AWS
re:Invent

WIN306

Migrate Microsoft workloads to AWS

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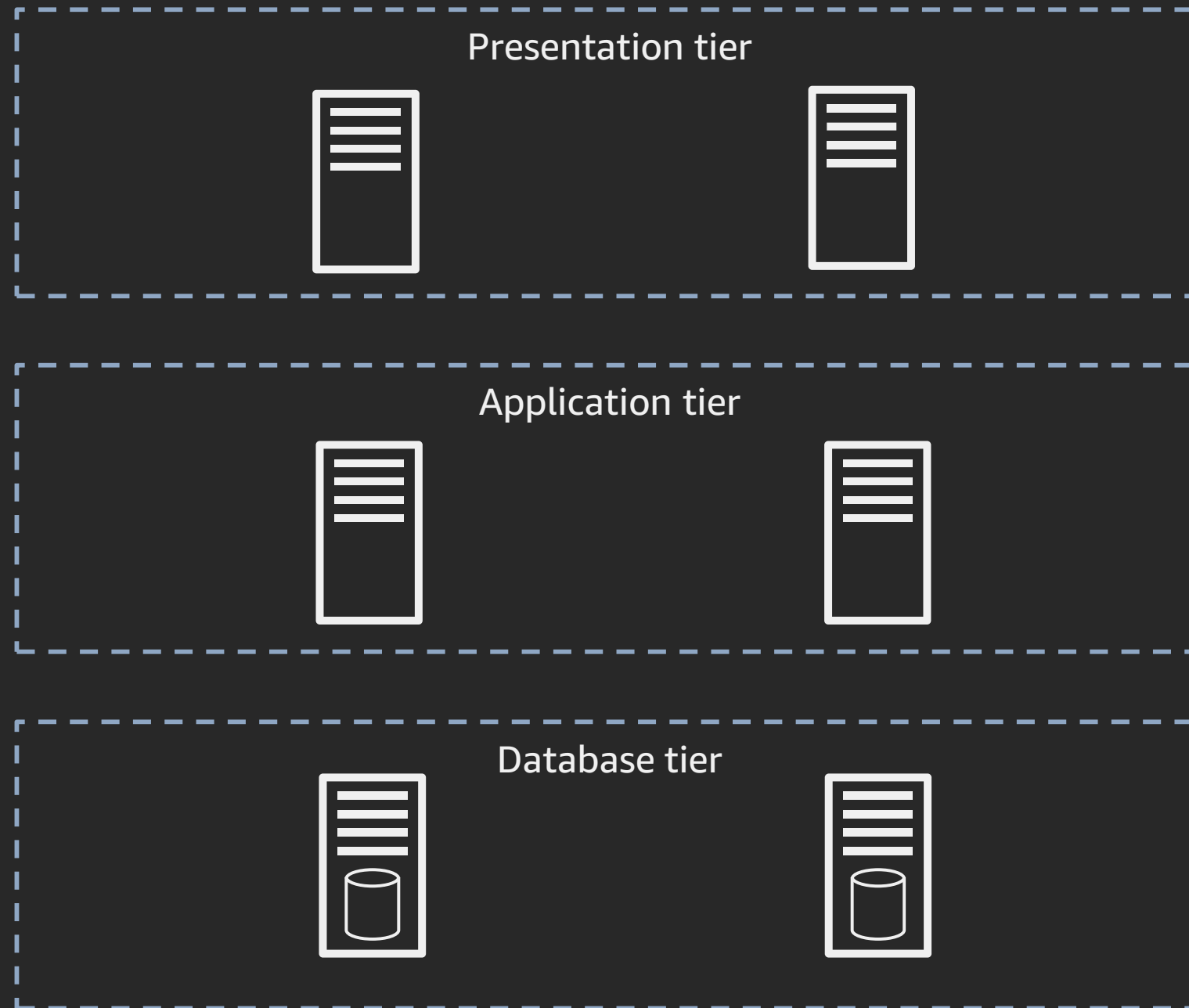Amazon Web Services

AWS re:Invent

aws

Agenda

Discuss migration strategies

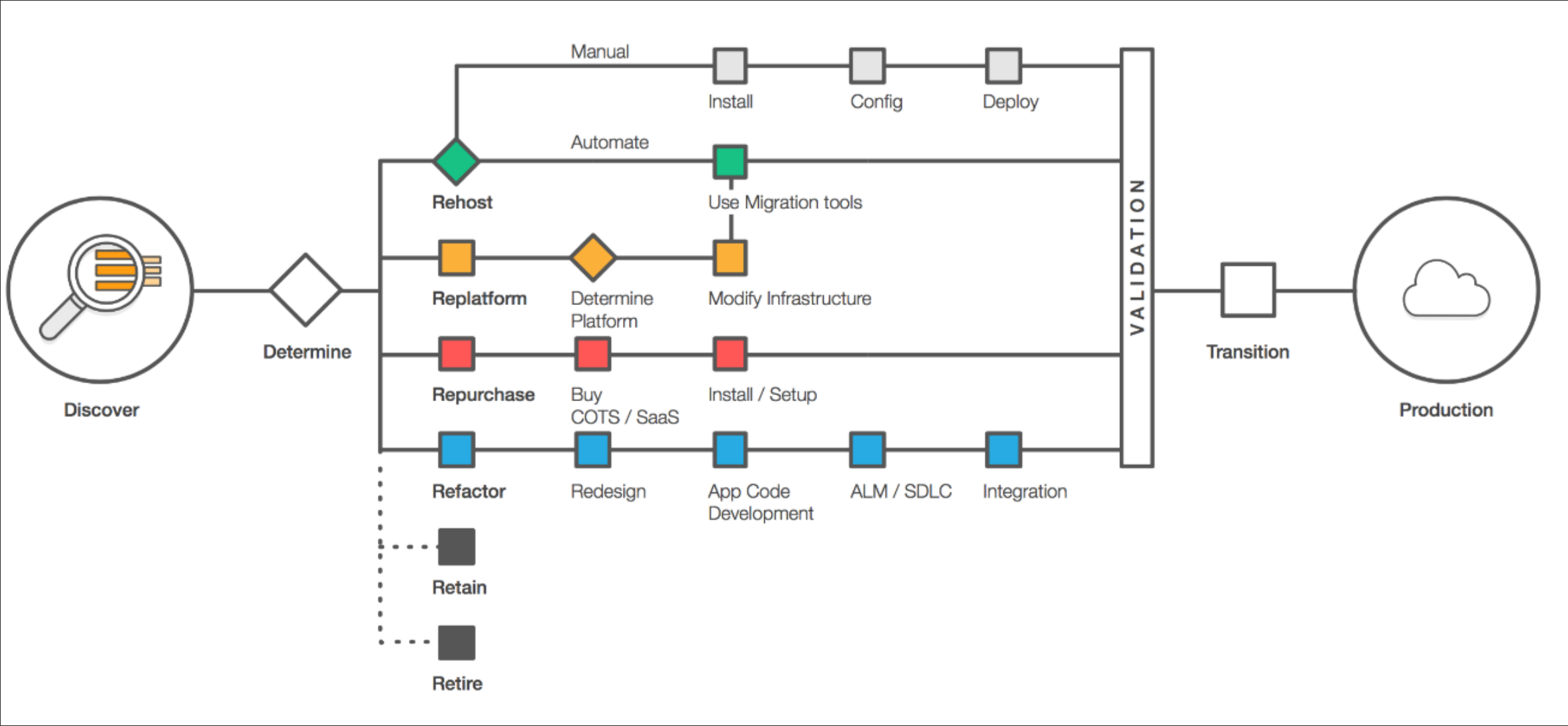Introduce migration tools provided by AWS

