Managing ECS Infrastructure Lifecycle

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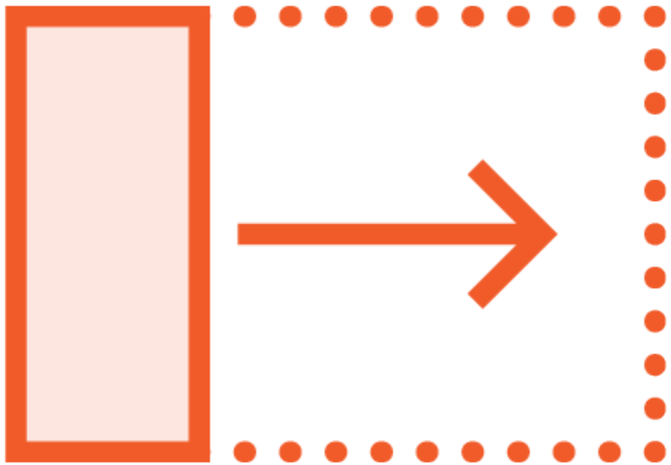
Introduction

Managing ECS Infrastructure Lifecycle

- EC2 auto scaling groups have no awareness of ECS
- By default, any auto scaling event that terminates an EC2 instance will be performed immediately without warning
- So what's the solution?
  - Auto Scaling Lifecycle Hooks
  - Simple Notification Service (SNS)
  - Lambda
  - ECS Container Instance draining

Understanding Auto Scaling Lifecycle Hooks

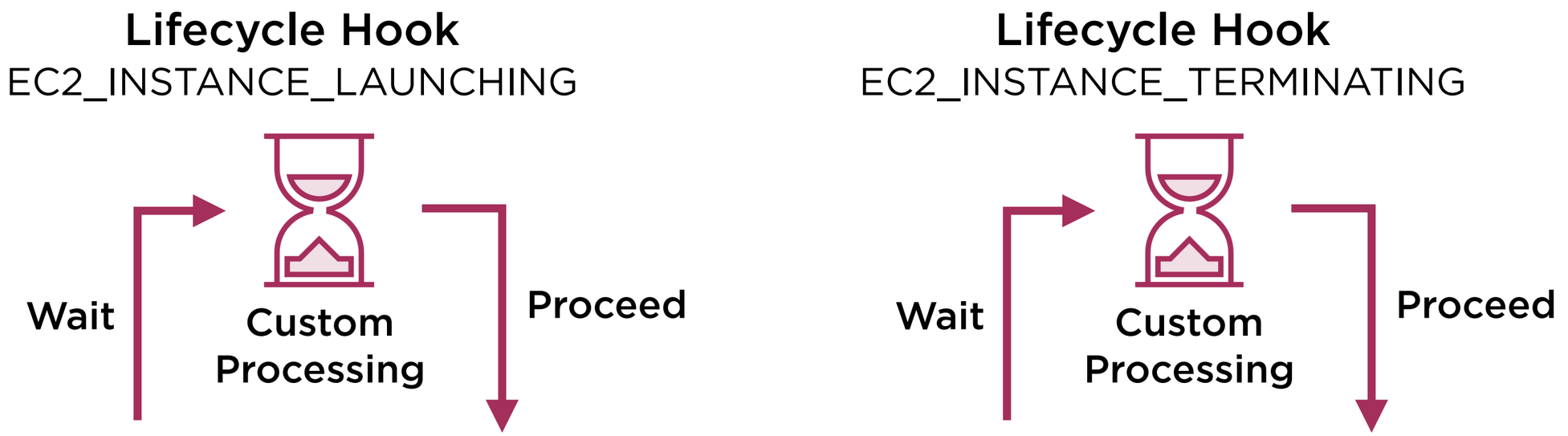
Auto Scaling Instance Termination Scenarios



