Instance Management

EPISODE 6.01

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
- Activate termination protection

Instance Connection Lab

EPISODE 6.02

DEMO

- Connecting from the Management Console
- Connecting from RDP

Security Groups

EPISODE 6.03

Security Groups

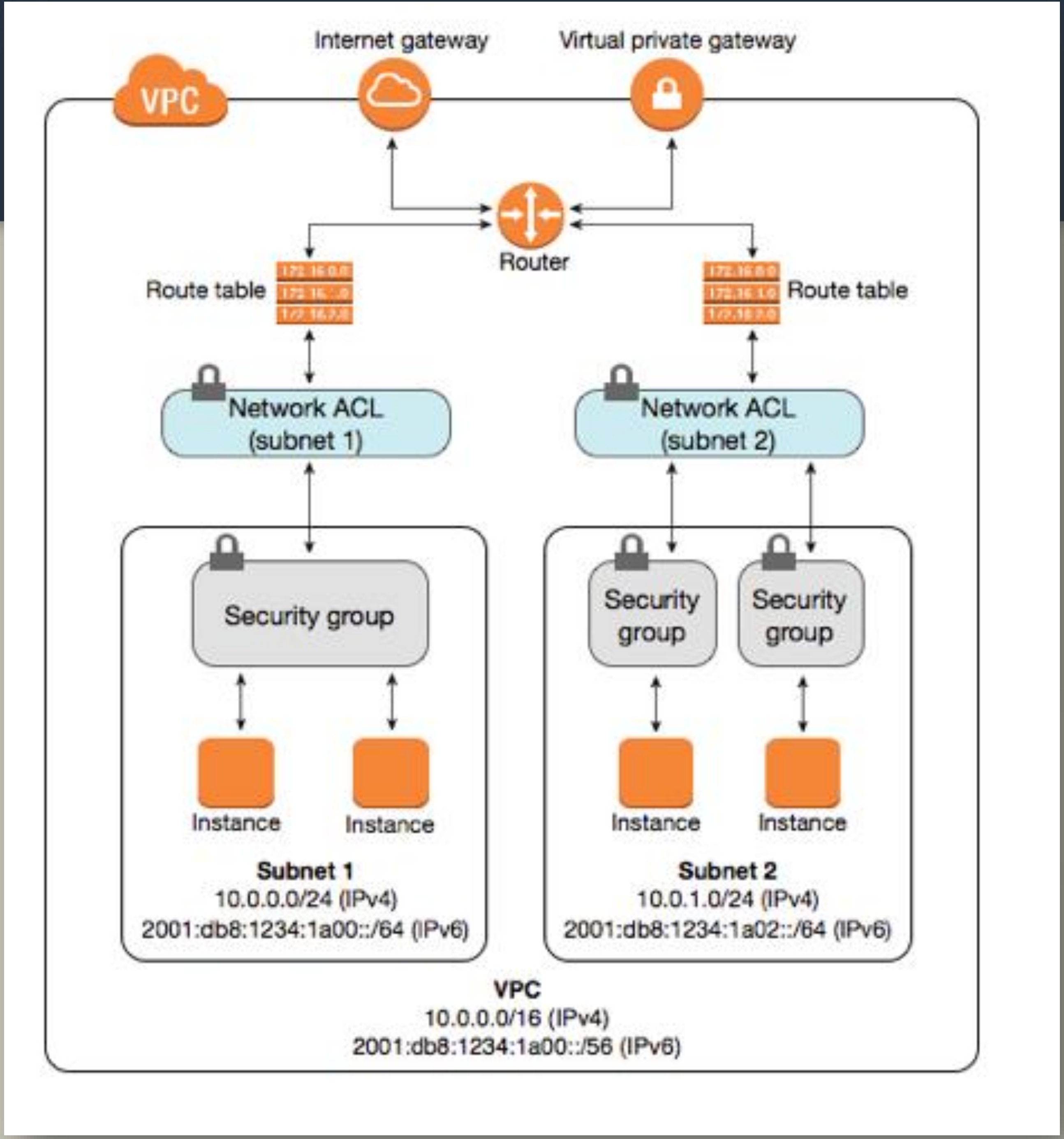
- Limited to five per instance
- Can layer security groups

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)


Internet gateway
Virtual private gateway
VPC
Router
Route table
Route table
Network ACL (subnet 1)
Network ACL (subnet 2)
Security group
Security group
Security group
Instance
Instance
Instance
Instance
Subnet 1
10.0.0.0/24 (IPv4)
2001:db8:1234:1a00::/64 (IPv6)
Subnet 2
10.0.1.0/24 (IPv4)
2001:db8:1234:1a02::/64 (IPv6)
VPC
10.0.0.0/16 (IPv4)
2001:db8:1234:1a00::/56 (IPv6)