Hands-on migration labs

Wrap-up

Typical three tier: How would you move this?

Common migration strategies (the Six Rs)

Which option is right for you?

Rehost: Run servers on Amazon Elastic Compute Cloud (Amazon EC2)

**Replatform:** Migrate to a managed service

    Amazon Relational Database Service (Amazon RDS)

Refactor: Modernize application/migrate to cloud-native solution

    Amazon Elastic Kubernetes Service (Amazon EKS), AWS Lambda, Amazon DynamoDB, and others)

Rehost: Run servers on Amazon EC2

- Familiar administration experience

- Full control over the environment

- COTS applications

- For SQL databases
    - All SQL Server features available
    - All SQL Server versions supported
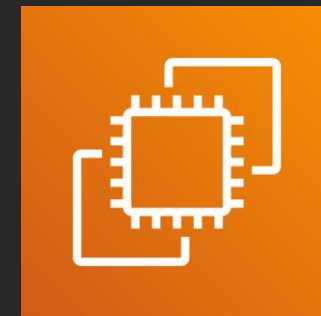
Amazon EC2

VMware Cloud on AWS

AWS migration services

Discover, plan, migrate & track migrations

AWS Migration Hub

- Single location to track the progress of application migrations
- Choose the AWS and partner migration tools that best fit your needs
- Discover using AWS Application Discovery Service or import from other data sources
- Provides visibility & metrics into the status of migrations across your application portfolio

Identify portfolio & create business case

TSO Logic

Migrate servers

AWS Server Migration Service (AWS SMS)

VMware Cloud on AWS

CloudEndure®

Discover & analyze infrastructure

AWS Application Discovery Service

Amazon QuickSight

Migrate databases

AWS Database Migration Service (AWS DMS)

