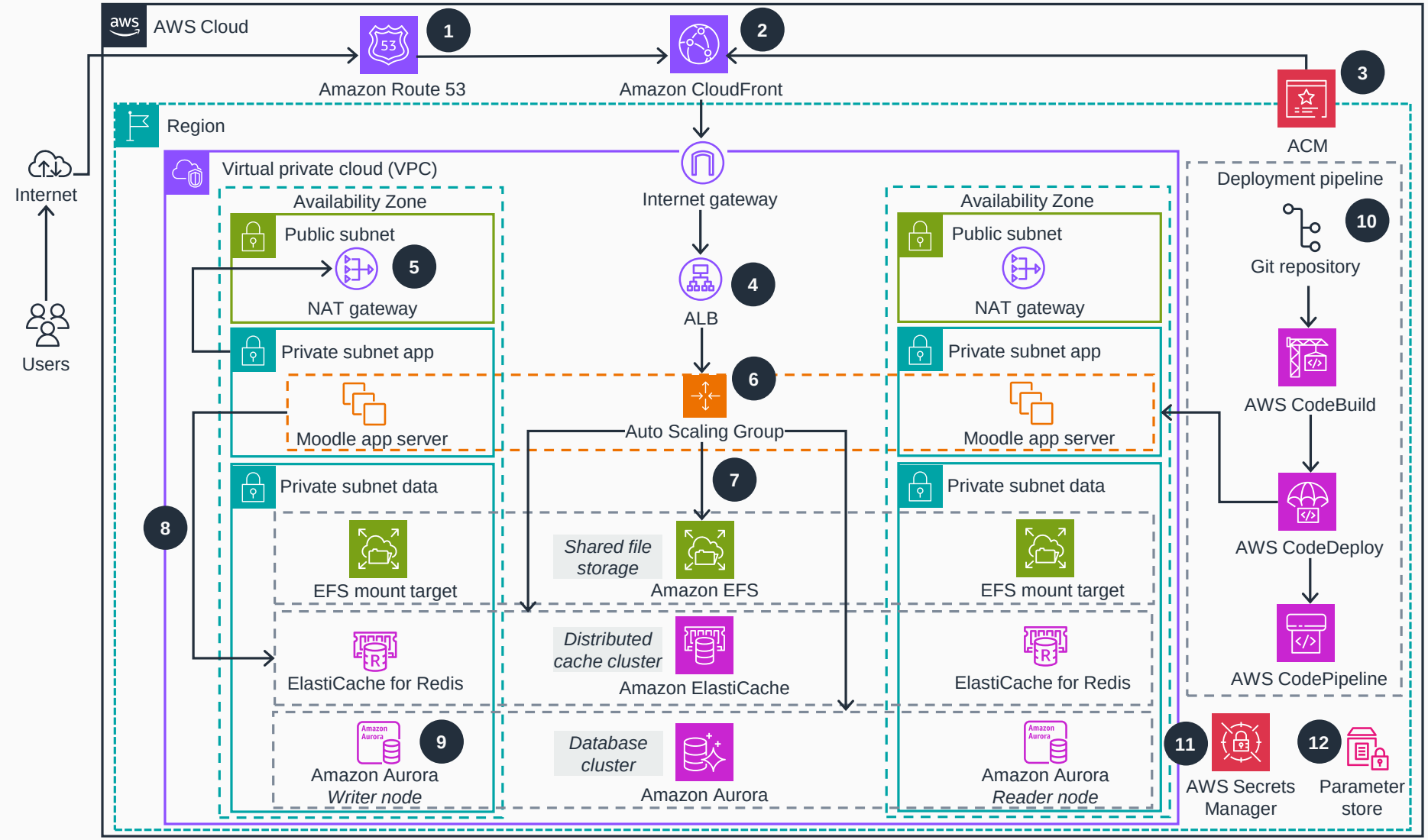
Guidance for Deploying Moodle Learning Management System on AWS

This architecture diagram shows how to deploy the Moodle LMS on AWS. This slide shows Steps 1-6.



1 **Amazon Route 53** offers a scalable cloud DNS web service. It directs students to the closest **Amazon CloudFront** location to access the Moodle web application content while reducing latency.

2 **CloudFront** provides access to the Moodle web application server, which sits behind Application Load Balancer (ALB), providing low latency access to content while serving cached content from edge locations spread across the globe.

3 **AWS Certificate Manager (ACM)** manages SSL certificates for secure, encrypted communication with public and private resources. It provides free SSL certificates that integrate with **CloudFront** or ALB with automated certificate rotation.

4 ALB automatically distributes incoming traffic to Moodle web application servers. The internet gateway provides an entry point to virtual private cloud (VPC) resources inside the public subnet, providing access to ALB.

5 Network address translation (NAT) gateway allows outbound traffic for resources within a private subnet, such as the Moodle app server, that requires internet access.

