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Module 13



The architectural need

If your infrastructure becomes unavailable, you need to be able to get your application running again within an appropriate amount of time and at an appropriate level of cost.

Module Overview

- Disaster Planning
- Recovery Options

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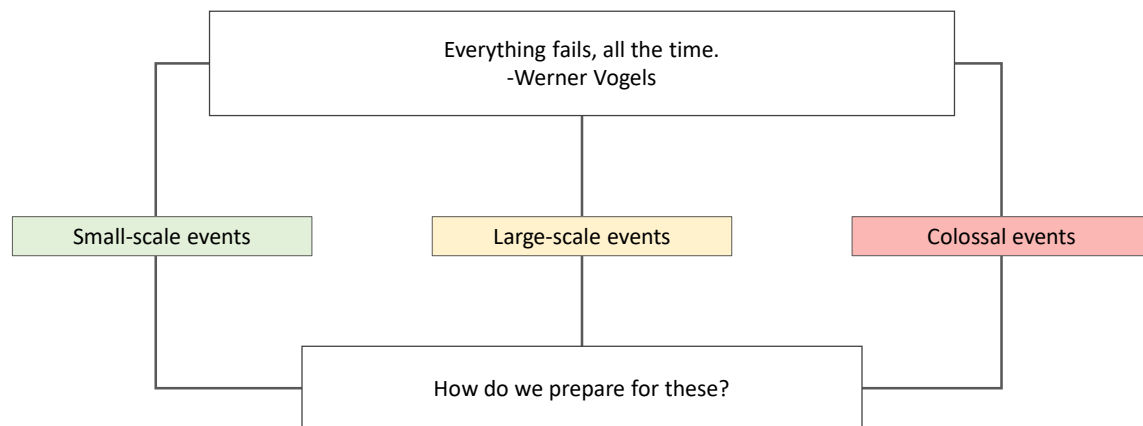
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Disaster Planning

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What Are We Planning?



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Availability Concepts



High availability

- Minimizing downtime for your application

Backup

- Make sure your data is safe

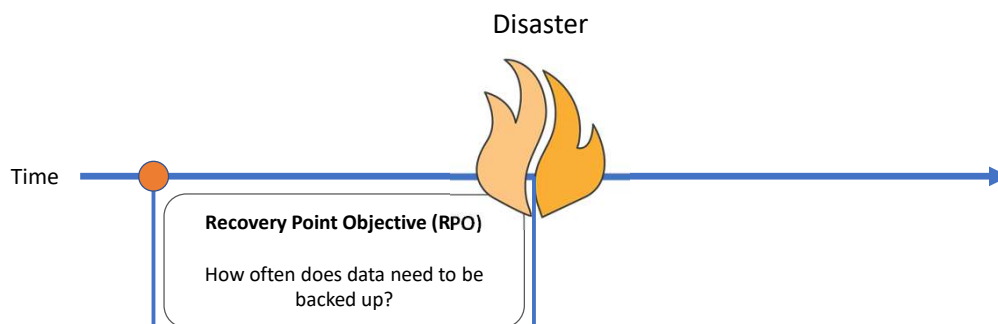
Disaster recovery

- Get your applications and data back after a major disaster

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RPO and RTO



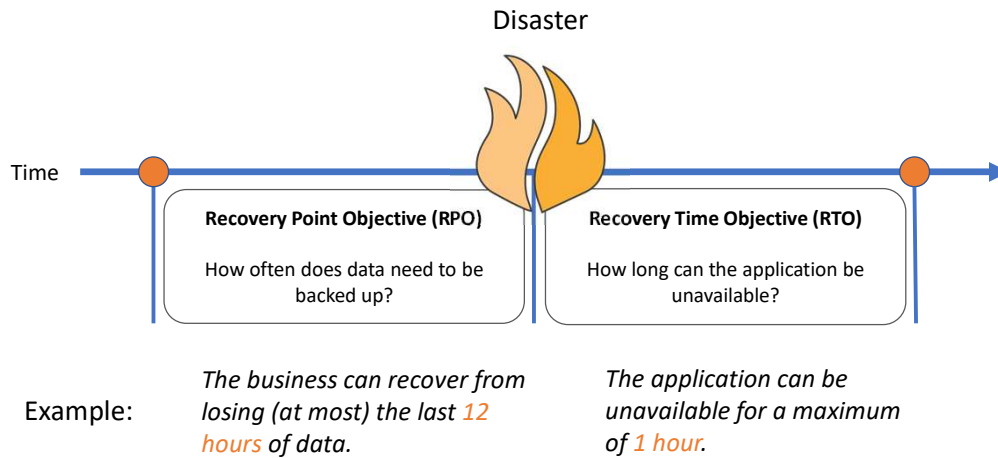
Example:

The business can recover from losing (at most) the last 12 hours of data.