AWS Schema Conversion Tool
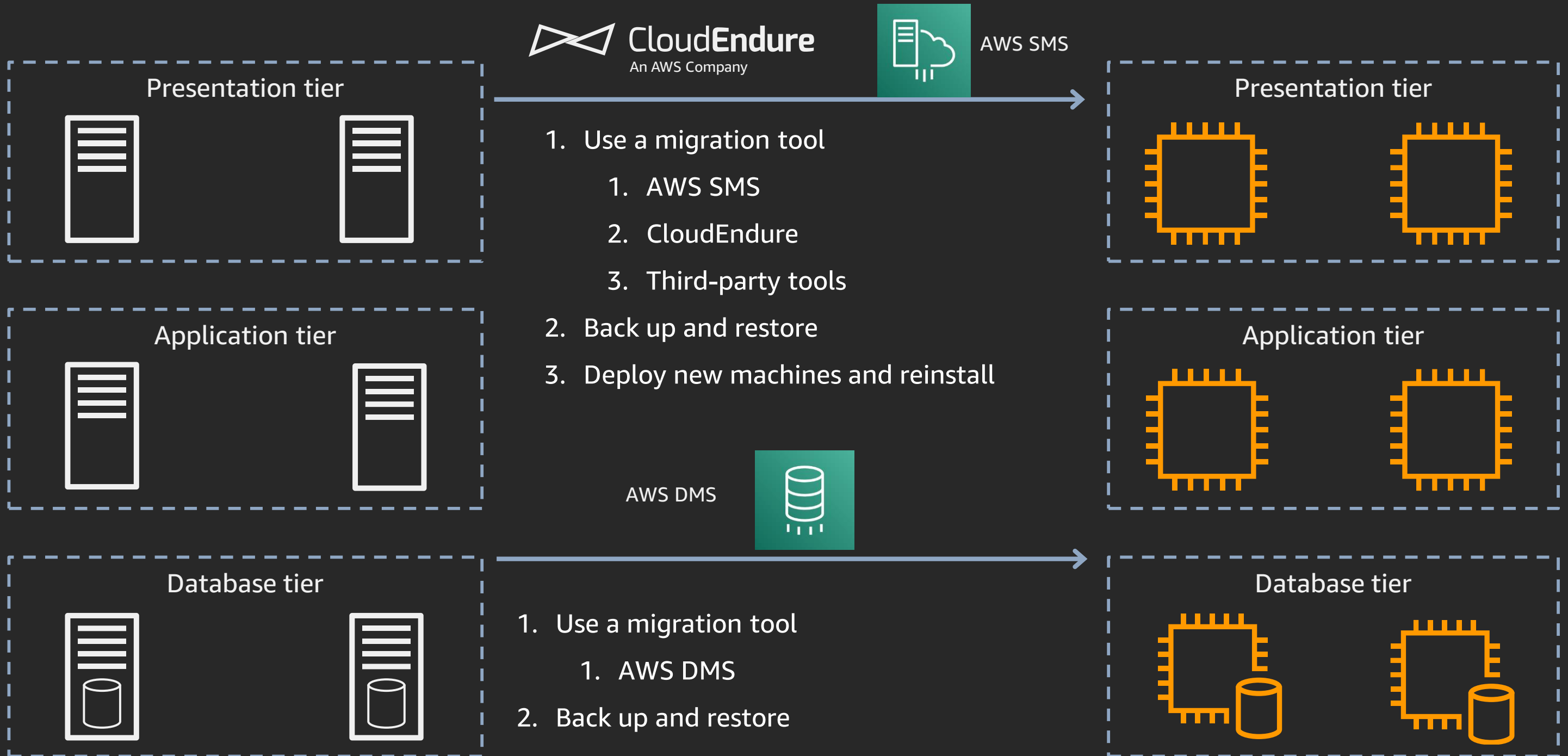
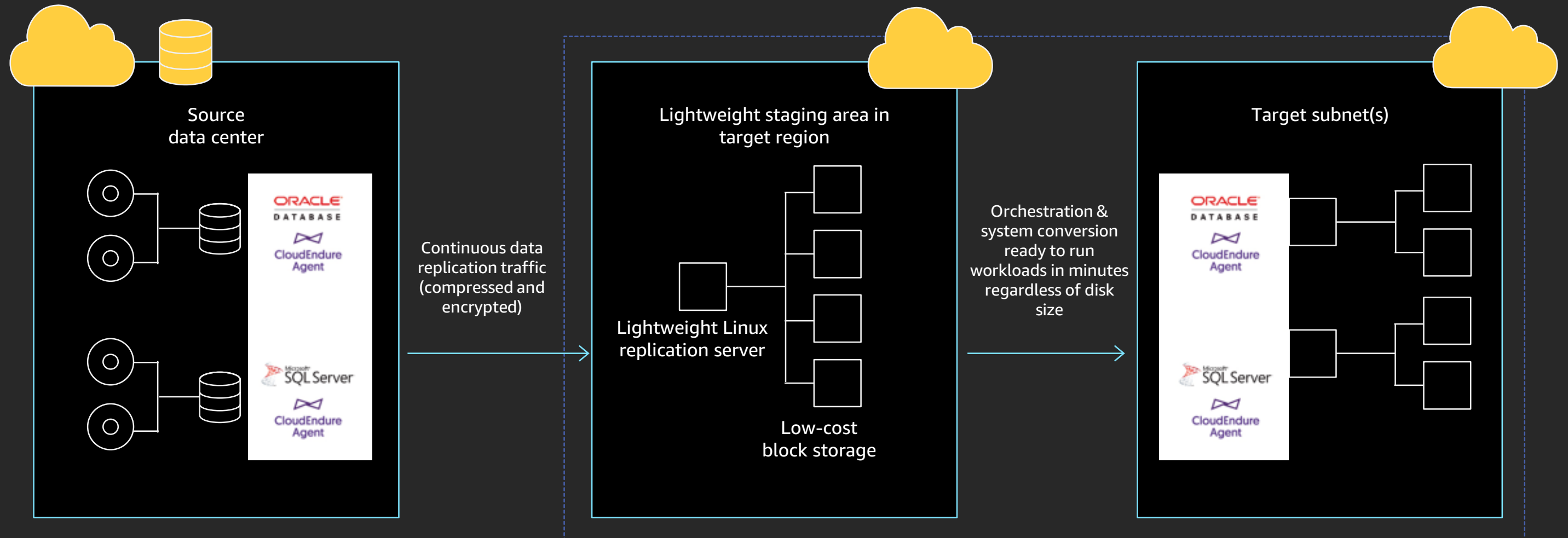## Migrate & access data

AWS DataSync

AWS Transfer for SFTP

AWS Snow family

AWS Storage Gateway

Typical three tier: Rehost

CloudEndure An AWS Company

AWS SMS

Presentation tier

Presentation tier

1. Use a migration tool
   1. AWS SMS
   2. CloudEndure
   3. Third-party tools
2. Back up and restore
3. Deploy new machines and reinstall

Application tier

Application tier

AWS DMS

Database tier

Database tier

1. Use a migration tool
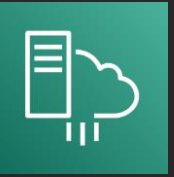   1. AWS DMS
2. Back up and restore
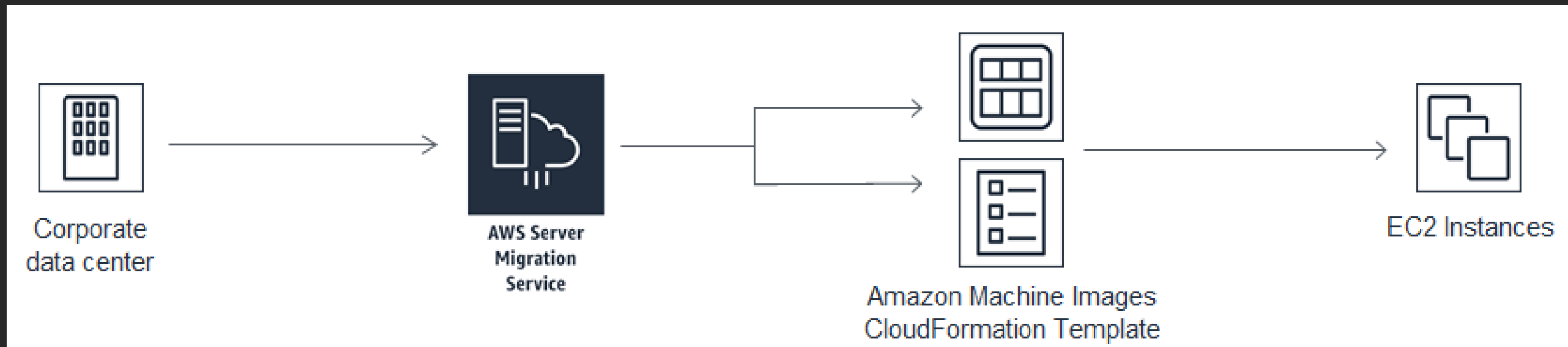
How CloudEndure migration works

