Machine Problem 1 Report

1. Algorithm

We apply socket to send commands to and received results from multiple VM machines. The algorithm procedure is as follows:

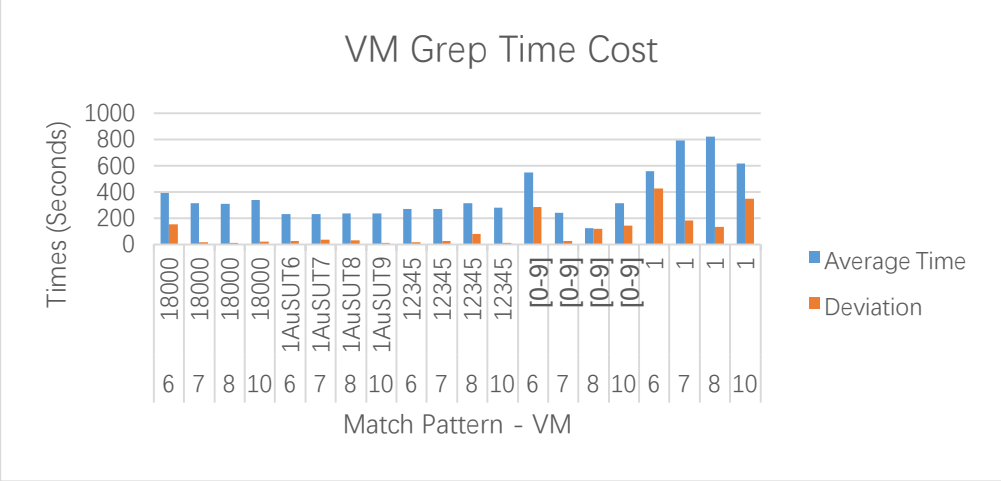
a) We use 1 machine as client, 4 machines as servers, and generate 4 threads through Client.java. Each threads use socket to send grep request to corresponding server.

b) When each server reads the grep request through socket connection, each server perform pattern match on each log file (using Grep4j as external library in Java to realize grep commands). When each server gets the results from grep command, we send back the results line by line through socket.

c) When the client receives the results from servers, it output the results and total line numbers in txt file which is corresponding to each VM machine. If the VM machine is breakdown or not working, the result of the total line numbers of each log file would not be written into the txt file.

2. Average Query Latency and Standard Deviation

The average query latency and standard deviation of running 4 VMs (VM 6,7,8,10) as servers is shown as below. The match patterns we choose to test are “18000”, ”1AuSUT6”, ”12345”, ”[0-9]”and “1”.We can see that frequent pattern “1” costs most time, and infrequent pattern”1AuSUT6” costs least time. Because the more frequent the pattern is, the more time to send lines that match frequent pattern.



3. Unit Test

Our unit Test contains 2 parts, one includes creating multiple servers and a client on the same computer and testing their connection functions, the other includes test with separate function in different classes. We use Junit as the tool to build the test framework.