#SOME SPECIFICS ABOUT THE INFRASTRUCTURE DESIGNED IN THE FILE '1-distributed_web_infrastructure'

1. In the infrastructure designed, they were extra 2 (two) servers that was added alongside a load-balancer. The extra servers were deployed to eliminate the challenge or the issue of SPOF (single point of failure). Also, the extra servers help to make sure that high traffic to the site does not overwhelm it. The load-balancer distributes traffic among the servers ensuring that none of them is overwhelmed or over burdened.
2. The distribution algorithm of the load-balancer is the round robin algorithm. This algorithm works by distributing requests among groups of servers in a way that none is overworked. consider this example: if a site has three servers; S1, S2, S3, when request A, B, C is sent sent to the website, the load-balancer distributes the request equally among the servers so that S1 is given request A, S2 is given request B, and S3 is given request C. It is in this order that the load-balancer distributes traffic/loads.
3. The load-balancer enables an active-active setup. The difference between an active-active setup and an active-passive setup is that in an active-active setup, every server instance of the site is active and handling requests as apportioned by the load-balancer, while in an active-passive setup, clients requests go directly to the main server(active server) while a backup server(passive server) is on standby, ready to take up an active status should the active servers go into a down time.
4. The database primary-replica cluster works thus: The data/informations hosted on the primary database is shared with all the replicas or slaves. Read operations are sent to the replicas thereby reducing load on the primary database while also improving response time. Whenever the primary database fails, a replica can quickly be promoted to the place of a primary database since it has an up-to-date information hosted on the primary database.
5. The difference between the primary and replica node in regard to the application is that the primary node handles all write operations like creating, updating, and deletion of data in the database. The replica node on the other hand is a read-only node. They used for scaling the read operations of the application.

#ISSUES WITH DESIGN IN FILE '1-distributed_web_infrastructure'

1. Having one load-balancer in the design raises the issue of SPOF. If the load-balancer happens to break down, the entire system will go down with it.
2. Security issues(no firewall, no HTTPS): having this site run on HTTP makes information transfer between it and it's client vulnerable. Informations travelling between it and its client can be easily intercepted by hackers. Also, since the site does not have a firewall, it makes the site vulnerable to cyberattacks such as; malware, viruses and hacking attempts.
3. No monitoring: Since the site is not being monitored, it will be difficult to improve it. It is in monitoring that vulnerabilities are detected and therefore tackled.