- Agent-based solution

- CloudEndure continuously replicates any application or database from any source into AWS

- Business outcome: Allow self-service, rapid, reliable migrations with minimal business disruption

Source data center

ORACLE DATABASE
CloudEndure Agent

Microsoft SQL Server
CloudEndure Agent

Continuous data replication traffic (compressed and encrypted)

Lightweight staging area in target region

Lightweight Linux replication server

Low-cost block storage

Orchestration & system conversion ready to run workloads in minutes regardless of disk size

Target subnet(s)

ORACLE DATABASE
CloudEndure Agent

Microsoft SQL Server
CloudEndure Agent

AWS SMS

- Agentless virtual machine (VM) migration from on-premises data centers to Amazon EC2
- Supports VMware & Hyper-V VMs
- Automate, schedule, and track incremental replications
- Simplified application migration using multi-server grouping
- Auto-generates AMIs and AWS CloudFormation template for ease of deployment
- Free of cost

Corporate data center → AWS Server Migration Service → Amazon Machine Images / CloudFormation Template → EC2 Instances

Choosing between CloudEndure migration & AWS SMS

Decision factor	Recommendation
What types of source infrastructure are you migrating from?	• Prefer agent-less (hypervisor-based) approach for VMware and Hyper-V sources: AWS SMS • Prefer unified agent-based approach for multiple types of sources such as VMware, Hyper-V, physical, other clouds: CloudEndure
P2V servers? (on-premises virtual servers previously converted from)	• Recommend CloudEndure
What level of automation are you looking for in your migration?	• Two-step provisioning via launching AMIs (longer cutover window): AWS SMS • Target machines automatically provisioned (cutover in minutes): CloudEndure
Cutover window length?	• OK with 1-hour+ cutover window: AWS SMS • Require cutover in minutes: CloudEndure
Looking to implement disaster recovery in addition to migration?	• Recommend CloudEndure Disaster Recovery to help customers achieve sub-second RPOs, RTO within minutes, point-in-time recovery, failover/failback • In addition to CloudEndure's overall disaster recover benefits, an existing disaster recover deployment can be used to proceed to a very simple migration using CloudEndure (no need to deploy or configure anything else—just cutover) • Following a migration using CloudEndure, the customer can also easily enable cross-regional resilience in AWS using CloudEndure Disaster Recover
What type of storage needs to be replicated?	• AWS SMS requires VMDK-attached disks; network-attached disks cannot be replicated. • CloudEndure replicates any local/network disk presented to the OS as a block device.

What are AWS DMS and AWS SCT?
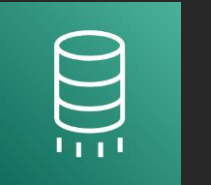
Allow customers the freedom to choose the best data platform for their needs #DBFreedom

AWS SCT converts your commercial database and data warehouse schemas to open-source engines or AWS-native services, such as Amazon Aurora and Amazon Redshift

AWS DMS easily and securely migrates and/or replicates your databases *and* data warehouses to AWS
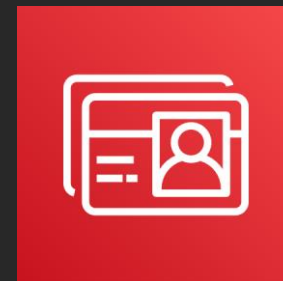
Replatform: Migrate to a managed service

