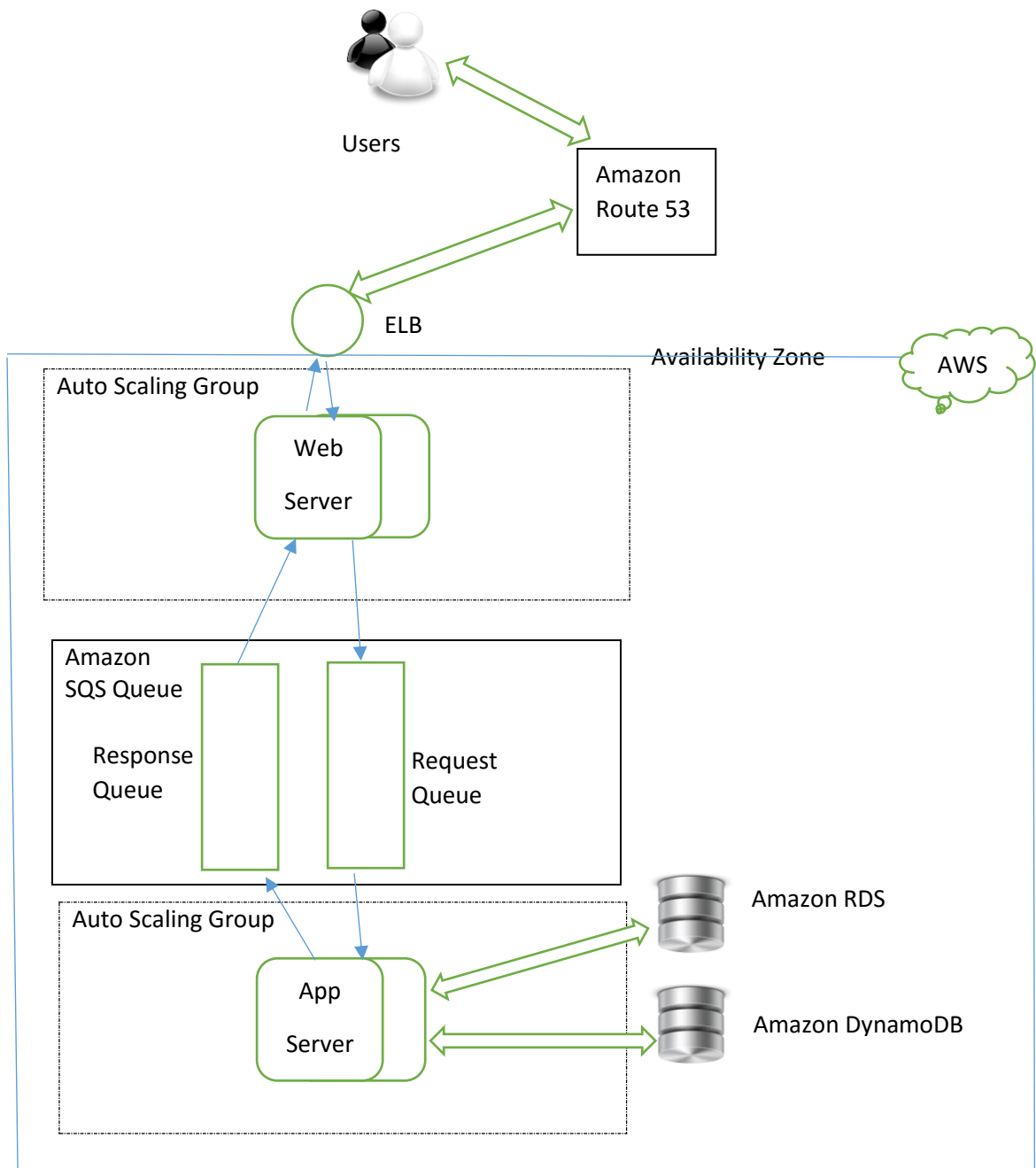


Assignment 4



Architecture for migration of Application Stack to AWS

Explanations:

- Amazon Route 53 effectively connects user requests to infrastructure running in AWS – such as Amazon EC2 instances, Elastic Load Balancing load balancers, or Amazon S3 buckets – and can also be used to route users to infrastructure outside of AWS. You can use Amazon Route 53 to configure DNS health checks to route traffic to healthy endpoints or to independently monitor the health of your application and its endpoints.
- Elastic Load Balancing automatically distributes incoming application traffic across multiple Amazon EC2 instances. It enables you to achieve fault tolerance in your applications, seamlessly providing the required amount of load balancing capacity needed to route application traffic.
- The Elastic Load Balancing service automatically routes incoming web traffic across such a dynamically changing number of EC2 instances. The load balancer acts as a single point of contact for all incoming traffic to the instances in your Auto Scaling group and using Auto Scaling group saves a lot of costs as it cuts down cost of running idle EC2 instances when demand is less.
- ActiveMQ can be replaced with Amazon Simple Queue Service (SQS) which is a fast, reliable, scalable, fully managed message queuing service. Amazon SQS makes it simple and cost-effective to decouple the components of a cloud application. You can use Amazon SQS to transmit any volume of data, without losing messages or requiring other services to be always available. Amazon SQS includes standard queues with high throughput and at-least-once processing, and FIFO queues that provide FIFO (first-in, first-out) delivery and exactly-once processing. The only necessary change needed would be to add the functionality of handling duplicate message in the SQS queue.
- The Amazon SQS can be queried for the no. of messages waiting in the queue and based on that an Auto Scaling policy can be applied to the App server this in turn will reduce the cost as the no of App server instances will be dynamic.
- The in-house Oracle DB can be completely migrated to Amazon RDS Oracle DB using the Amazon Database Migration service without any loss of data. One can even try using Amazon Aurora as a relational database if possible depending on the compatibility of the existing tables. Amazon Aurora costs only 1/10th of a traditional Oracle DB. This in turn can lead to huge savings. These database services are fully managed and can be scaled easily.
- For the NoSQL MongoDB it can also be migrated to Amazon DynamoDB. Amazon DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability.

- The application stack can be made fault tolerant and HA capable if the Application is deployed in multiple AZ's of an AWS region and to a greater extent using multiple regions. There can be replication of databases in multiple AZ's to avert single point of failure, read replicas can be configured to offload the load on the master database.