

Chapter 2: Introduction to Cloud Computing and AWS



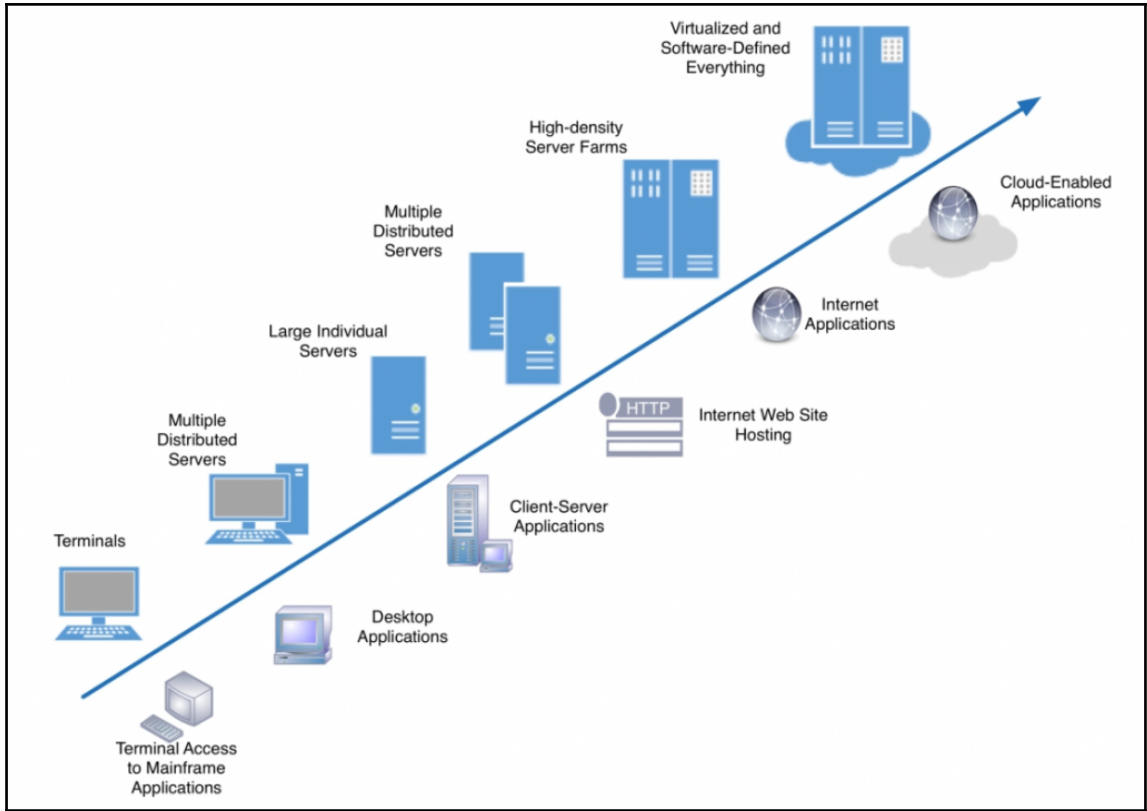
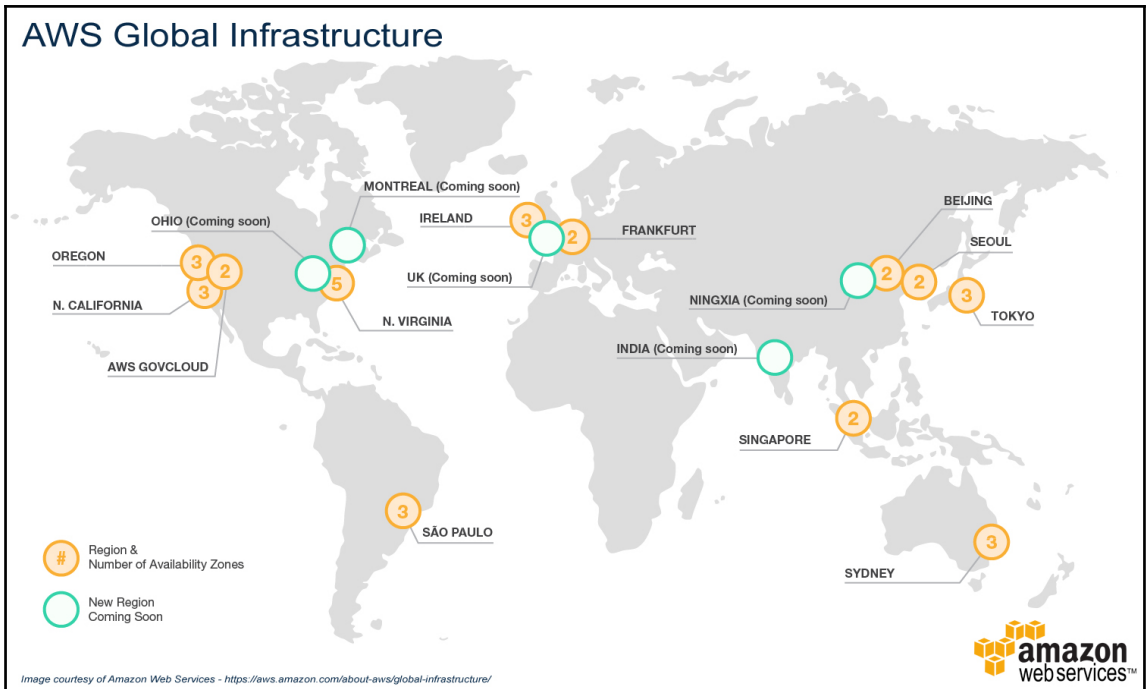


Figure 1. Magic Quadrant for Cloud Infrastructure as a Service, Worldwide



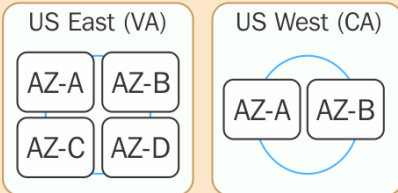
Source: Gartner (August 2016)



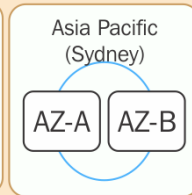
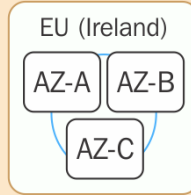
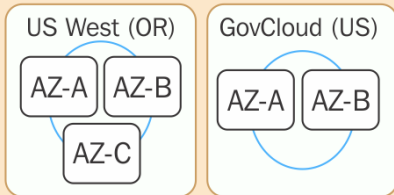
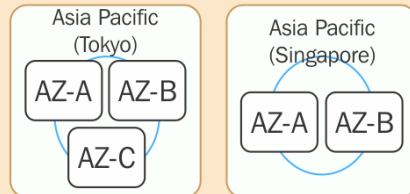
AWS Essentials Training

Introduction to AWS | AWS Regions and Availability Zones (AZ)

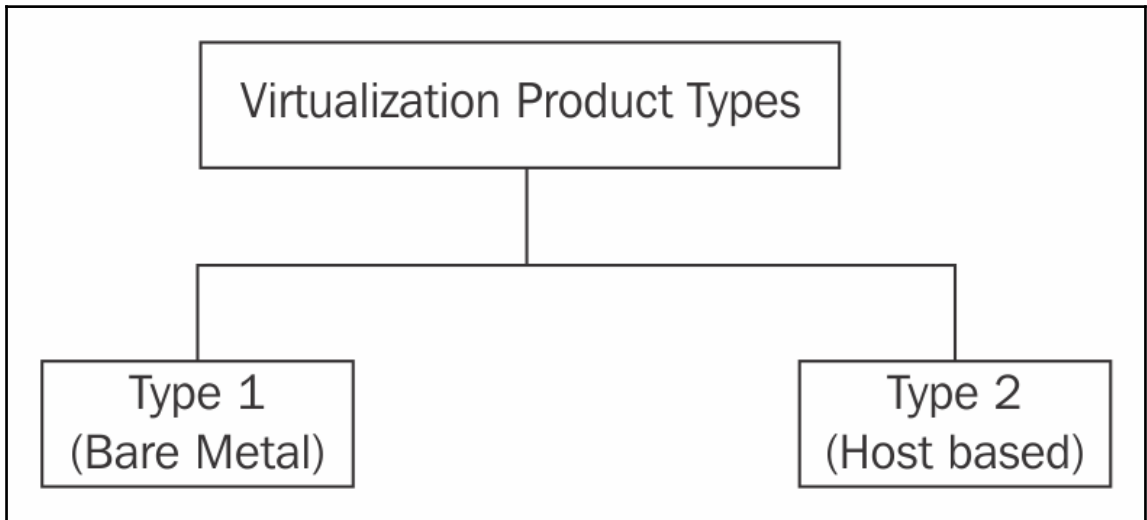
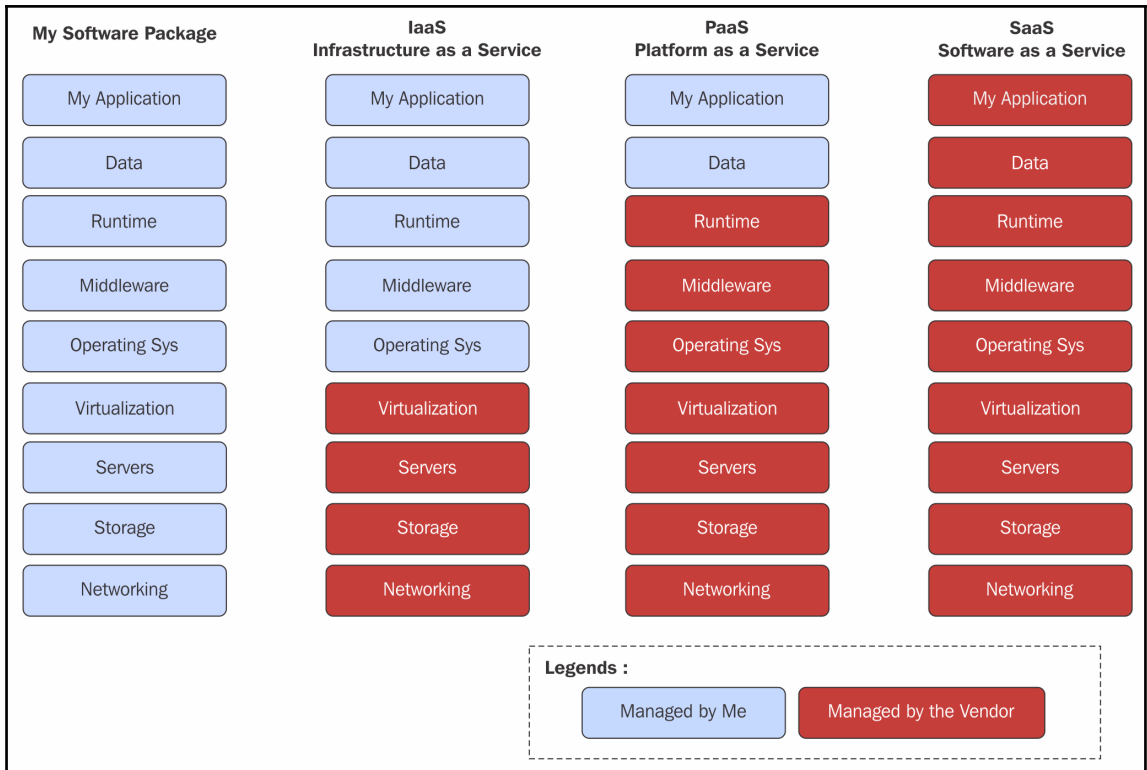
US Regions

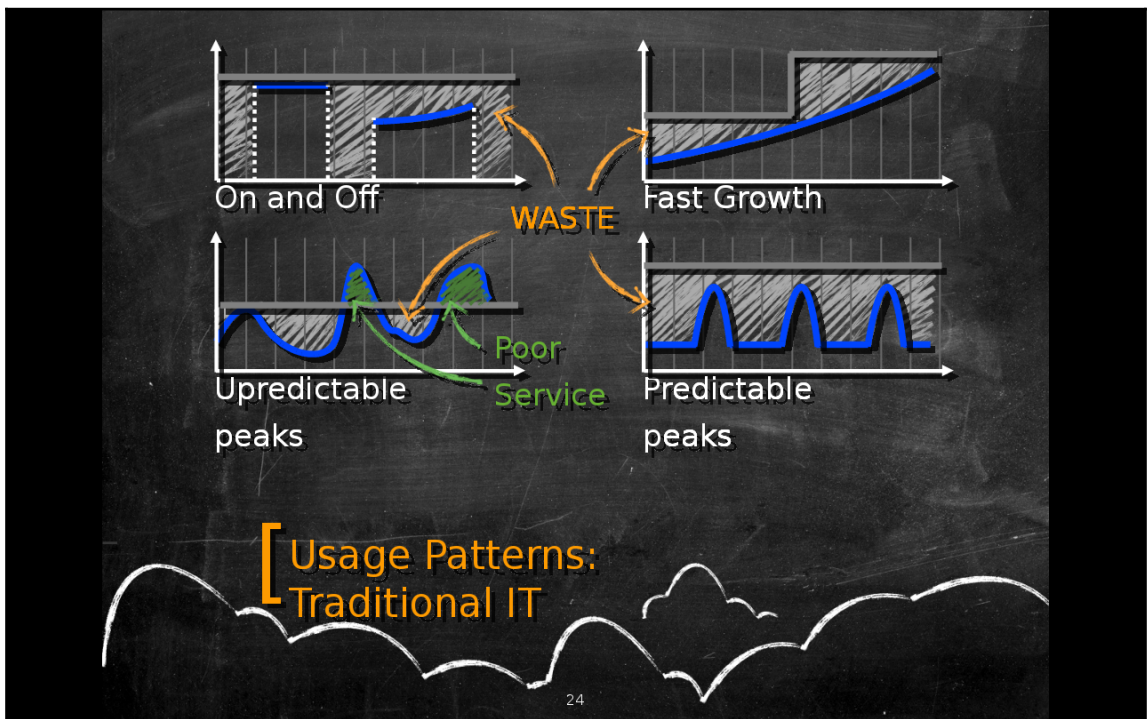
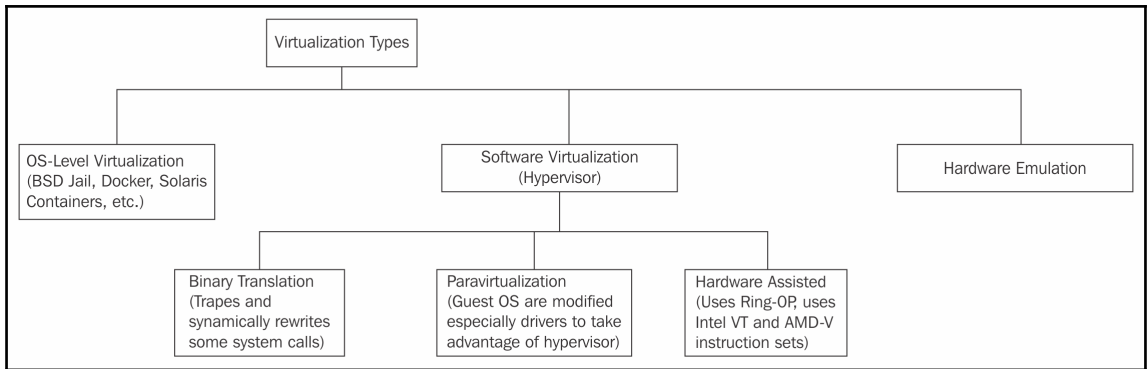


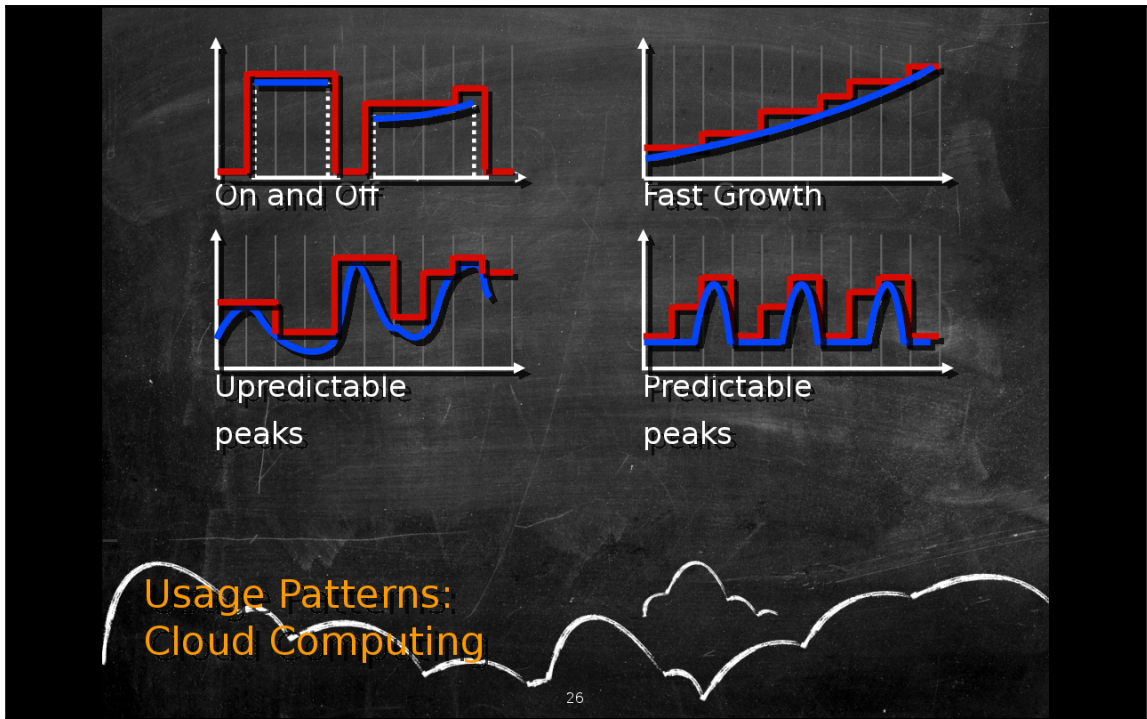
Global Regions



Customer Decides Where Applications and Data Reside
Note: Conceptual drawing only. the number of Availability Zone (AZ) may vary.







Login Credentials

Use the form below to create login credentials that can be used for AWS as well as Amazon.com.

My name is:

My e-mail address is:

Type it again:

note: this is the e-mail address that we will use to contact you about your account

Enter a new password:

Type it again:

Create account

Contact Information

Company Account Personal Account

* Required Fields

Full Name*

Company Name*

Country*

Address*

City*

State / Province or Region*

Postal Code*

Phone Number*

Security Check 

[Refresh image](#)

Please type the characters as shown above

AWS Customer Agreement

Check here to indicate that you have read and agree to the terms of the [AWS Customer Agreement](#)

Payment Information

Please enter your payment information below. You will be able to try a broad set of AWS products for free via the Free Tier. We will only bill your credit or debit card for usage that is not covered by our Free Tier.

Frequently Asked Questions

Cardholder's Name

Credit/Debit Card Number



Expiration Date

Use my contact address

(E 1-117, Uniworld, Neladi Road, Electronic City Phase - 1
Bangalore Karnataka 560100 IN)

Use a new address

Please Note

As part of our card verification process we will charge INR 2 on your card when you click the "Verify Card and Continue" button below. This will be refunded once your card has been validated. Your bank may take 3-5 business days to show the refund. Mastercard/Visa customers may be redirected to your bank website to authorize the charge.

PAN Information

Do you have a PAN? Yes No


Verify Card and Continue


Identity Verification

You will be called immediately by an automated system and prompted to enter the PIN number provided.

1. Provide a telephone number

Please enter your information below and click the "Call Me Now" button.

Security Check 



[Refresh Image](#)

Please type the characters as shown above

Country Code **Phone Number**

Ext

2. Call in progress

3. Identity verification complete

Support Plan

AWS Support offers a selection of plans to meet your needs. All plans provide 24x7 access to customer service, AWS documentation, whitepapers, and support forums. For access to technical support and additional resources to help you plan, deploy, and optimize your AWS environment, we recommend selecting a support plan that best aligns with your AWS usage.

All customers receive free Basic Support.

Basic Support

Basic

Description: Customer Service for account and billing questions and access to the AWS Community Forums.

Price: Included

Developer

Use case: Experimenting with AWS

Description: One primary contact may ask technical questions through Support Center and get a response within 12–24 hours during local business hours.

Price: Starts at \$29/month (scales based on usage)

Business

Use case: Production use of AWS

Description: 24x7 support by phone and chat, 1-hour response to urgent support cases, and help with common third-party software. Full access to AWS Trusted Advisor for optimizing your AWS infrastructure, and access to the AWS Support API for automating your support cases and retrieving Trusted Advisor results.

Price: Starts at \$100/month (scales based on usage)

To explore all features and benefits of AWS Support, including plan comparisons and pricing samples, [click here](#).

Continue

▼ Close Account

I understand that by clicking this checkbox, I am willing to close my AWS account. Monthly usage of certain AWS services is calculated and billed at the beginning of the following month. If you have used these types of services this month, then at the beginning of next month you will receive a bill for usage that occurred prior to termination of your account. If you own a Reserved Instance for which you have elected to pay in monthly installments, when your account is closed you will continue to be billed your monthly recurring payment until the Reserved Instance is sold on the Reserved Instance Marketplace or it expires.

Close Account

Sign In or Create an AWS Account

What is your email (phone for mobile accounts)?