- Optimized architecture
- Automated patching
- Automated backups
- Proven high availability
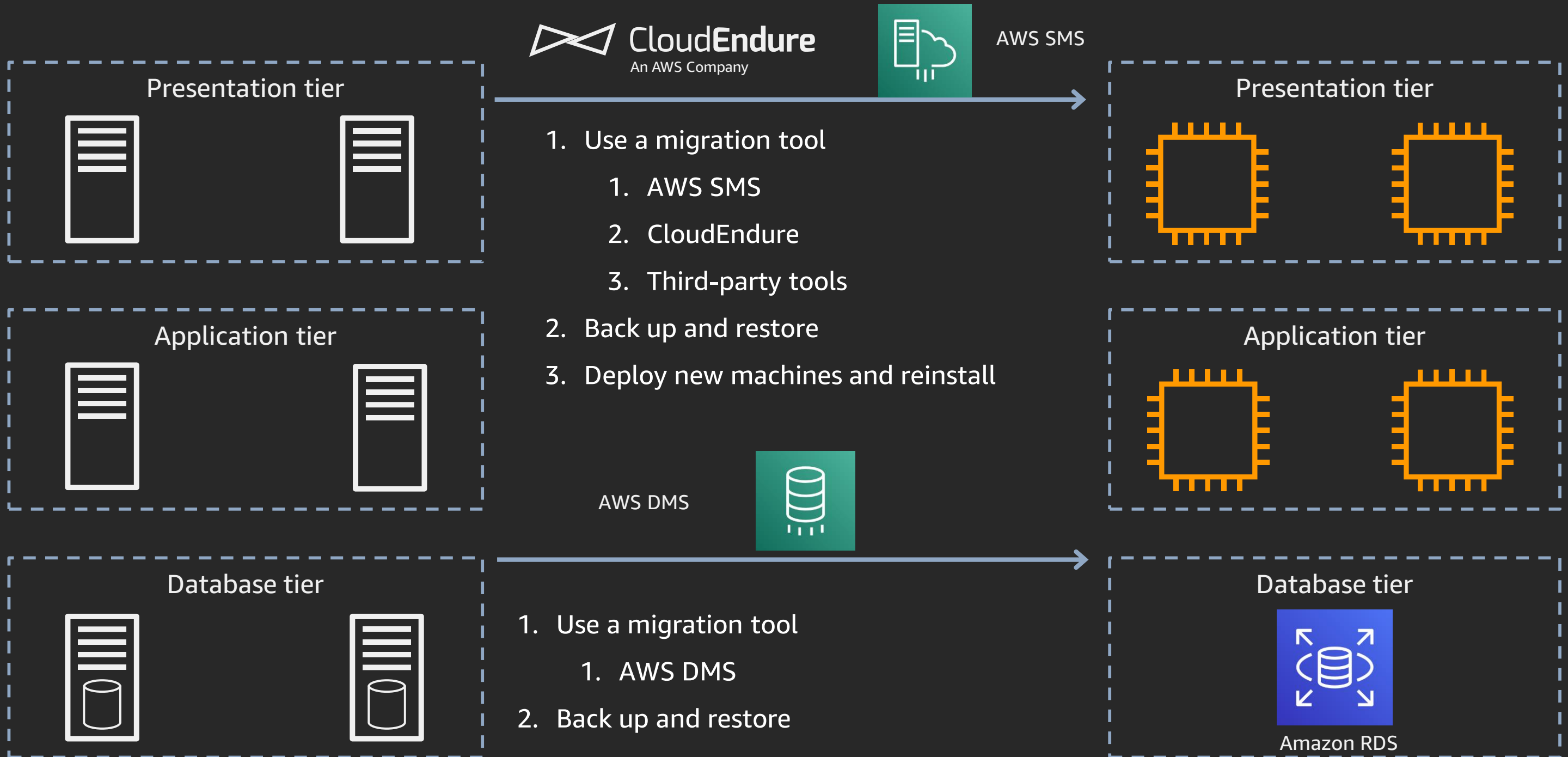- COTS applications
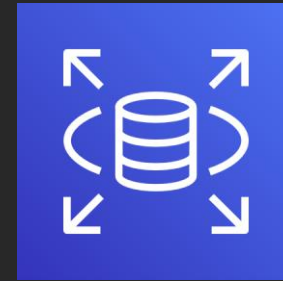
Amazon RDS

Amazon FSx

AWS Directory Service

VMware Cloud on AWS

Typical three tier: Replatform

Presentation tier

CloudEndure An AWS Company

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Presentation tier

Application tier

Application tier

AWS DMS

Database tier

1. Use a migration tool
   1. AWS DMS
2. Back up and restore

Database tier

Amazon RDS

Refactor: Modernize app/adopt cloud-native services

- Containers/microservices
  - Amazon EKS
  - Amazon Elastic Container Service (Amazon ECS)
- AWS Lambda
- Amazon API Gateway
- Aurora: SQL/OLTP
- DynamoDB: NoSQL
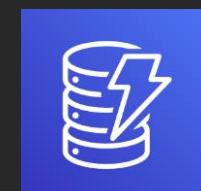
AWS Lambda

