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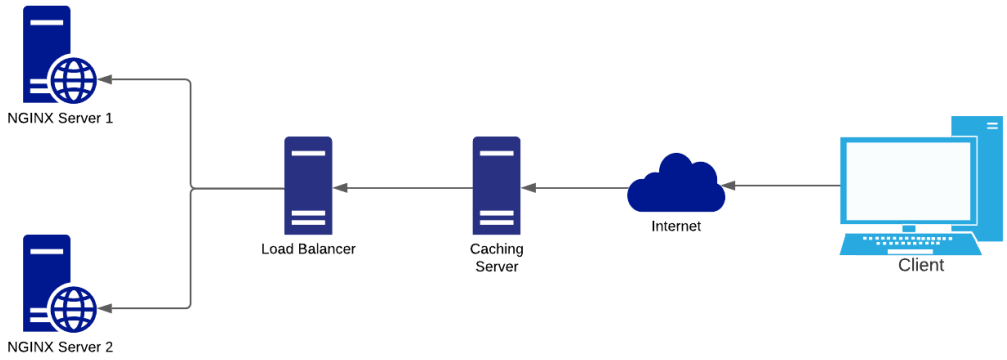
CSEC380

Professor Sanders

Homework 1

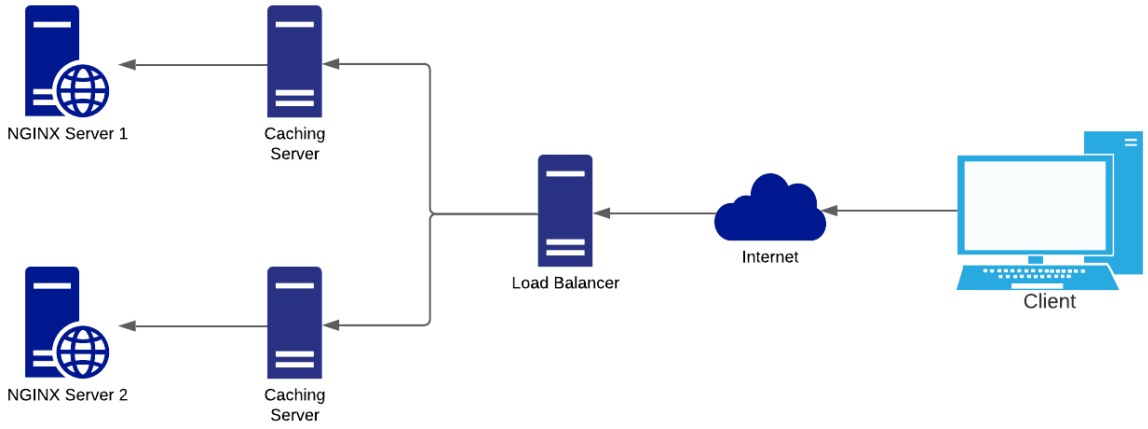
I chose nginx as my Web Server primarily because it is a very simple web server to configure and has all the capabilities needed for the homework, with a cache and load balancer. Additionally, I had difficulty when I took NSSA221 (System Administration 1), configuring Apache as a web server and did not want to go through that again. When I first started the homework, I chose Apache and followed the set up guide they had and still everything would not work, so I switched to nginx for its simplicity and in the interest of time. The only reason I did not use nginx as my caching server despite it having that capability is because after spending a couple of hours trying to get it working, I could not figure out how and so I decided to go with Varnish instead as it was more straightforward.

Topology



I chose to put the caching server before the load balancer because since the load balancer is technically hosting both of the web servers, by caching just the load balancer, I'm essentially still caching the web servers meaning that information can still be passed along in the event of an improper request. The load balancer can then just choose one of the web servers instead of going through both caches for the information, then going to a web server.

Alternative Topology



For an alternative topology, a caching server can be placed before the load balancer, with one for each web server. This can help with faster lookup as all the information for one web server is with the respective caching server instead of it all being together in one caching server.

Discussion

Having all of these technologies is important because it allows for the web client to access the internet adn get any information they need. Caching the web servers before the load balancer helps the client get the information even faster once they have visited the web servers at least once because it is much closer to the client. The load balancer is essential as it acts as a reverse proxy, distributing traffic across a number of servers as shown in the topology above. They help make sure the applications are reliable enough to handle a large number of users.

Although, this is not needed for a simple web application that does not receive a lot of traffic normally. It would be a bit overkill in that aspect.