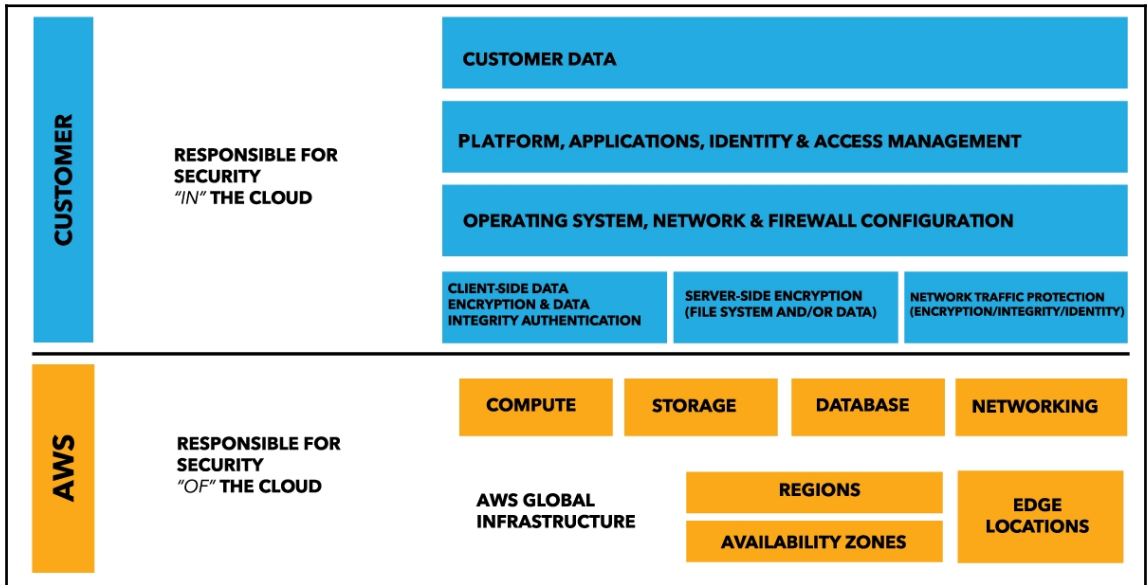
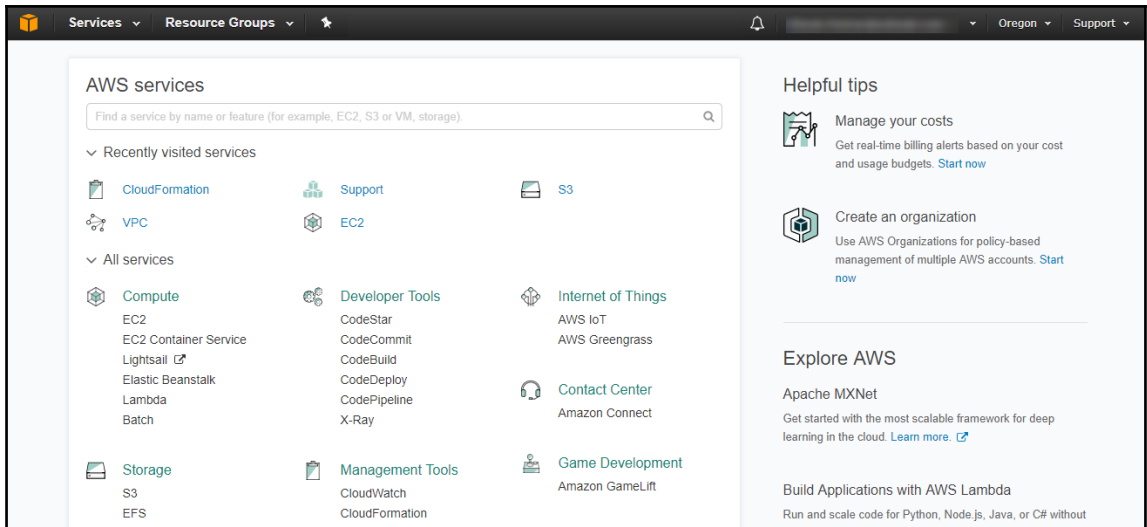
E-mail or mobile number:

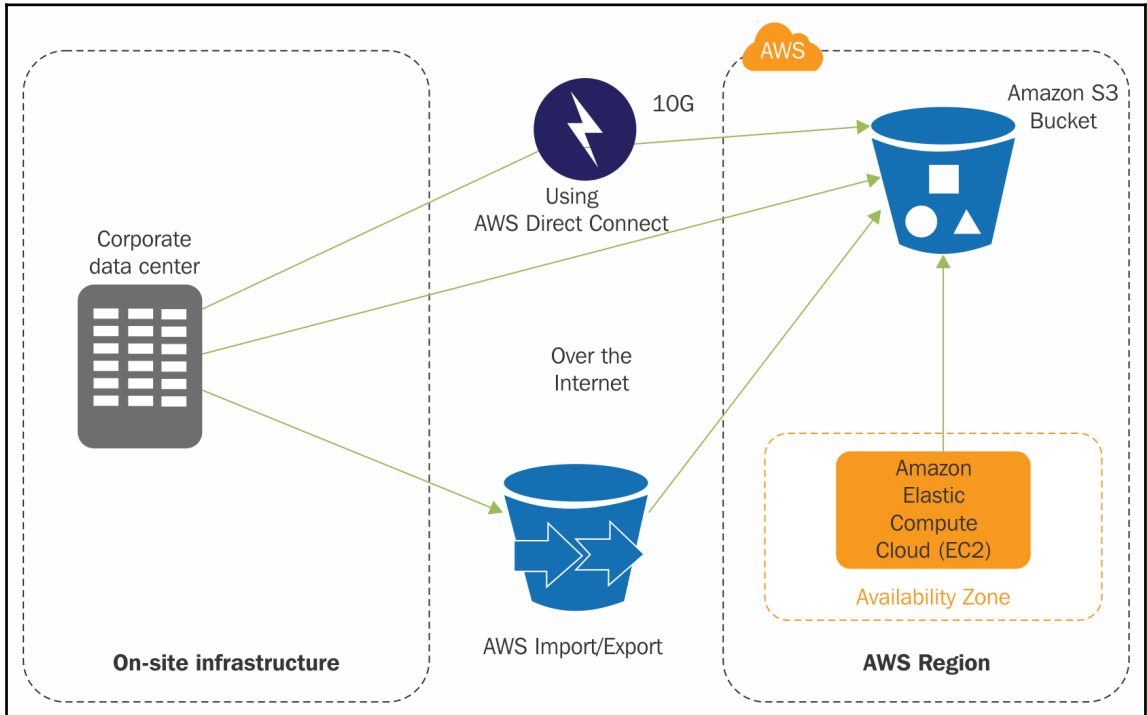
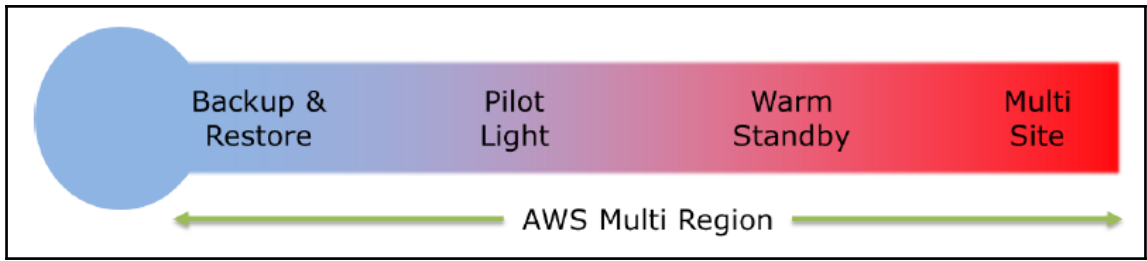
- I am a new user.
- I am a returning user
and my password is:

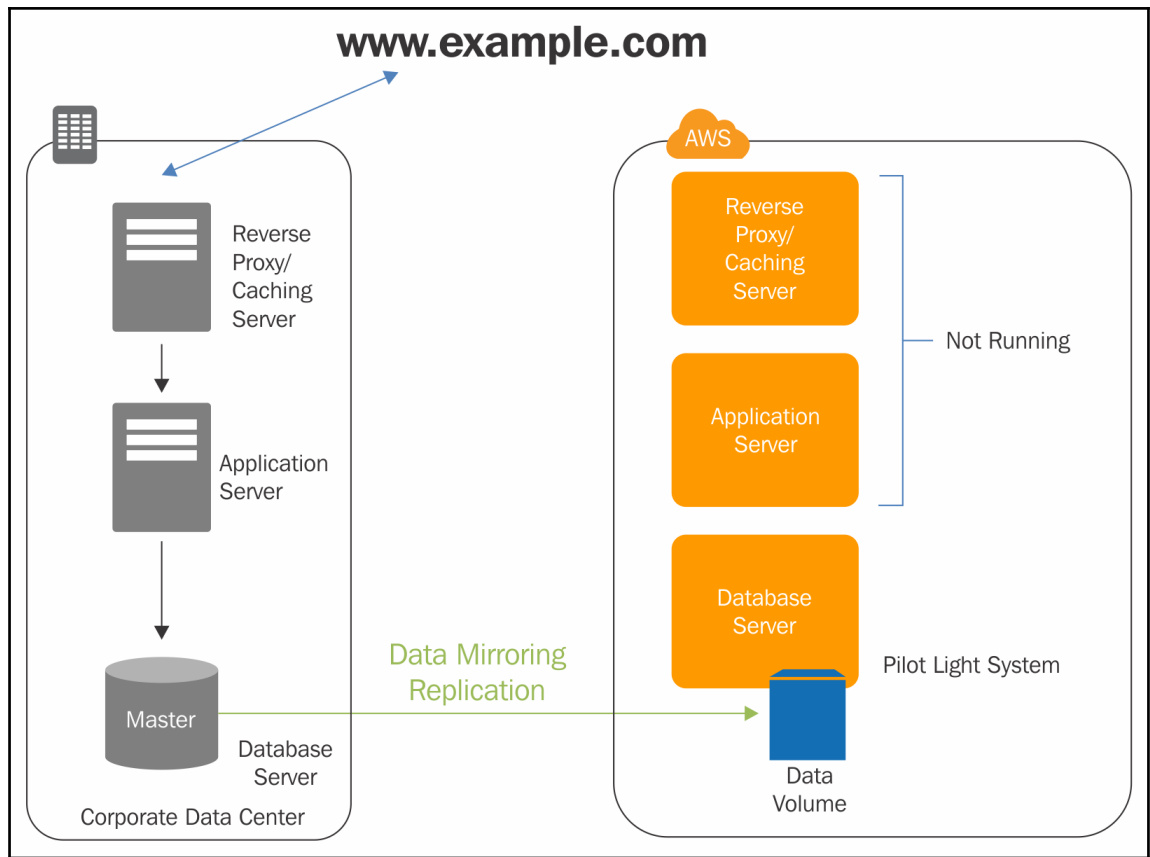
Sign in using our secure server

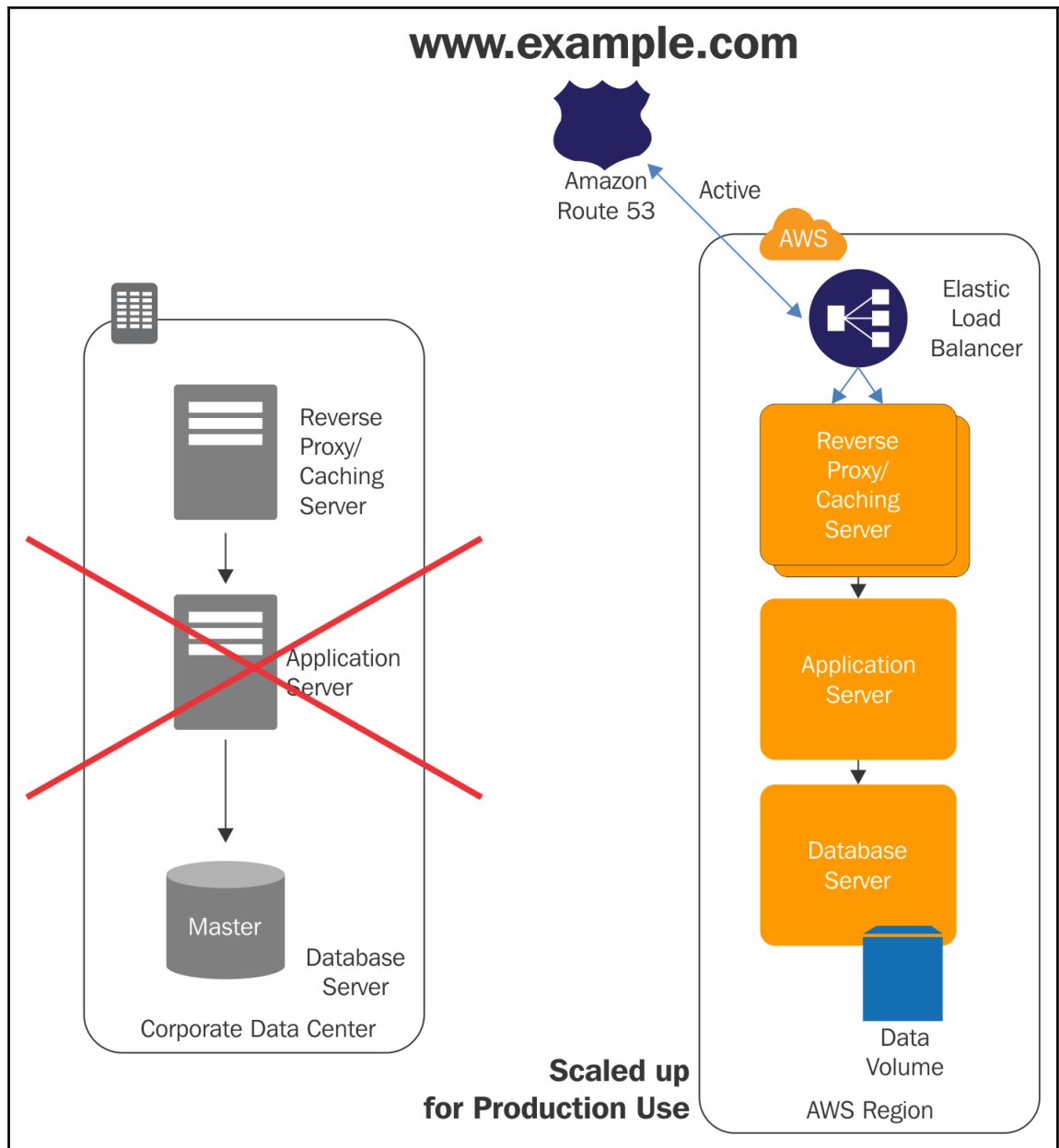


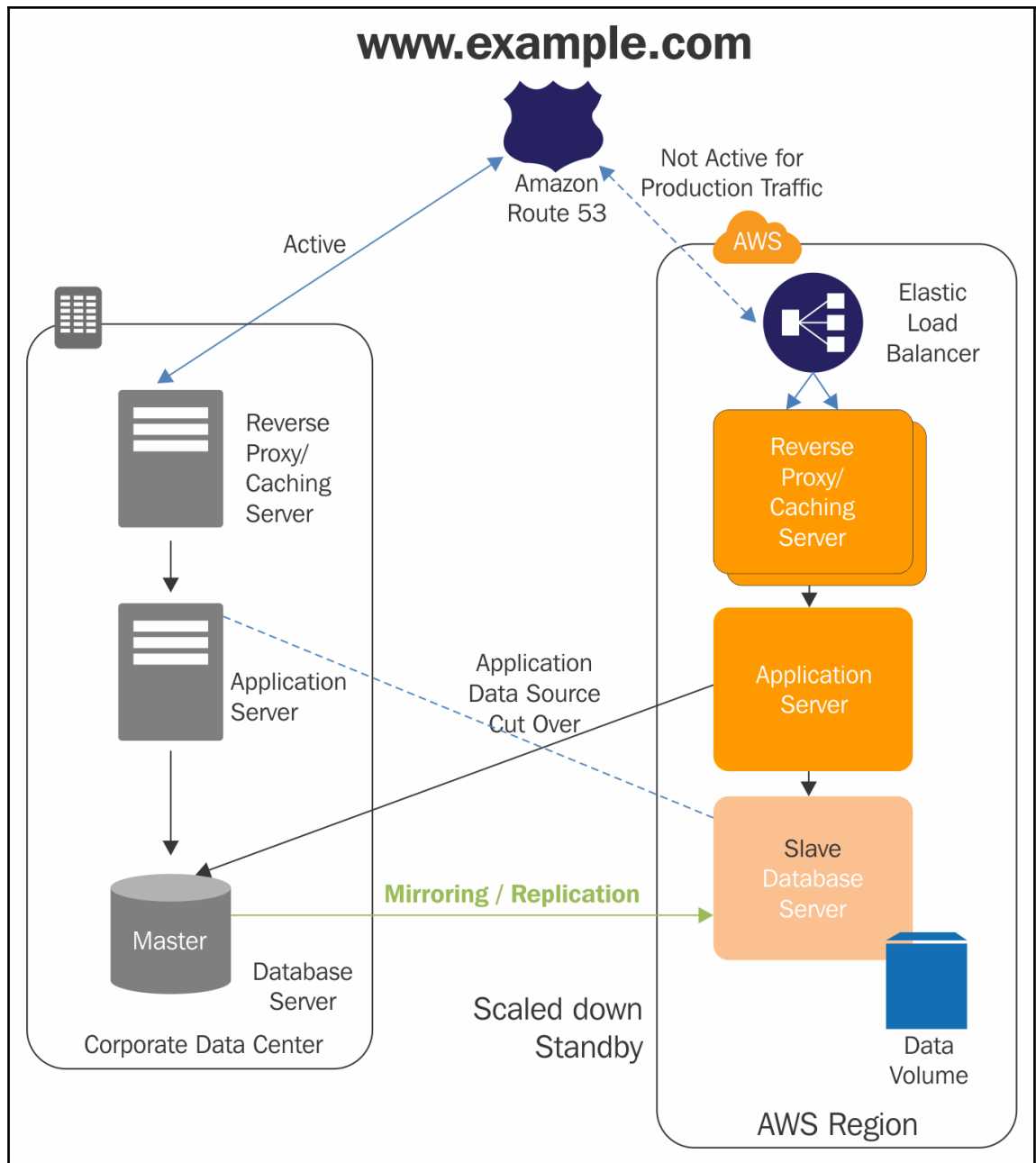
[Forgot your password?](#)

