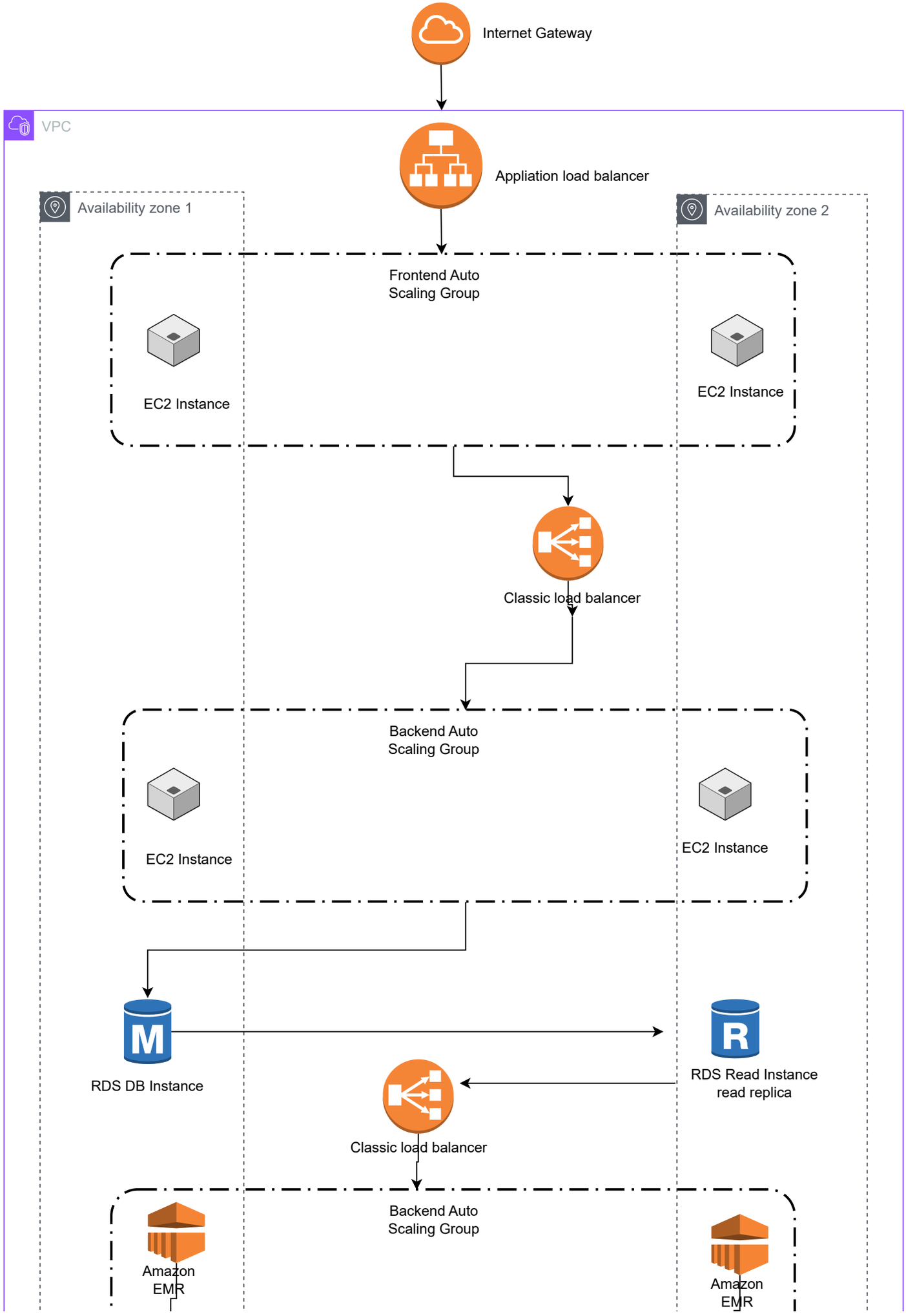
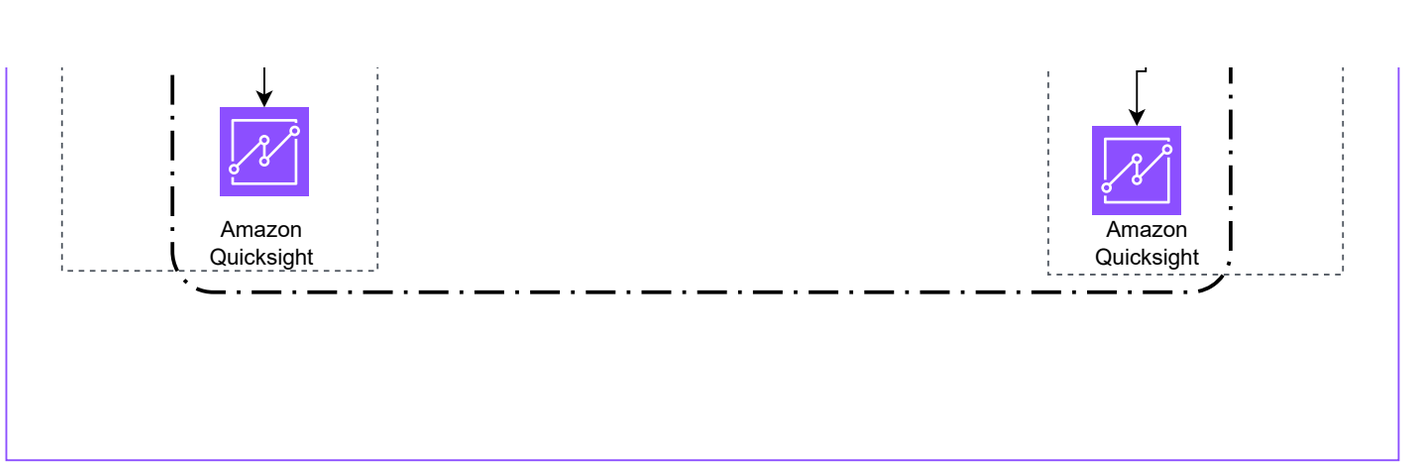