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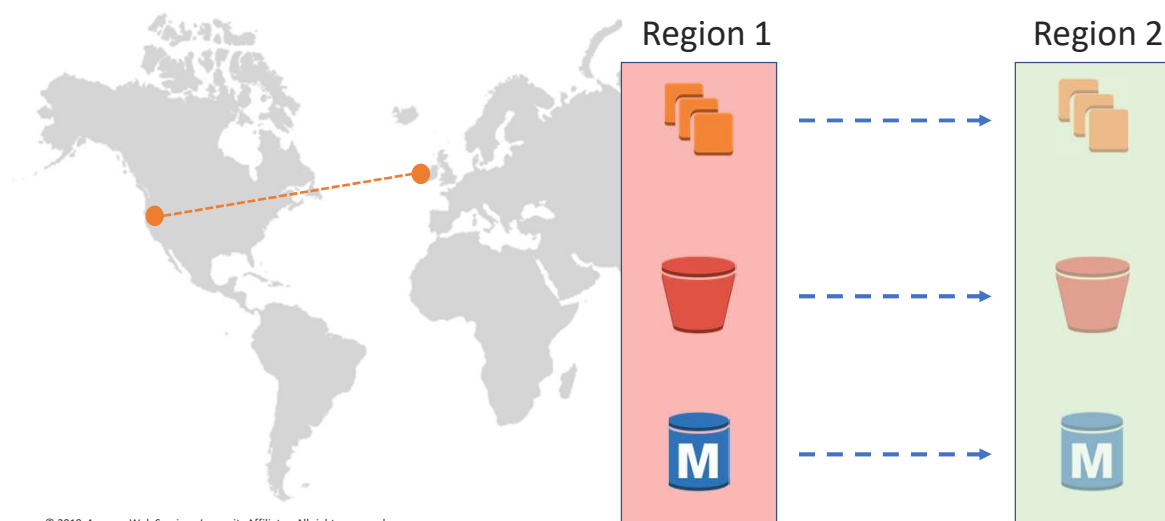
RPO and RTO



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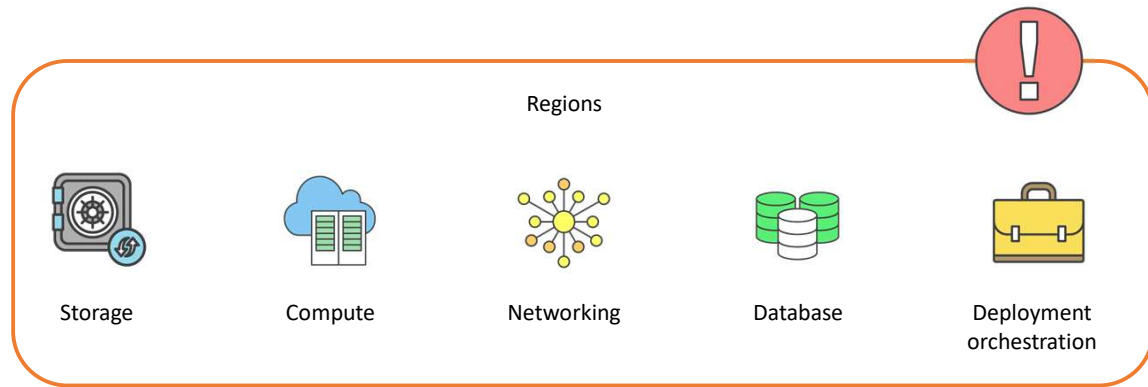
Regions Can Go Down



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Essential AWS Services and Features for Disaster Recovery



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Networking Disaster Recovery Options




Amazon Route 53

- Traffic distribution
- Failover


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Networking Disaster Recovery Options




training and certification



Amazon Route 53

- Traffic distribution
- Failover




Elastic Load Balancing

- Load balancing
- Health checks and failover


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Networking Disaster Recovery Options




training and certification




Amazon Route 53

- Traffic distribution
- Failover



Elastic Load Balancing

- Load balancing
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Amazon VPC

Extend your existing on-premises network topology to the cloud.