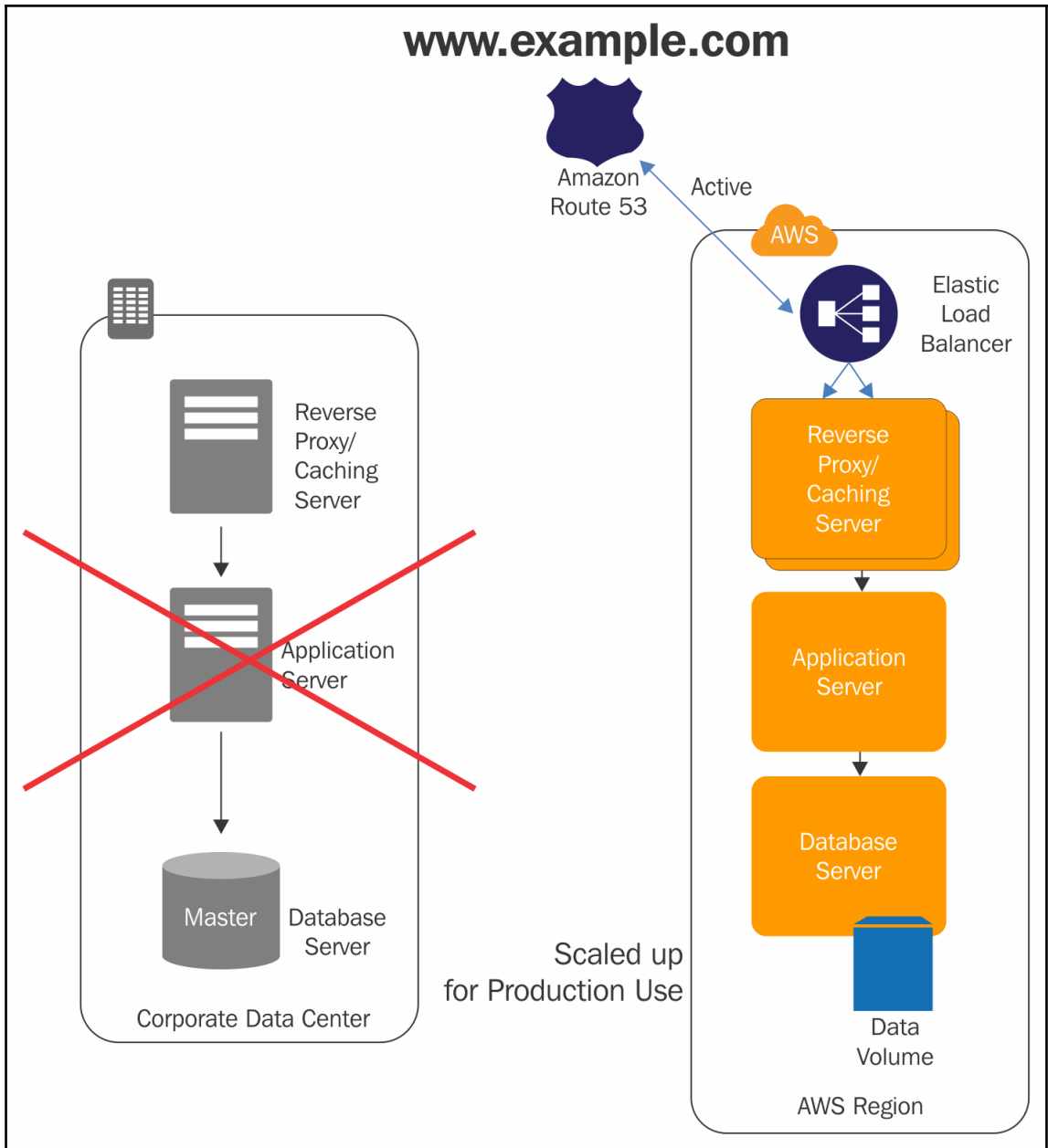


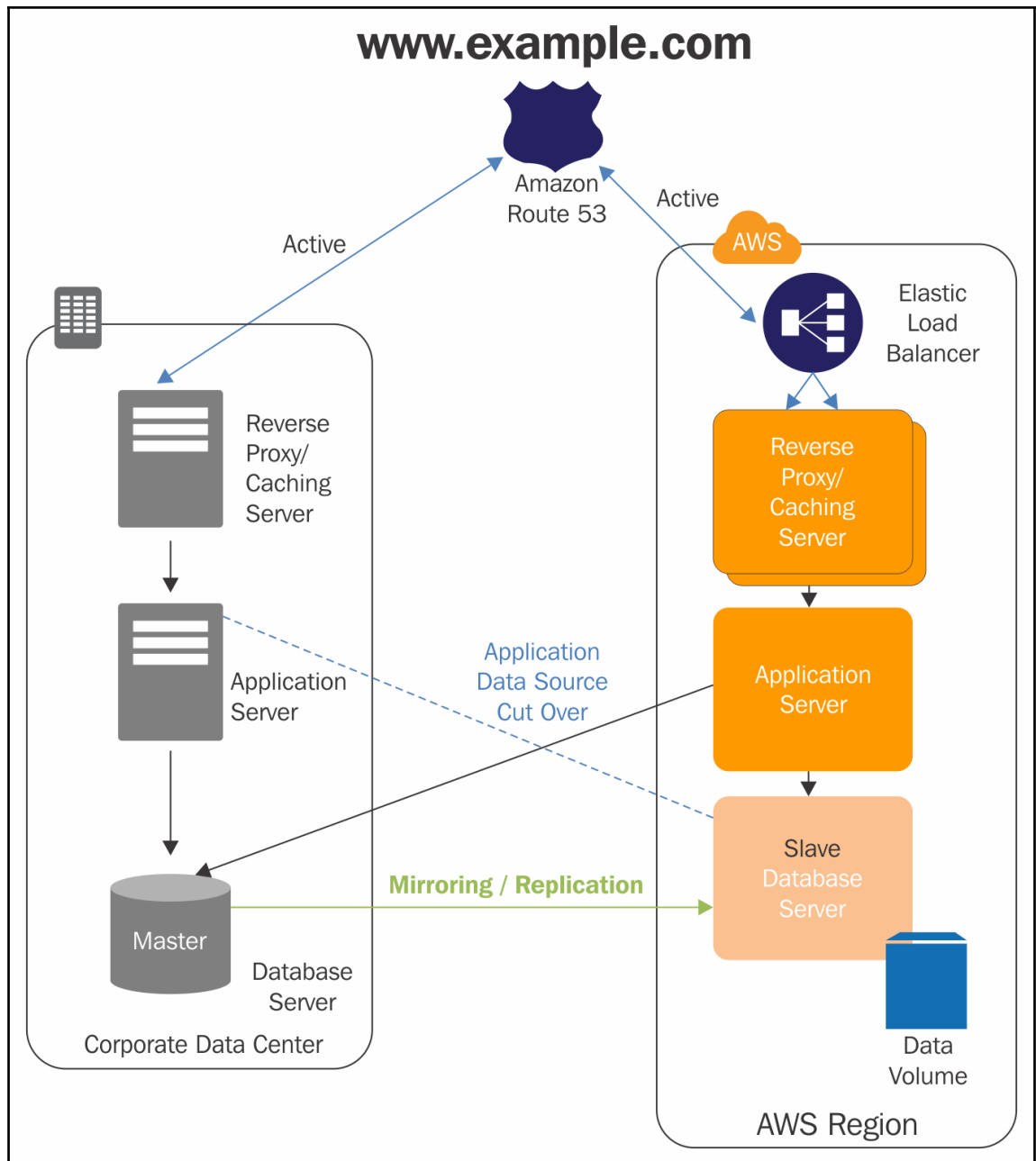


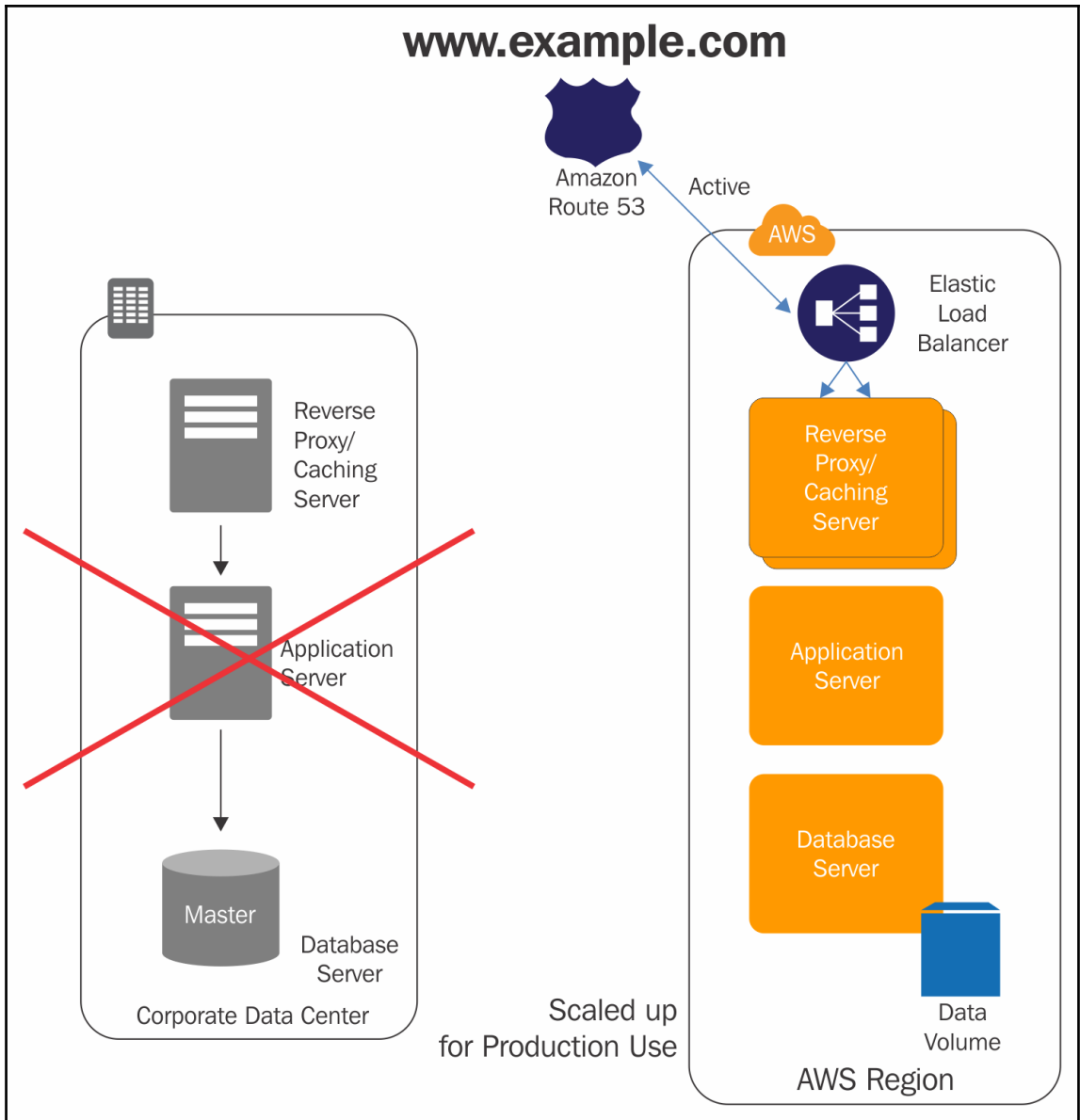




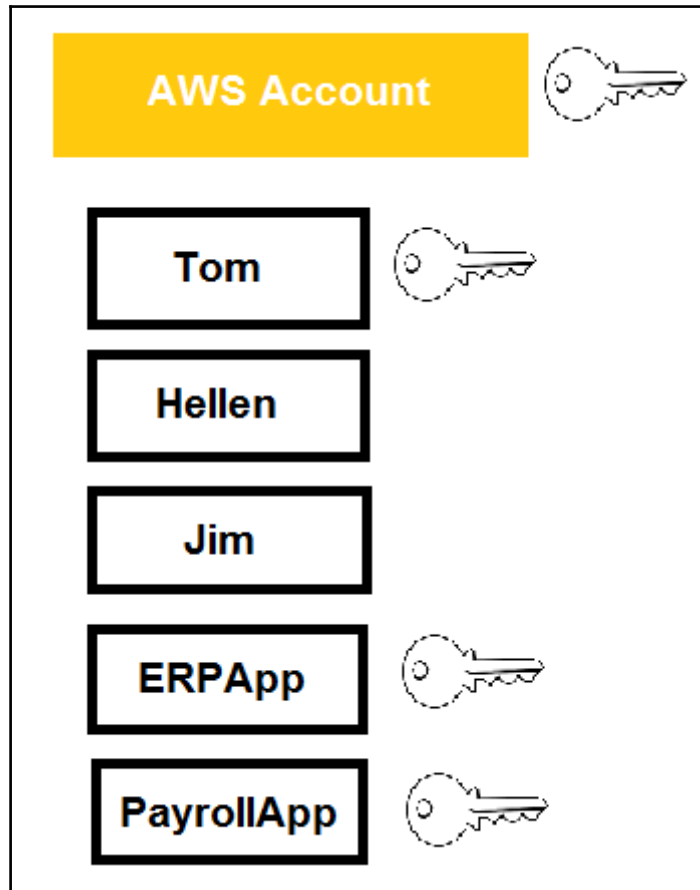








Chapter 3: Getting Familiar with Identity and Access Management



Minimum password length:

- Require at least one uppercase letter ⓘ
- Require at least one lowercase letter ⓘ
- Require at least one number ⓘ
- Require at least one non-alphanumeric character ⓘ
- Allow users to change their own password ⓘ
- Enable password expiration ⓘ
Password expiration period (in days):
- Prevent password reuse ⓘ
Number of passwords to remember:
- Password expiration requires administrator reset ⓘ

[Apply password policy](#) [Delete password policy](#)



Services Resource Groups Vipul Tankariya Global Support

Search IAM

Dashboard
Groups
Users
Roles
Policies
Identity providers
Account settings
Credential report
Encryption keys

Add user Delete users

Find users by username or access key

<input checked="" type="checkbox"/>	User name	Groups	Password	Last sign-in	Access keys
<input checked="" type="checkbox"/>	vipul	0	✓	Never	1 active

Services Resource Groups Vipul Tankariya Global Support

Search IAM

Dashboard
Groups
Users
Roles
Policies
Identity providers
Account settings
Credential report
Encryption keys

Users > vipul

Users: vipul

User ARN arn:aws:iam:::user/vipul
Path /
Creation time 2017-02-26 22:20 UTC+0530

Permissions Groups (0) **Security credentials** Access Advisor

Add permissions Number of attached policies 1

IAMUserChangePassword - AWS Managed policy

+ Add inline policy

Select "Security credentials" tab

The screenshot shows the AWS IAM console interface. The top navigation bar includes 'Services', 'Resource Groups', and user information 'Vipul Tankariya'. The left sidebar contains navigation options like 'Dashboard', 'Groups', 'Users', 'Roles', 'Policies', etc. The main content area is titled 'Users: vipul' and displays the following details:

- User ARN: arn:aws:iam:::user/vipul
- Path: /
- Creation time: 2017-02-26 22:20 UTC+0530

Below the details are four tabs: 'Permissions', 'Groups (0)', 'Security credentials', and 'Access Advisor'. The 'Security credentials' tab is active, showing 'Sign-in credentials' with the following information:

Console password	Enabled	Manage password
Console login link	https://...signin.aws.amazon.com/console	
Last login	Never	
Assigned MFA device	No	Edit "Assign MFA device"
Signing certificates	None	

The screenshot shows a 'Manage MFA Device' dialog box with the following content:

Select the type of MFA device to activate:

- A virtual MFA device
- A hardware MFA device

For more information about supported MFA devices, see [AWS Multi-Factor Authentication](#).

At the bottom right, there are two buttons: 'Cancel' and 'Next Step'.

Manage MFA Device

To activate a virtual MFA device, you must first install an AWS MFA-compatible application on the user's smartphone, PC, or other device. You can find a list of AWS MFA-compatible applications [here](#). After the application is installed, click Next Step to configure the virtual MFA.

Don't show me this dialog box again.

List of AWS MFA Compatible Apps

[here](#)

[Cancel](#) [Previous](#) [Next Step](#)


Virtual MFA Applications

Applications for your smartphone can be installed from the application store that is specific to your phone type. The following table lists some applications for different smartphone types.

Android	Google Authenticator ; Authy 2-Factor Authentication
iPhone	Google Authenticator ; Authy 2-Factor Authentication
Windows Phone	Authenticator
Blackberry	Google Authenticator

Manage MFA Device ✕

If your virtual MFA application supports scanning QR codes, scan the following image with your smartphone's camera.



[▶ Show secret key for manual configuration](#)

After the application is configured, enter two consecutive authentication codes in the boxes below and click Activate Virtual MFA.

Authentication Code 1

Authentication Code 2

[Cancel](#) [Previous](#) [Activate Virtual MFA](#)

Services ▾ Resource Groups ▾ Vipul Tankariya ▾ Global ▾ Support ▾

Add user

1 Details — 2 Permissions — 3 Review — 4 Complete

Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name*

+ Add another user

Select AWS access type

Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

Access type* **Programmatic access**
Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.

AWS Management Console access
Enables a **password** that allows users to sign-in to the AWS Management Console.

* Required Cancel Next: Permissions

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Console password* Autogenerated password
 Custom password

Require password reset User must create a new password at next sign-in
Users automatically get the [IAMUserChangePassword](#) policy to allow them to change their own password.

Services Resource Groups

Details Permissions Review Complete

Set permissions for bhavin

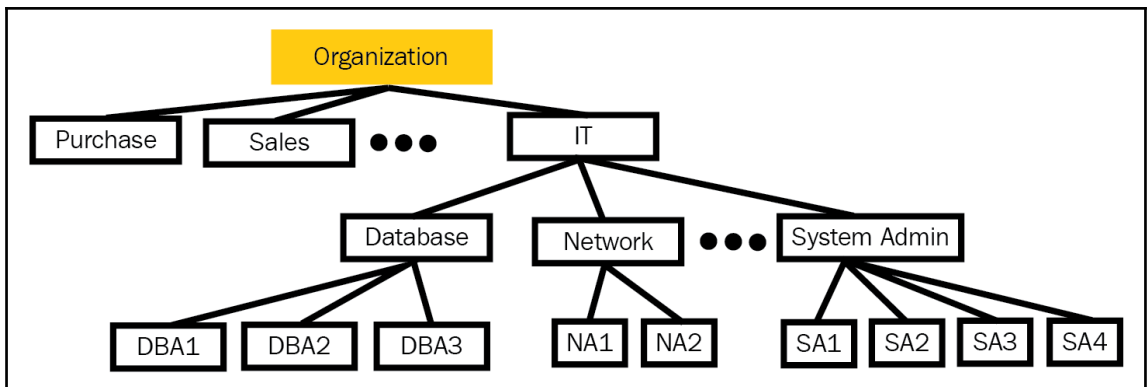
- Add user to group
- Copy permissions from existing user
- Attach existing policies directly

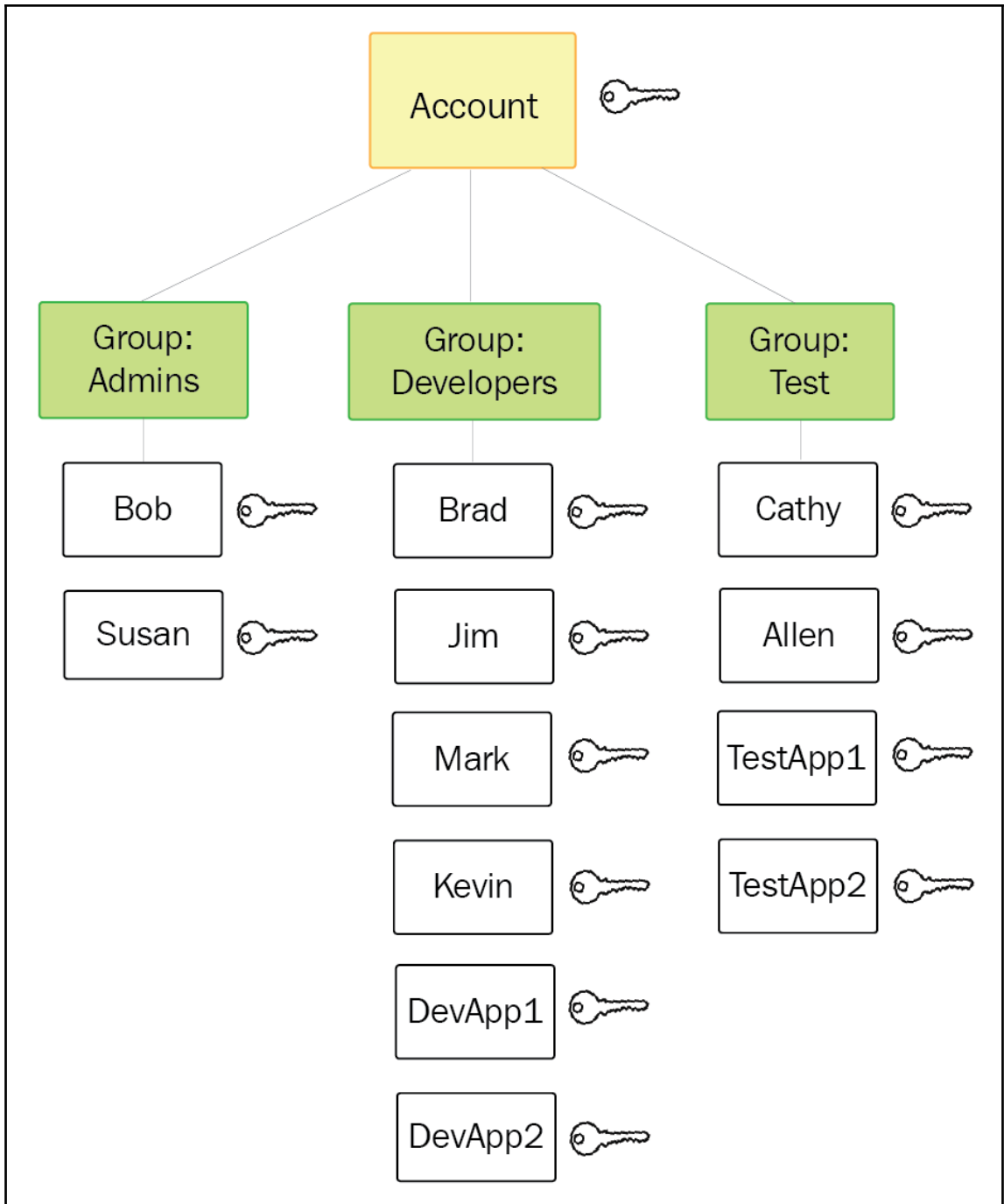
Get started with groups
You haven't created any groups yet. Using groups is a best-practice way to manage users' permissions by job functions, AWS service access, or your custom permissions. Get started by creating a group. [Learn more](#)

Create group

Cancel Previous **Next: Review**

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Services Resource Groups Vipul Tankariya Global Support

Search IAM

Create New Role Role Actions

Filter Showing 1 results

<input type="checkbox"/>	Role Name ↕	Creation Time ↕
<input type="checkbox"/>	lambda_basic_execution	2015-08-14 00:18 UTC+0530

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Services Resource Groups Vipul Tankariya Global Support

Create Role

Step 1 : Set Role Name

Step 2 : Select Role Type

Step 3 : Establish Trust

Step 4 : Attach Policy

Step 5 : Review

Set Role Name

Enter a role name. You cannot edit the role name after the role is created.

Role Name

Maximum 64 characters. Use alphanumeric and '+=,@-_' characters

Cancel **Next Step**

Services | Resource Groups | Vipul Tankariya | Global | Support

Create Role

Step 1 : Set Role Name
Step 2 : Select Role Type
 Step 3 : Establish Trust
 Step 4 : Attach Policy
 Step 5 : Review

Select Role Type

AWS Service Roles

- Amazon EC2**
Allows EC2 instances to call AWS services on your behalf.
- AWS Directory Service**
Allows AWS Directory Service to manage access for existing directory users and groups to AWS services.
- AWS Lambda**
Allows Lambda Function to call AWS services on your behalf.
- Amazon Redshift**
Allows Amazon Redshift Clusters to call AWS services on your behalf.
- Amazon API Gateway**
Allows API Gateway to call AWS resources on your behalf.

Role for Cross-Account Access
 Role for Identity Provider Access

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Create Role

Step 1 : Set Role Name
 Step 2 : Select Role Type
 Step 3 : Establish Trust
Step 4 : Attach Policy
 Step 5 : Review

Attach Policy

Select one or more policies to attach. Each role can have up to 10 policies attached.

