

## **Task 4 - Improved AWS Architecture**

The revised design uses a multi-tier, highly available architecture.

Users access the application through Amazon Route 53 and an Application Load Balancer. The frontend runs on EC2 instances inside an Auto Scaling group across multiple Availability Zones. The backend database is hosted on Amazon RDS in Multi-AZ mode with automated backups enabled. The environment is deployed inside a VPC with public and private subnets. Security groups restrict access, and IAM controls permissions. Monitoring is handled through CloudWatch, and logs are centralized. Automated deployment pipelines manage application updates. This architecture improves scalability, security, and fault tolerance while optimizing cost through elastic resource usage.

## **Reflection**

This lab demonstrated how structured frameworks guide cloud architecture decisions. Evaluating the workload using the Well-Architected Framework revealed weaknesses that are common in traditional infrastructure, such as limited redundancy and manual operations. Applying the Cloud Adoption Framework showed that successful migration is not only technical but also organizational. Governance, skills development, and operational readiness are equally critical. Designing the improved architecture reinforced the importance of scalability, automation, and security by design. The exercise strengthened my ability to analyze systems holistically and recommend improvements aligned with best practices. It also highlighted how managed AWS services reduce operational overhead while improving reliability and performance. Overall, the lab developed practical cloud architecture thinking and emphasized the value of structured evaluation models.