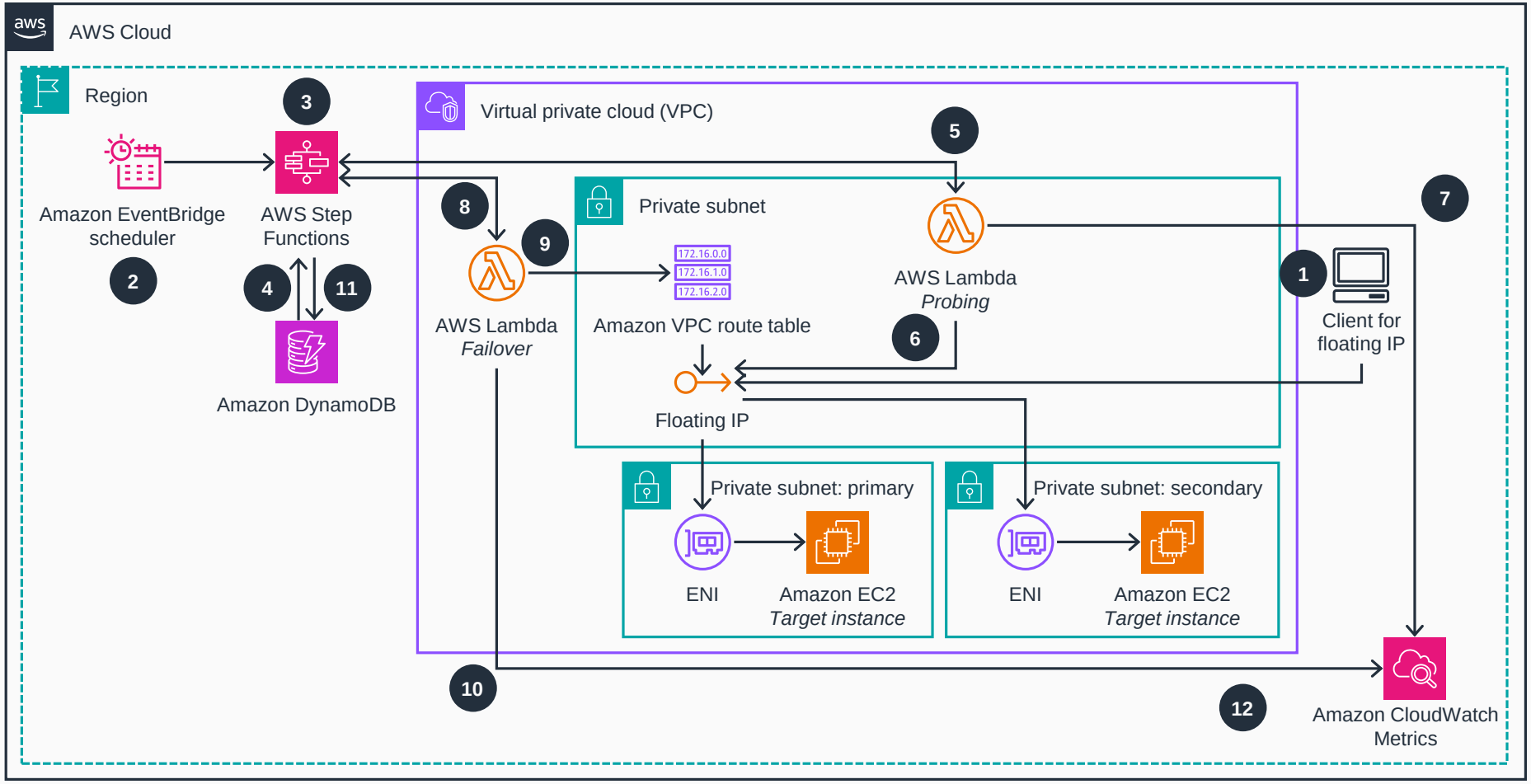
Guidance for Implementing Floating IP Addresses with Failover Capabilities on AWS

This architecture diagram shows how to configure and automatically manage private floating IP addresses in a virtual private cloud (VPC) to achieve high availability. This slide details Steps 1-9.



