

ABSTRACT

As the demand for web-based services continues to grow, servers are increasingly exposed to traffic spikes that may affect response times, connection stability, and overall system performance. To ensure optimal service delivery, an adaptive load management strategy is essential.

This final project implements load balancing using two algorithms: Weighted Least Connection and Weighted Round Robin, applied to web servers deployed in the Microsoft Azure environment. The evaluation was carried out by sending a series of client requests and analyzing system performance based on three key parameters: response time, connection stability, and throughput, with Netdata used for real-time monitoring.

The test results indicate that the two algorithms exhibit distinct advantages. The Weighted Least Connection algorithm achieved superior throughput and response times, but this came at the cost of significantly degraded connection stability as the load increased. In contrast, the Weighted Round Robin algorithm maintained far better connection stability under pressure, albeit with lower throughput figures. Consequently, Weighted Round Robin proves to be the more reliable algorithm for preserving overall system health, whereas Weighted Least Connection is more prone to failure when encountering traffic spikes.

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