TUM-2097 Project 1: Performance Analysis

1 General Information

For this project, your overall task is to investigate the performance (and other properties) of various (web) servers using the appropriate tools.

This exercise consists of three parts. For each part you are supposed to submit a written report (PDF) with your experimental results and evaluation in English. Each part has a different deadline and successful completion of each part will count for 5% of your final grade (for a total of 15%).

For your investigation, we suggest you look at tools such as `ping`, `traceroute`, `nmap`, Apache Benchmark (`ab`), Siege, `httperf`, the Google "speed" tools, Yahoo YSlow, and `Webpagetest.org`. Finding out how to install, use and evaluate the output of these tools is part of the project.

In your report, you should not simply state what the output from various analysis tools was, but instead include an interpretation of the results as to what they mean (for management, system administrators or end-users). For example, you may find that some page requires additional TCP connections, you need to put this in perspective with the overall system performance, discuss how this impacts users and the server and also describe what could be done (if that is technically possible) about the problem. Naturally, your recommendations will be limited to what you could learn about the server in the first place.

Clearly, such an analysis is somewhat open ended; while doing more work will get you more points, simply writing a lot of text will NOT earn you more points: your analysis must be correct, crisp and to the point. We will take points off for incorrect statements.

You must submit your reports via e-mail by **November 15th 2010**, **December 15th 2010** and **January 15th 2011** respectively. Late submissions will receive a score of zero unless you notify the instructor about a valid reason (such as sickness) **prior** to the deadline.

2 A Server?

We have setup a test system for you at `outpost.net.in.tum.de`. Find out anything you can about the server. What software is running on it? What services does it offer? How fast is it at offering the services that it does offer? What can you tell about how it is connected to the network? Can you identify performance bottlenecks?

You have permission to connect to the server in any way you see fit (including portscan, performance measurement approaching a denial-of-service attack, etc.) as long as you do it from within the `in.tum.de` domain.

3 An HTTP Server

For the second part, you are to measure the performance of the `http://typo.net.in.tum.de/` webserver. You should report on how many (concurrent) connections it can handle, how fast it responds to requests and so on. In addition to measuring the time it takes to load the main "index.html" page, report on how long loading the page takes from the point of view of a typical user with a browser.

4 An HTTPS Server

For the third part, perform the same analysis you did for `http://typo.net.in.tum.de/` for `https://gnunet.org/`. Your report should include evaluations for different cryptographic ciphers.