Security Group Constraints

- Only “allow” rules are permitted
- Separate inbound and outbound rules are used

Security Group Constraints

- Stateful
  - By default, no inbound traffic is allowed without request
  - By default, all outbound traffic is allowed

Security Group Constraints

- By default, security groups are only bound to the primary network interface
  - Can be bound to other network interfaces, including ENIs

Security Groups Lab

EPISODE 6.04

DEMO

- Working with security groups

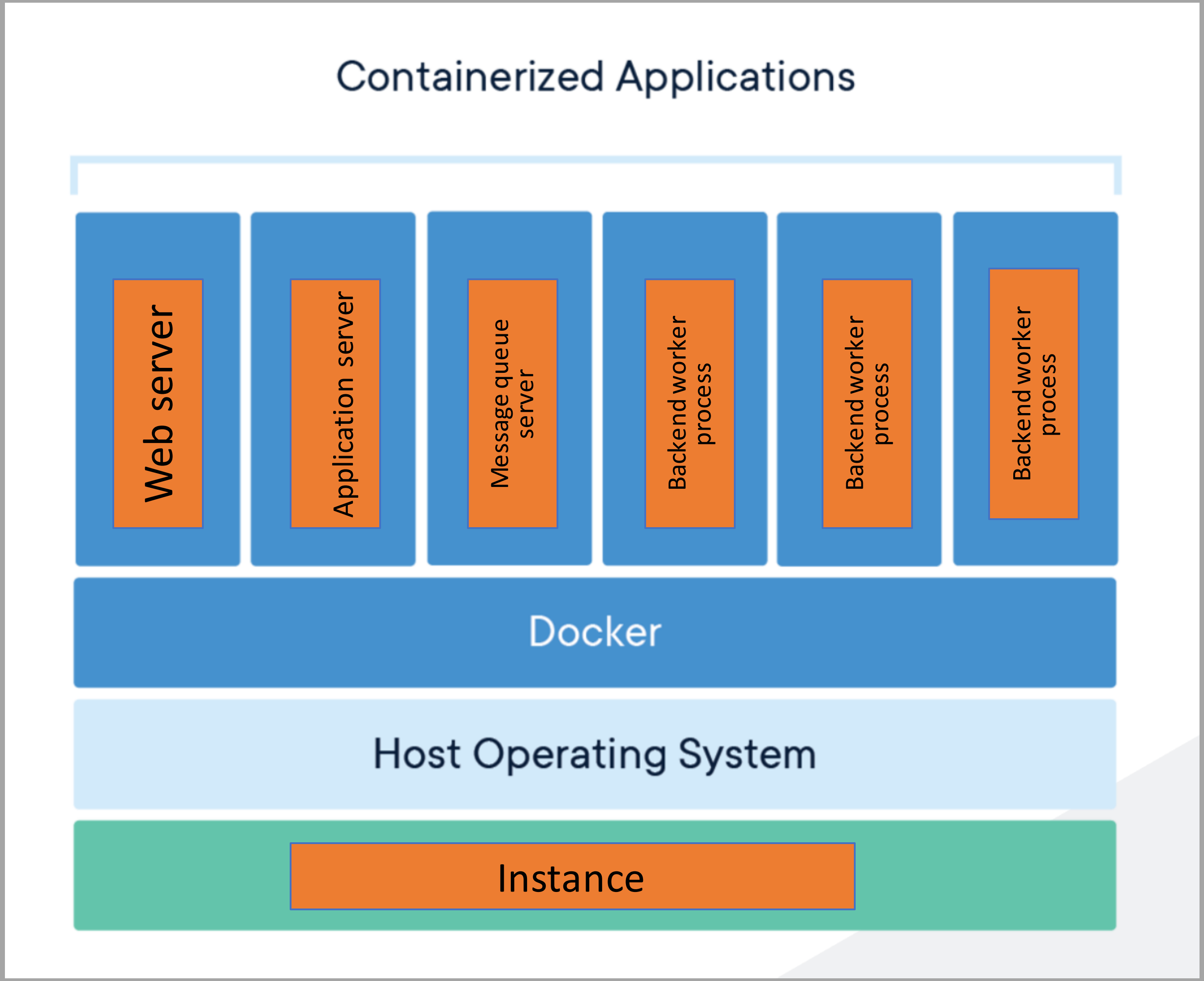
Elastic Container Service (ECS)