Auto Scaling Events
Terminate on Scale In

Infrastructure Patching
Terminate and Replace

EC2 Auto Scaling Lifecycle Hooks



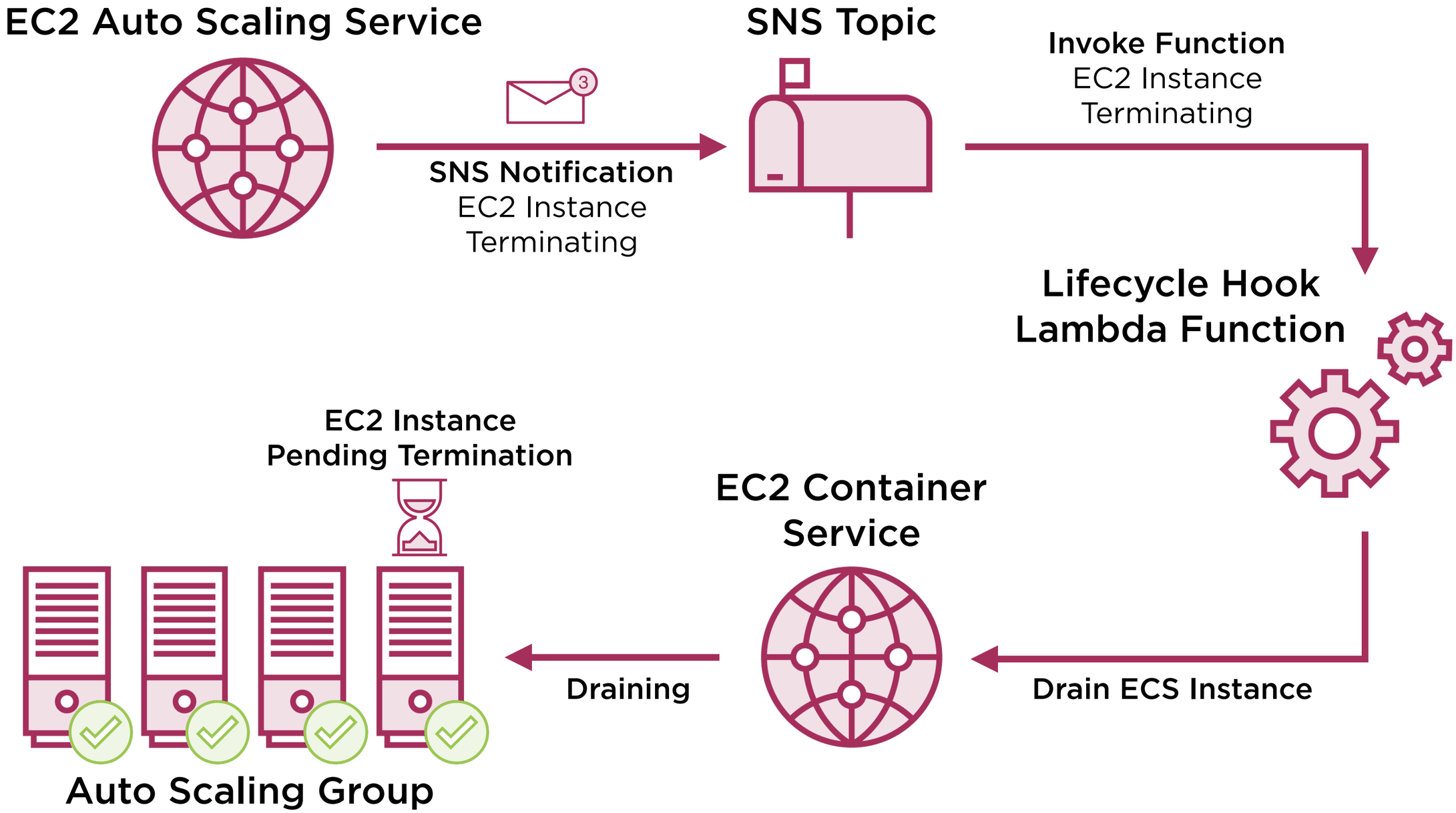
Instance State

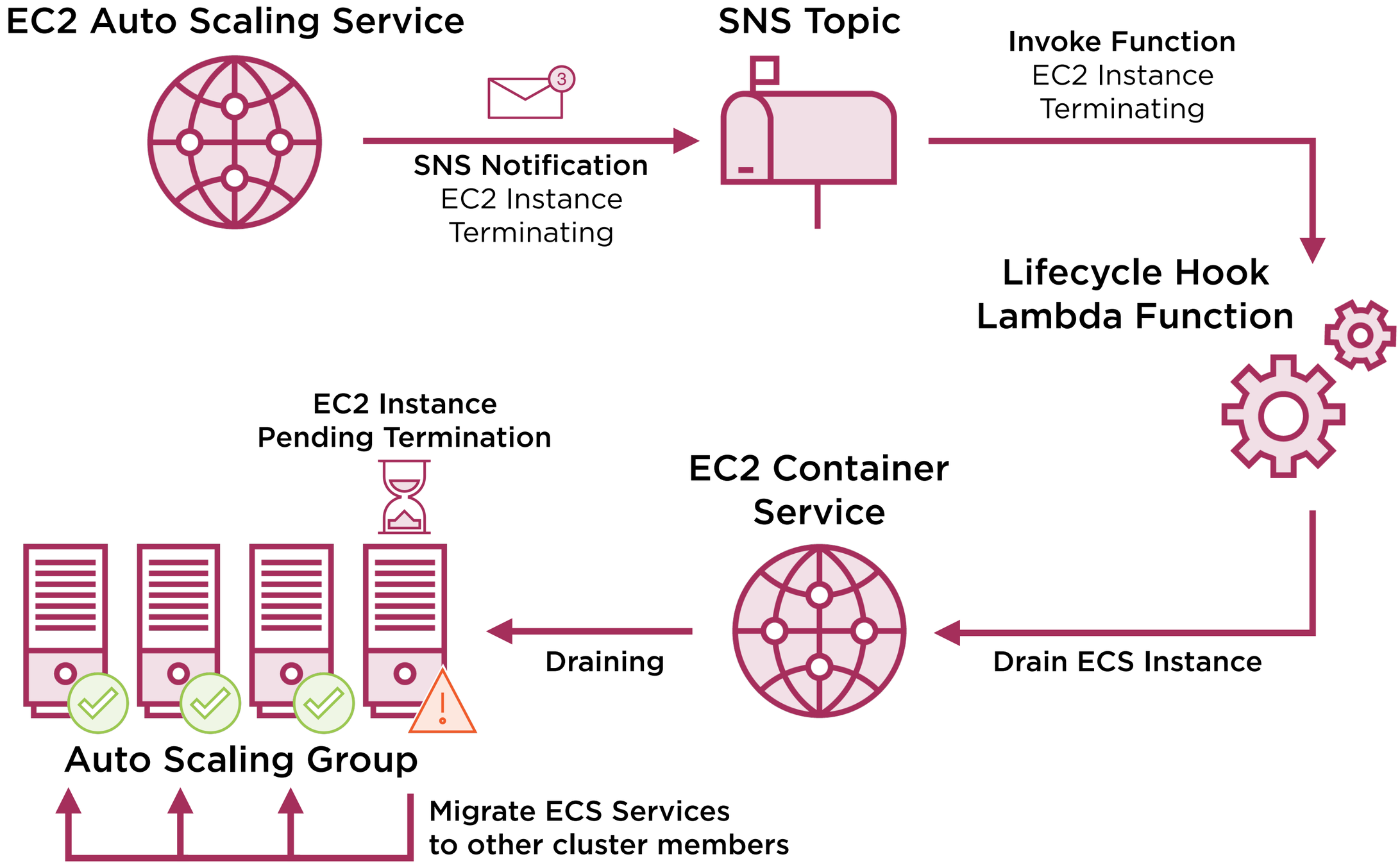
Pending → In Service

Terminating → Terminated

Scale Out Event
Add New Instance

Scale In Event
Terminate Existing Instance


EC2 Auto Scaling Service
SNS Topic
Invoke Function
EC2 Instance
Terminating
SNS Notification
EC2 Instance
Terminating
Lifecycle Hook
Lambda Function
EC2 Instance
Pending Termination