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Networking Disaster Recovery Options



Amazon Route 53

- Traffic distribution
- Failover



Elastic Load Balancing

- Load balancing
- Health checks and failover



Amazon VPC

Extend your existing on-premises network topology to the cloud.



AWS Direct Connect

Fast and consistent replication/backups of your large on-premises environment to the cloud

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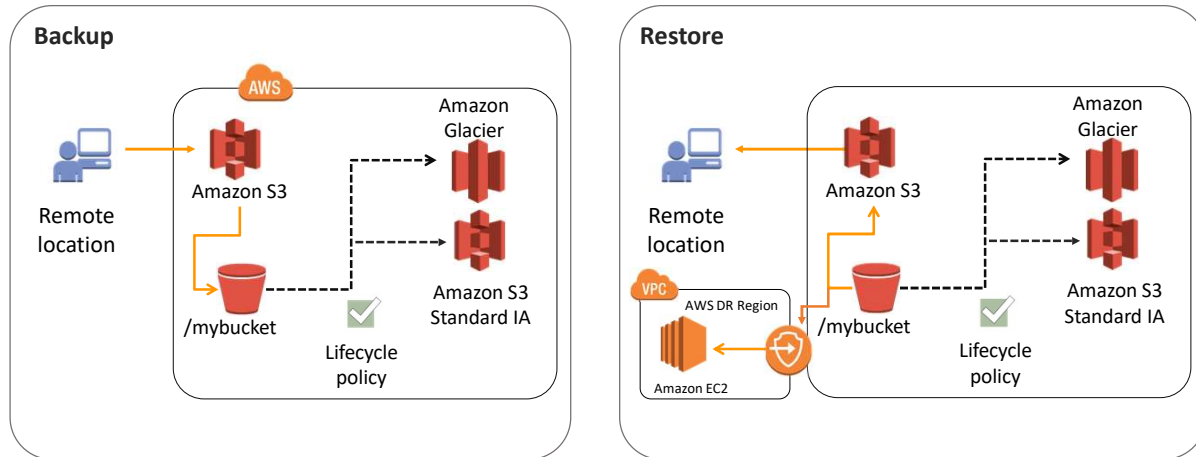


Recovery Strategies

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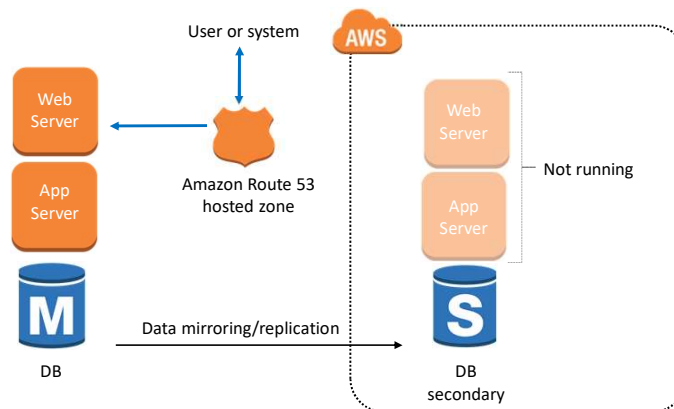
Backup and Restore Example



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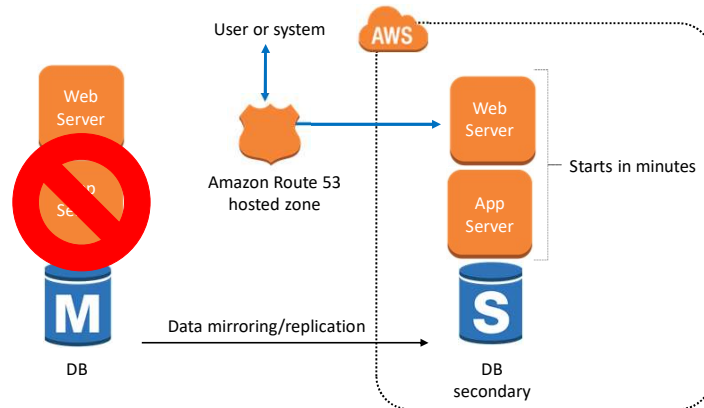
Pilot Light Example



