

#### Speaker 1:

Hey everyone! Today we're going to talk about load balancing. It's a fancy term for making sure that servers don't get overloaded with too many requests.

When you request something from a website or an app, it goes to a server to get the information you need. Sometimes, too many people request things at the same time, and the server can't handle it. That's where load balancing comes in.

#### Speaker 2:

One way to do load balancing is by using the "**round-robin**" method. It's like when you take turns with your friends to play a game. Each server gets a turn to handle requests, so no server gets overloaded. However, it is not always the most efficient method, especially when the number of requests is high. In these cases, the server may still become overloaded even with the round-robin method.

#### Speaker 3:

The **least-connection** method, on the other hand, is a more efficient load balancing method because it distributes requests to the server with the least amount of active connections. It's like when you go to the checkout line with the shortest queue at the grocery store. The server with the least amount of requests gets the new request. This ensures that the workload is distributed evenly among the servers and can help prevent overloading.

#### Speaker 4:

There's the "**random**" method. The random method is not commonly used because it does not take into account the current workload of each server. Instead, it simply assigns requests randomly to servers, which can lead to uneven distribution of the workload. It's like rolling a dice to decide which server gets the request. It's not the most efficient method, but it can be useful in some situations.

#### Speaker 5:

Imagine you're a traffic cop for internet traffic. With **least time load balancing**, you're like a super-efficient cop who always sends cars down the shortest and least congested routes. In this way, least time load balancing helps keep the flow of data moving smoothly and efficiently. It can make real-time decisions about the best routes for data traffic to take, ensuring that each packet reaches its intended destination in the shortest amount of time possible.

Speaker 1:

During the development of our software application, we incorporated a range of **libraries** to improve its capabilities and user experience. Some of the libraries that we used include socket, threading, time, random, tkinter, and matplotlib.

Speaker 2:

We attempted load balancing using a **dash**, but it didn't work out and proved to be an unsuccessful attempt. Therefore, we explored alternative strategies to optimize our system's performance

Speaker 3:

During our search for the best load balancing method for our project, we also considered using the **IP hash** method. This method assigns requests to servers based on the client's IP address, which can be useful for maintaining session affinity and ensuring that requests from the same client are always directed to the same server. However, when we attempted to implement this method, we encountered some issues.

Speaker 2:

At the start of our project, we encountered some challenges when trying to incorporate **Class** into our code. Despite our best efforts, we were unable to get it to work properly and were starting to feel discouraged.

Speaker 4:

However, we didn't give up. Instead, we took a step back, regrouped, and approached the problem from a different angle. After doing some research, we identified the issue and were able to make the necessary adjustments to get Class to work seamlessly in our code.

Speaker 5:

Overall, this project has been an incredibly valuable experience for our team. Not only have we developed a deeper understanding of load balancing and its importance in ensuring optimal performance and scalability for web applications, but we've also had the opportunity to explore a variety of interesting ideas and approaches to solving complex technical problems.

Speaker 1:

We want to thank all of you for taking the time to listen to our presentation today. We hope that you found it informative and engaging, and that it has sparked your curiosity about the exciting world of load balancing.

Lastly, we would like to express our sincere gratitude to our professor for guiding and supporting us throughout this project.