Filter: Policy Type | Filter

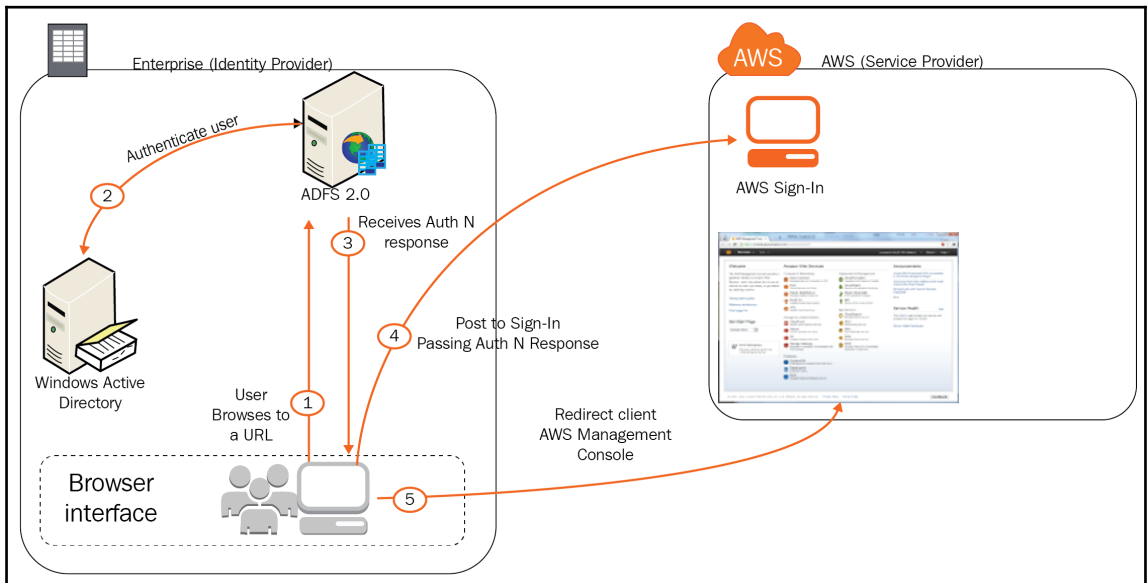
Showing 252 results

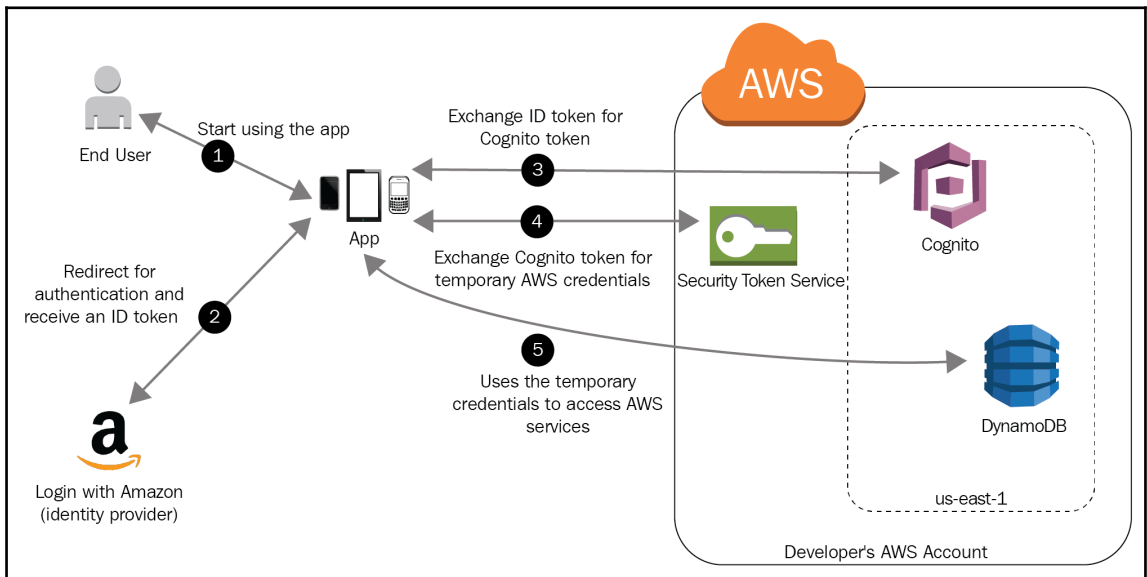
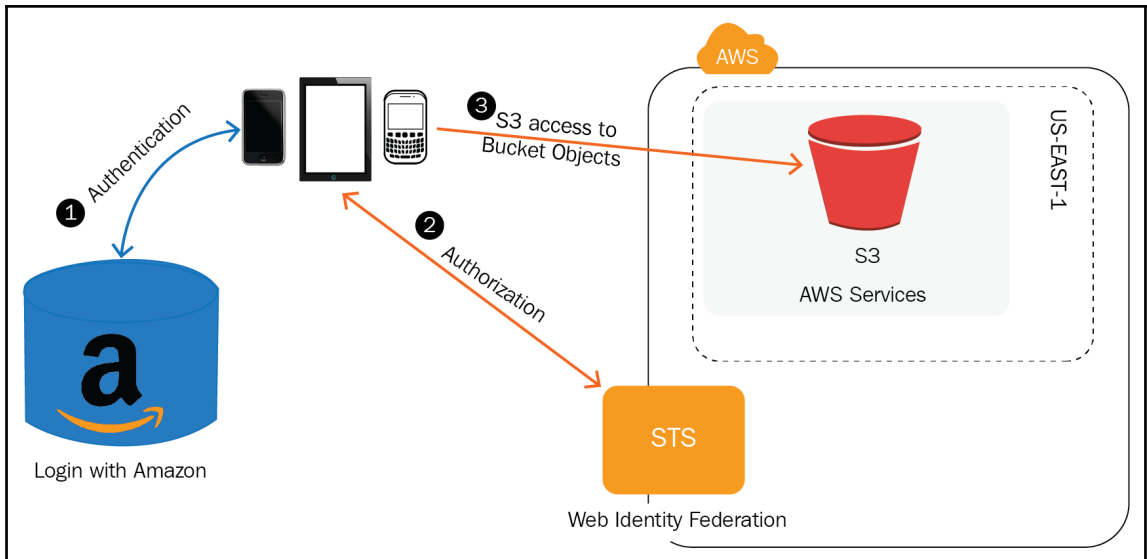
	Policy Name	Attached Entities	Creation Time	Edited Time
<input type="checkbox"/>	AmazonRoute53ReadOnlyAcc...	0	2015-02-07 00:10 UTC+0530	2016-11-16 02:45 UTC+0530
<input type="checkbox"/>	AmazonS3FullAccess	0	2015-02-07 00:10 UTC+0530	2015-02-07 00:10 UTC+0530
<input type="checkbox"/>	AmazonS3ReadOnlyAccess	0	2015-02-07 00:10 UTC+0530	2015-02-07 00:10 UTC+0530
<input type="checkbox"/>	AmazonSESEFullAccess	0	2015-02-07 00:11 UTC+0530	2015-02-07 00:11 UTC+0530
<input type="checkbox"/>	AmazonSESReadOnlyAccess	0	2015-02-07 00:11 UTC+0530	2015-02-07 00:11 UTC+0530
<input type="checkbox"/>	AmazonSNSFullAccess	0	2015-02-07 00:11 UTC+0530	2015-02-07 00:11 UTC+0530
<input type="checkbox"/>	AmazonSNSReadOnlyAccess	0	2015-02-07 00:11 UTC+0530	2015-02-07 00:11 UTC+0530
<input type="checkbox"/>	AmazonSNSRole	0	2015-02-07 00:11 UTC+0530	2015-02-07 00:11 UTC+0530

The screenshot shows the AWS IAM console interface during the 'Review' step of role creation. On the left, a sidebar lists the steps: Step 1: Set Role Name, Step 2: Select Role Type, Step 3: Establish Trust, Step 4: Attach Policy, and Step 5: Review. The main area is titled 'Review' and contains the following information:

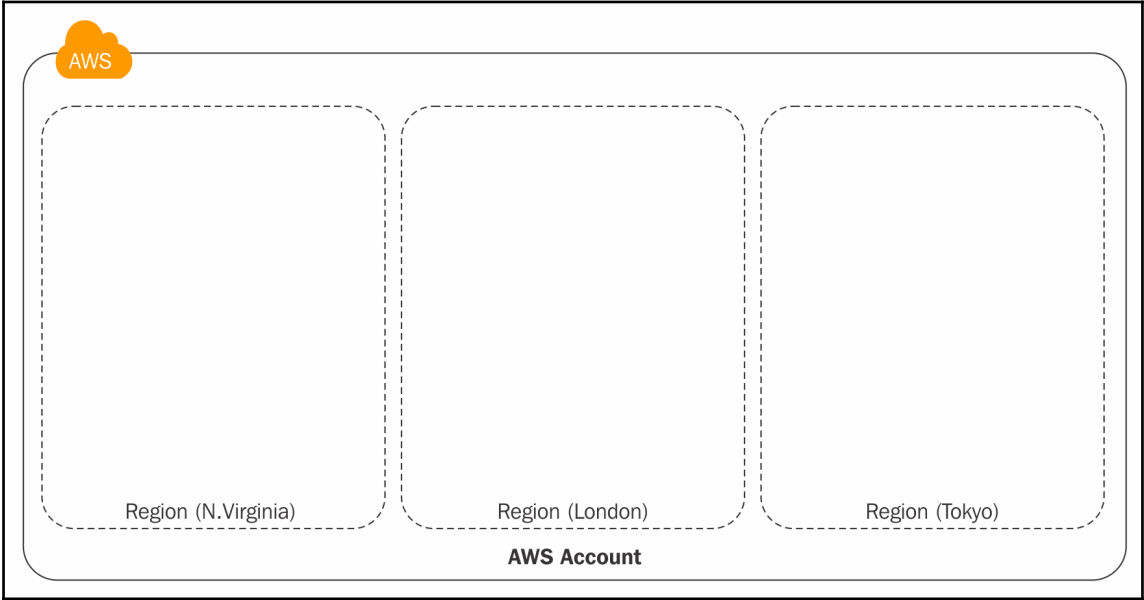
- Role Name:** myRole (with an 'Edit Role Name' link)
- Role ARN:** arn:aws:iam::[redacted]:role/myRole
- Trusted Entities:** The identity provider(s) ec2.amazonaws.com
- Policies:** arn:aws:iam::aws:policy/AmazonS3FullAccess (with a 'Change Policies' link)

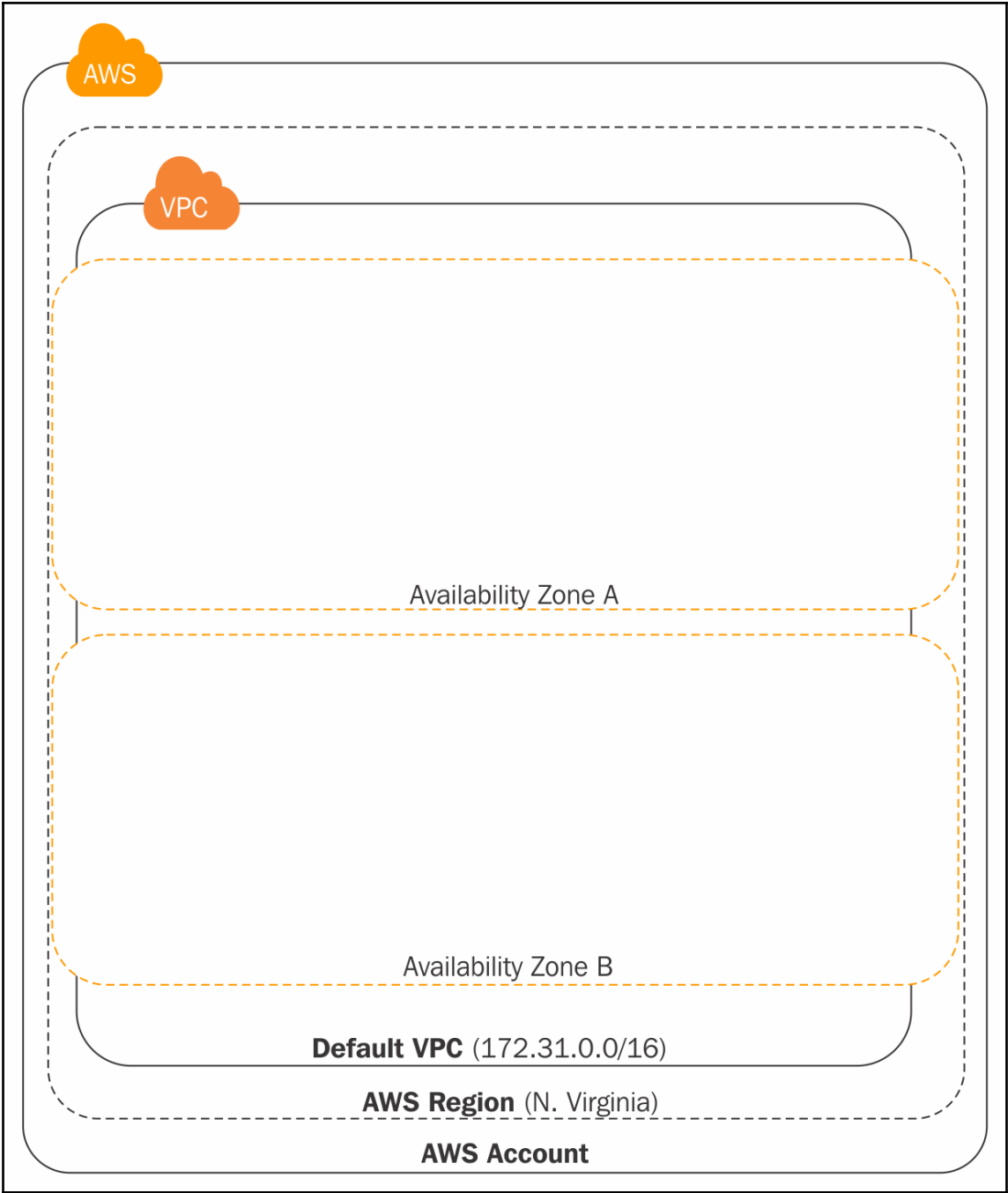
At the bottom right, there are three buttons: 'Cancel', 'Previous', and 'Create Role'.

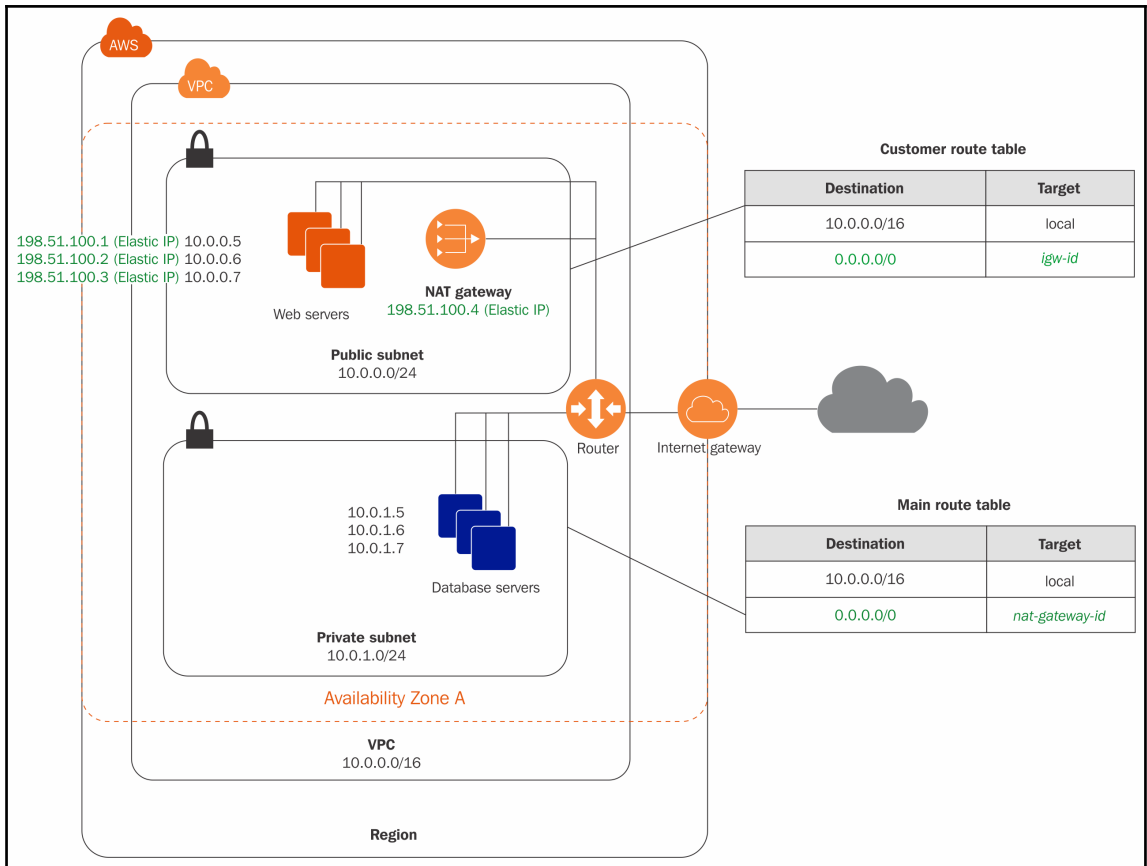




Chapter 4: Virtual Private Cloud







The screenshot displays the AWS VPC Dashboard interface. At the top, there is a navigation bar with 'Services', 'Resource Groups', and user information for Vipul Tankariya in the N. Virginia region. The left sidebar lists navigation options such as 'Virtual Private Cloud', 'Your VPCs', 'Subnets', 'Route Tables', 'Internet Gateways', 'Egress Only Internet Gateways', 'DHCP Options Sets', 'Elastic IPs', 'Endpoints', 'NAT Gateways', 'Peering Connections', and 'Security'. The main content area is titled 'Resources' and includes buttons for 'Start VPC Wizard' and 'Launch EC2 Instances'. A note indicates that instances will launch in the US East (N. Virginia) region. Below this, a summary of resources is provided:

1 VPC	1 Internet Gateway
0 Egress-only Internet Gateways	4 Subnets
1 Route Table	1 Network ACL
0 Elastic IPs	0 VPC Peering Connections
0 Endpoints	0 Nat Gateways
4 Security Groups	0 Running Instances
0 VPN Connections	0 Virtual Private Gateways
0 Customer Gateways	

Below the resource summary, there is a section for 'VPN Connections' with a brief description: 'Amazon VPC enables you to use your own isolated resources within the AWS cloud, and then connect those resources directly to your own datacenter using industry-standard encrypted IPsec VPN connections.'

At the bottom of the dashboard, there is a footer with 'Feedback', 'English', copyright information for 2008-2017, and links for 'Privacy Policy' and 'Terms of Use'.

Services ▾ Resource Groups ▾ ☆

Vipul Tankariya ▾ N. Virginia ▾ Support ▾

Step 1: Select a VPC Configuration

VPC with a Single Public Subnet

VPC with Public and Private Subnets

VPC with Public and Private Subnets and Hardware VPN Access

VPC with a Private Subnet Only and Hardware VPN Access

Your instances run in a private, isolated section of the AWS cloud with direct access to the Internet. Network access control lists and security groups can be used to provide strict control over inbound and outbound network traffic to your instances.

Creates:

A /16 network with a /24 subnet. Public subnet instances use Elastic IPs or Public IPs to access the Internet.

[Select](#)

Internet, S3, DynamoDB, SNS, SQS, etc.

Public Subnet

Amazon Virtual Private Cloud

[Cancel and Exit](#)

[Feedback](#) [English](#)

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Services Resource Groups Vipul Tankariya N. Virginia Support

Step 2: VPC with a Single Public Subnet

IPv4 CIDR block:* 10.0.0.0/16 (65531 IP addresses available)

IPv6 CIDR block: No IPv6 CIDR Block
 Amazon provided IPv6 CIDR block

VPC name:

Public subnet's IPv4 CIDR:* 10.0.0.0/24 (251 IP addresses available)

Availability Zone:* No Preference

Subnet name: Public subnet

You can add more subnets after AWS creates the VPC.

