Relay server

Due date : 11:45 PM Apr 19

This assignment is an team assignment(1 ~ 3) .
This project implements TCP, UDP delay server operating as a kernel module (or user-mode daemon
for TCP relay server) .
In this project, you are required to enhance
      1. performance. (response time in stressed status, connection capacity)
      2. reliability (fault-tolerant)
      3. portability (easy to adopt , low maintenance issue)
of relay server. As project B already treated functionality a little , grading scheme focuses on
performance. (Alert! Failure in other requirements cancel out most of the achievements in
performance). Conduct final project on the assumption that you develop a relay server as a real
product. To do this, you should understand the practical requirements and needs of relay server as well
as TCP,UDP,IP spec.

Requirements.

1. Functionality – 30 %
    Relay server(s) , included in server farms, should relay all kinds of TCP,UDP packets between
    client groups and server groups. Real services (e.g. FTP on real server) should recognize as if
    the packet came directly from clients groups. Relay server should not demand any configuration
    change on real servers. (Follow the final project preview spec)
2. Performance - 50 %
    Relay server should fulfill more than the provided measurements entries. Failures in other
    requirements seriously lower the performance points. Performance and Extra bonus scheme
    assumes that other requirements got more than 90% of total scores.
    1) Grading entries – Connection capacity in hot-spot traffic , Response time in overloaded
    traffic status, etc...
    2) Comparison with previous relay server – 30% more achievement will get full scores.

3. Extra bonus – 50%
    Each team gets extra bonus in proportion to performance ranking.

4. Reliability   - 10 %
    Relay server should provide(or gracefully terminate) reliable service in any cases.
5. Report, portability ,maintenance,operation, etc - 10%

Test environment. (e.g)

Clients group   Server group
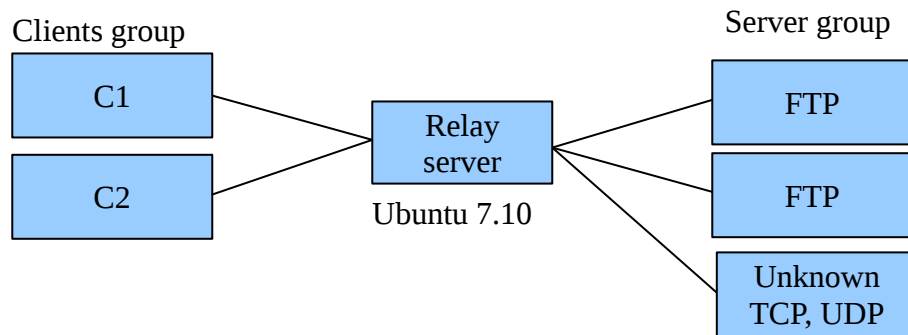
This is the simplest test environment example. The more clients,servers,and services will be used in real testing. (HTTP , FTP , SSH , IPERF , SKYPE , DNS, etc ..)

Configuration

depends on your design.

Preliminary Report (1 ~ 2 page)
due date : 11:45 PM Apr 4
– Group members with their roles
– simple spec
– Design goal

Report (.pdf or .doc)
– Detailed Design
– Manual
– Evaluation
– Performance report

Submission
– Source files
– Makefile
– report

Presentation
– Each group should give presentation on its performance and design.

Notes
– Development of "test client – server" pairs are strongly recommended to test performance,functionality and reliability.
– Using messageboard for the design ,APIs and bugs are strongly recommended.
– You should consider load balancing,memory leak, hot-spot test as well as final project requirements.
– Modifying kernel network parameter may help you various simulation environment.

– You should check if there is any error or bugs even after shutting down the module.

References

[1] CSC573_2008Spring_Project_QA.ppt references
http://courses.ncsu.edu/csc573/lec/001/wrap/CSC573_2008Spring_Project_QA.ppt

[2] Previous tcp_relay server source
http://courses.ncsu.edu/csc573/lec/001/wrap/tcp_booster-0.1.0.tar.gz