Amazon Elastic Kubernetes Service

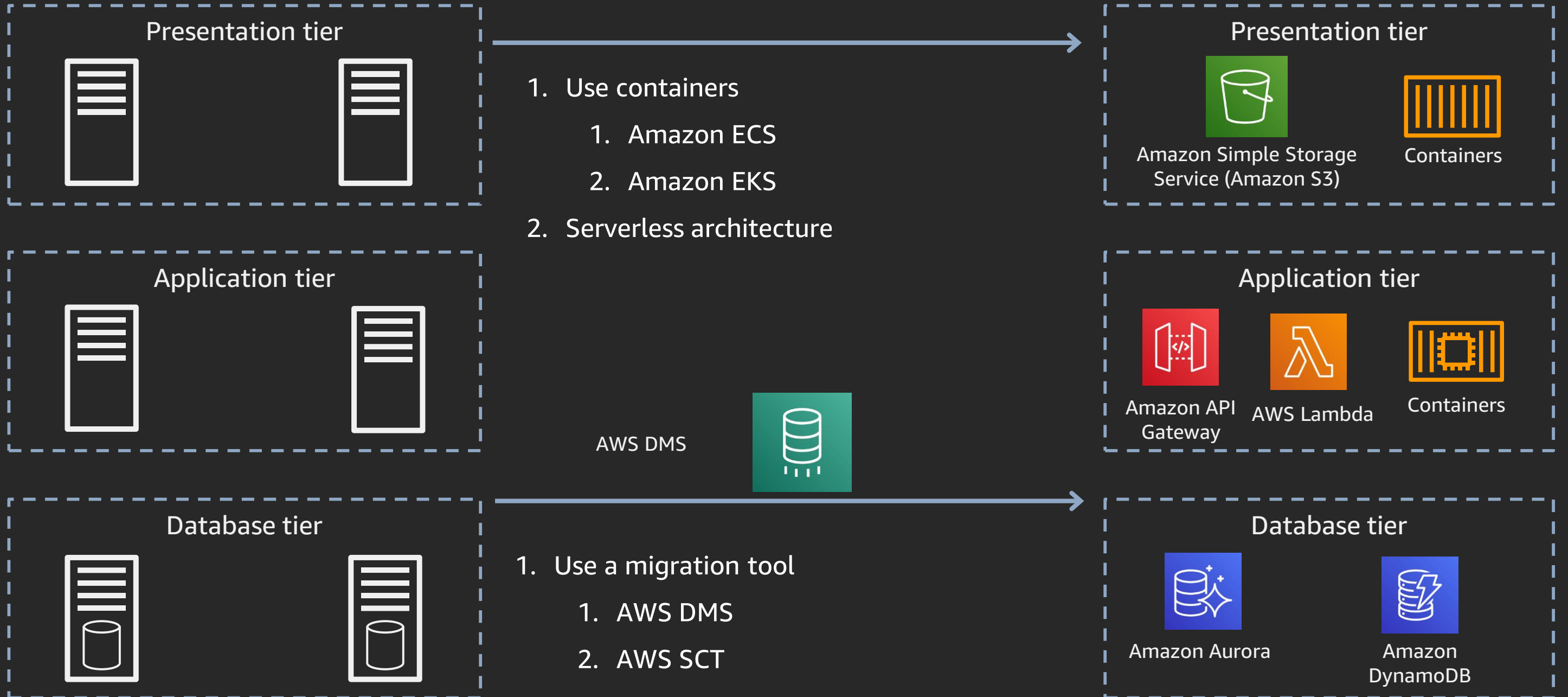Amazon API Gateway

Amazon Elastic Container Service

Amazon Aurora

Amazon DynamoDB

Typical three tier: Refactor

Presentation tier

1. Use containers
   1. Amazon ECS
   2. Amazon EKS
2. Serverless architecture

Presentation tier

Amazon Simple Storage Service (Amazon S3)

Containers

Application tier

Application tier

Amazon API Gateway

AWS Lambda

Containers

AWS DMS

Database tier

1. Use a migration tool
   1. AWS DMS
   2. AWS SCT

Database tier

Amazon Aurora

Amazon DynamoDB

AWS serverless portfolio

Application primitives – Compute and datastores