Service endpoints

Enable DNS hostnames:* Yes No

Hardware tenancy:* Default

Enable ClassicLink:* Yes No

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VPC Dashboard

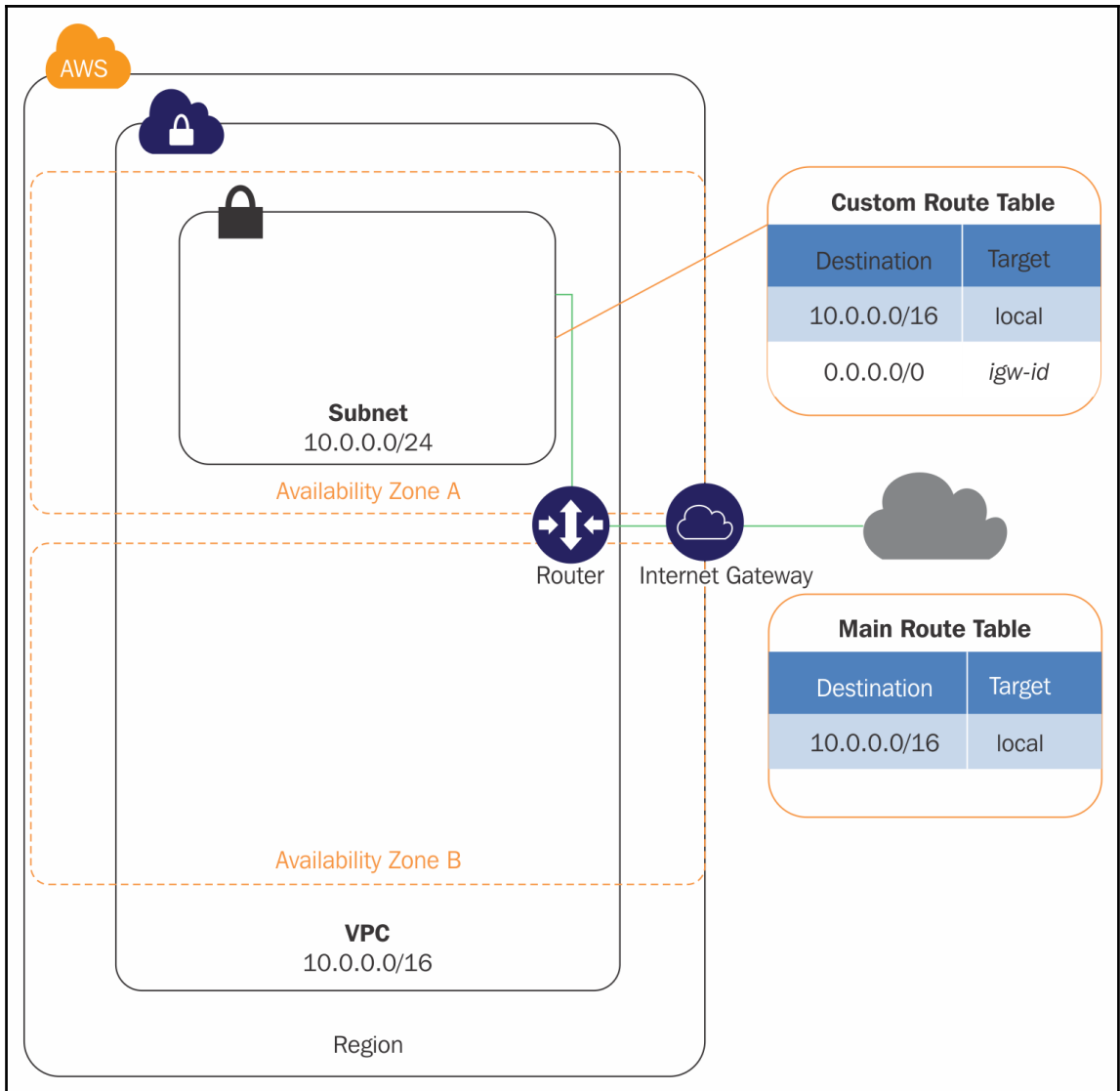
Filter by VPC: None

Virtual Private Cloud

Your VPCs

Search VPCs and their proper

<input type="checkbox"/>	Name	VPC ID	State	IPv4 CIDR
<input checked="" type="checkbox"/>	Packtpub VPC	vpc-b8f0ebde	available	10.0.0.0/16
<input type="checkbox"/>	Default VPC	vpc-05449263	available	172.30.0.0/16



Services ▾ Resource Groups ▾

Vipul Tankariya ▾ N. Virginia ▾ Support ▾

Step 1: Select a VPC Configuration

- VPC with a Single Public Subnet
- VPC with Public and Private Subnets** ←
- VPC with Public and Private Subnets and Hardware VPN Access
- VPC with a Private Subnet Only and Hardware VPN Access

In addition to containing a public subnet, this configuration adds a private subnet whose instances are not addressable from the Internet. Instances in the private subnet can establish outbound connections to the Internet via the public subnet using Network Address Translation (NAT).

Creates:
A /16 network with two /24 subnets. Public subnet instances use Elastic IPs to access the Internet. Private subnet instances access the Internet via Network Address Translation (NAT). (Hourly charges for NAT devices apply.)

Internet, S3, DynamoDB, SNS, SQS, etc.

Amazon Virtual Private Cloud

Public Subnet NAT Private Subnet

Select ←

[Cancel and Exit](#)

Services Resource Groups Vipul Tankariya N. Virginia Support

Step 2: VPC with Public and Private Subnets

IPv4 CIDR block:* 10.0.0.0/16 (65531 IP addresses available)

IPv6 CIDR block: No IPv6 CIDR Block
 Amazon provided IPv6 CIDR block

VPC name:

Public subnet's IPv4 CIDR:* 10.0.0.0/24 (251 IP addresses available)

Availability Zone:* No Preference

Public subnet name:

Private subnet's IPv4 CIDR:* 10.0.1.0/24 (251 IP addresses available)

Availability Zone:* No Preference

Private subnet name:

You can add more subnets after AWS creates the VPC.

Specify the details of your NAT gateway (NAT gateway rates apply). [Use a NAT instance instead](#)

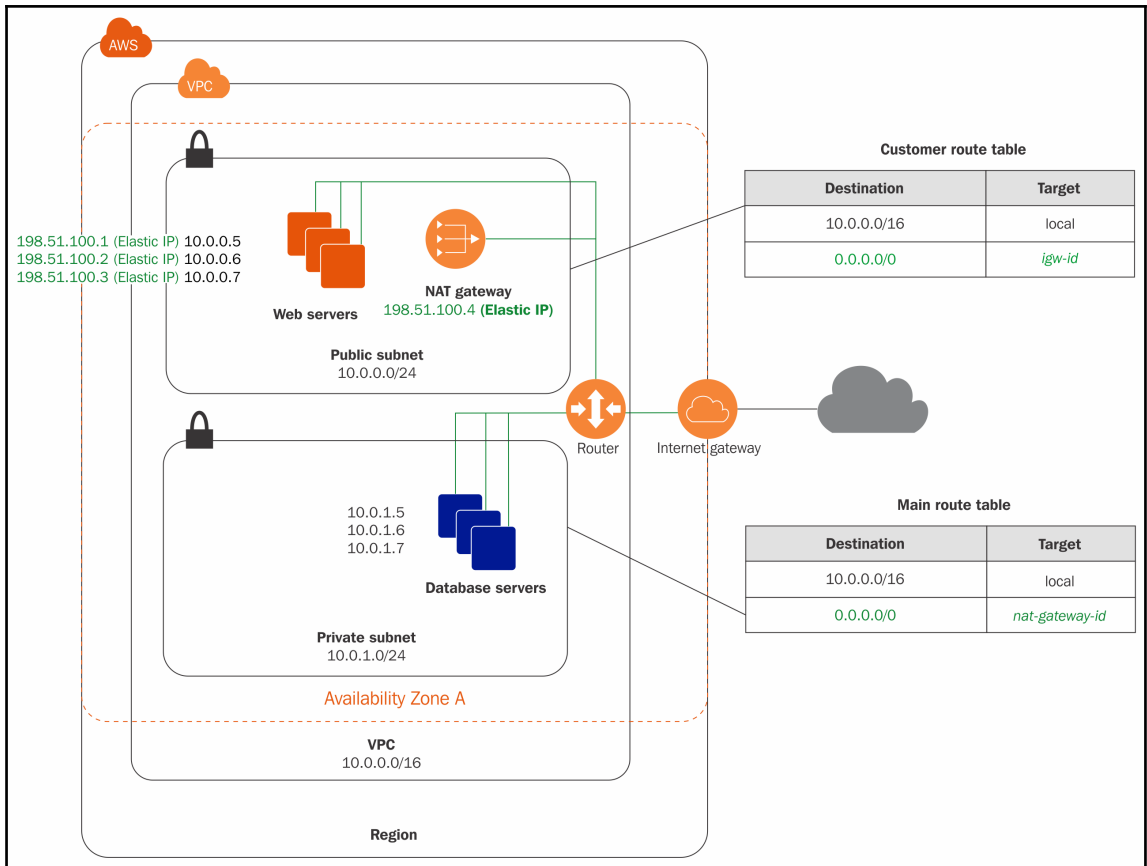
Elastic IP Allocation ID:*

Service endpoints

Enable DNS hostnames:* Yes No

Hardware tenancy:* Default

Enable ClassicLink:* Yes No



Services ▾ Resource Groups ▾

Vipul Tankariya ▾ N. Virginia ▾ Support ▾

Step 3: Configure your VPN

Specify the public IP Address of your VPN router (Customer Gateway)

Customer Gateway IP:*

Customer Gateway name:

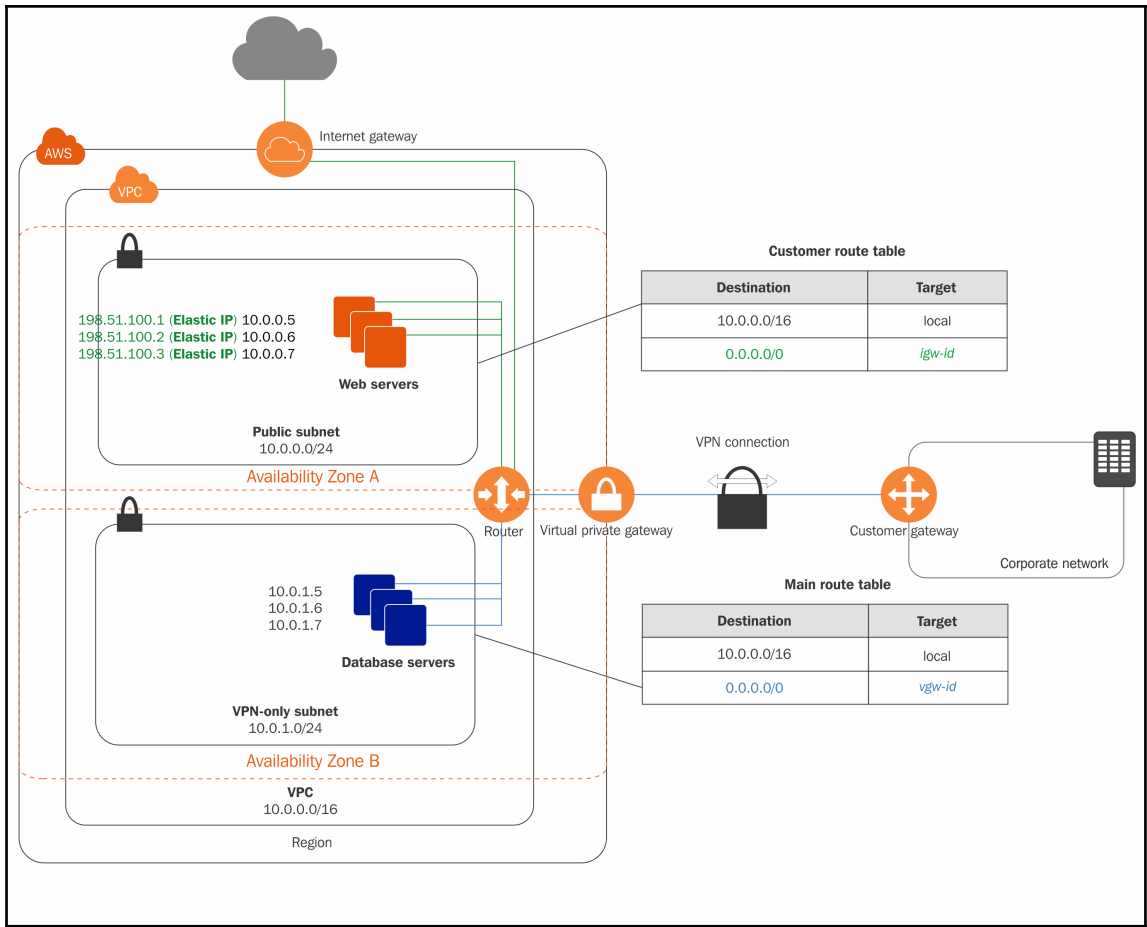
VPN Connection name:

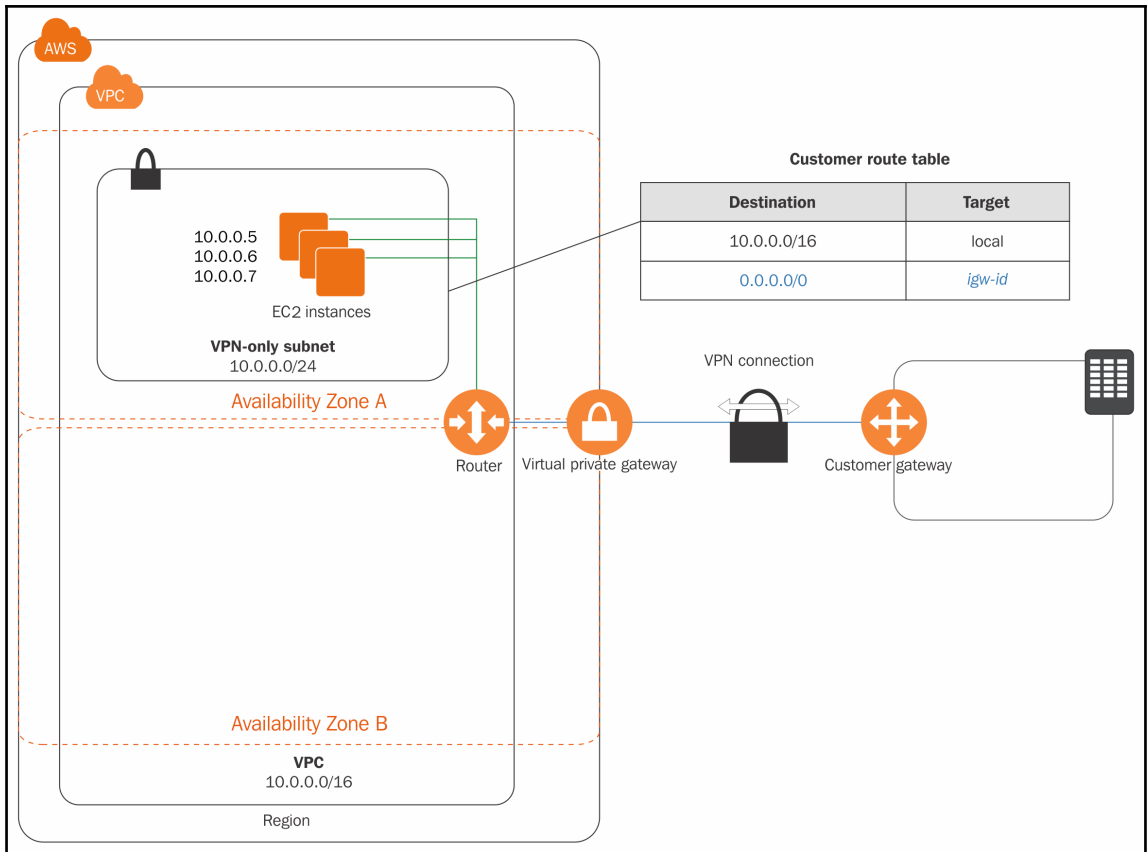
Note: VPN Connection rates apply.

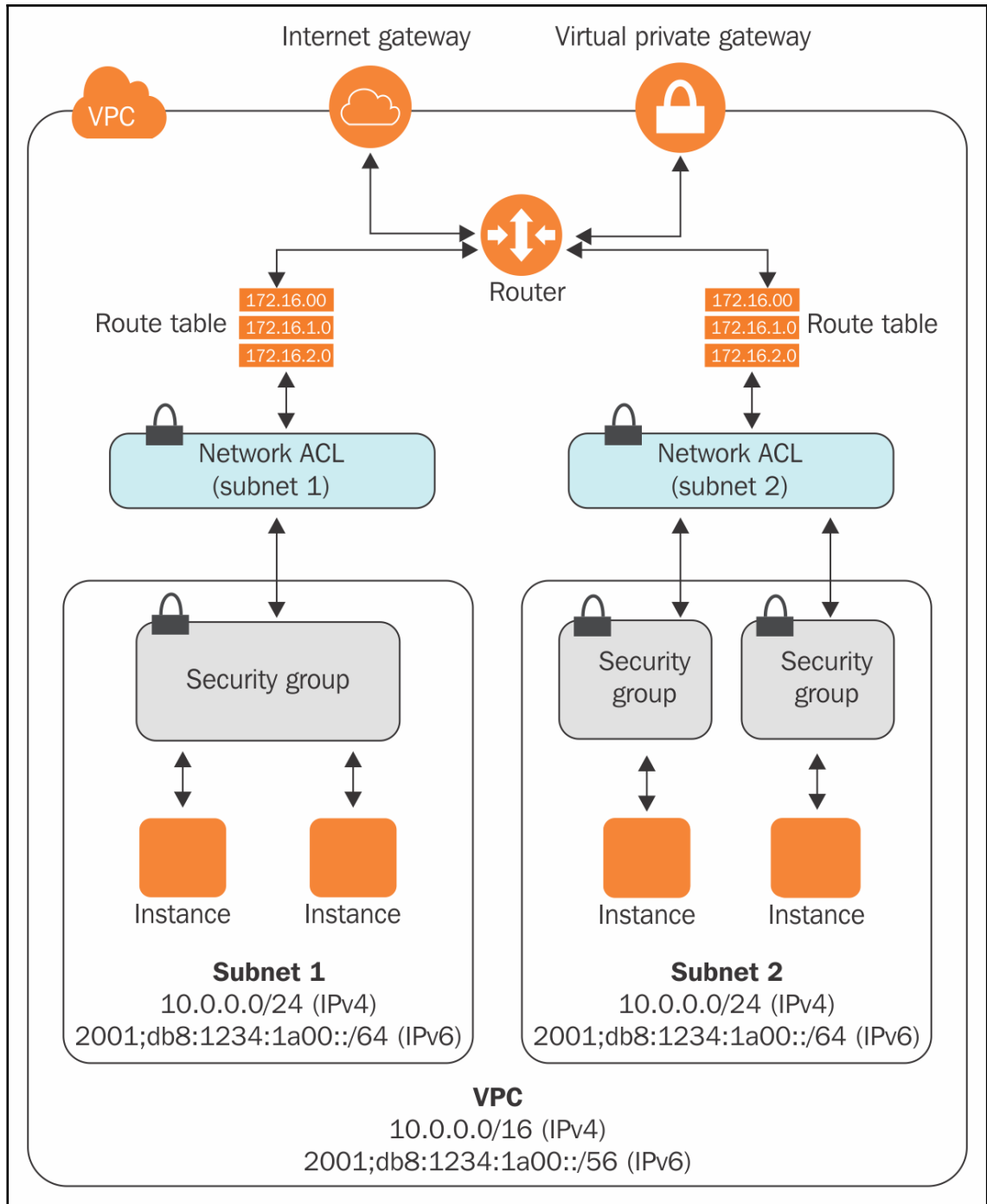
Specify the routing for the VPN Connection ([Help me choose](#))