EC2 Container
Service
Draining
Drain ECS Instance
Auto Scaling Group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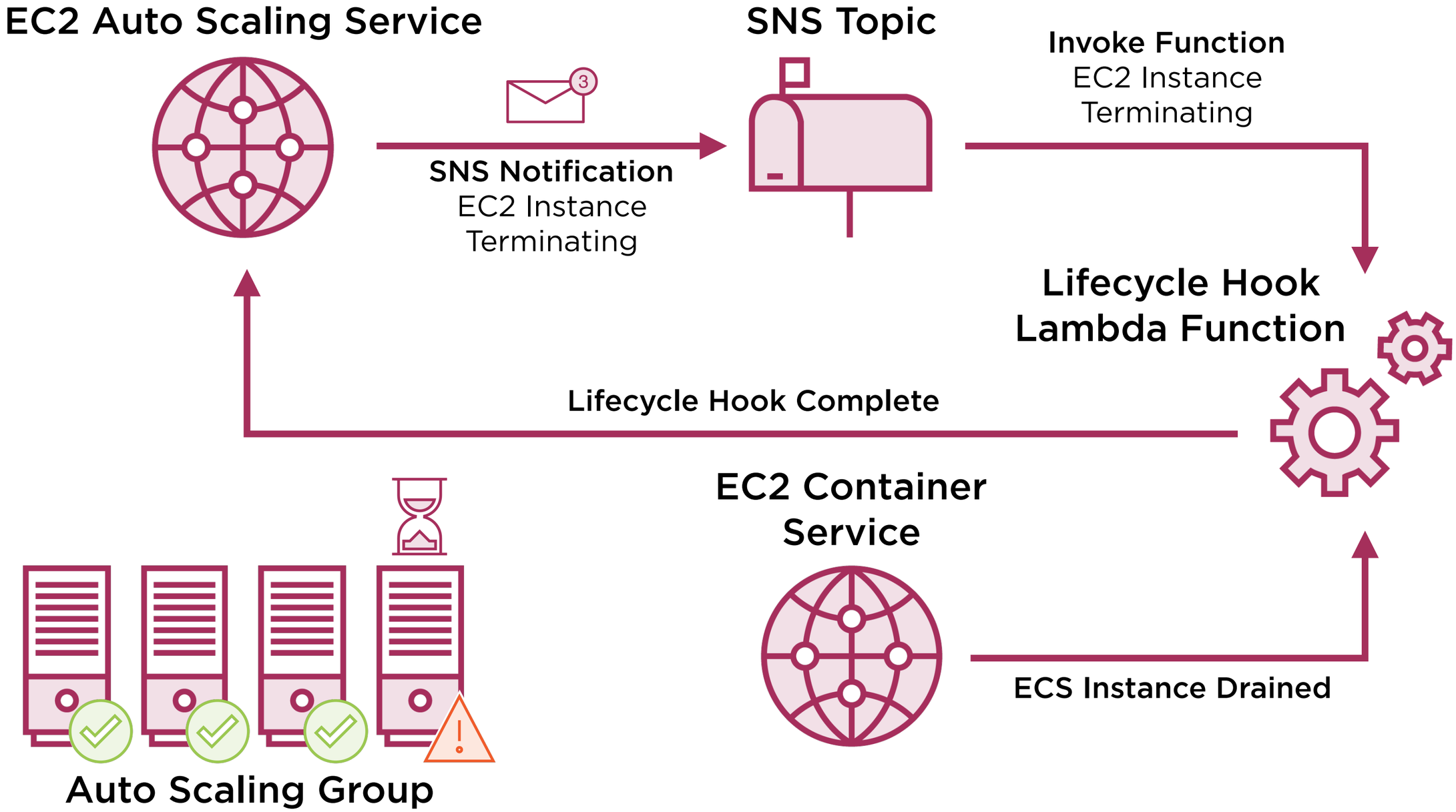
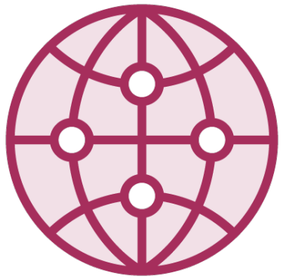
Draining
Drain ECS Instance
Auto Scaling Group
Migrate ECS Services
to other cluster members


EC2 Auto Scaling Service
SNS Topic
Invoke Function
EC2 Instance
Terminating
SNS Notification
EC2 Instance
Terminating
Lifecycle Hook
Lambda Function
Lifecycle Hook Complete
EC2 Container
Service
ECS Instance Drained
Auto Scaling Group

