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WEB APPLICATION PERFORMANCE WHEN DEPLOYED ON MICROCOMPUTERS

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Annotation. During the usage of a product, evaluating its performance quality is a crucial procedure. Web servers are one of the most used technological products in today's modern world. Thus, in this article we will evaluate and compare the performances of two web servers. The servers that are tested in the experiment are based on a Raspberry Pi and a personal DELL laptop.

Introduction. One of the key components on the internet is a web server. A web server is a computer software and underlying hardware that accepts requests via HTTP (the network protocol created to distribute web content) or its secure variant HTTPS. Hardware, where appropriate software runs, can come in different sizes, shapes, places and run different operating systems on them. They are usually powerful devices that are found in data centers like the ones found at Google and other big platforms.They can also be found at home locally, small business centers, schools and universities.
In this study we compare the performance of a credit card-sized web server to another more powerful web server based on a typical laptop.

Main part. An experiment consisting of multiple tests was conducted to provide adequate answers to our research question. We evaluated the performances of two machines as web servers by using two kinds of web server software called Nginx and Apache.
These two web software were installed on the Raspberry pi and the personal Dell laptop.
To create and model the two main types of websites we created our own static and dynamic websites. These websites were served by Apache and Nginx and they gave us the opportunity to emulate a real-life scenario.
The evaluation was made in the exact same manner and conditions for the servers to make the study accurate. By altering the website content types we looked at the differences it made in the performance of the two servers.
To reveal the performance variations of the machines, we used a web performance testing tool (apache-ab) to send simulated requests.
Using the testing tool apache bench, to send the requests, the CPU consumption and the served requests per second of the web servers were measured. The tool provided us with enough detailed data outputs that we could work with.

Conclusion. The main contribution of this article is determining with which web applications we can publish on microcomputers with a guarantee of good performance. Also, we identified and discussed the main challenges of using a microcomputer as a server.

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