Internet Gateway
VPC
Appliation load balancer
Availability zone 1
Availability zone 2
Frontend Auto
Scaling Group
EC2 Instance
EC2 Instance
Classic load balancer
Backend Auto
Scaling Group
EC2 Instance
EC2 Instance
M
R
RDS DB Instance
RDS Read Instance
read replica
Classic load balancer
Backend Auto
Scaling Group
Amazon
EMR
Amazon
EMR



Three-tiered architecture, which is hosted within a VPC contains frontend/presentation layer, the backend/business-logic layer, and data storage layer, together with an analytics layer for analytics workloads.

Any incoming requests from the Internet start by entering the Virtual Private Cloud (VPC) through the Internet Gateway. These requests are then directed to the Application Load Balancer (ALB), which evenly distributes the traffic among various EC2 instances deployed across multiple availability zones. For backend business logic, requests are routed through a second load balancer, ensuring that traffic is balanced among several EC2 instances also spread across different availability zones. A single master Amazon RDS instance handles all write operations and relevant read operations for the website's workload. This master database instance replicates changes instantly to a standby RDS instance, which acts as a failover target and also serves as a read replica for analytics workloads.

Read requests related to data analytics are managed by a third load balancer, which directs these requests to multiple Amazon EMR instances. These instances, running Apache Hadoop, process the raw data, which is subsequently visualized using Amazon QuickSight. The entire solution is designed with a cloud-native approach, which may require the customer to refactor their existing code to leverage cloud-native features and services. This refactoring fosters a more streamlined and managed architecture compared to their current setup, enhancing operational efficiency and reducing maintenance overheads.

The proposed architecture is highly scalable, leveraging load balancers and auto-scaling groups to dynamically adjust to varying levels of demand. This ensures that the application can scale up or down automatically as needed. Additionally, the solution boasts high availability and fault tolerance, thanks to its multi-AZ deployment strategy and redundant services that maintain operations even in the event of component failures.