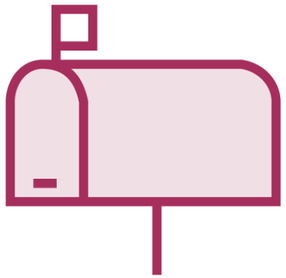
EC2 Auto Scaling Service



Terminate
Instance

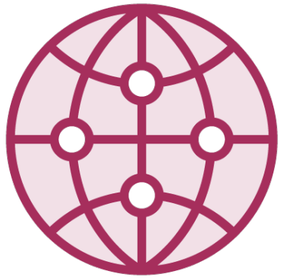
Auto Scaling Group

SNS Topic

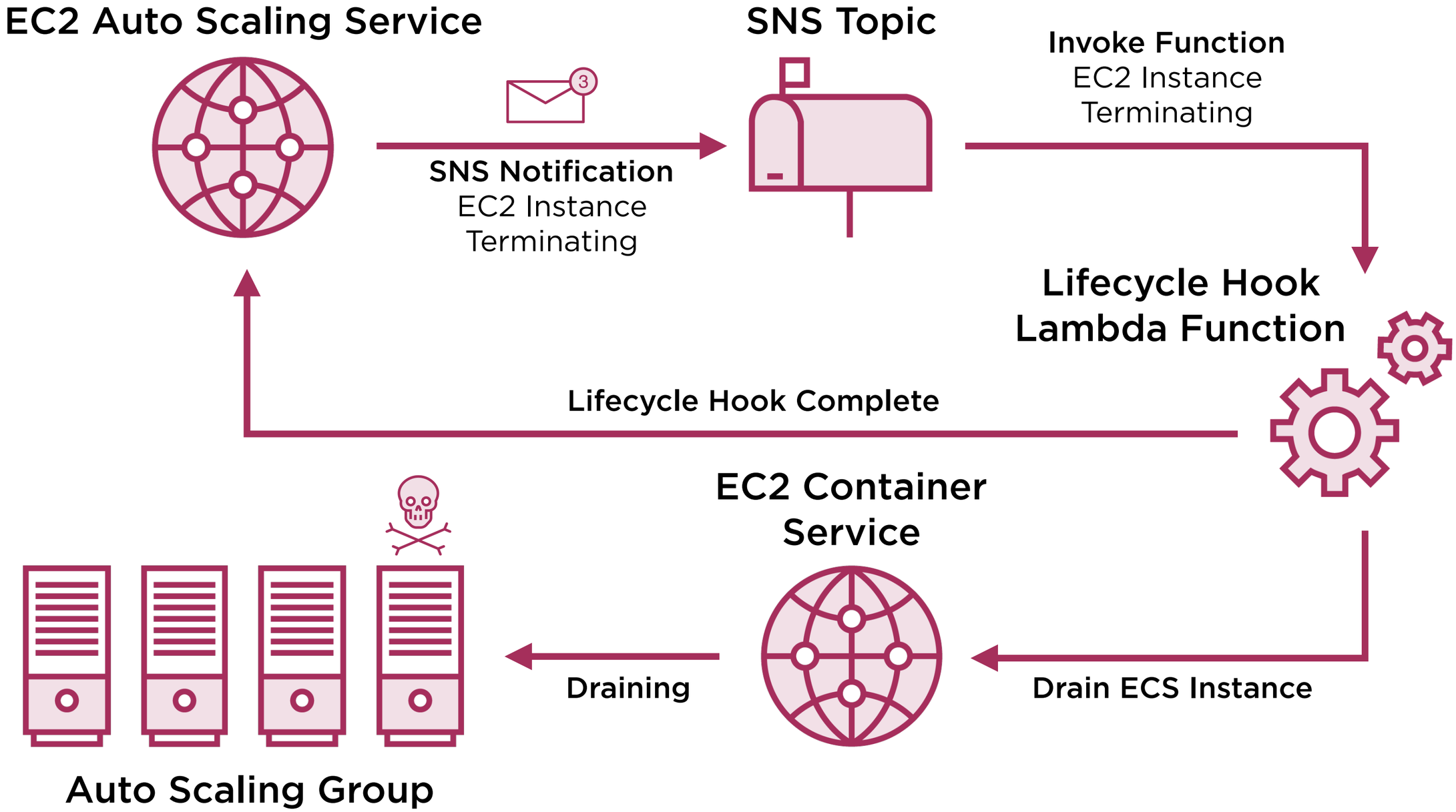


Lifecycle Hook
Lambda Function

EC2 Container
Service



Creating a Lifecycle Hook Lambda Function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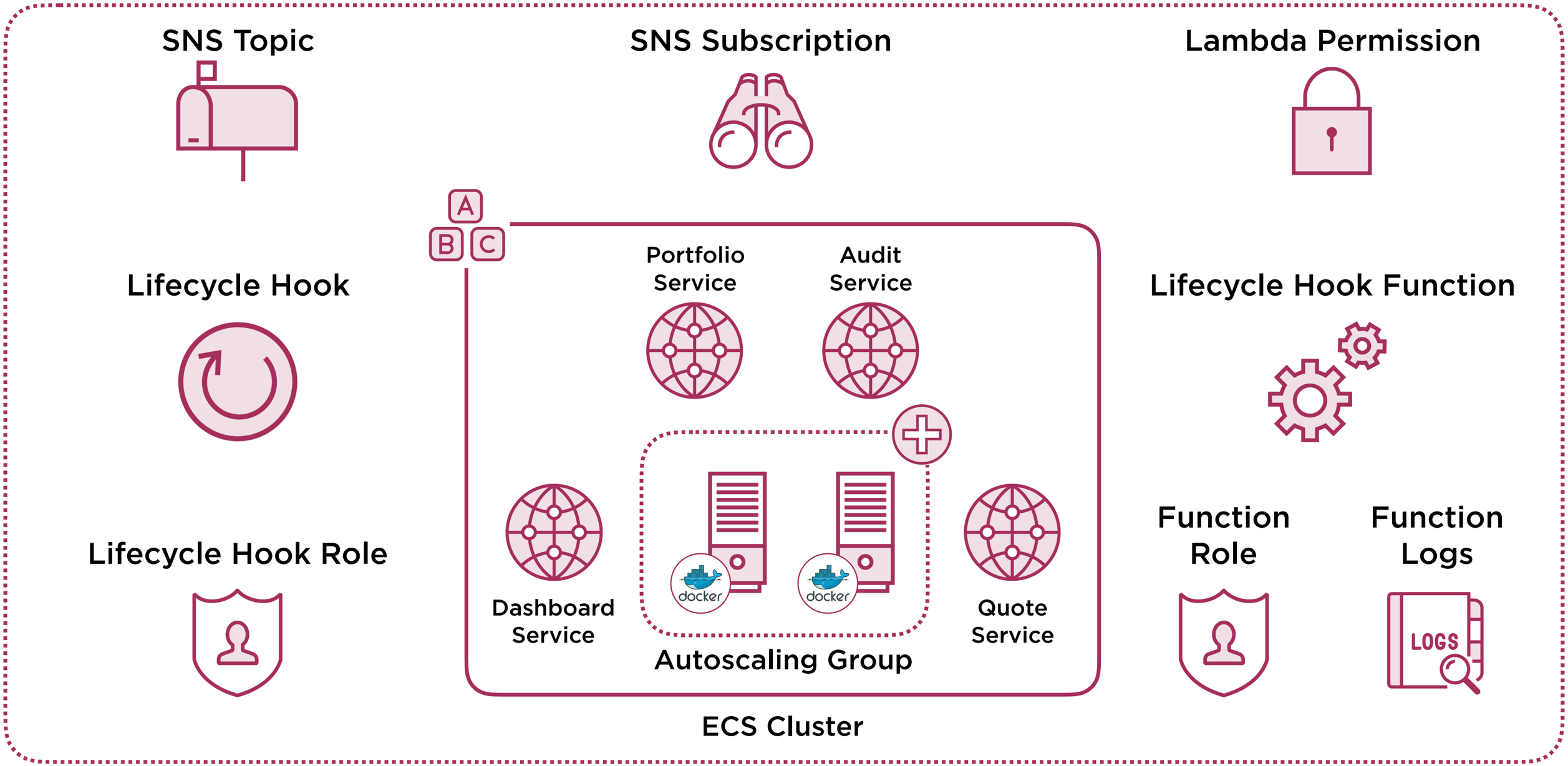
Draining
Drain ECS Instance
Auto Scaling Group

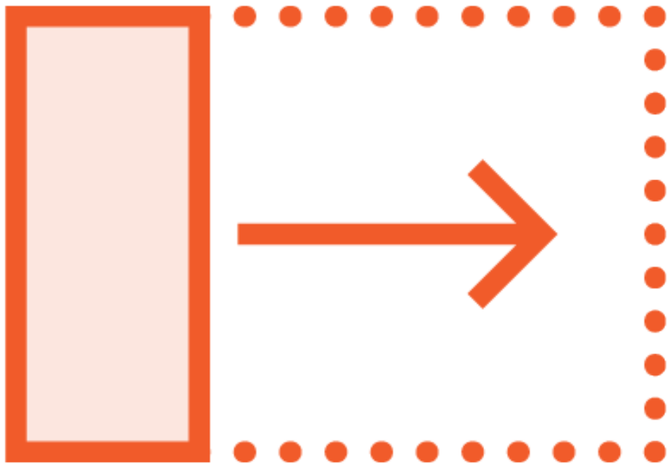
Configuring Lifecycle Hooks in CloudFormation

Microtrader Application Stack



Configuring Auto Scaling Rolling Updates

Auto Scaling Instance Termination Scenarios



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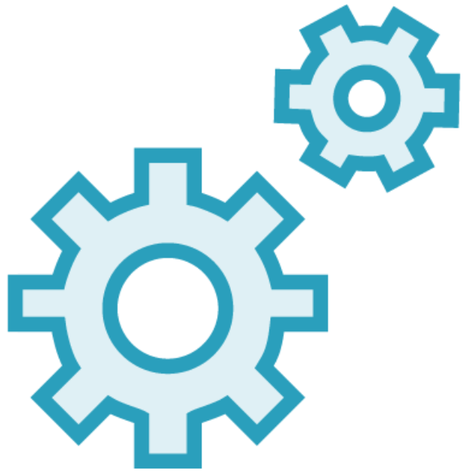
Auto Scaling Rolling Updates