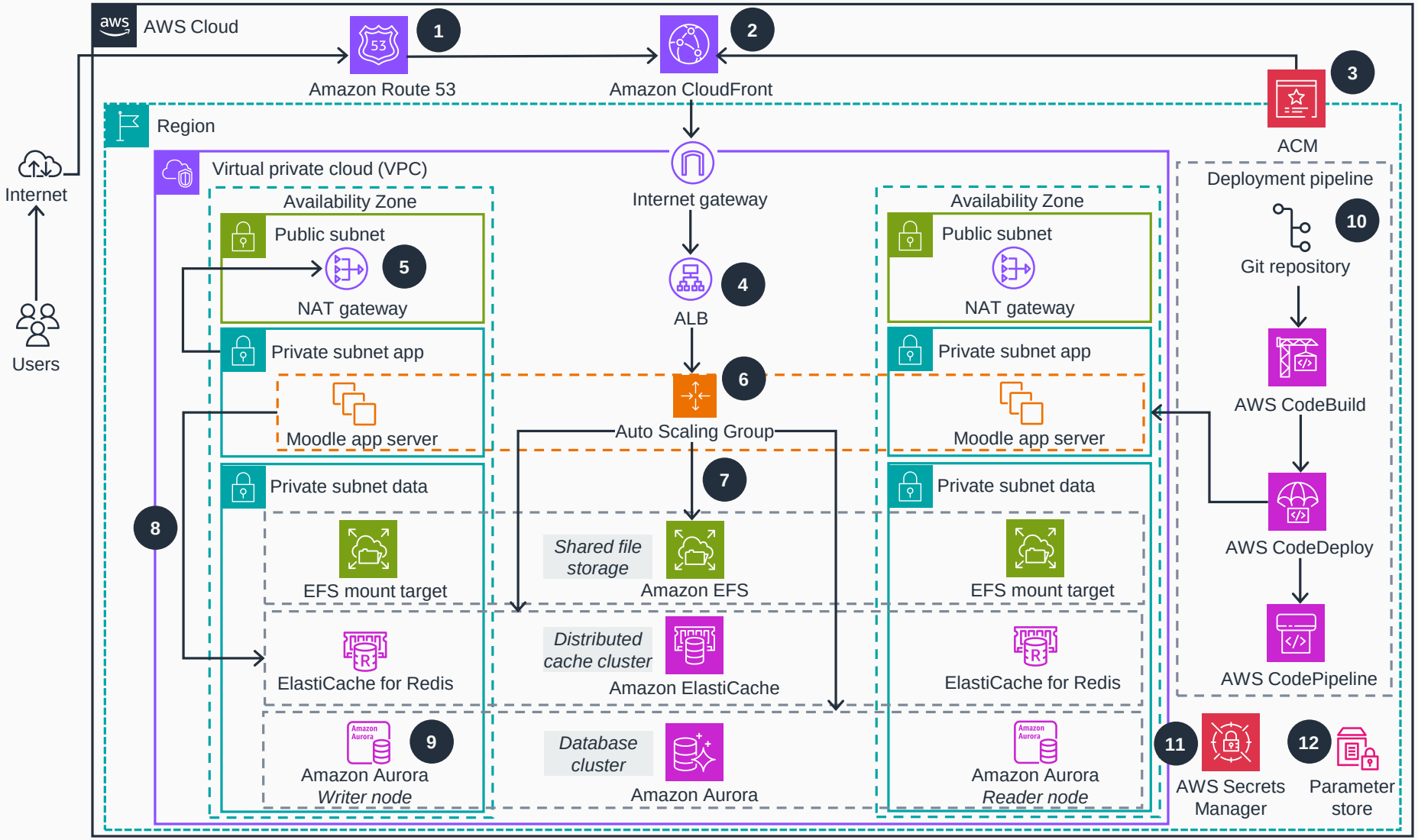
6 The Moodle app server is deployed horizontally using auto scaling groups with multiple **Amazon Elastic Compute Cloud (Amazon EC2)** instances across multiple Availability Zones (AZs), which are deployed in a separate private subnet for additional security. An **AWS Systems Manager** Agent (SSM Agent) can be configured on the instances to provide SSH access without exposing an SSH port.

Reviewed for technical accuracy April 4, 2025

AWS Reference Architecture

Guidance for Deploying Moodle Learning Management System on AWS

This architecture diagram shows how to deploy the Moodle LMS on AWS. This slide shows Steps 7-12.



7 **Amazon Elastic File System (Amazon EFS)** can be used to store *moodledata* and other content, providing consistent performance, high availability, and durability.

8 **Amazon ElastiCache with Redis OSS Compatibility** or **Amazon ElastiCache for Memcached** stores Moodle sessions and application caches in managed clusters with replicas across AZs.

9 **Amazon Aurora** offers both MySQL- and PostgreSQL-compatible global scale database clusters. It provides on-demand scale of replica instances within minutes to handle workload spikes during peak periods.

10 Git repository hosts Moodle's PHP codebase and continuous integration, continuous delivery (CI/CD) configuration files. **AWS CodeBuild** compiles source code, runs tests, and produces software packages ready to deploy onto the Moodle app server. **AWS CodeDeploy** manages the complexity of updating applications. It can deploy into Moodle with zero downtime using blue-green deployment methodologies. **AWS CodePipeline** automates the build, test, and deploy phases for code changes.

11 **AWS Secrets Manager** protects Moodle application secrets and rotates secrets automatically to match lifecycle requirements.

12 Parameter Store, a capability of **Systems Manager**, manages Moodle's configuration parameters, including shared storage endpoints, databases, and cache configuration. This avoids the security risk associated with hard-coding configuration within the codebase or environment.

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AWS Reference Architecture