Chapter 6
Compute Services Management

Episode 6.01
Instance Management

Compute Services Management

- Lifecycles
- Instance connections
- Security groups
- Elastic Container Service
- Elastic Beanstalk

Launching Instances

- Bootstrapping
  - Providing code to be run on an instance at launch
- VM import/export
  - Importing existing virtual machines into EC2
- Instance metadata
  - Security groups
  - Instance ID
  - Instance type
  - AMI base of the instance

Launching Instances

- Bootstrapping
  - Providing code to be run on an instance at launch
- VM import/export
  - Importing existing virtual machines into EC2

Instance Metadata

- Security groups
- Instance ID
- Instance type
- AMI base of the instance

DEMO

- Looking at instance metadata
- Using instance tags

Instance Management

- Changing instance type
  - Stop the instance
  - Change the type
- Change security groups on the fly
- Termination protection

Instance Management

- Changing instance type
  - Stop the instance
  - Change the type
- Change security groups on the fly
- Activate termination protection

Episode 6.02
Connecting to Instances Lab

DEMO

- Connecting from the Management Console
- Connecting from RDP

Episode 6.03
Working with Security Groups

Security Groups

- Like a firewall for an instance
- Up to five attached to an instance
- Instances receive the default security group for the VPC
  - When no other security group is attached

Security Groups

- Limited to five per instance
- Can layer security groups

Security Groups

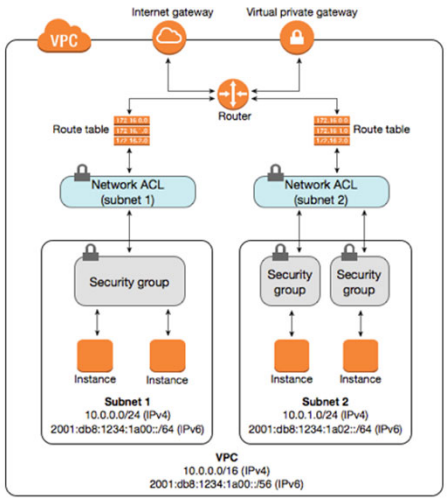
- Instances receive the default security group for the VPC
  - Default setting
  - Other security group may be attached
  - Default security group may be detached

Security Groups vs. NACLs

Security Group	Network ACL
Operates at the instance level	Operates at the subnet level
Supports allow rules only	Supports allow rules and deny rules
Is stateful: Return traffic is automatically allowed, regardless of any rules	Is stateless: Return traffic must be explicitly allowed by rules
We evaluate all rules before deciding whether to allow traffic	We process rules in number order when deciding whether to allow traffic
Applies to an instance only if someone specifies the security group when launching the instance, or associates the security group with the instance later on	Automatically applies to all instances in the subnets it's associated with (therefore, you don't have to rely on users to specify the security group)

Recreate in post

Security Groups & ACLs Illustrated



Security Group Constraints

- Only “allow” rules are permitted
- Separate inbound and outbound rules are used
- Stateful
  - By default, no inbound traffic is allowed without request
  - By default, all outbound traffic is allowed
- By default, security groups are only bound to the primary network interface
  - Can be bound to other network interfaces, including ENIs

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Security Group Constraints

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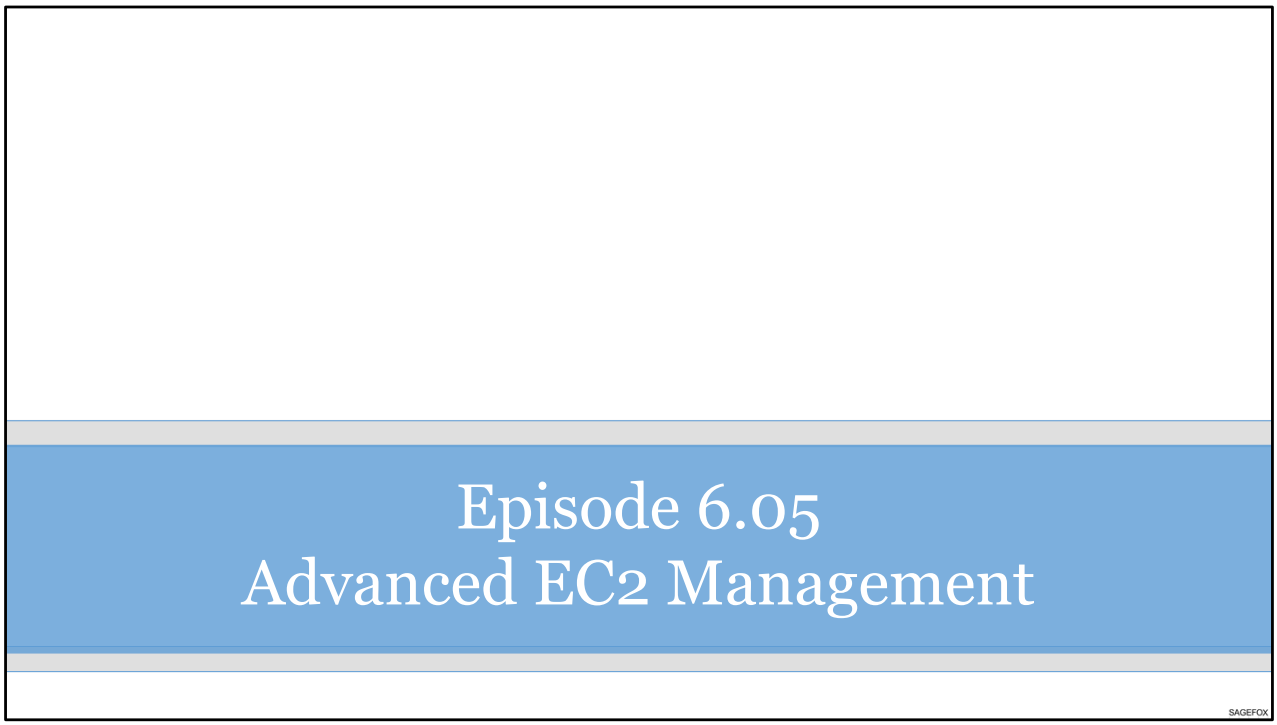
Episode 6.04
Working with Security Groups Lab