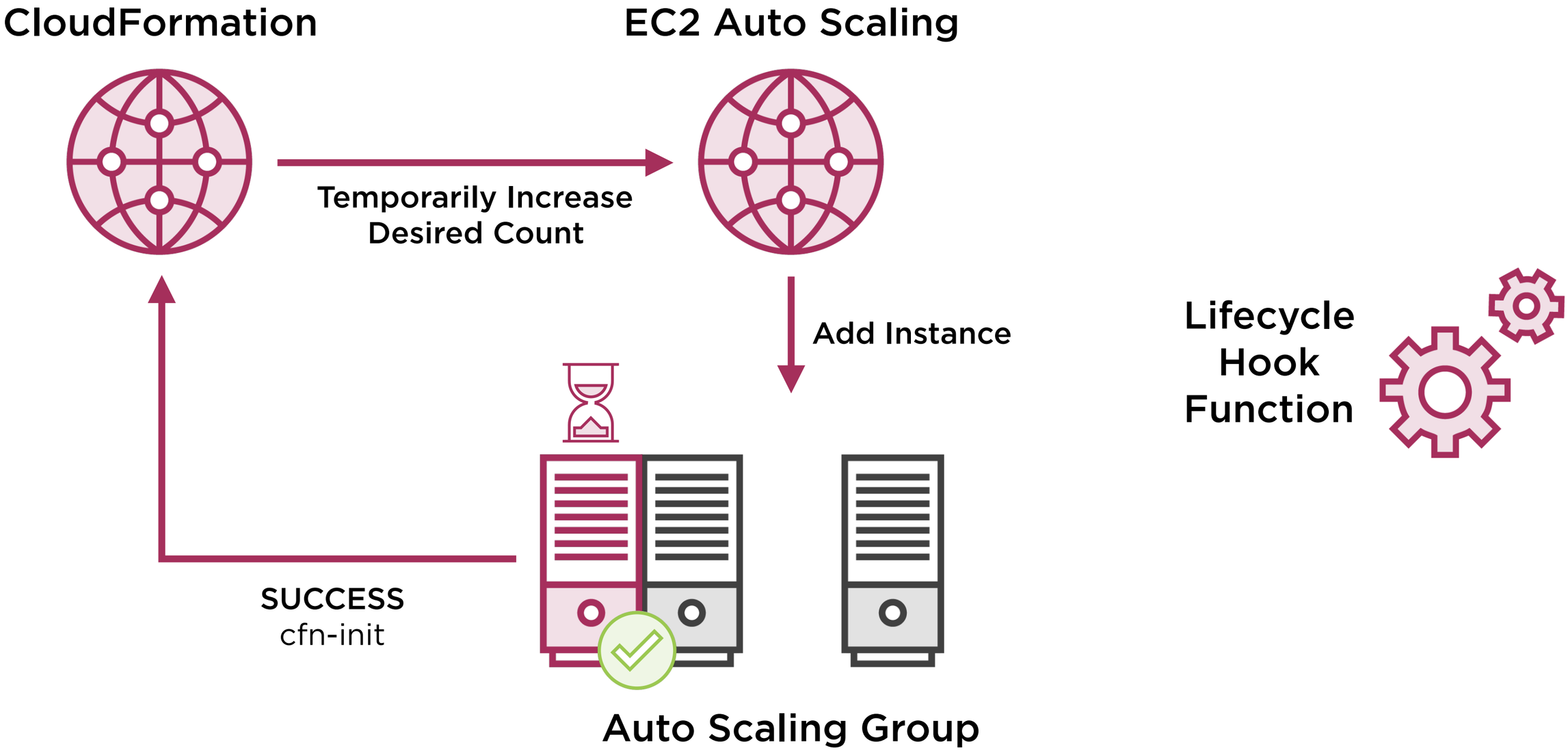
CloudFormation Feature

Fine Tune Rolling Update Behavior

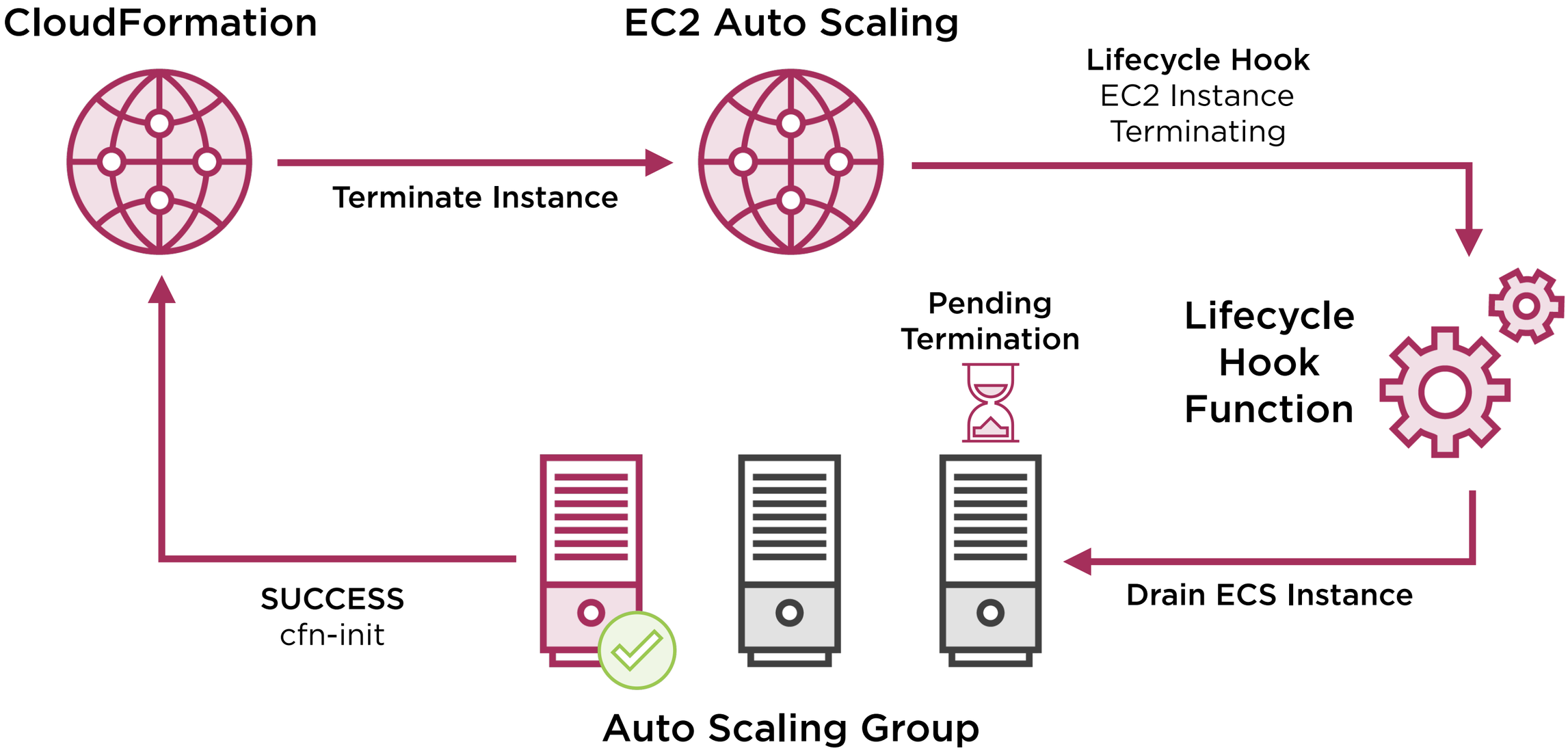


Configured using Update Policies

