

ABSTRACT

As the use of web-based services increases, servers often experience spikes in demand that can cause delays in response time, decreased performance, and even service failures. This condition is a challenge in maintaining the availability and stability of user access, especially on systems that serve many clients simultaneously. Therefore, an efficient server workload management mechanism is needed to optimise system performance.

This Final Project is conducted as a solution to overcome this problem by implementing a load balancing method using two algorithms, namely Least Connection and Round Robin on a Microsoft Azure-based web server. This Final Project compares the performance of both algorithms based on three main parameters, namely response time, throughput, and connection stability. Testing is done by sending a number of requests through two clients, and monitoring is done with the help of Netdata as a server performance monitoring tool.

The test results show that the Least Connection algorithm performs better under moderate to high load conditions as it is able to dynamically adjust the load to lighter servers. Meanwhile, the Round Robin algorithm is superior at low demand, as it distributes the load evenly and quickly without taking into account server conditions. Thus, the selection of load balancing algorithms needs to be adjusted to traffic conditions and system scale so that server performance remains optimal.

Keywords: Load Balancing, Least Connection, Round Robin, Web Server, Microsoft Azure, Netdata