Programming Project 2: CS 6390

Ravi Prakash

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1 Assignment

Refer to slides 21-22 on *IP Multicast* describing PIM Sparse-Mode. In this project, you are required to simulate the following:

1. A single Rendezvous Point (RP),
2. Two sources, S_1 and S_2, both of which start by tunneling multicast packets to RP.
3. At least two destinations that initially join the core-based multicast tree by sending join messages towards the RP.
4. At a later time, both destinations realize that S_1 is sending a high volume of traffic and send direct join messages to S_1. From that point onwards, while S_2's packets are multicast using the core-based tree, S_1's packets are sent to the two destinations along a source-based multicast tree rooted at S_1.
5. Use the topology shown in Slide 22 to verify the correctness of your implementation.

2 Requirements

1. Source code must be in the C/C++/Java programming language.
2. The program must run on UTD lab machines (`dc01, dc02, ..., dc45`).
3. You will need to know socket programming and its APIs for the language you choose. It can be assumed that each router is running on its own machine (`dcXY`) and has secure socket connections with its neighboring routers. Please get familiar with basic UNIX commands to run your program on *dcXY*.

3 Submission Information

The submission should be through eLearning in the form of an archive consisting of:

1. File(s) containing the source code. Your source code must have the following, otherwise you will lose points:

   (a) Proper comments indicating what is being done.
   (b) Error checking for all function and system calls.

2. The README file, which describes how to run your program.