EPISODE 6.04

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

DEMO

- Using the ECS Management Console

Elastic Beanstalk Environment

EPISODE 6.05

DEMO

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

- EPISODE 6.01
- Instance Management

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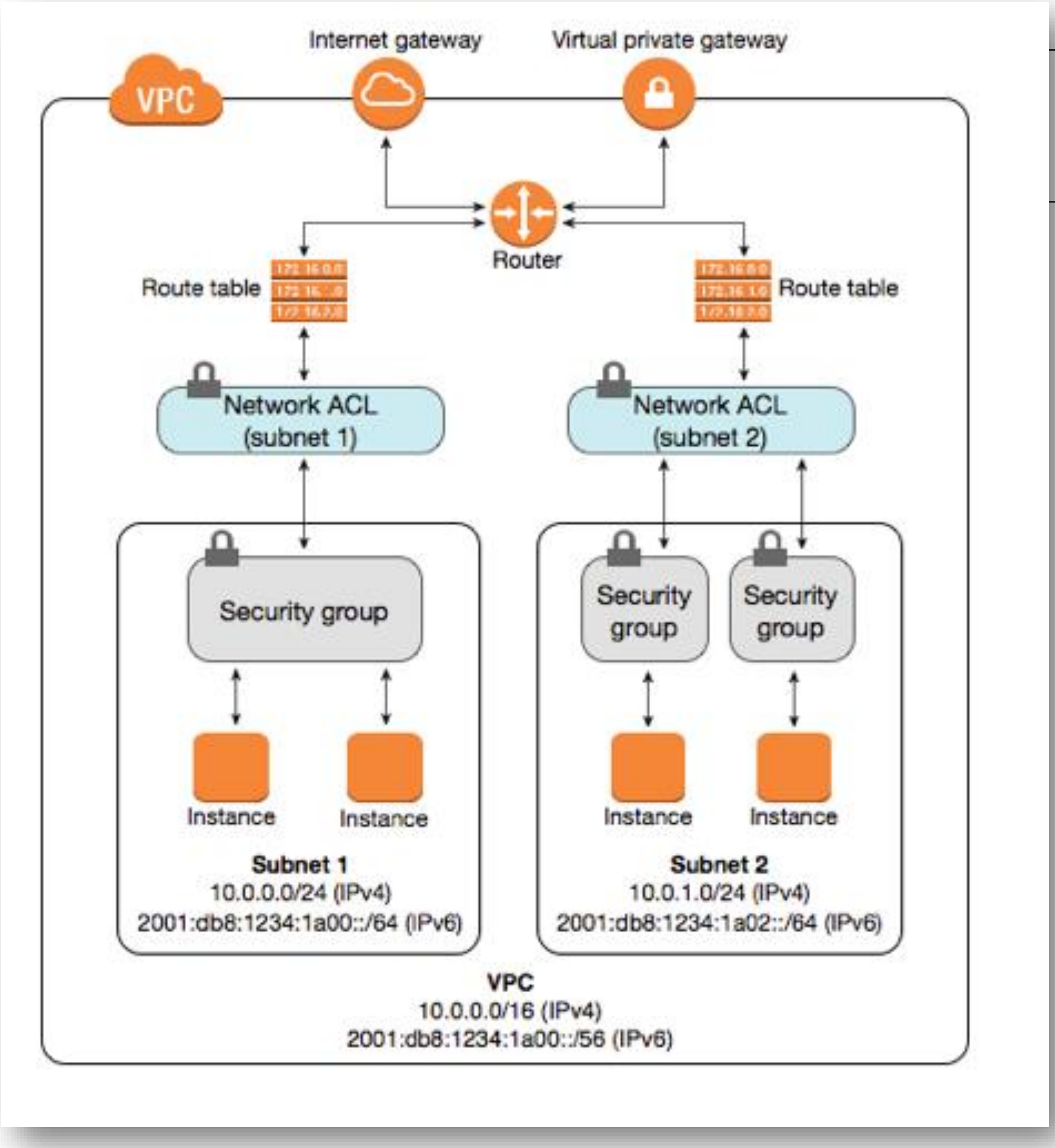
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- EPISODE 6.04
- Security Groups Lab

DEMO

- Working with security groups

- EPISODE 6.04
- Elastic Container Service (ECS)

ECS Features

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

Containers

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

Container Usage

- Web server
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DEMO

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- EPISODE 6.05
- Elastic Beanstalk

DEMO

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