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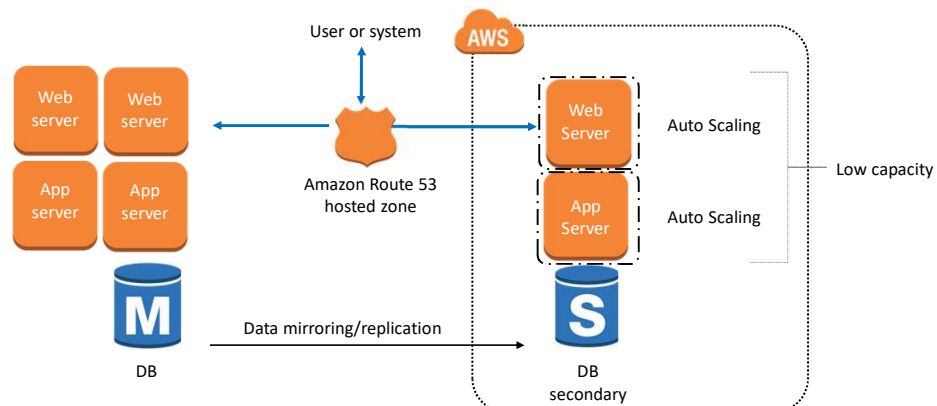
Pilot Light Example



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Fully Working Low-Capacity Standby

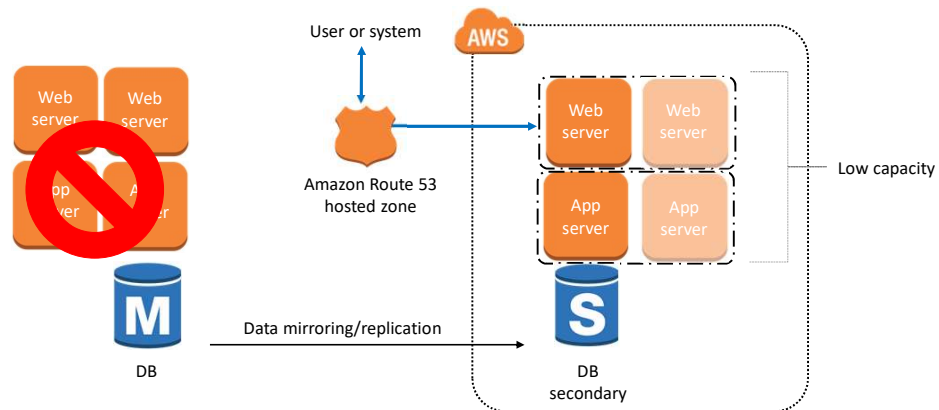


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Fully Working Low-Capacity Standby

