Deploying a Scalable Apache Web Server on AWS using EC2, Application load balancer, and WAF Security.

Architectural diagram:

A diagram of a computer network

AI-generated content may be incorrect.

**Objective**

* Automate Apache installation on EC2 using user data
* Set up a highly available architecture with ALB
* Secure the application using AWS WAF rules

**Steps Performed**

* Created a public VPC with subnets and internet gateway
* Launched EC2 with Apache installed via user data
* Configured ALB to distribute traffic
* Tested web access through browser
* Implemented AWS WAF to block specific IPs
* Validated blocking using curl and incognito modes

**Challenges Faced**

* Health check failures in Target group due to missing or delayed Apache setup
* Verifying user data and debugging Apache installation
* Ensuring correct security group and subnet configuration

**Learnings**

* Importance of validating EC2 setup before using
* How WAF filters requests based on real public IPs
* How to troubleshoot ALB connectivity issues
* Using metadata service and PowerShell to find public IPs

**Outcomes**

* Fully functional Apache web app behind an ALB
* Protected via AWS WAF