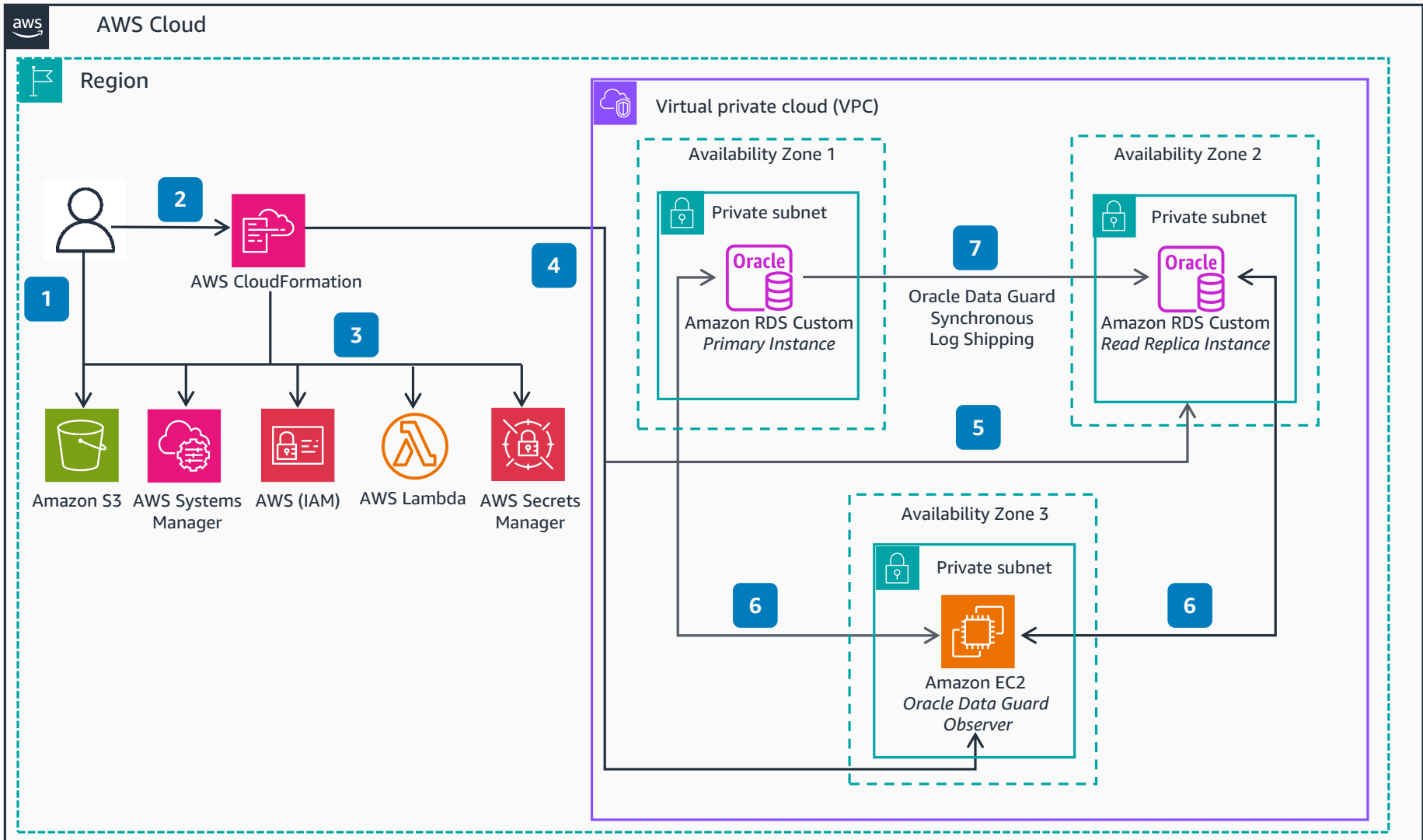


Guidance for High Availability Oracle Databases on AWS

This architecture shows how to create an automation script to set up a high availability Oracle database on AWS with a single click. It uses Amazon RDS Custom for Oracle as a standby instance, along with an Oracle Data Guard instance configured with Fast-Start Failover for automatic failover.



- 1 Upload Oracle Database 19c Client into an **Amazon Simple Storage Service** (Amazon S3) bucket and provide that bucket name as an input to the **AWS CloudFormation** script.
- 2 Deploy the **CloudFormation** script using the **CloudFormation** console or command line interface (CLI) by passing the required input parameters.
- 3 **CloudFormation** creates the required **AWS Identity and Access Management** (IAM) roles and permissions. **AWS Lambda** functions help support the operations performed by the **CloudFormation** script.
- 4 **CloudFormation** provisions an Amazon Elastic Compute (Amazon EC2) instance, copies the Oracle client media from the **Amazon S3** bucket, installs it on the **Amazon EC2** instance, and sets up the Oracle client. This **Amazon EC2** instance acts as the Oracle Data Guard observer instance that observes, monitors, and initiates failover from primary to standby.
- 5 **CloudFormation** then invokes the creation of an **Amazon Relational Database Service** (Amazon RDS) Custom for Oracle read replica for the primary instance provided by the customer. This replica acts as the standby instance for this high availability setup.
- 6 The Oracle clients communicate with the database using the Transparent Network Substrate (TNS) protocol. TNS connectivity is set up and verified from the Oracle Data Guard observer instance to both the primary and the standby instances. The Oracle Data Guard user password is fetched from **AWS Secrets Manager** to make the connection. In this architecture, we use **AWS Systems Manager** document (SSM document) to perform this automation.
- 7 Oracle Data Guard makes configuration changes, sets up synchronous log shipping, and enables Data Guard Fast-Start Failover that is automated through the SSM document.