aws training and certification

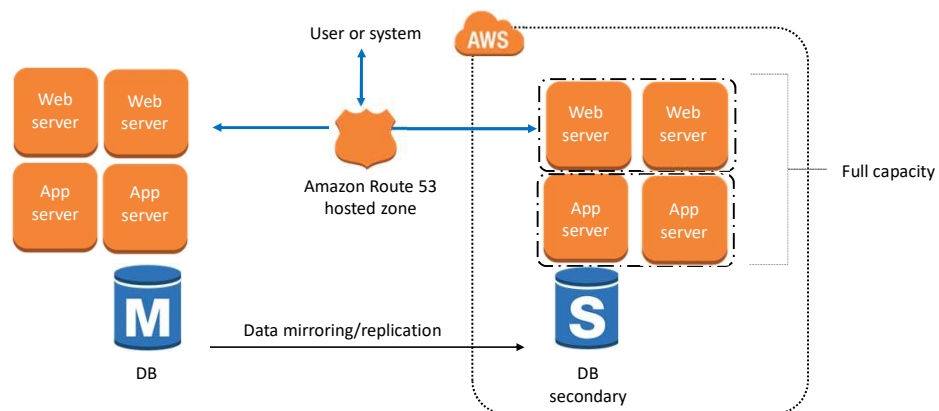


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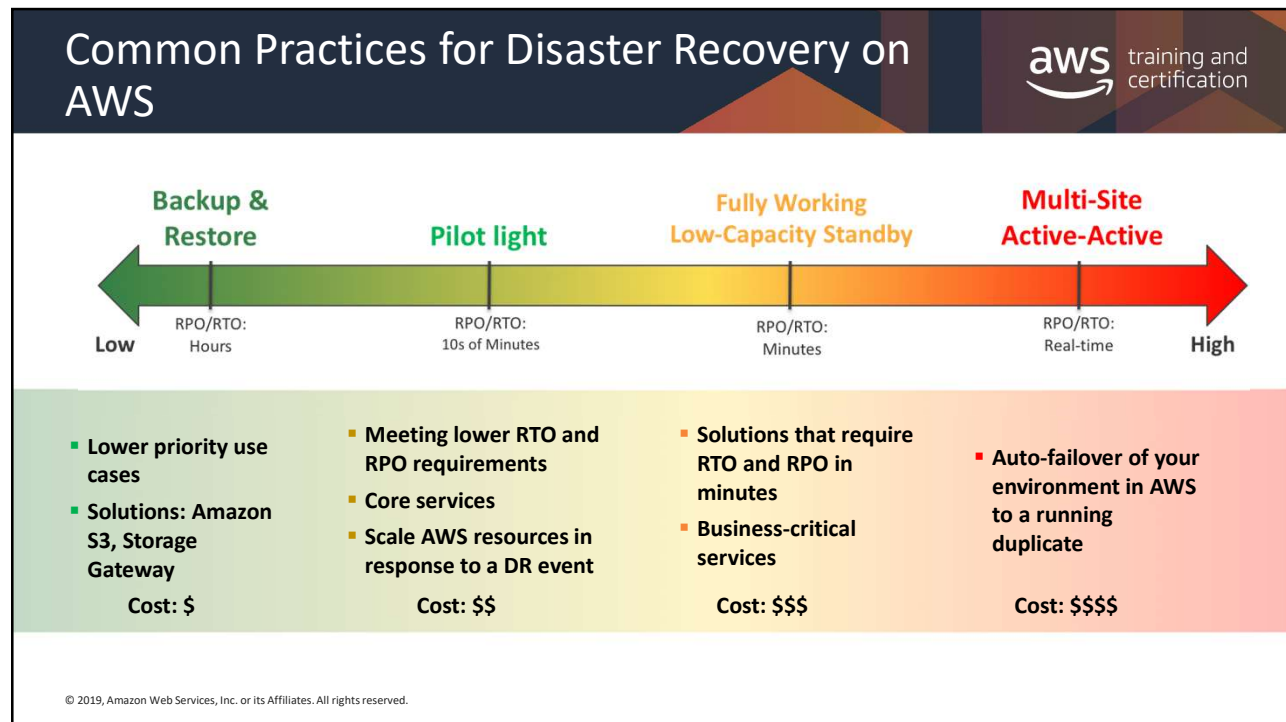
Multi-Site Active-Active