DEMO

- Working with security groups


Episode 6.05
Advanced EC2 Management
SAGEFOX

No Slide

- There are no slides for this episode.

SAGEFOX


Episode 6.06
AWS Batch
SAGEFOX

No Slide

- There are no slides for this episode.

SAGEFOX

Episode 6.07
Elastic Container Service (ECS)

Containers

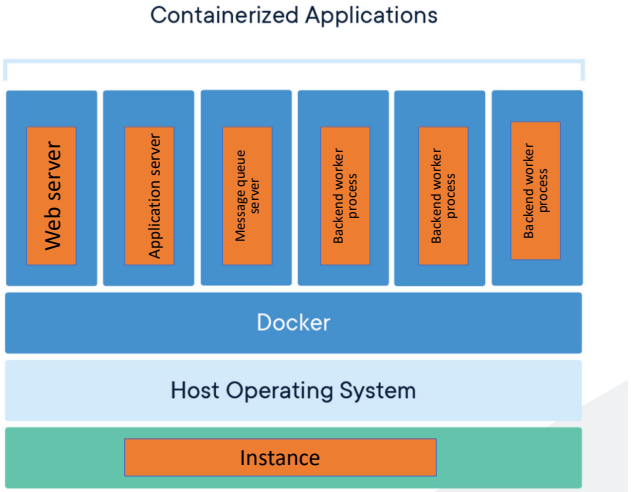
- https://www.docker.com/resources/what-container
  - Docker containers include everything needed to run an application
  - Allow for portability to different platforms

ECS Features

- No virtual machine builds required
- Uses Amazon Fargate to automatically build environments
- Can use EC2 instances for more control

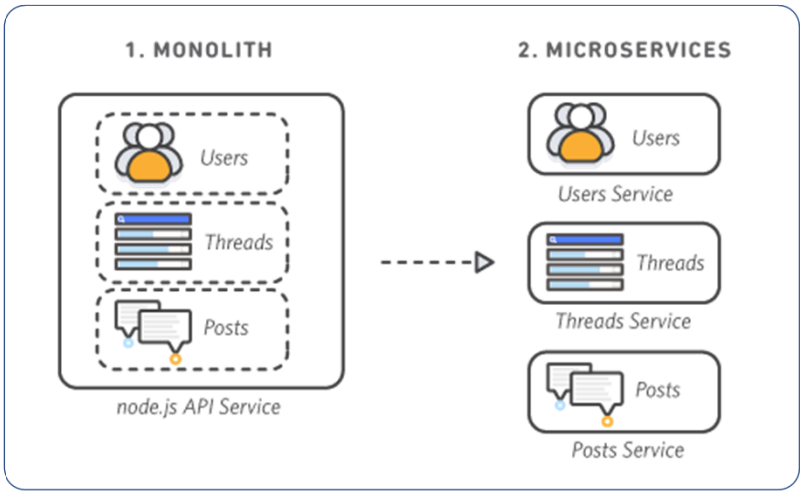
Container Usage

- Web server
- Application server
- Message queue server
- Each of the backend worker processes



Animate

Containers Illustrated



DEMO

- Using the ECS Management Console

Episode 6.08
Elastic Beanstalk Environment

DEMO

- Creating a Server Instance with Elastic Beanstalk
- Managing an Environment