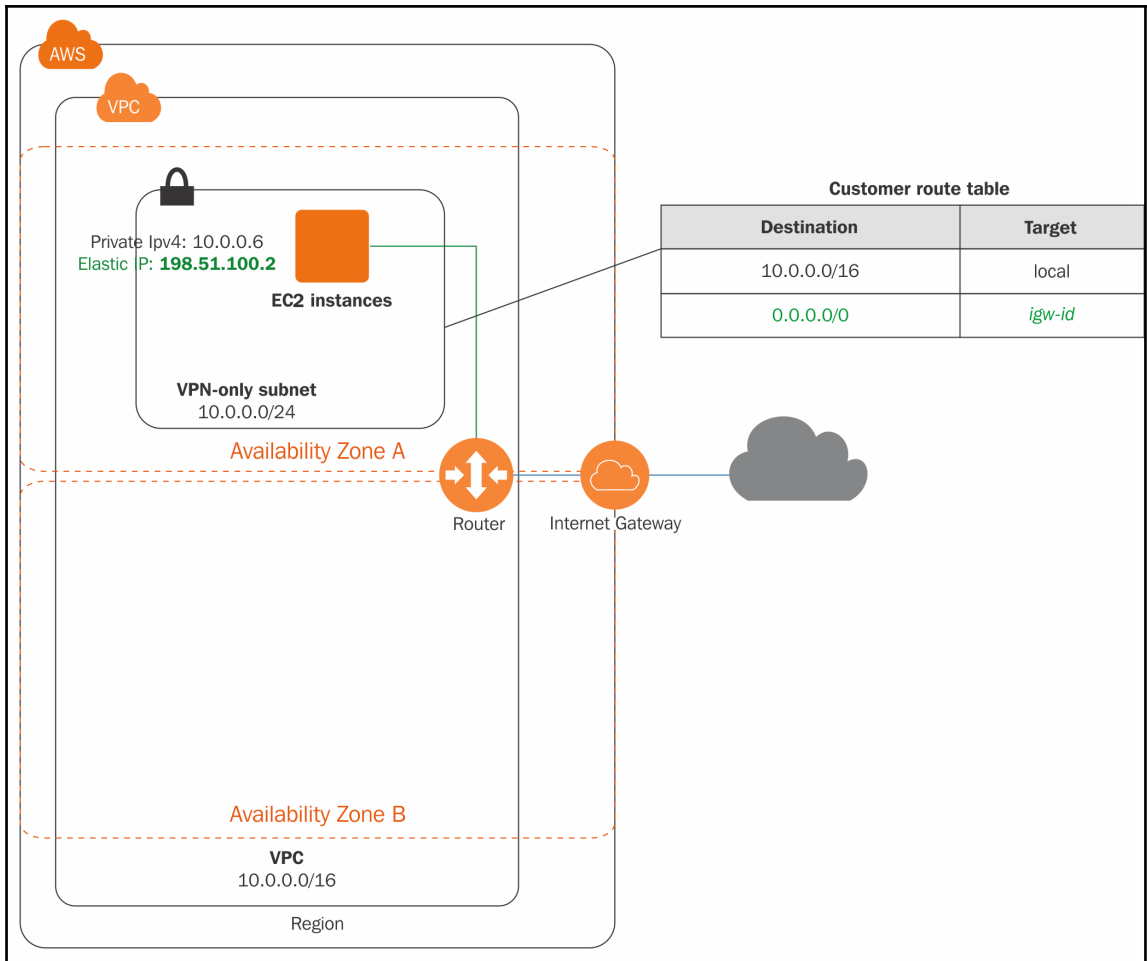
Routing Type:*

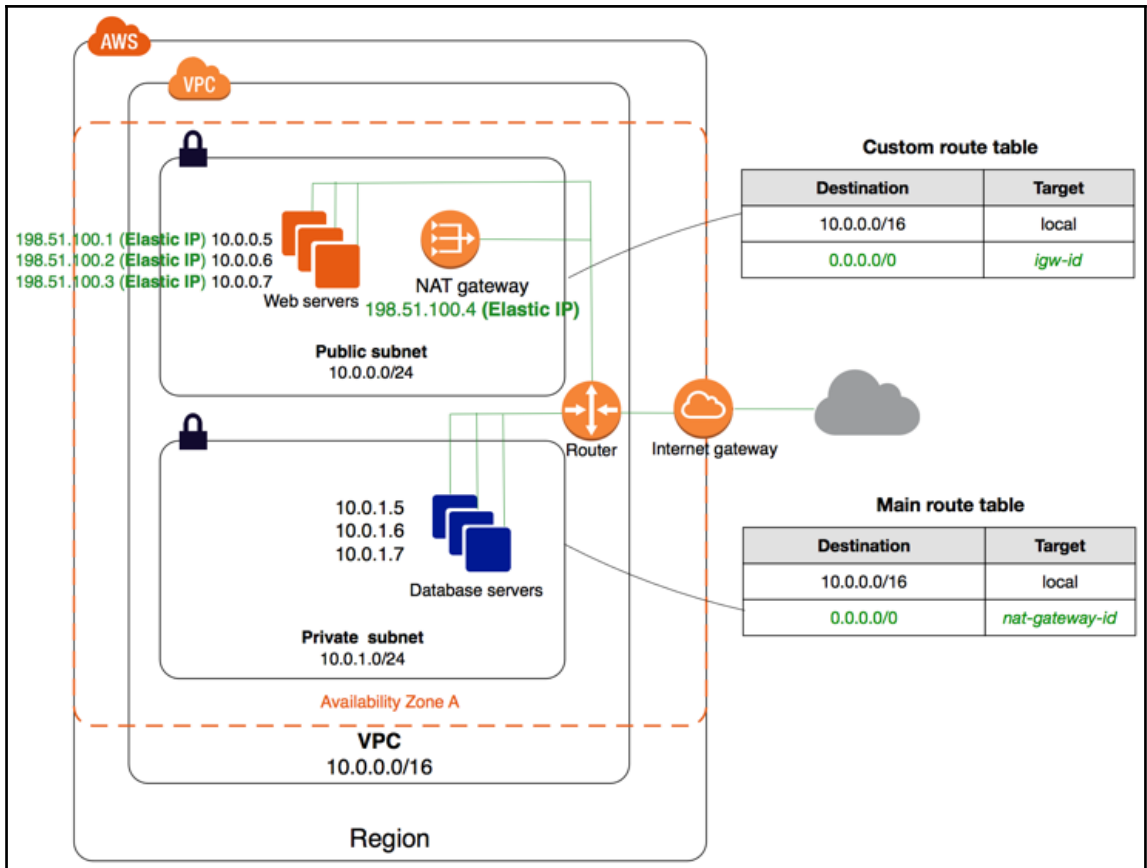
[Cancel and Exit](#) [Back](#) [Create VPC](#)



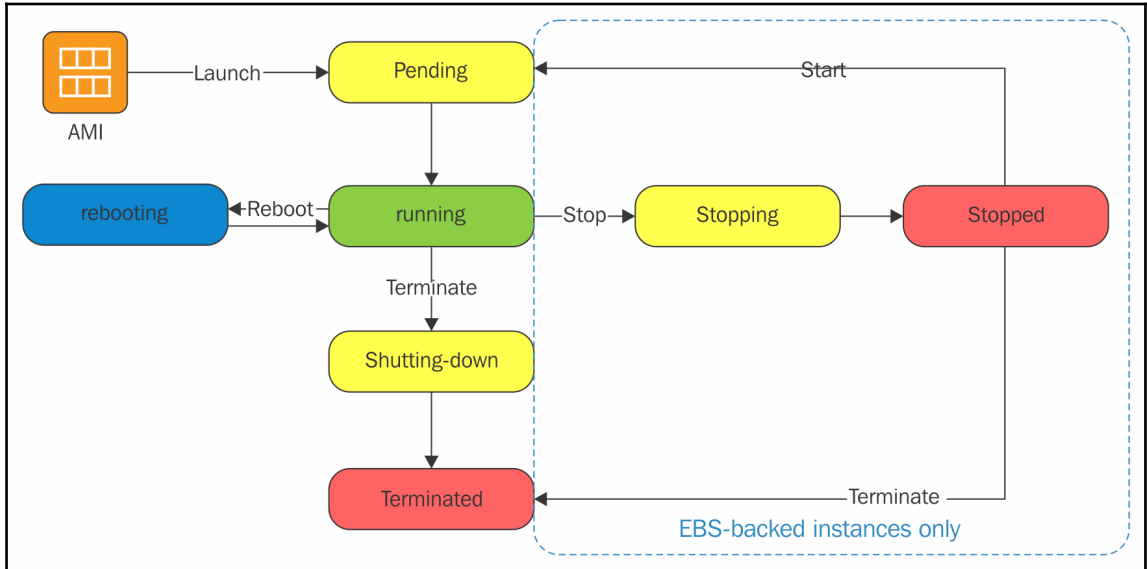


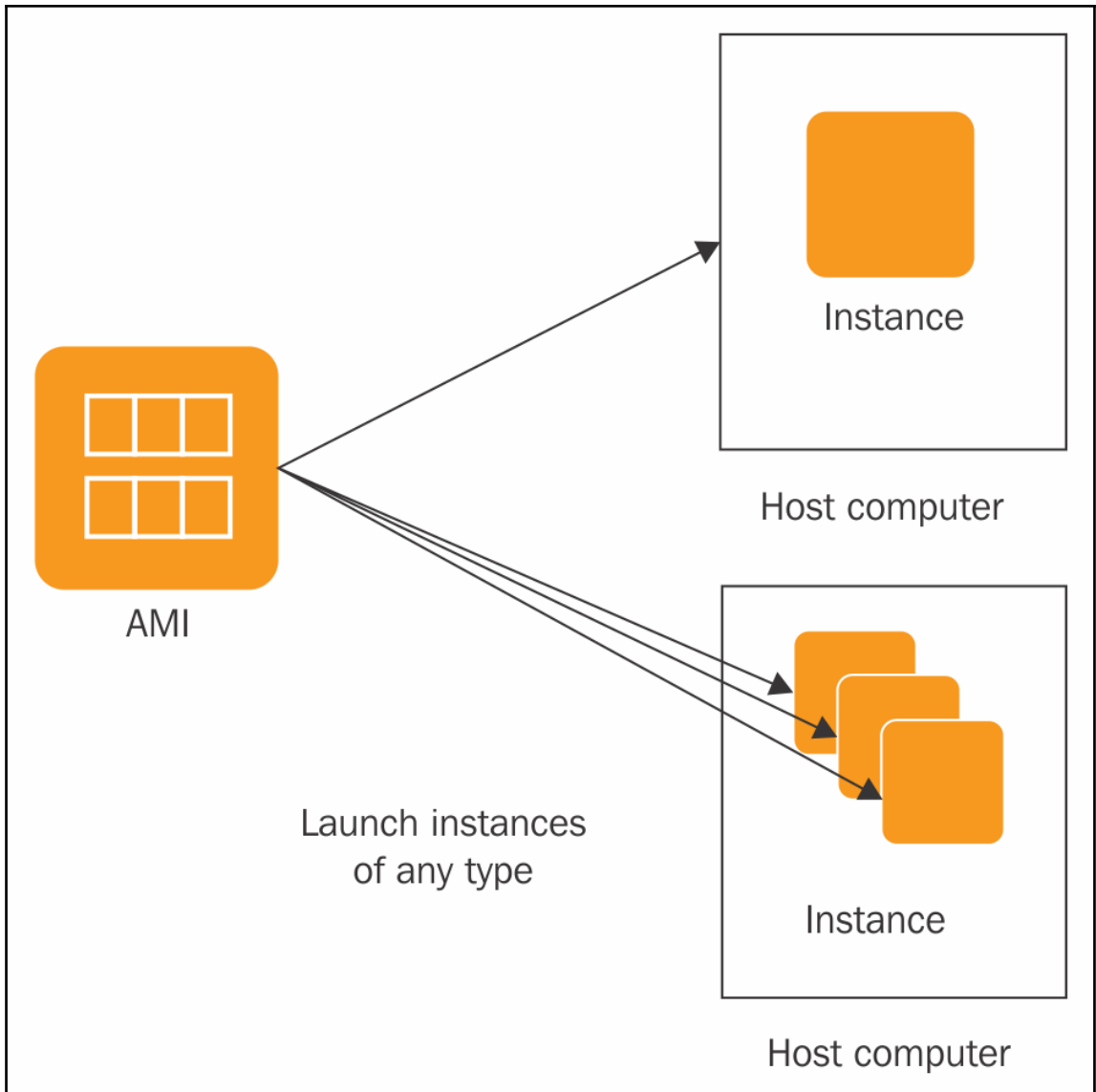






Chapter 5: Getting Started with Elastic Compute Cloud





 **Amazon Linux AMI 2017.03.0 (HVM), SSD Volume Type** - ami-22ce4934 [Select](#)

Amazon Linux The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages. 64-bit

Free tier eligible

Root device type: ebs Virtualization type: hvm

Amazon Linux AMI 2017.03.0 (HVM), SSD Volume Type - ami-22ce4934

Amazon Linux
Free tier eligible

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

Root device type: ebs Virtualization type: hvm

Select

64-bit

Services ▾ Resource Groups ▾
Vipul Tankariya ▾ N. Virginia ▾ Support ▾

1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review

Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start

- My AMIs
- AWS Marketplace
- Community AMIs
- Free tier only ⓘ

1 to 31 of 31 AMIs
< >

Amazon Linux AMI 2017.03.0 (HVM), SSD Volume Type - ami-c58c1dd3

Amazon Linux
Free tier eligible

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

Root device type: ebs Virtualization type: hvm

Select

64-bit

Red Hat Enterprise Linux 7.3 (HVM), SSD Volume Type - ami-b63768a1

Red Hat
Free tier eligible

Red Hat Enterprise Linux version 7.3 (HVM), EBS General Purpose (SSD) Volume Type

Root device type: ebs Virtualization type: hvm

Select

64-bit

SUSE Linux Enterprise Server 12 SP2 (HVM), SSD Volume Type - ami-fde4bea

SUSE Linux
Free tier eligible

SUSE Linux Enterprise Server 12 Service Pack 2 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.

Root device type: ebs Virtualization type: hvm

Select

64-bit

Feedback English
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Services ▾ Resource Groups ▾
Vipul Tankariya ▾ N. Virginia ▾ Support ▾

1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by: All instance types ▾ Current generation ▾ Show/Hide Columns

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

	Family ▾	Type ▾	vCPUs ⓘ ▾	Memory (GiB) ▾	Instance Storage (GB) ⓘ ▾	EBS-Optimized Available ⓘ ▾	Network Performance ⓘ ▾	IPv6 Support ⓘ ▾
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes

Cancel
Previous
Review and Launch
Next: Configure Instance Details

Feedback English
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Services ▾ Resource Groups ▾

Vipul Tankarlya ▾ N. Virginia ▾ Support ▾

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances [Launch into Auto Scaling Group](#)

Purchasing option Request Spot instances

Network [Create new VPC](#)

Subnet [Create new subnet](#)
251 IP Addresses available

Auto-assign Public IP

IAM role [Create new IAM role](#)

Shutdown behavior

Enable termination protection Protect against accidental termination

Monitoring Enable CloudWatch detailed monitoring
Additional charges apply.

Tenancy
Additional charges will apply for dedicated tenancy.

▼ Network interfaces

Device	Network Interface	Subnet	Primary IP	Secondary IP addresses	IPv6 IPs
eth0	<input type="text" value="New network interfa"/>	<input type="text" value="subnet-bf400f83"/>	<input type="text" value="Auto-assign"/>	Add IP	

[Add Device](#)

► Advanced Details

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Storage](#)

Feedback English

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Graphic Bundle

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/xvda	snap-0f2b695076fc43043	8	General Purpose SSD (GP2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

[Add New Volume](#)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Tags](#)

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (127 characters maximum)	Value (255 characters maximum)	Instances	Volumes
Name	Learn launch EC2 instance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

[Add another tag](#) (Up to 50 tags maximum)

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Configure Security Group](#)

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: Create a new security group
 Select an existing security group

Security group name:

Description:

Type	Protocol	Port Range	Source
SSH	TCP	22	Custom 0.0.0.0/0

[Add Rule](#)

Warning
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.


[Cancel](#) [Previous](#) [Review and Launch](#)

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

AMI Details [Edit AMI](#)

 **Amazon Linux AMI 2017.03.0 (HVM), SSD Volume Type - ami-22ce4934**

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

Root Device Type: ebs Virtualization type: hvm

Instance Type [Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

Security Groups [Edit security groups](#)

Security group name launch-wizard-44
Description Security Group for Learning Launching a New EC2 Instance

Type	Protocol	Port Range	Source
SSH	TCP	22	103.26.232.66/32

Instance Details [Edit instance details](#)

Storage [Edit storage](#)

Tags [Edit tags](#)

[Cancel](#) [Previous](#) [Launch](#)

Select an existing key pair or create a new key pair ✕

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.


Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Create a new key pair ▼

Key pair name

Dev-Packt

Download Key Pair

 You have to download the **private key file** (*.pem file) before you can continue. Store it in a **secure and accessible location**. You will not be able to download the file again after it's created.

Cancel Launch Instances

The screenshot shows the AWS Management Console interface for an EC2 instance. A context menu is open over the instance details, listing various actions. The 'Change Instance Type' option is highlighted in orange. Below the menu, a table displays instance details.

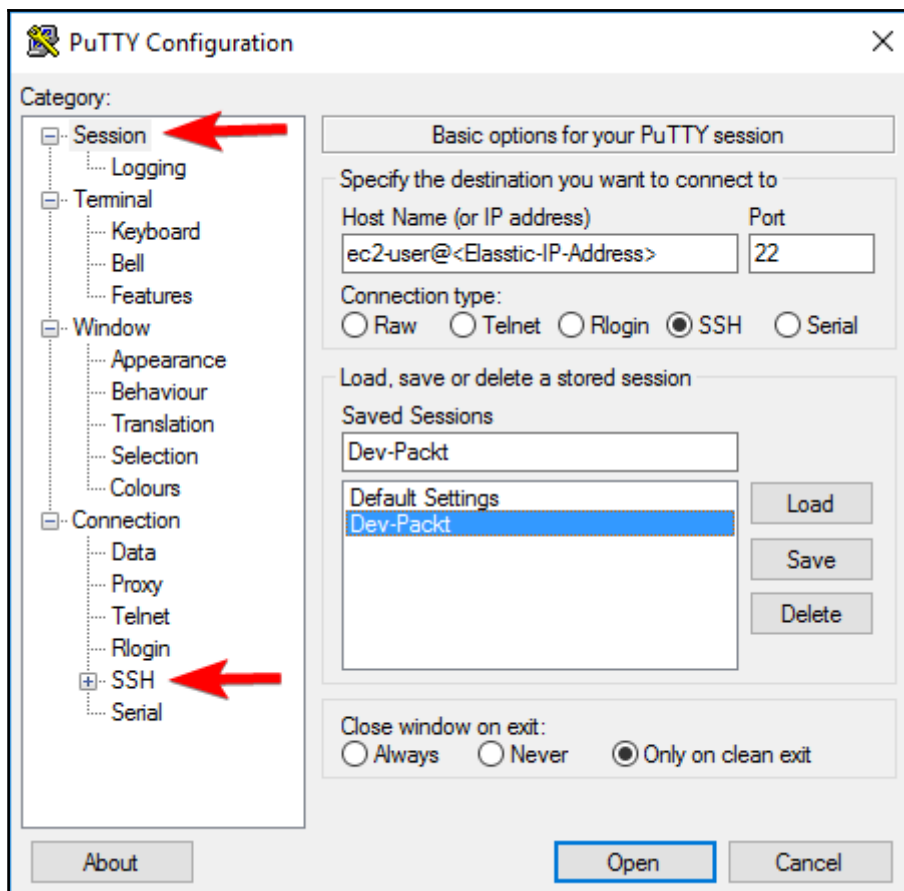
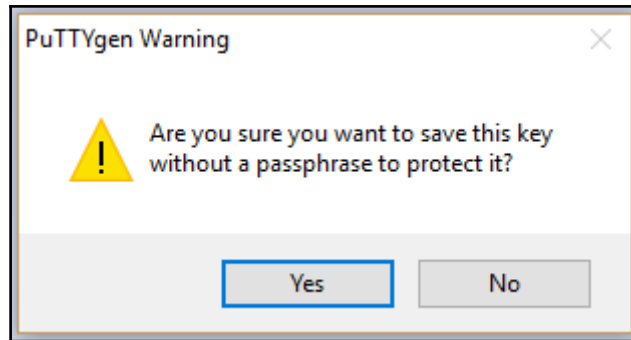
Instance ID	Instance state	Instance type	Elastic IPs	Availability zone
i-0aee7e5b4b6df3b1d	stopped	t2.micro		us-east-1

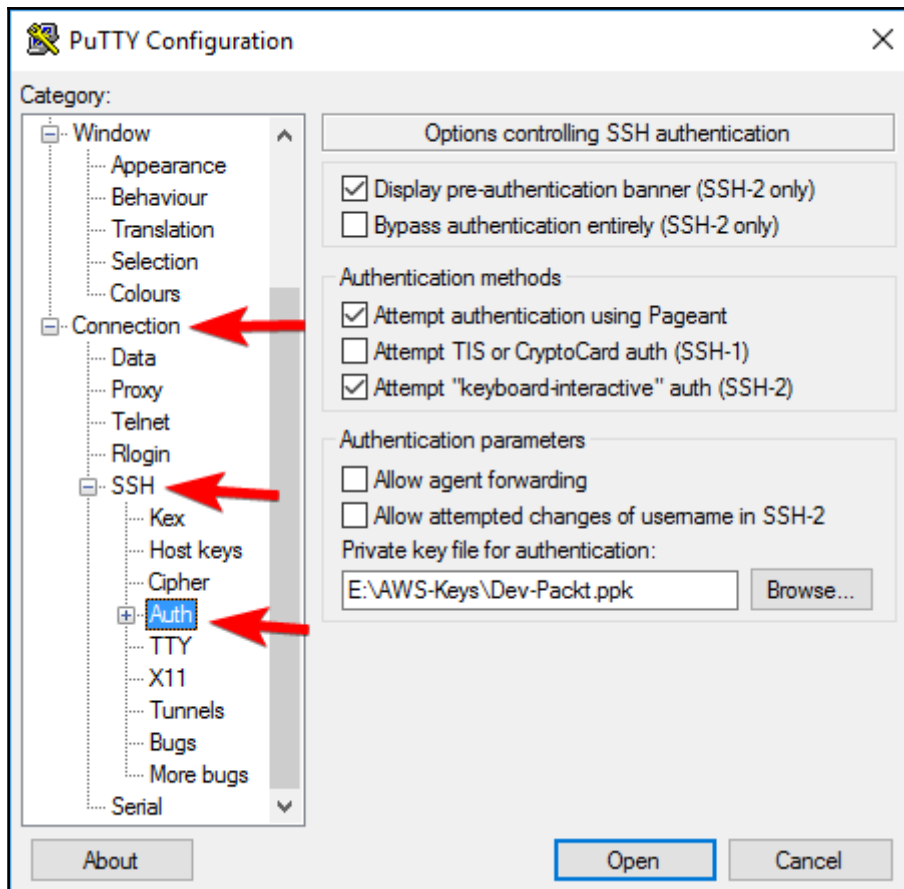
A file selection dialog box is shown with the following fields:

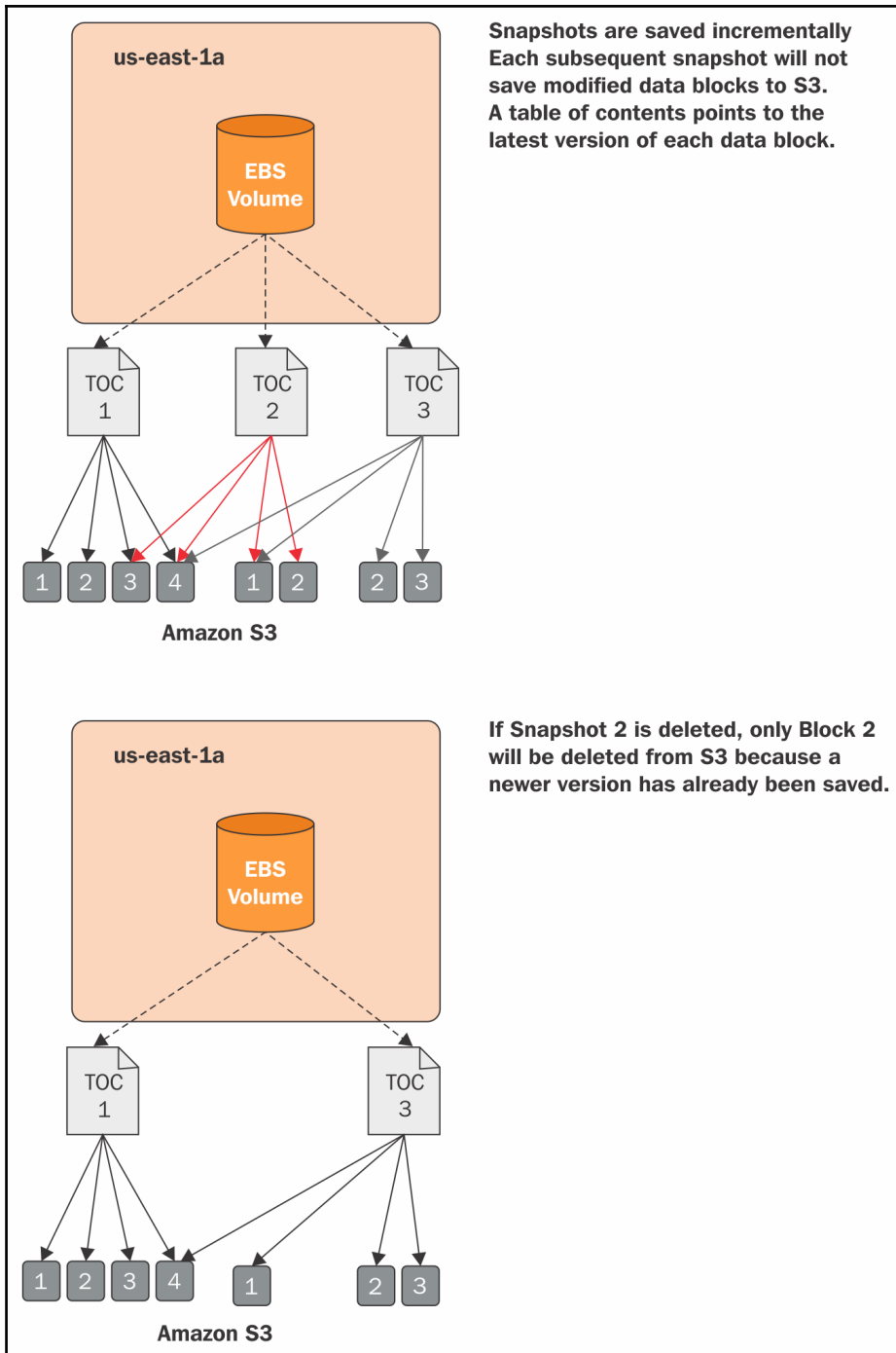
- File name: [Empty text box]
- File type dropdown: PuTTY Private Key Files (*.ppk) (with a sub-menu open showing PuTTY Private Key Files (*.ppk) and All Files (*.*) selected)

The 'Parameters' section of an SSH key generation dialog box is shown with the following settings:

- Type of key to generate: SSH-2 RSA (selected), SSH-1 (RSA), SSH-2 DSA
- Number of bits in a generated key: 2048

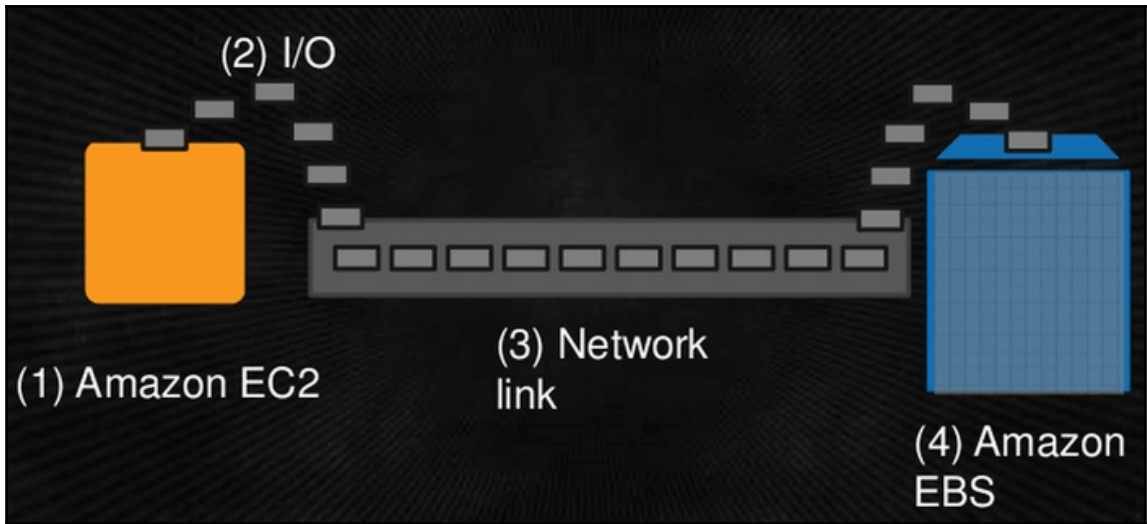




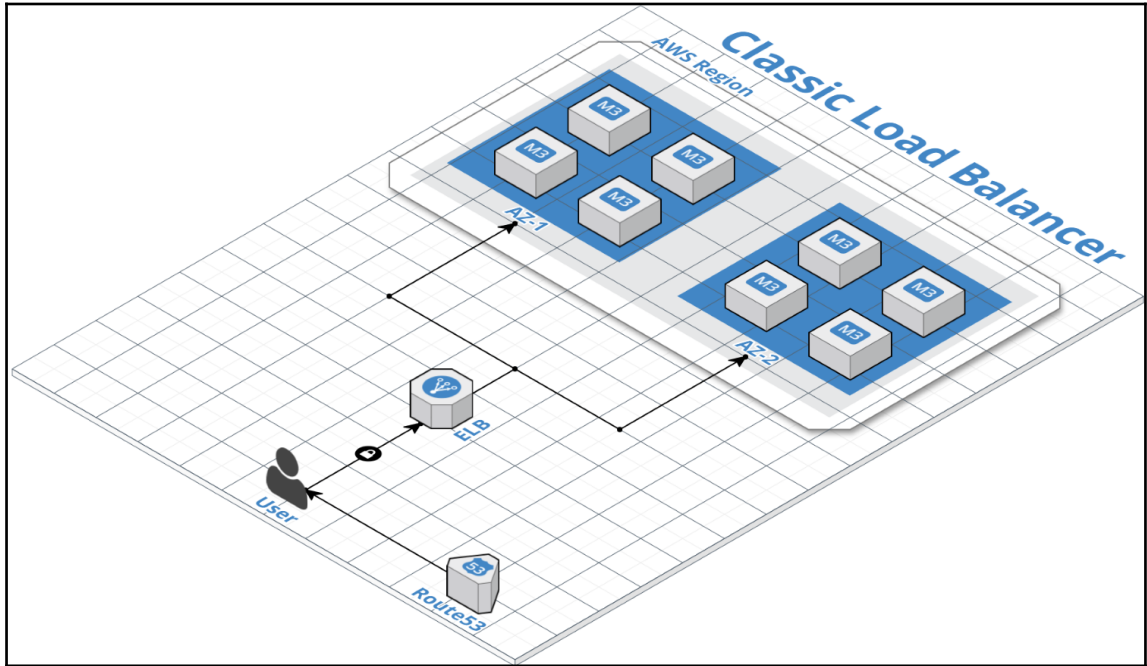


Snapshots are saved incrementally
Each subsequent snapshot will not save modified data blocks to S3.
A table of contents points to the latest version of each data block.

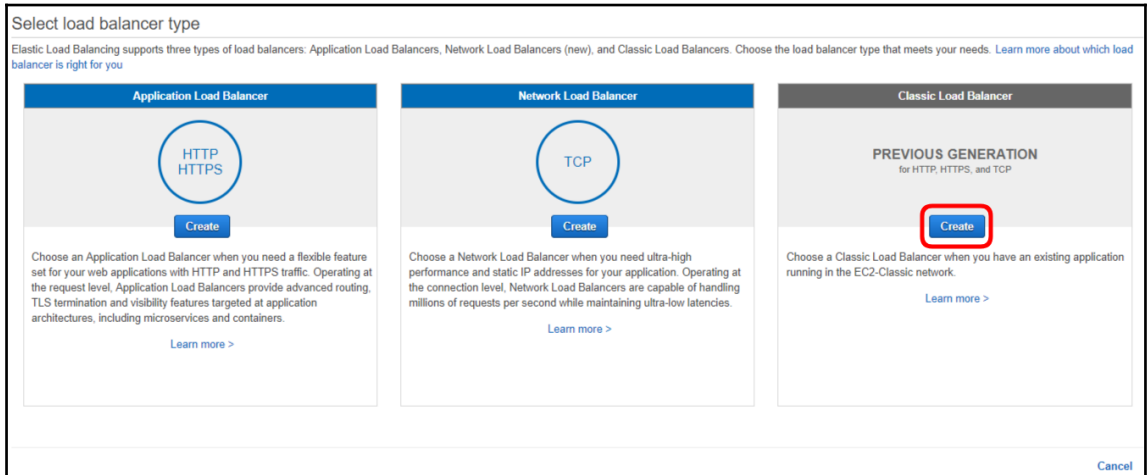
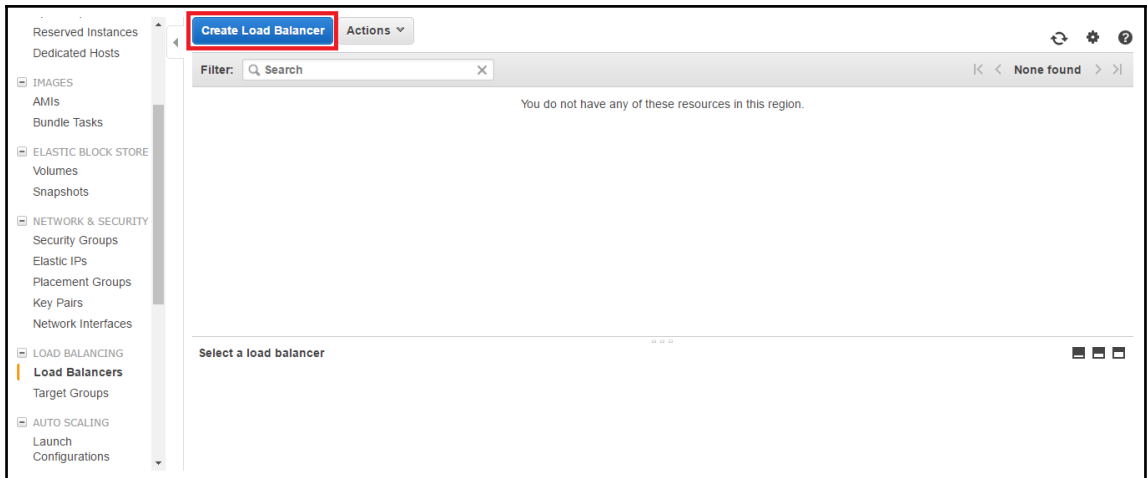
If Snapshot 2 is deleted, only Block 2 will be deleted from S3 because a newer version has already been saved.



Chapter 6: Handling Application Traffic with Elastic Load Balancing



- LOAD BALANCING
 - Load Balancers**
 - Target Groups



1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 1: Define Load Balancer

Basic Configuration

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name:

Create LB Inside:

Create an internal load balancer: [\(what's this?\)](#)

Enable advanced VPC configuration:

Listener Configuration:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port
<input type="text" value="HTTP"/>	<input type="text" value="80"/>	<input type="text" value="HTTP"/>	<input type="text" value="80"/>

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 2: Assign Security Groups

You have selected the option of having your Elastic Load Balancer inside of a VPC, which allows you to assign security groups to your load balancer. Please select the security groups to assign to this load balancer. This can be changed at any time.

Assign a security group: Create a new security group Select an existing security group

Security group name:

Description:

Type	Protocol	Port Range	Source
<input type="text" value="Custom TCP Rule"/>	<input type="text" value="TCP"/>	<input type="text" value="443"/>	<input type="text" value="Custom 0.0.0.0/0"/>

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 3: Configure Security Settings

Certificate type:

- Choose an **existing** certificate from AWS Certificate Manager (ACM)
- Choose an **existing** certificate from AWS Identity and Access Management (IAM)
- Upload a **new** SSL certificate to AWS Identity and Access Management (IAM)

Certificate name:*

Private Key:*

(pem encoded)

Public Key Certificate:*

(pem encoded)

Certificate Chain:

(pem encoded)

Select a Cipher

Configure SSL negotiation settings for the HTTPS/SSL listeners of your load balancer. You may select one of the Security Policies listed below, or customize your own settings. [Learn more](#) about the Security Policies and configuring SSL negotiation settings.

Predefined Security Policy

Custom Security Policy

SSL Protocols

- Protocol-TLSv1
- Protocol-SSLv3
- Protocol-TLSv1.1
- Protocol-TLSv1.2

SSL Options

- Server Order Preference

SSL Ciphers

- ...

[Cancel](#) [Previous](#) [Next: Configure Health Check](#)

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 4: Configure Health Check

Your load balancer will automatically perform health checks on your EC2 instances and only route traffic to instances that pass the health check. If an instance fails the health check, it is automatically removed from the load balancer. Customize the health check to meet your specific needs.

Ping Protocol

Ping Port

Ping Path

Advanced Details

Response Timeout seconds

Interval seconds

Unhealthy threshold

Healthy threshold

[Cancel](#) [Previous](#) [Next: Add EC2 Instances](#)

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 5: Add EC2 Instances

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances to this load balancer.

VPC vpc-cfc50dab (172.31.0.0/16)

<input type="checkbox"/>	Instance	Name	State	Security groups	Zone	Subnet ID	Subnet CIDR
No instances available.							

Availability Zone Distribution

Enable Cross-Zone Load Balancing ⓘ

Enable Connection Draining ⓘ seconds

Cancel Previous Next: Add Tags

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

Step 6: Add Tags

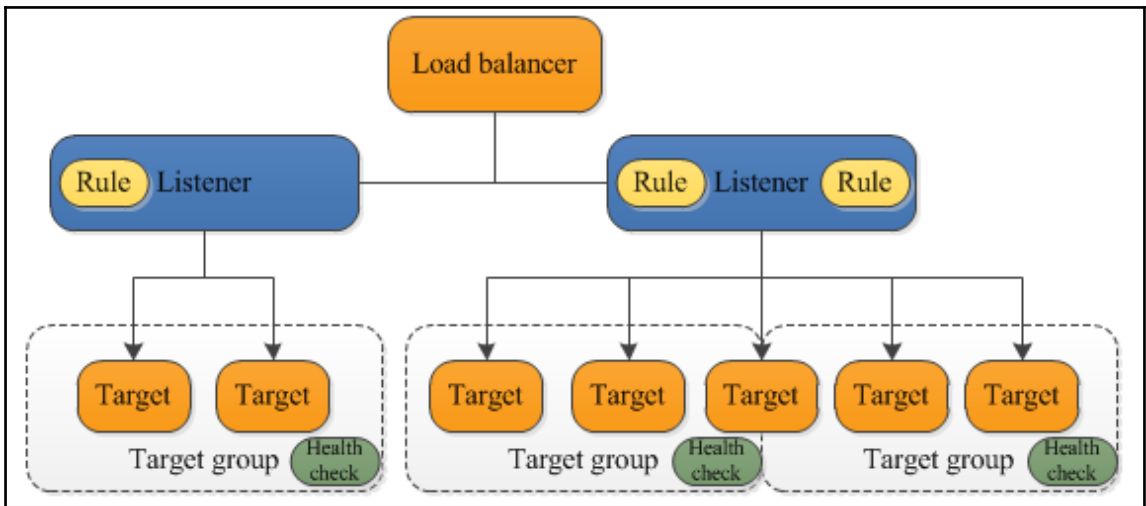
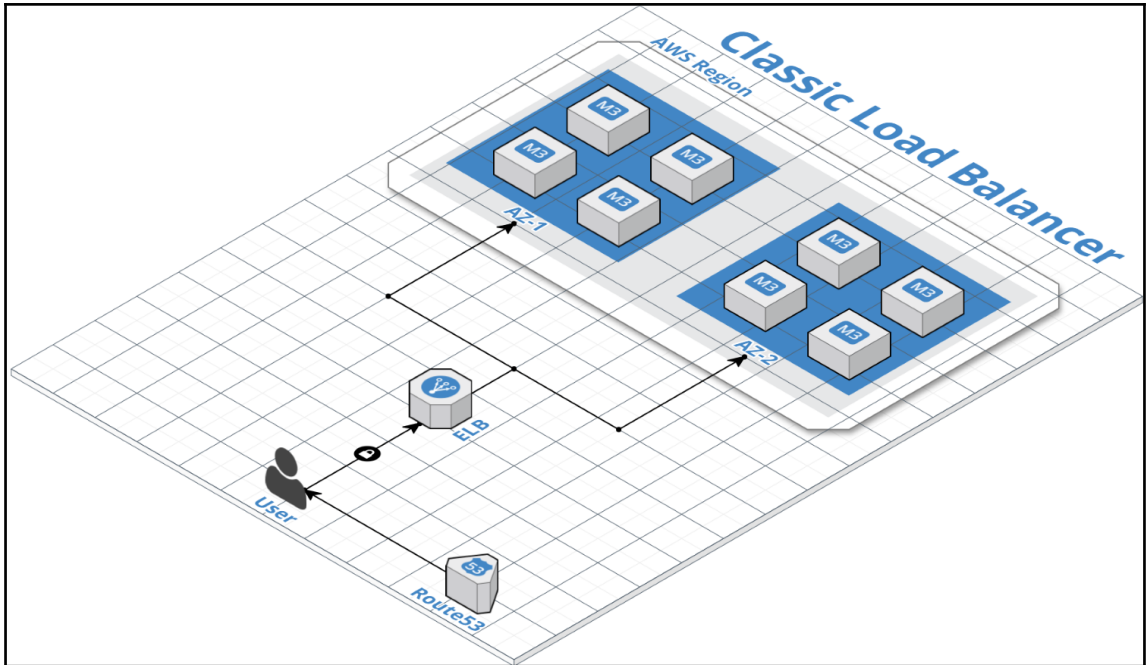
Apply tags to your resources to help organize and identify them.

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

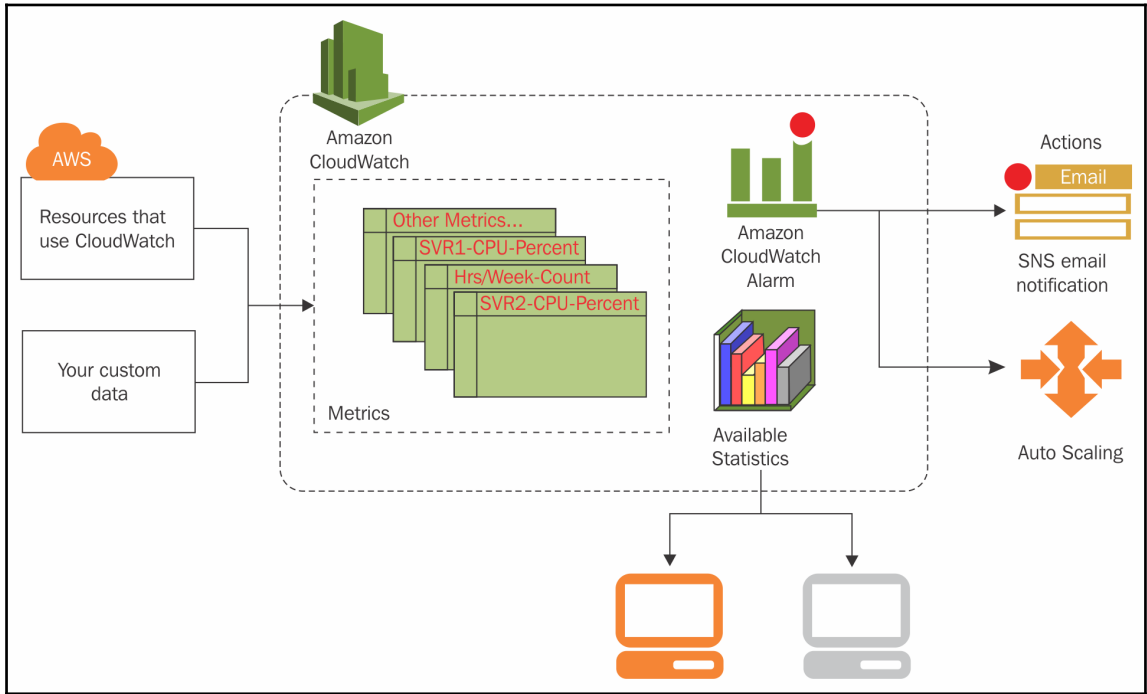
Key	Value
<input type="text" value="Name"/>	<input type="text" value="Learn-ELB-WebApp"/>

Create Tag

Cancel Previous Review and Create



Chapter 7: Monitoring with CloudWatch



The screenshot shows the AWS CloudWatch console interface. The top navigation bar includes 'Services', 'Resource Groups', and user information. The left sidebar lists 'CloudWatch' with sub-items: Dashboards, Alarms (highlighted with a red arrow), ALARM, INSUFFICIENT, OK, Billing, Events, Rules, Logs, and Metrics. The main content area is titled 'Metric Summary' and contains text about monitoring AWS cloud resources and applications. Below this is a 'Browse Metrics' button and a search box. The 'Alarm Summary' section states that no alarms are currently created in the US East (N. Virginia) region and includes a 'Create Alarm' button. The 'Service Health' section shows the 'Amazon CloudWatch Service' with a green checkmark and the status 'Service is operating normally'.