aws training and certification

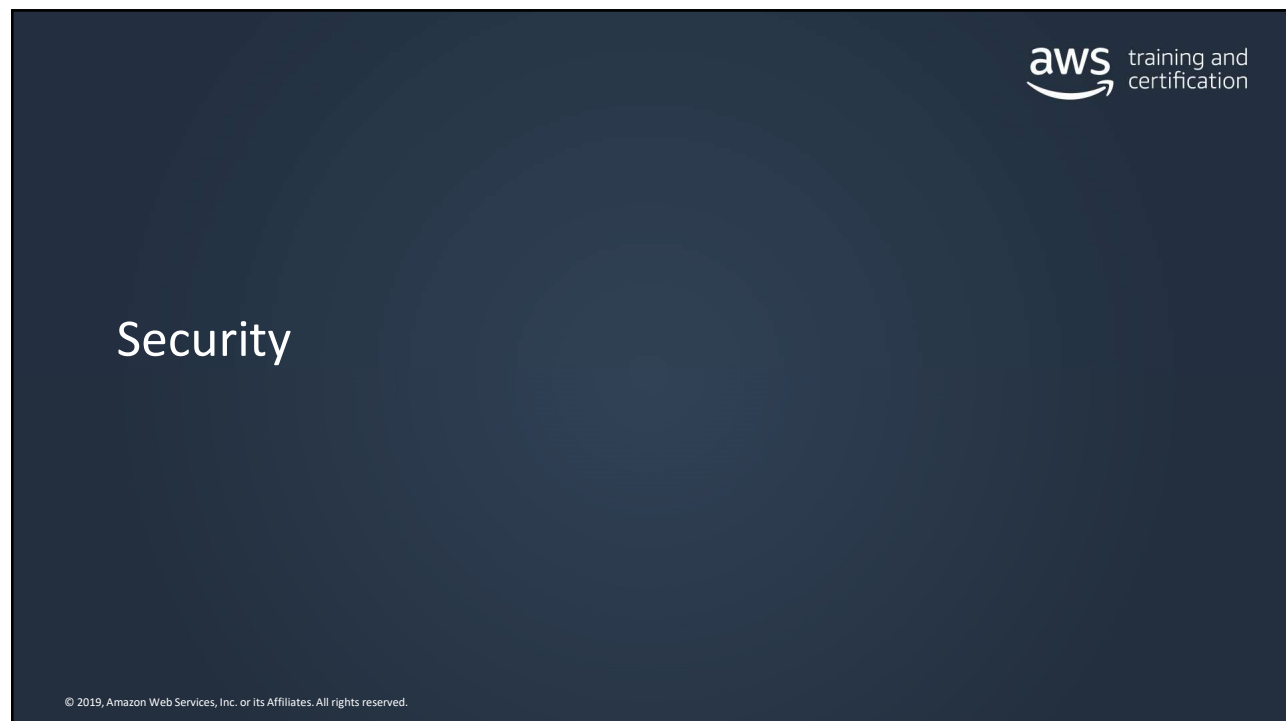


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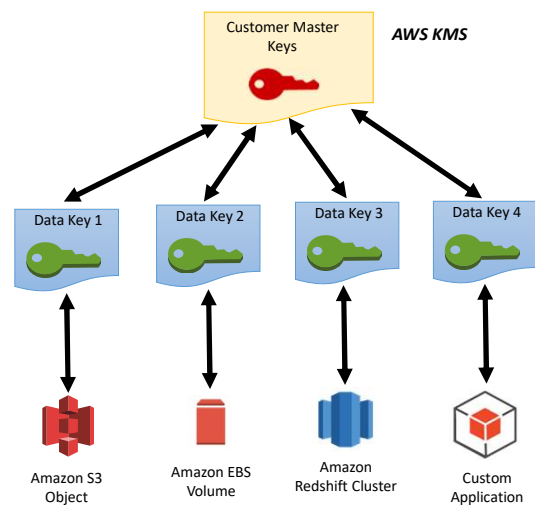


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AWS Key Management Service (KMS)



- Two-tiered key hierarchy using envelope encryption.
- Unique data keys encrypt customer data.
- AWS KMS master keys encrypt data keys.



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AWS KMS: Benefits

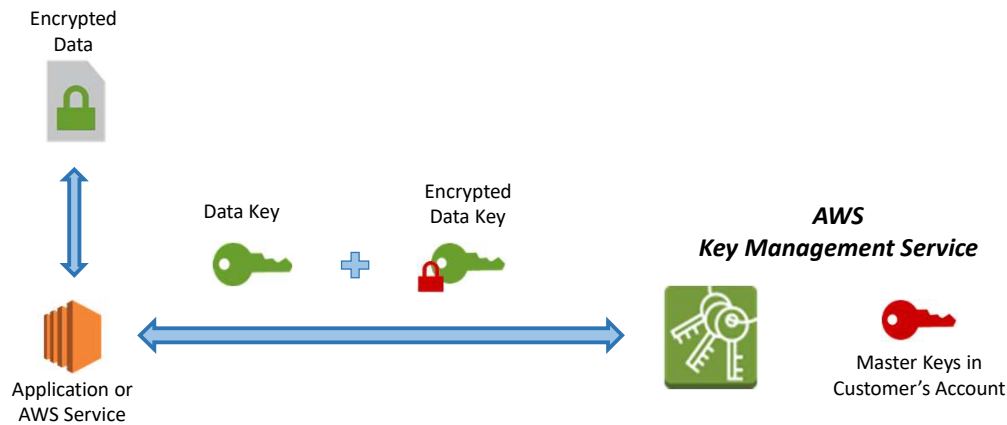


- The master key is never made available.
- Data keys are available directly to the customer and these should be unique to each item encrypted.
 - If one is compromised, it will not allow decryption of other objects.
- The risk of a compromised data key is limited.
- The performance for encrypting large data is improved.
- It is easier to manage a small number of master keys than millions of data keys.

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AWS KMS: How it works



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AWS Secret Manager



- AWS Secrets Manager is an AWS service that makes it easier for you to manage secrets.
- Secrets can be database credentials, passwords, third-party API keys.
- You can store and control access to these secrets centrally by using the Secrets Manager console, the Secrets Manager command line interface (CLI), or the Secrets Manager API and SDKs,
- Secrets Manager encrypts the protected text of a secret by using AWS KMS).
- AWS KMS is a key storage and encryption service used by many AWS services. This helps ensure that your secret is securely encrypted when it's at rest

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