3.1 mask=255.255.255.252

add ip int=fr0.2 ip=192.168.4.1 mask=255.255.255.252

add ip int=vlan1 ip=192.168.1.1 mask=255.255.255.0

add ip rou=192.168.2.0 mask=255.255.255.0 int=fr0.1
   next=192.168.3.2 dlc=102

add ip rou=0.0.0.0 mask=0.0.0.0 int=fr0.2 next=202.49.7.30 dlc=101

ena fire

create firewall poli=test

add fire poli=test int=vlan1 type=private

add fire poli=test int=fr0.1 type=private

add fire poli=test int=fr0.2 type=public

add fire poli=test nat=enhanced int=fr0.1 gblint=fr0.2
   gblip=192.168.4.1

add fire poli=test nat=enhanced int=vlan1 gblint=fr0.2
   gblip=192.168.4.1
```

Configure switch B

```
create fr=0 over=ds30 lmi=annexed

set fr=0 dlc=103

ena ip

add ip int=fr0 ip=192.168.3.2 mask=255.255.255.252

add ip int=vlan1 ip=192.168.2.1 mask=255.255.255.0

add ip rou=0.0.0.0 mask=0.0.0.0 int=fr0 dlc=103
```