Name: _____

Experiment 1.6

Build a Traffic Classifier

Purpose

To learn about optimized traffic classification and classification languages.

Background Reading And Preparation

Read Chapter 16 of Network System Design Using Network Processors to learn about classification languages. Determine which classification language to use for this lab.

Overview

Create network processor code that classifies packets according to the data they carry up through application layer protocols.

Procedure And Details (checkmark as each is completed)

_____ Write network processor code to classify incoming packets into each of the following categories labelling each packet with the specified numeric tag. Have the network processor drop packets that don't fall into given classes. If a packet falls into more than one class, place it in the class with the lowest number.

Description	Tag
Any IP datagram to 10.1.2.3	1
TCP control (SYN/FIN/RST) to/from port 21	2
TCP control (SYN/FIN/RST) to/from port 22	3
TCP control (SYN/FIN/RST) to/from port 25	4
TCP control (SYN/FIN/RST) to/from port 80	5
TCP bulk data	6
RIP requests	7
UDP to port 139	8
UDP	9
ICMP	10
IP with options	11
ARP	12

_____ Augment your classifier program so that it reports packets and their classifications as it recieves them.

_____ Create test traffic that contains packets in each of the above traffic classes. Include packets that overlap some traffic that belongs to two or more classes.

_____ Load your classifier onto a network processor for testing. Send the packets you generated to the network processor and check that your program classifies them correctly.

Optional Extensions (checkmark options as they are completed)

_____ Stress test your classifier by transmitting large volumes of packets at line rate if possible to a network processor running your classifier.

_____ Extend your classifier into a firewall by adding explicit rules as to whether to drop or forward packets in each class.

_____ Modify your classifier so that it places packets that are destined to a list of IP addresses in class 1. Write code to modify the list of IP addresses in class 1 at runtime.

Notes