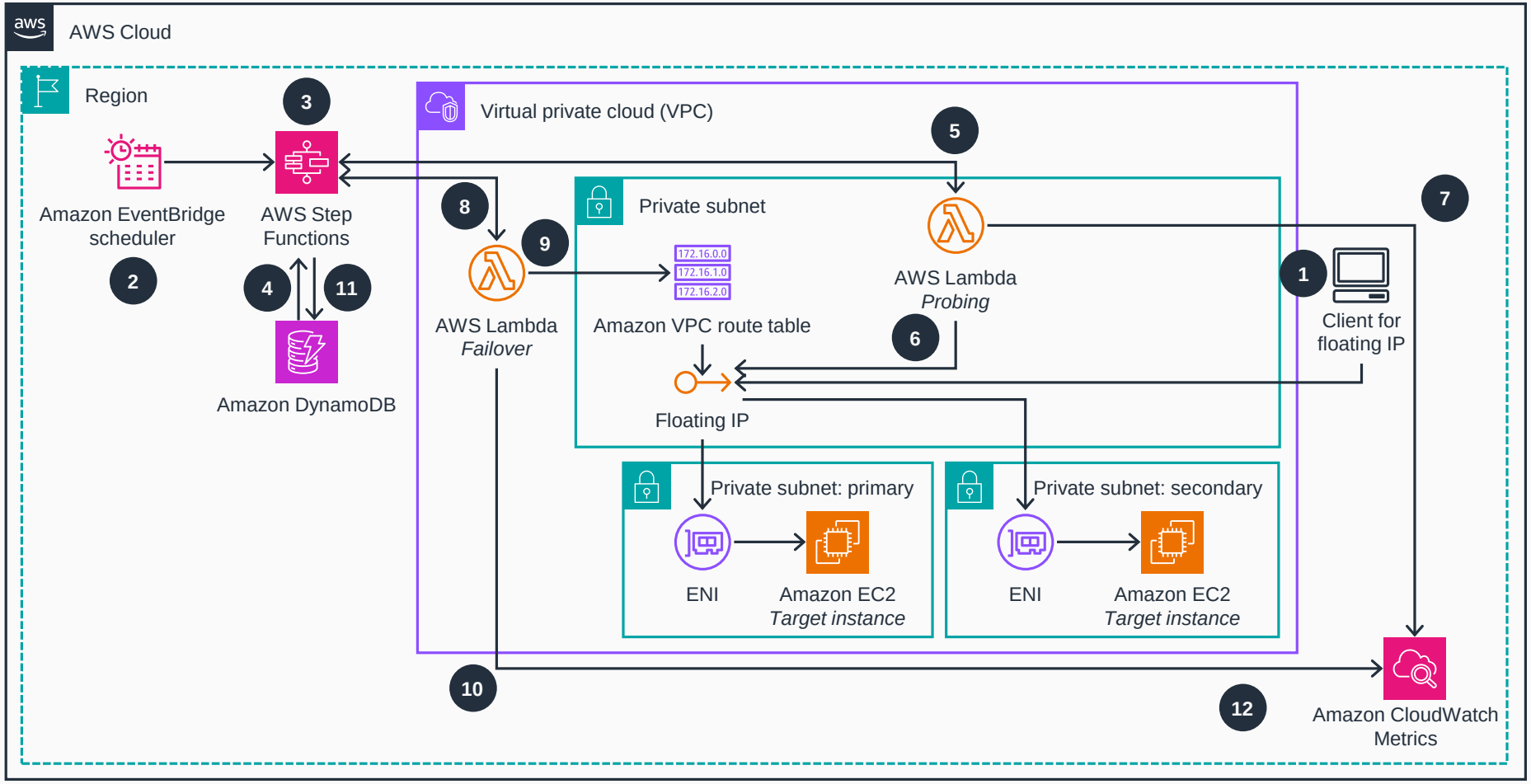
1. A client application connects to the target system through the floating IP address.
2. An **Amazon EventBridge** scheduler invokes the **AWS Step Functions** flow every minute to orchestrate health checks and the failover process for the floating IP address (when applicable).
3. The **Step Functions** workflow implementation iterates its tasks every N seconds, where N is configurable.
4. As an initial step, the stored context (probing counter and last probing result) from the previous **Step Functions** workflow implementation is retrieved from **Amazon DynamoDB**.
5. The **AWS Lambda** probing function is invoked, and context from its previous implementation is passed as an input.
6. The **Lambda** probing function checks the health of the target of the floating IP address, which was initially set in the primary subnet and corresponding elastic network interface (ENI) attached to **Amazon Elastic Compute Cloud (Amazon EC2)**. It then returns the probing result to the **Step Functions** implementation.
7. The **Lambda** probing function logs metrics (such as response time and number of failed probes) to **Amazon CloudWatch**.
8. If the set threshold of failed health checks (a deployment parameter) is reached, **Step Functions** initializes the failover procedure. The **Lambda** failover function is invoked to handle the failover process.
9. The **Lambda** failover function updates one or more **Amazon Virtual Private Cloud (Amazon VPC)** route tables. It changes the target ENI attached to **Amazon EC2** of the route associated with the floating IP address to the one set in a secondary subnet.

Reviewed for technical accuracy June 16, 2025

AWS Reference Architecture

Guidance for Implementing Floating IP Addresses with Failover Capabilities on AWS

This architecture diagram shows how to configure and automatically manage private floating IP addresses in a virtual private cloud (VPC) to achieve high availability. This slide details Steps 10-12.



10 The **Lambda** failover function logs failover count metrics to **CloudWatch**.

11 By the end of the **Step Functions** workflow implementation, the implementation context is stored in the **DynamoDB** database.

12 All relevant metrics stored in **CloudWatch** can be used to build comprehensive dashboards and create alarms for observability purposes.

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