Amazon S3 · AWS Lambda · AWS Fargate · Amazon DynamoDB · Amazon Aurora Serverless · Amazon Kinesis

Application integration

Amazon SNS · Amazon API Gateway · AWS Step Functions · Amazon MQ · Amazon SQS · AWS AppSync
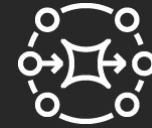
Developer tools

AWS CloudFormation · AWS Cloud9 · AWS CodePipeline · AWS Config · Amazon CloudWatch · AWS X-Ray · AWS Serverless Application Repository

Security and administration

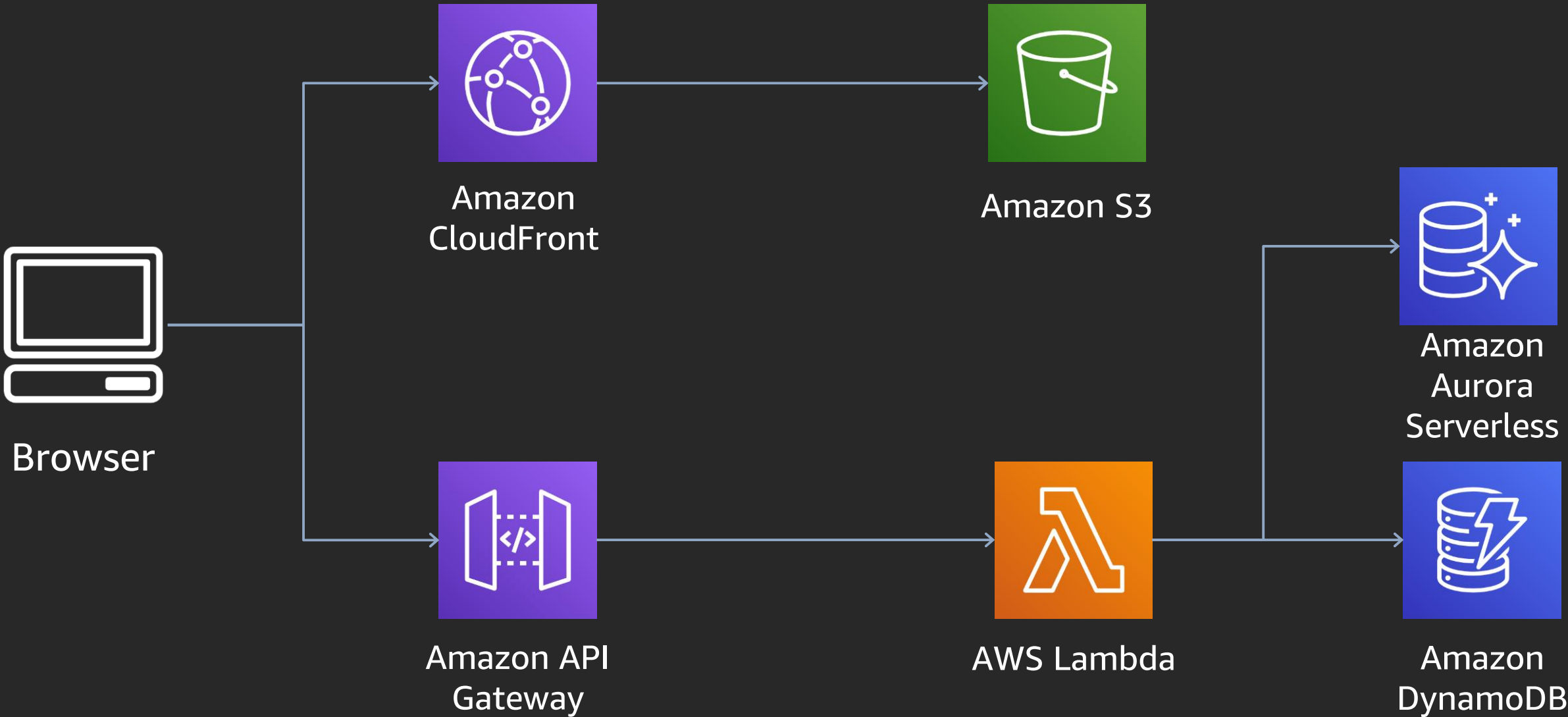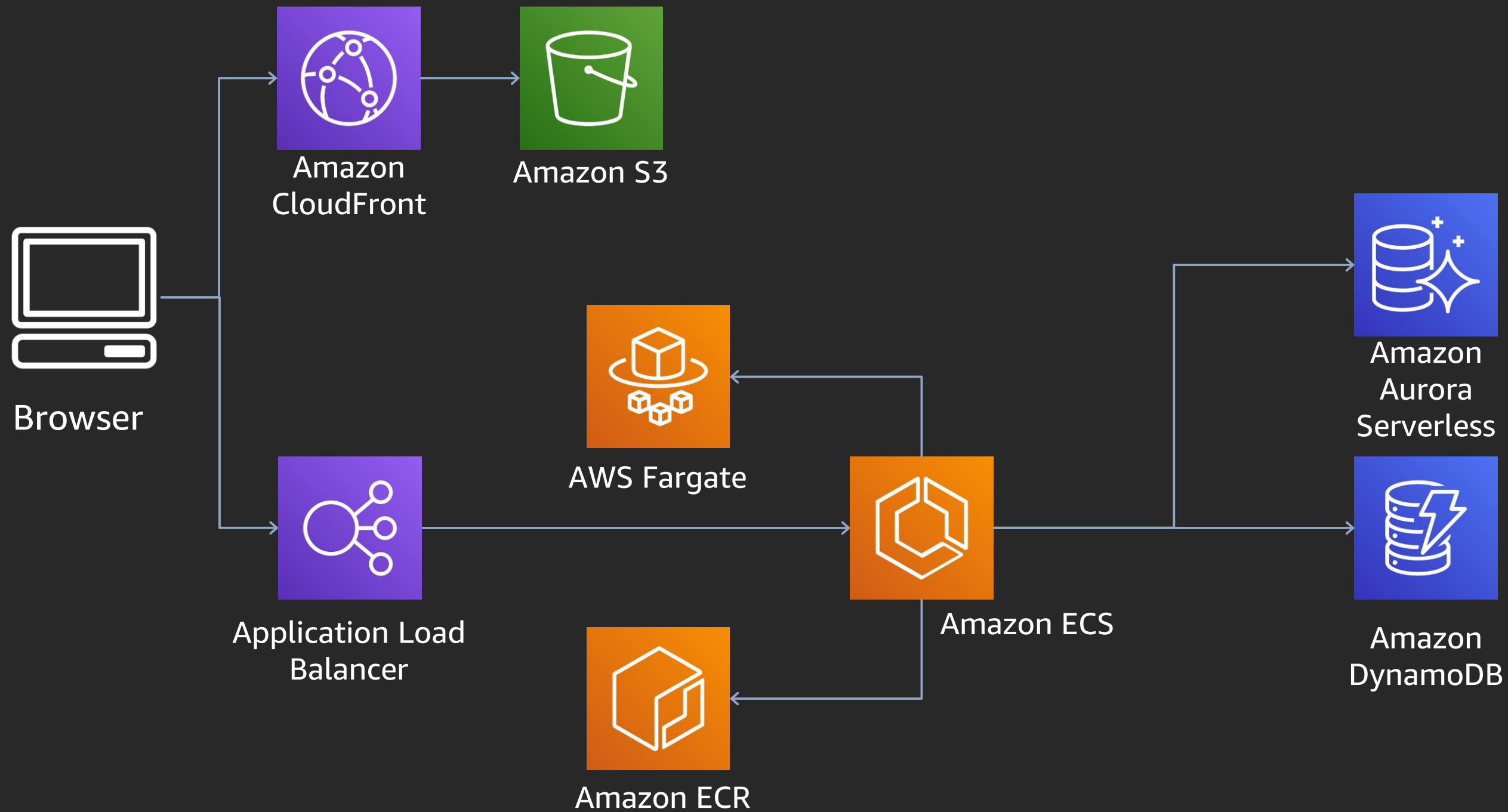AWS IAM · AWS SSO · Amazon GuardDuty · Amazon Inspector · AWS WAF · AWS CloudTrail · AWS Shield · Amazon Cognito