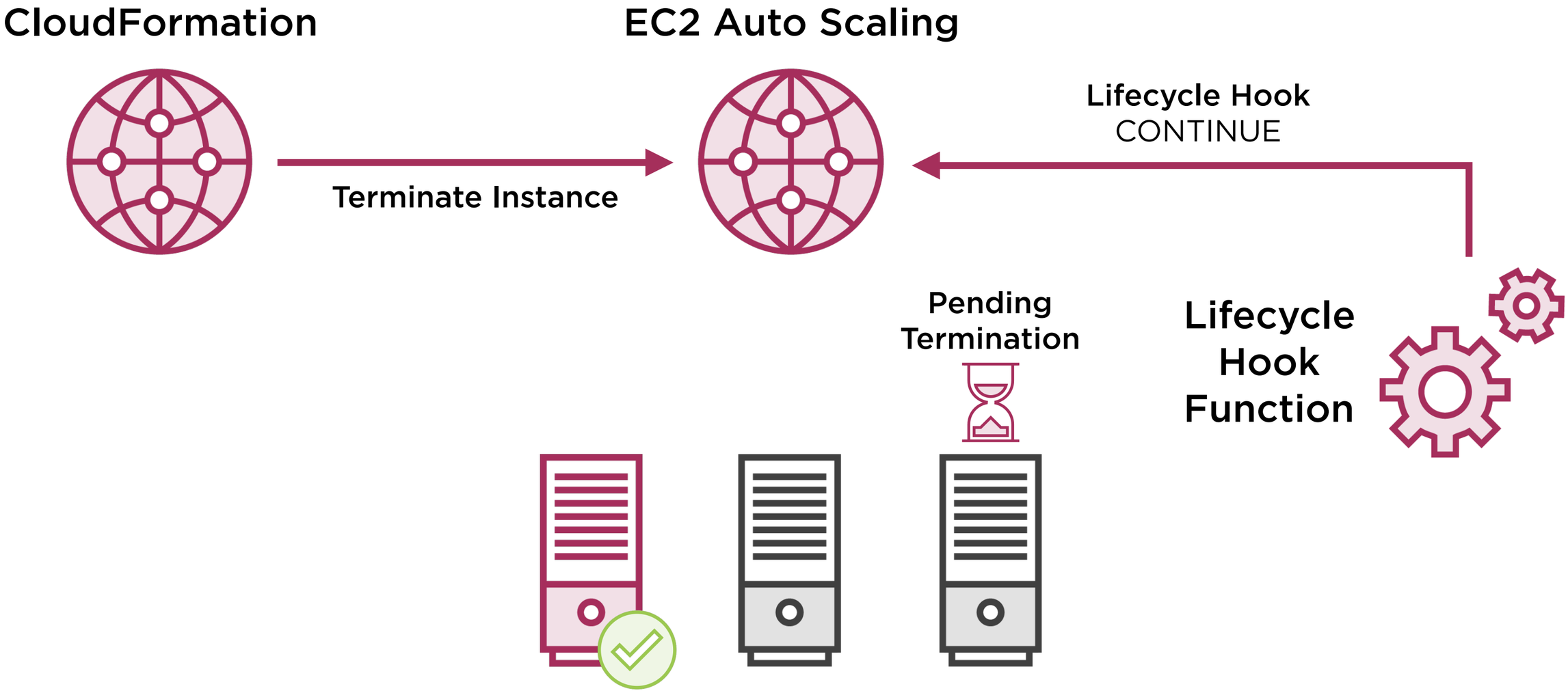
Auto Scaling Rolling Updates



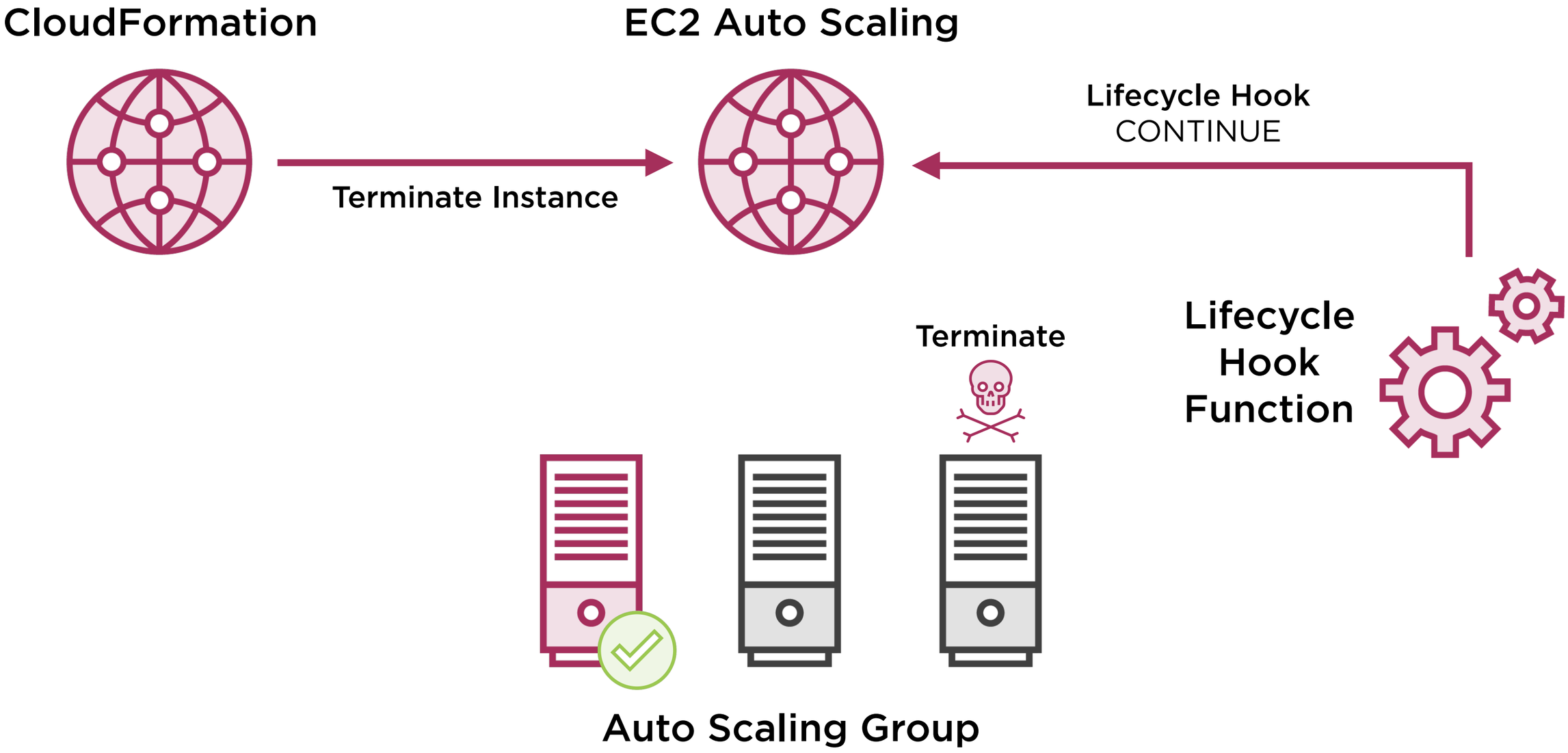
Auto Scaling Rolling Updates



Auto Scaling Rolling Updates



