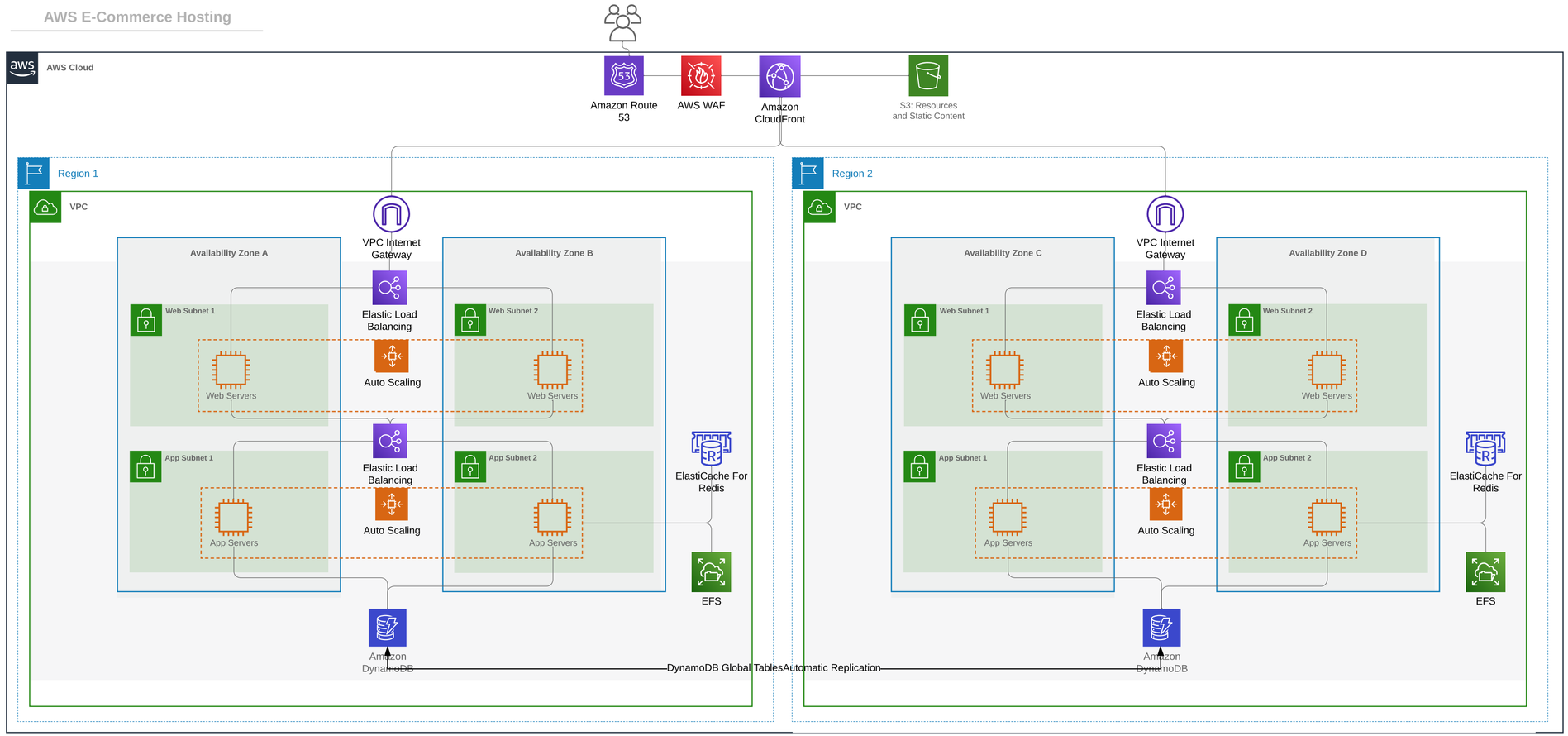
# AWS E-Commerce Hosting




Cost estimate:

Assume all prices based on us-east-1

**WAF**:
Assume Web ACL with 2000WCUs inspecting 100M requests, with a default request body limit of 16kB:
- Web ACL charges* = $5.00 * 1 = $5.00
- Rule charges = $1.00 * (4 rules) = $4.00
- Request charges = $0.80/million * (100 million requests) = $80.00
- Total combined charges = $89.00/month

**Instances**:
1) Weekly spike traffic of 1 day per weak
2) Baseline of 2 instances, and peak of 4 instances
3) Instance of 64GB RAM and 50GB network performance
- On-Demand instance hours: 1668.5714
- 1668.5714 On-Demand instance hours x 1.52064 USD = 2537.296414 USD
- Dedicated Per Region Fee: 730 hours x 2 USD = 1460.000000 USD
- On-Demand instances (monthly): 3997.296414 USD

**ASG**: Free

**ELB**:
2 load balancers x 0.0225 USD per hour x 730 hours in a month = 32.85 USD
**Application Load Balancer fixed hourly charges (monthly): 32.85 USD**

**DynamoDB On-Demand Costs, assuming 10000GB Backed up and Restored:**
- Monthly write cost (Monthly): 23.38
- Monthly read cost (Monthly): 2.76
- DynamoDB Backup and restore cost (Monthly): 2,500.00
- Upfront write cost (Upfront): 150.00
- Upfront read cost (Upfront): 30.00

- **Total Upfront DynamoDB cost:** 180.00 USD
- **Total Monthly DynamoDB cost:** 2,526.14 USD

**EFS** Storage (100000GB/mth) + Access Charges = 238USD

Total cost = (89 + 3997.30 + 32.85 + 2526.14 + 238) x 2 regions = **13766.58USD/month**

## System Elements

**Amazon Route 53** is a highly available DNS service that serves users' DNS requests.

**AWS WAF** is the web application firewall that protects the ecommerce website against common web exploits.

**Amazon CloudFront** delivers static streaming, and dynamic content via a global network of edge locations (aka content delivery network (CDN)). Requests are automatically routed to the nearest edge location, so content is delivered with the best possible performance. It also provides caching abilities to reduce costs and demands on servers.

**Amazon Simple Storage Service (S3)** stores resources and static content used by the web application. It is a a highly durable storage infrastructure designed for mission-critical and primary data storage.

**Multi-Site Active/Active** Disaster Recovery architecture (2 active regions)

**Virtual Private Cloud** (VPC) to create virtual network within AWS, with AWS resources.

**Internet Gateway** is attached to VPC to allow communication between resources in VPC and the internet.

**Multiple Availability Zones (AZs)** provide resilience and high availability for the production workload.

**Elastic Load Balancing (ELB)** handles HTTP requests, and automatically distributes incoming application traffic among multiple Amazon EC2 instances across AZs.. It provides the required amount of load balancing capacity needed in response to incoming application traffic.

Web servers and application servers are deployed in an **Auto-Scaling group**, which automatically adjusts capacity up or down. Number of Amazon EC2 instances used increases during demand spikes to maintain performance and decreases with lower demand to minimize costs.

Web servers and application servers are deployed on **Amazon EC2 instances**.

**DynamoDB** is a serverless database that provides provide a multi-Region, multi-active database with up to 99.999% availability SLA. Delivers seamless retail experiences deploying shopping carts, workflow engines, inventory tracking, and customer profiles. Supports high-traffic, extreme-scaled events and can handle millions of queries per second

**Amazon ElastiCache for Redis** provides the caching mechanism for performance. It also allows for application's read availability by supporting read replicas (across AZs), to enable the reads to be served when the primary is busy with the increased workload.

**Amazon Elastic File System (EFS)** for shared file storage is mounted to every instance