Rough architecture: Design with AWS Lambda

Rough architecture: Design with containers

Hands-on exercises

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Lab Architecture
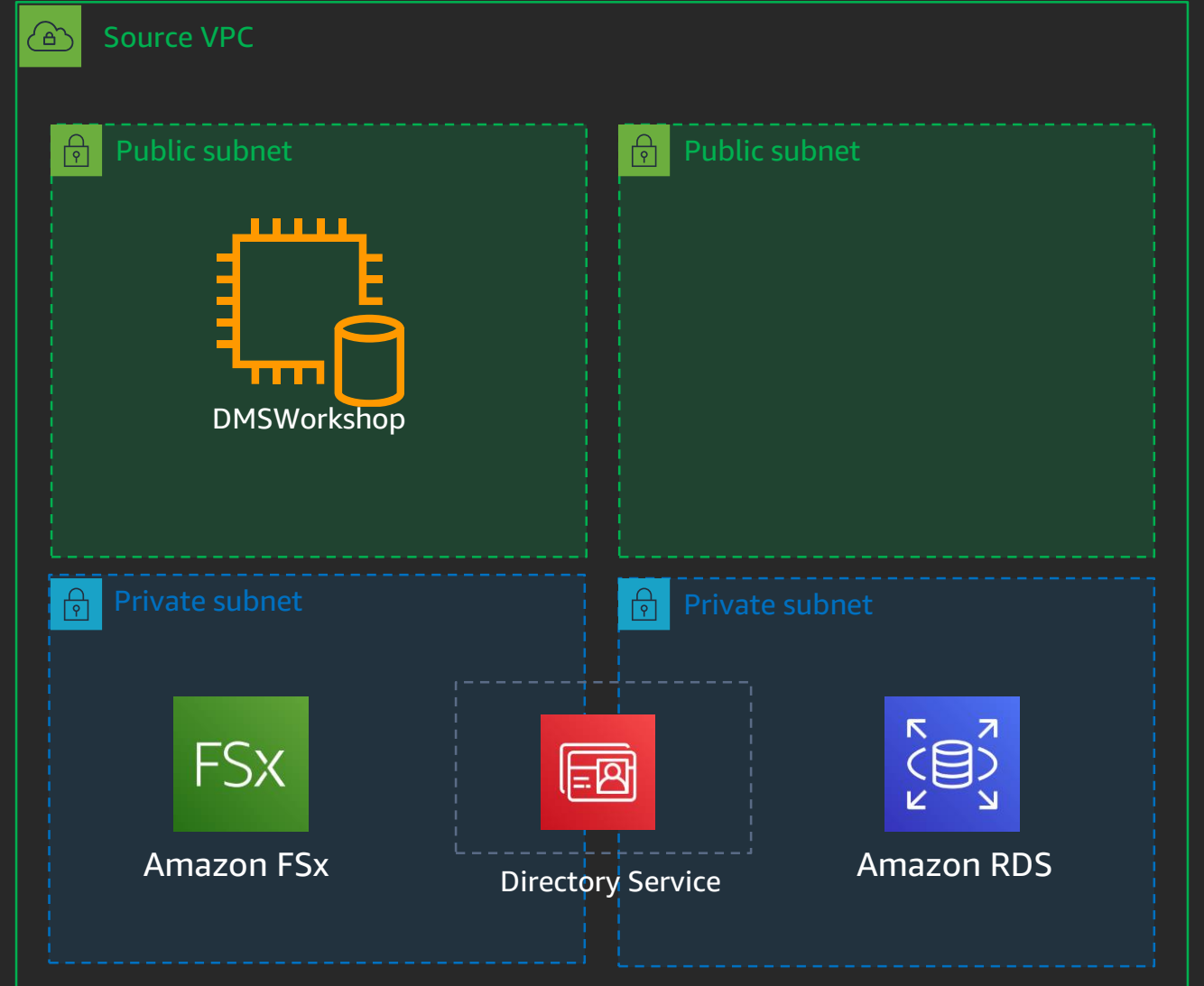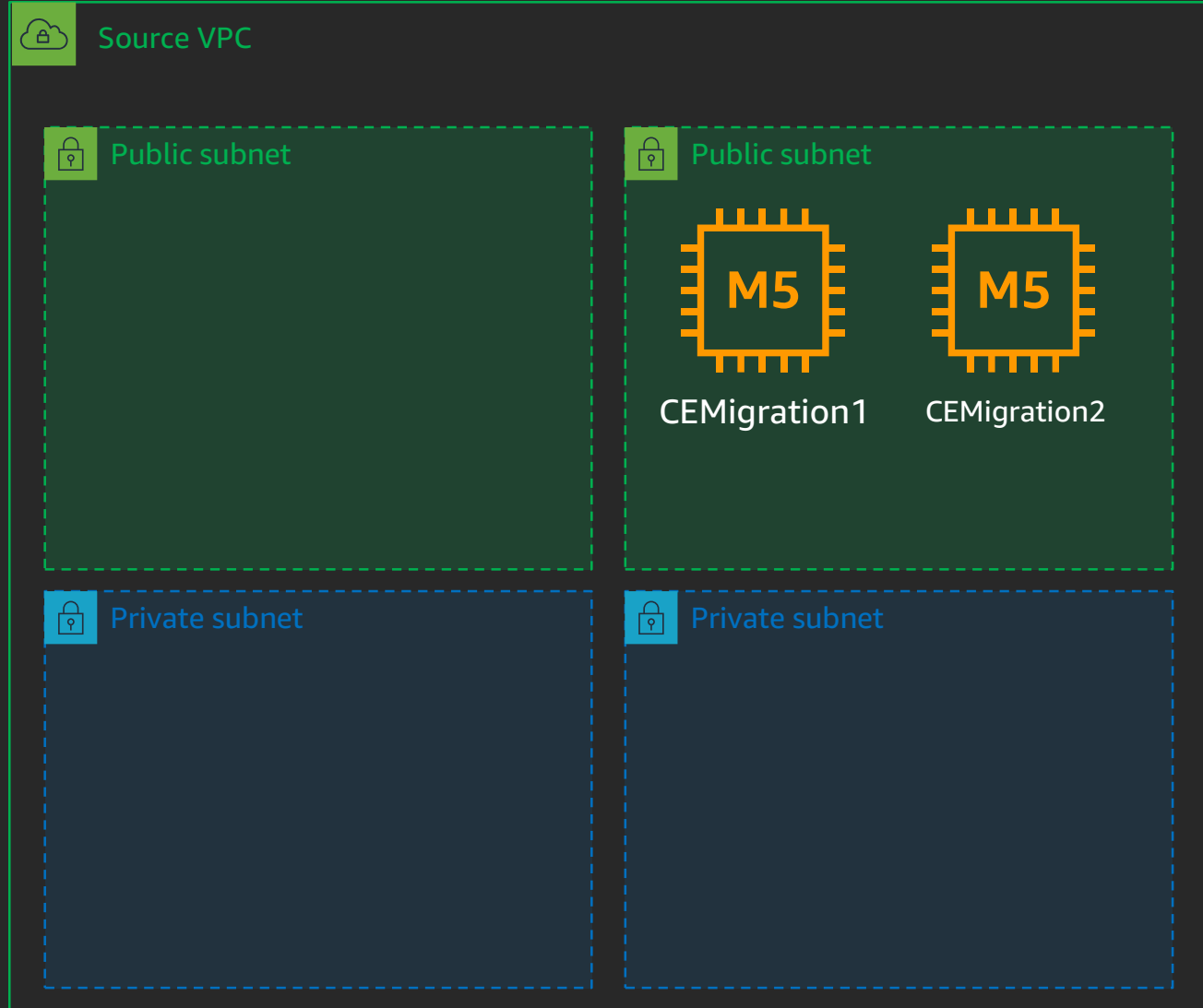
Hands-on exercises

Lab 1: Re-hosting

- Set up CloudEndure migration

- Migrate two machines

Lab 2: Re-platforming

- Set up AWS DMS

- Migrate a database from machine to Amazon RDS

Thank you!

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