Auto Scaling Rolling Updates



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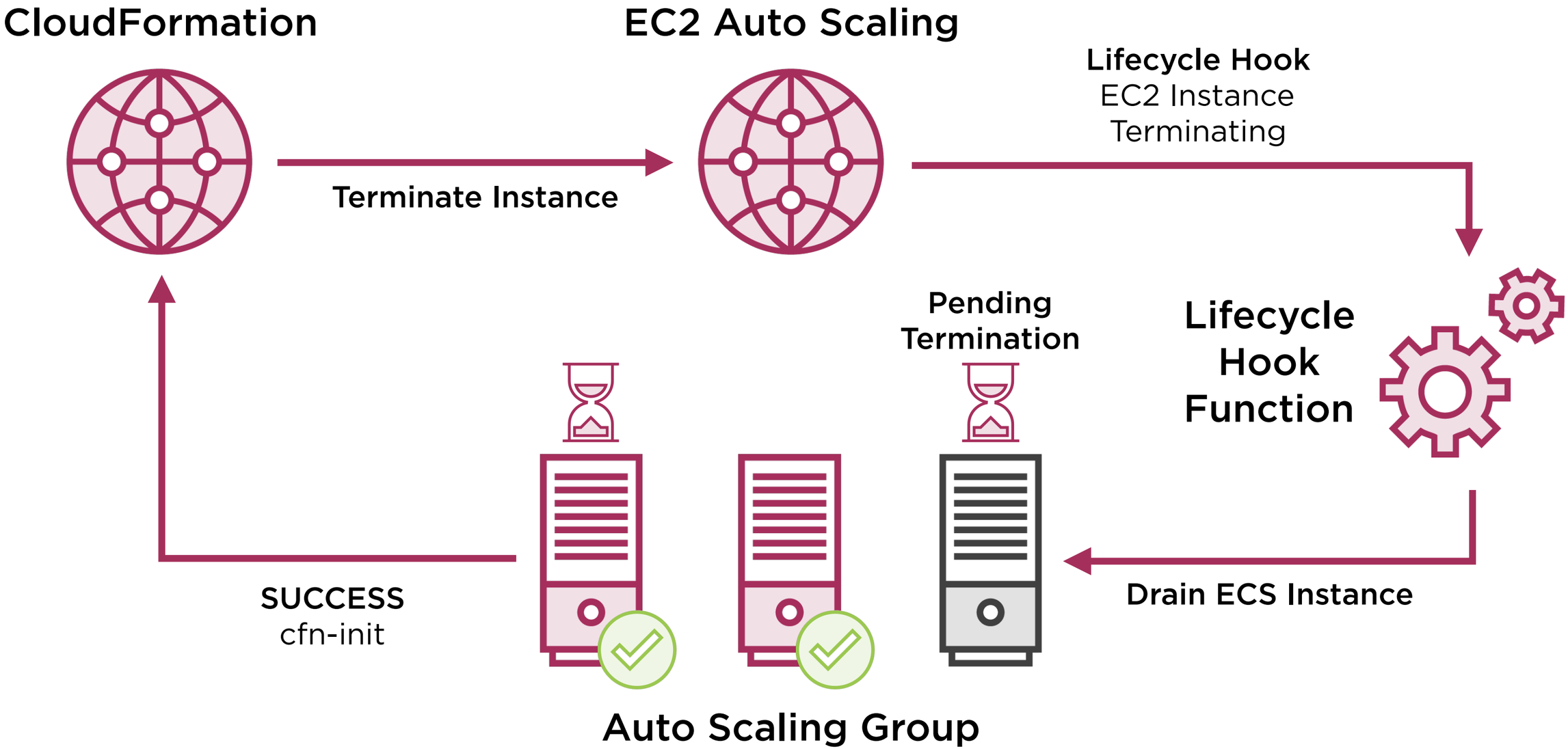
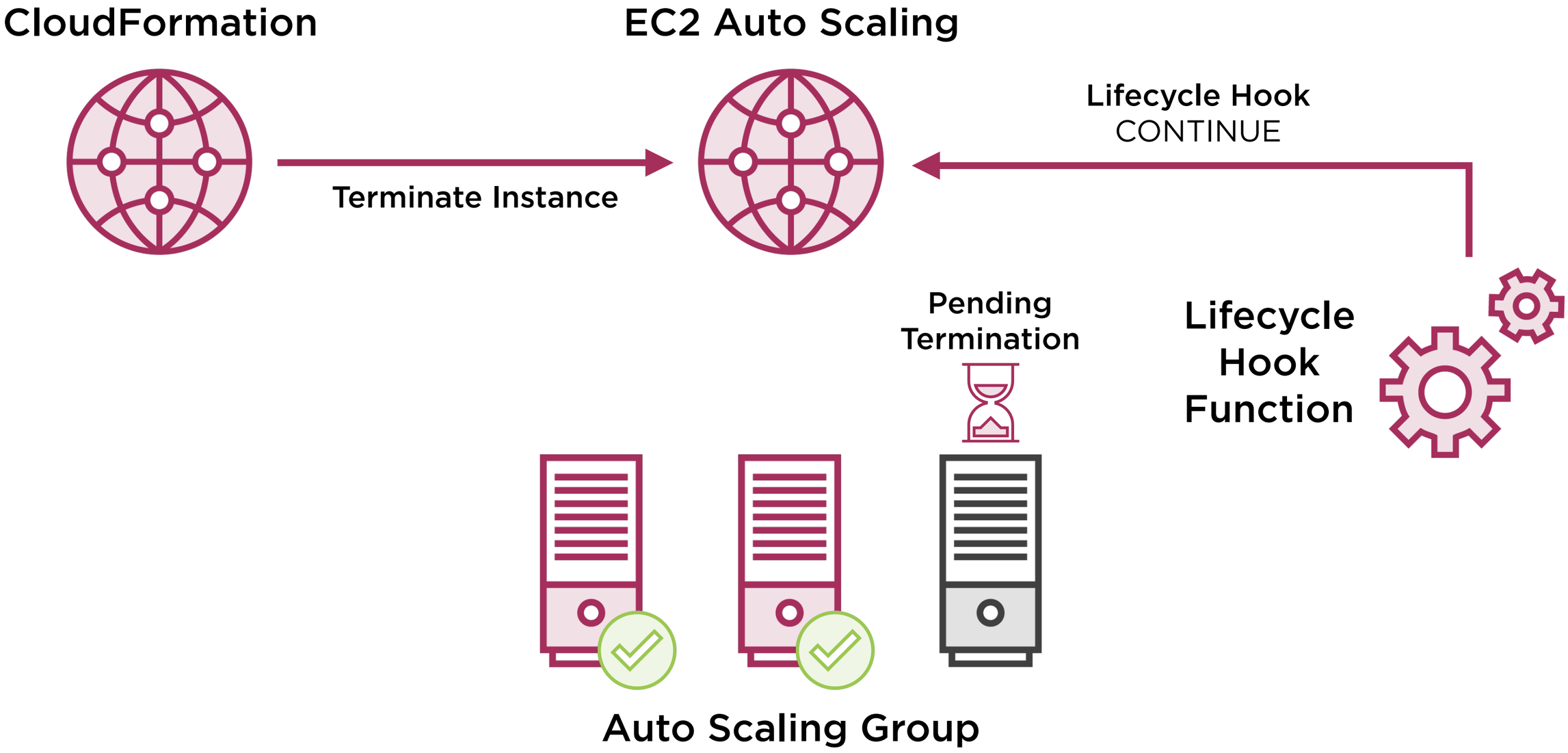


Auto Scaling Rolling Updates



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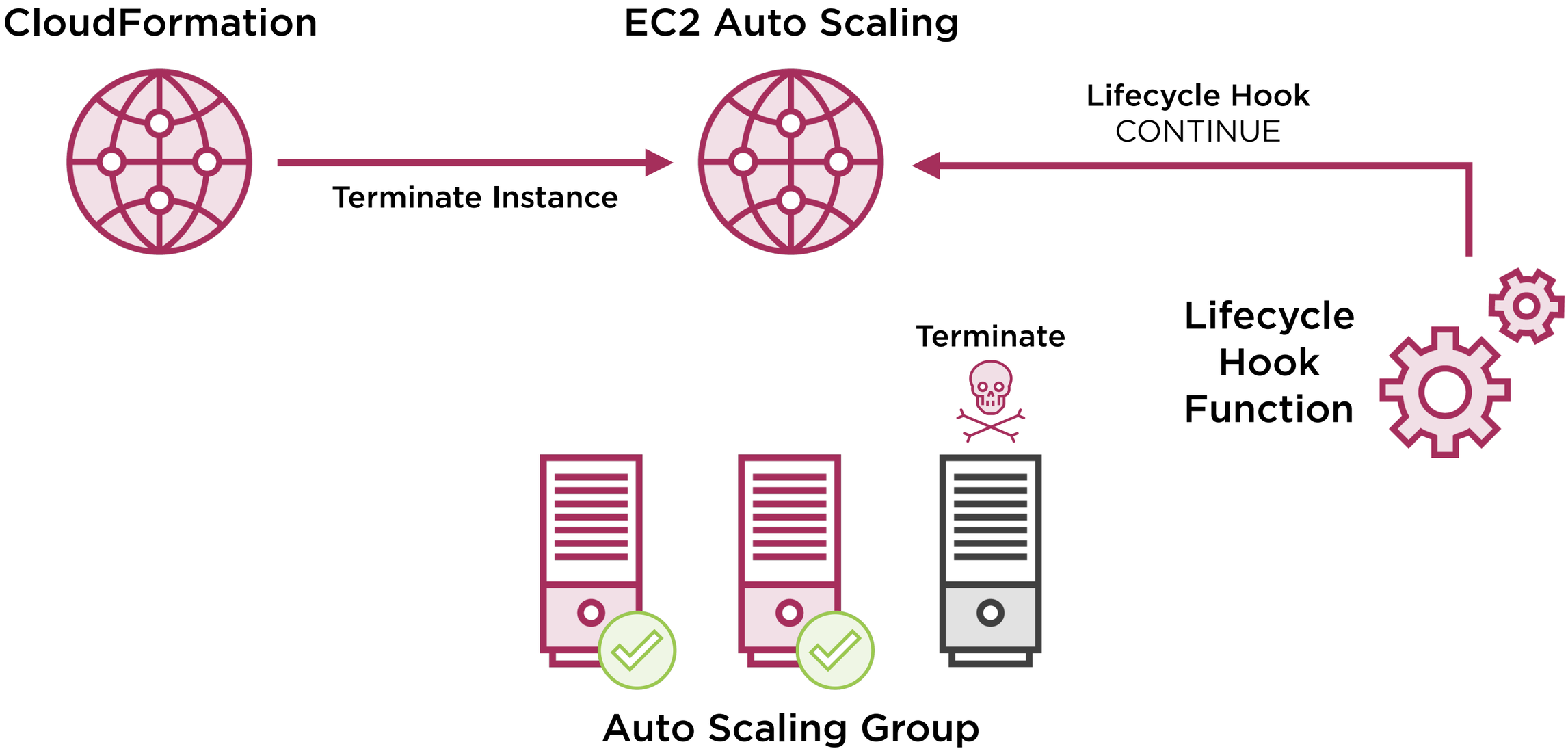

Deploying and Testing Lifecycle Hooks

Summary

Managing ECS Infrastructure Lifecycle

- Maintain service availability during lifecycle events
- Auto scaling scale in
- Instance patching and maintenance

Summary

EC2 Auto Scaling Lifecycle Hooks

- Notify you of an EC2 lifecycle event
  - e.g. when an instance is pending termination
- Allow you to perform custom actions before the lifecycle action proceeds
  - e.g. ECS container instance draining

Summary

CloudFormation Rolling Updates

- Configured using auto scaling group update policies
- Ensures auto scaling group capacity and health is maintained during infrastructure updates