This screenshot shows the 'Alarms' section of the AWS CloudWatch console. The left sidebar has 'Alarms' highlighted with a red arrow. The main content area features a 'Create Alarm' button, 'Add to Dashboard', and 'Actions' options. Below these are filter controls for 'All alarms' and a search box. A table header is visible with columns for 'State', 'Name', 'Threshold', and 'Config Status'. The table currently displays 'No records found.' A mouse cursor is positioned over the 'Config Status' column header.

Create Alarm

1. Select Metric 2. Define Alarm

Browse Metrics

CloudWatch Metrics by Category

Your CloudWatch metric summary has loaded. Total metrics: 872

CloudFront Metrics: 6 Per-Distribution Metrics: 6	DMS Metrics: 60 ReplicationInstanceExternalResourceId: 15 Per-Replication Metrics: 15 By Instance Class: 15 Across All Replications: 15	DynamoDB Metrics: 62 Operation,StreamLabel,TableName: 3 Table Metrics: 53 Table Operation Metrics: 6
EBS Metrics: 94 Per-Volume Metrics: 94	EC2 Metrics: 172 Per-Instance Metrics: 148 By Auto Scaling Group: 24	ELB Metrics: 75 Per-LB Metrics: 14 Per LB, per AZ Metrics: 18 By Availability Zone: 16 Across All LBs: 9 By Namespace: 9 By Service: 9
ES Metrics: 40 Per-Domain, Per-Client Metrics: 40	ElasticBeanstalk Metrics: 4 Environment Metrics: 4	Events Metrics: 7 Across All Rules: 3 By Rule Name: 4
Kinesis Metrics: 13	Lambda Metrics: 20	Logs Metrics: 10

Update Graph

Cancel Previous **Next** Create Alarm

Create Alarm

1. Select Metric 2. Define Alarm

EC2 Search Metrics 1 to 14 of 14 metrics

<input type="checkbox"/>	i-0f33743a689356cfc	NetworkIn
<input type="checkbox"/>	i-0f33743a689356cfc	NetworkOut
<input type="checkbox"/>	i-0f33743a689356cfc	NetworkPacketsIn
<input type="checkbox"/>	i-0f33743a689356cfc	NetworkPacketsOut
<input type="checkbox"/>	i-0f33743a689356cfc	StatusCheckFailed
<input checked="" type="checkbox"/>	i-0f33743a689356cfc	StatusCheckFailed_Instance
<input type="checkbox"/>	i-0f33743a689356cfc	StatusCheckFailed_System

Title: StatusCheckFailed_Instance Average 5 Minutes

Update Graph

Time Range: Relative Absolute UTC (GMT)

From: 12.07 hours ago To: 0 hours ago

Zoom: 1h | 3h | 6h | 12h | 1d | 3d | 1w | 2w

Left Y-axis

Limits: Min 0 Max Auto Auto


Cancel Previous Next Create Alarm


Create Alarm

[1. Select Metric](#) **[2. Define Alarm](#)**


Alarm Threshold


Provide the details and threshold for your alarm. Use the graph on the right to help set the appropriate threshold.

Name: 

Description: 


Whenever: StatusCheckFailed_Instance

is: 

for: consecutive period(s) 

Additional settings

Provide additional configuration for your alarm.


Treat missing data as: 

Actions

Define what actions are taken when your alarm changes state.

Notification Delete

Whenever this alarm:

Send notification to: [New list](#) [Enter list](#) 

EC2 Action Delete

Whenever this alarm:

Take this action:

- Recover this instance ⓘ
- Stop this instance ⓘ
- Terminate this instance ⓘ
- Reboot this instance ⓘ

This will auto recover your EC2 instance (i-0f33743a689356cfc).
You can only recover certain EC2 instance types. Please [see documentation](#).

Alarm Preview

This alarm will trigger when the blue line goes up to or above the red line for a duration of 15 minutes

StatusCheckFailed_Instance >= 1

Time	Value
5/22 02:00	0
5/22 03:00	0
5/22 04:00	1
5/22 05:00	1

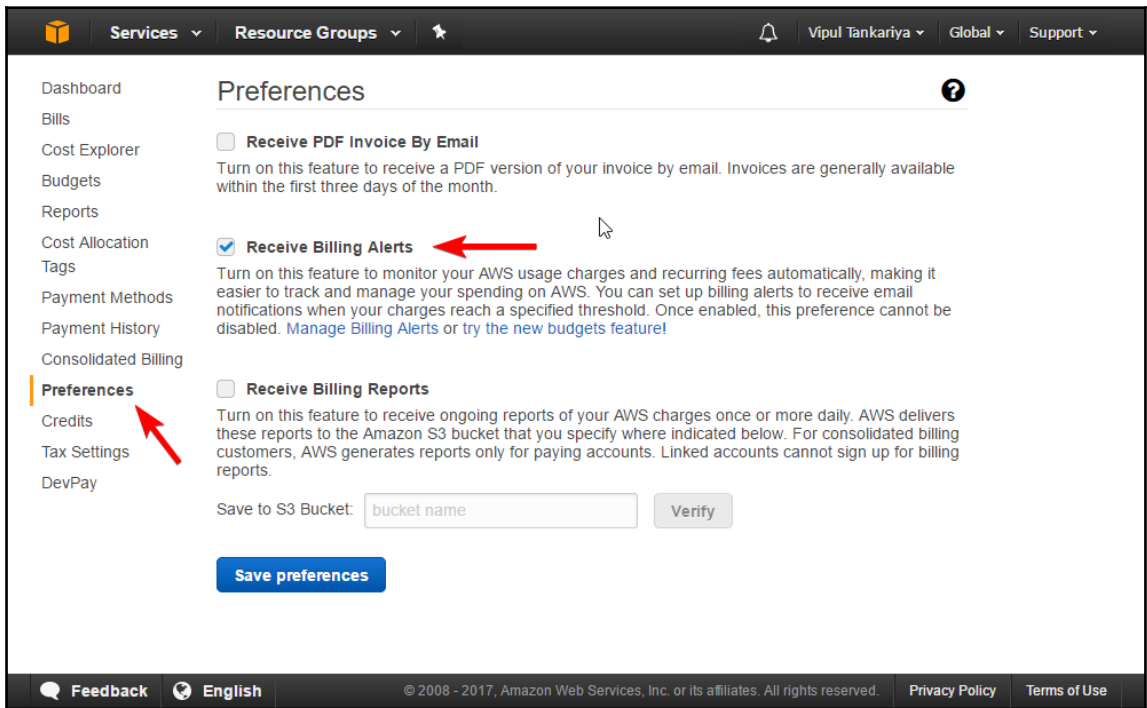
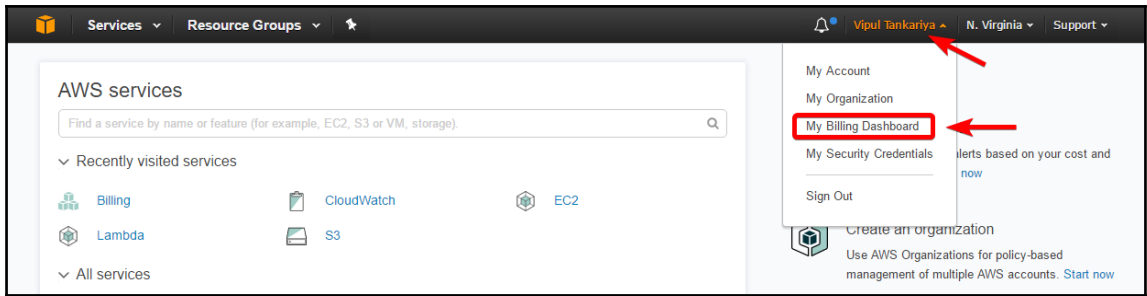
Namespace: AWS/EC2

InstanceId:

Metric Name:

Period:

Statistic: Standard Custom



Services ▾ **Resource Groups** ▾ **Vipul Tankariya** ▾ **N. Virginia** ▾ **Support** ▾

1. Choose AMI 2. Choose Instance Type **3. Configure Instance** 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances ⓘ [Launch into Auto Scaling Group](#) ⓘ

Purchasing option ⓘ Request Spot instances

Network ⓘ [Create new VPC](#)

Subnet ⓘ [Create new subnet](#)
251 IP Addresses available

Auto-assign Public IP ⓘ

IAM role ⓘ [Create new IAM role](#)

Shutdown behavior ⓘ

Enable termination protection ⓘ Protect against accidental termination

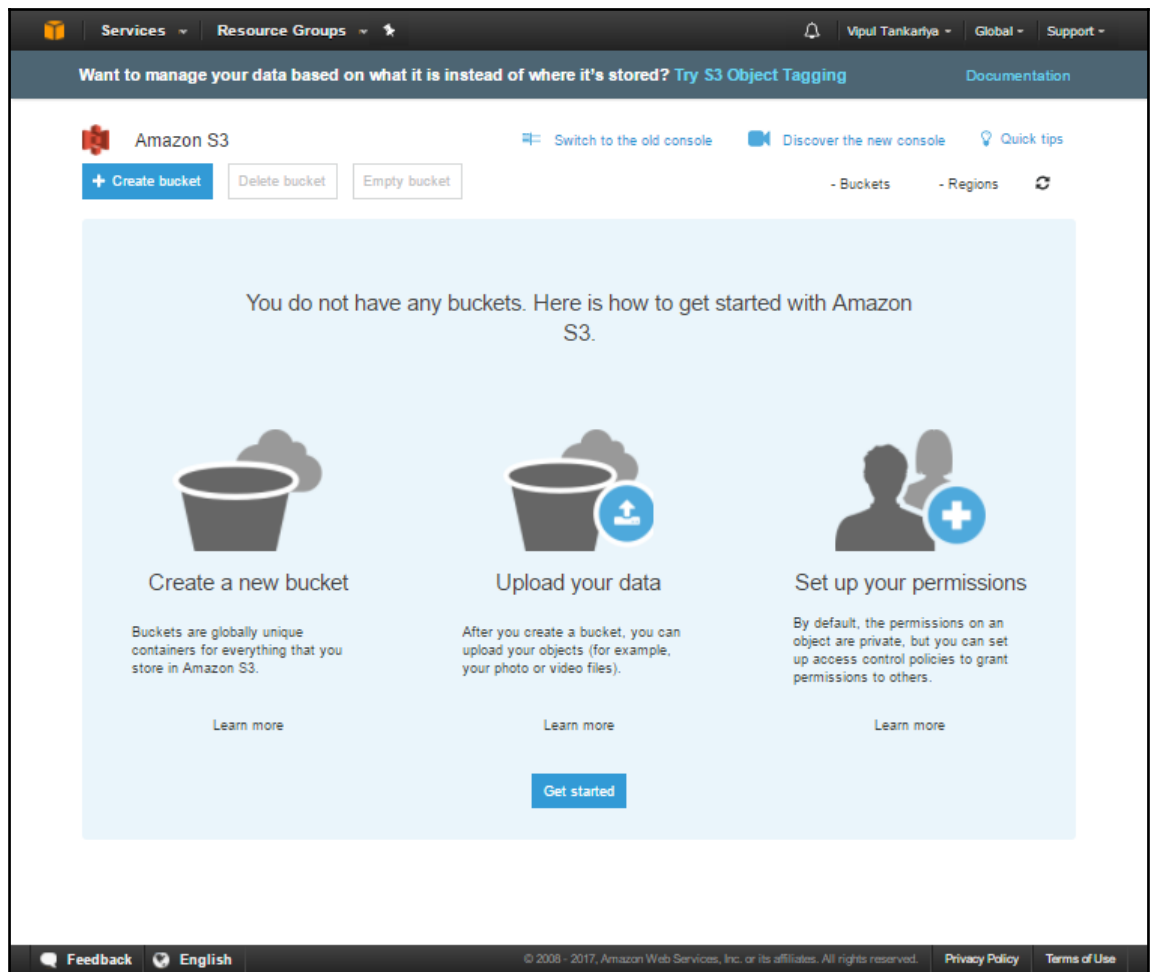
Monitoring ⓘ Enable CloudWatch detailed monitoring [Additional charges apply.](#)

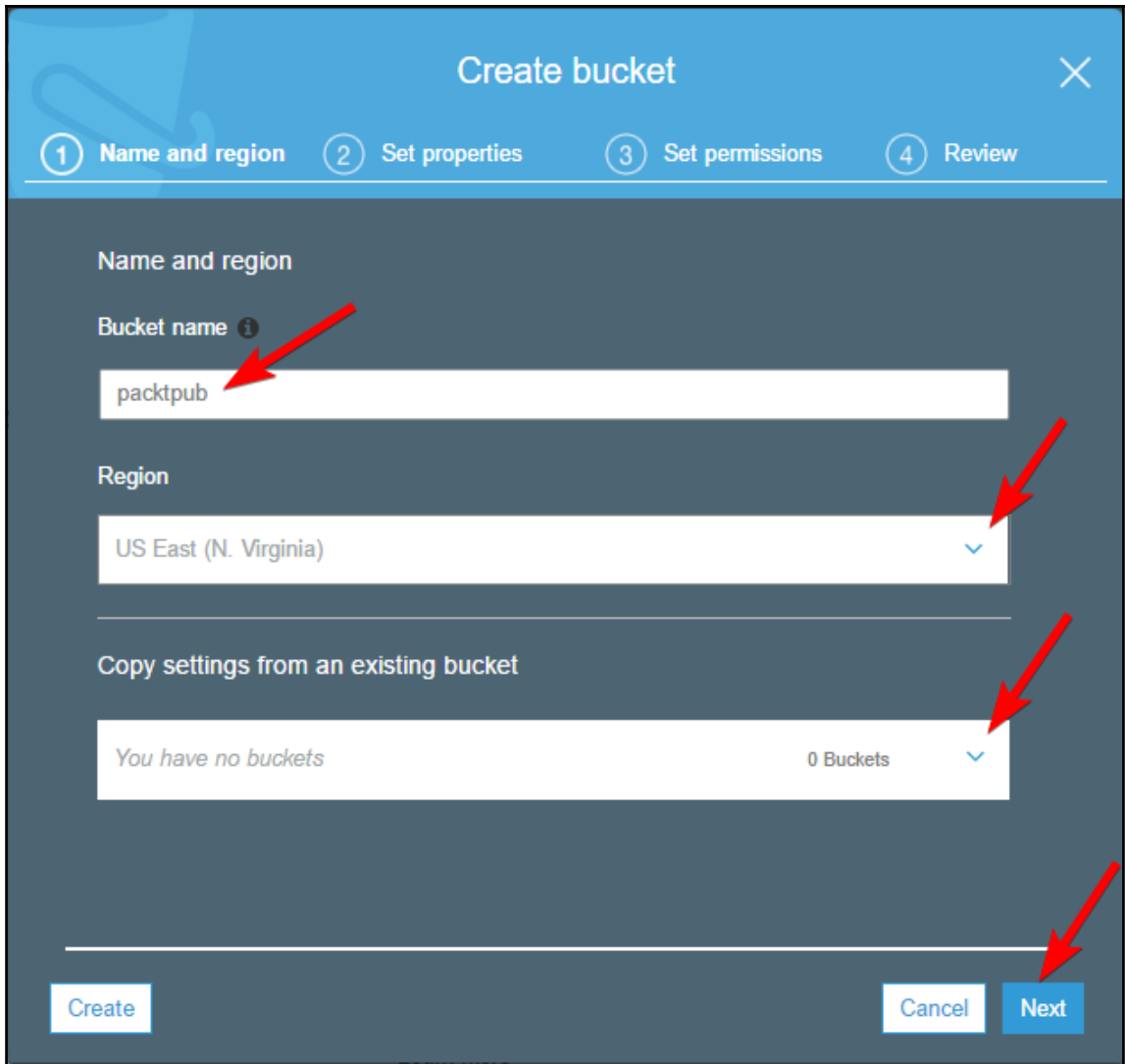
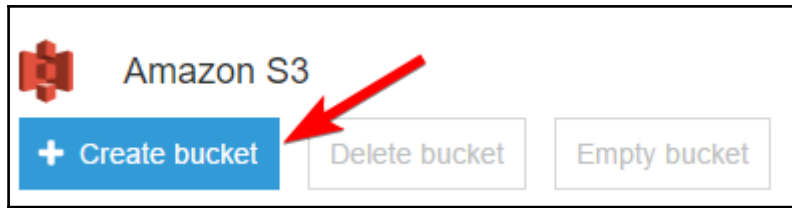
Tenancy ⓘ [Additional charges will apply for dedicated tenancy.](#)

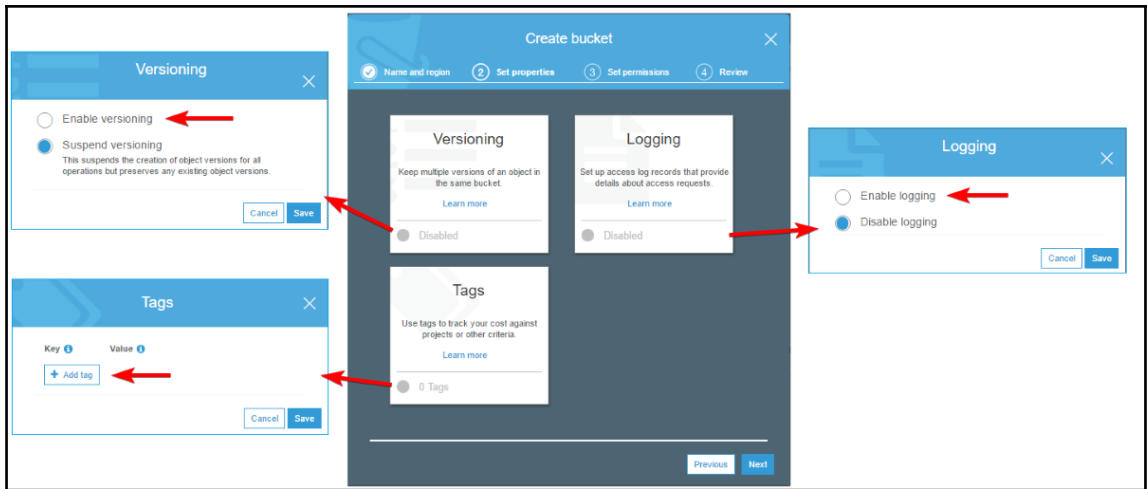
[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Storage](#)

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Chapter 8: Simple Storage Service, Glacier, and CloudFront







Create bucket ✕

1 Name and region 2 Set properties **3 Set permissions** 4 Review

▼ Manage users

User ID ⓘ	Objects ⓘ	Object permissions ⓘ	
vipul.tankariya(Owner)	<input checked="" type="checkbox"/> Read <input checked="" type="checkbox"/> Write	<input checked="" type="checkbox"/> Read <input checked="" type="checkbox"/> Write	✕

▼ Manage public permissions

Group ⓘ	Objects ⓘ	Object permissions ⓘ	
Everyone	<input type="checkbox"/> Read <input type="checkbox"/> Write	<input type="checkbox"/> Read <input type="checkbox"/> Write	

▼ Manage system permissions

Group ⓘ	Objects ⓘ	Object permissions ⓘ	
Log Delivery	<input type="checkbox"/> Read <input type="checkbox"/> Write	<input type="checkbox"/> Read <input type="checkbox"/> Write	

Previous Next

Create bucket ✕

Name and region Set properties Set permissions 4 Review

Name and region Edit

Bucket name packtpubs **Region** US East (N. Virginia)


Properties Edit

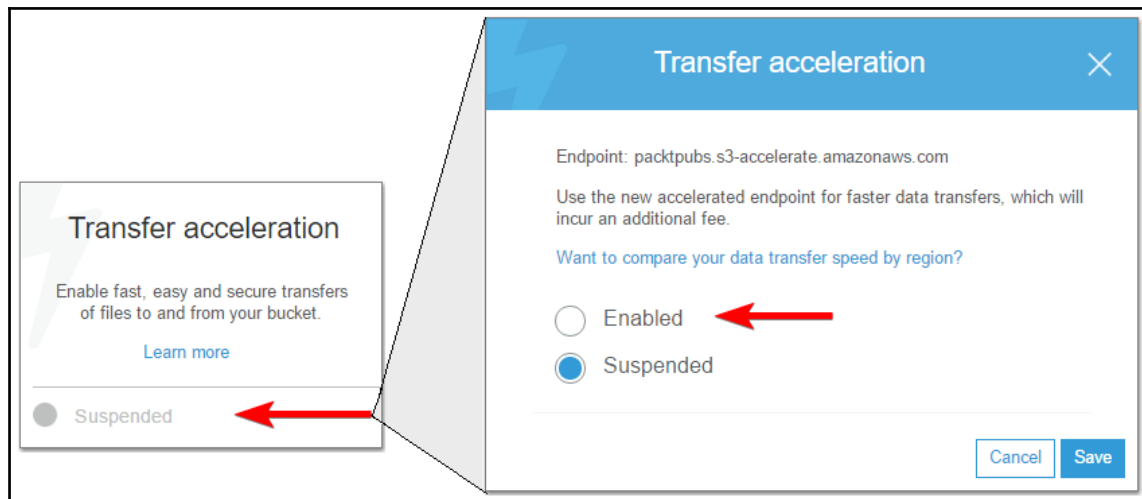
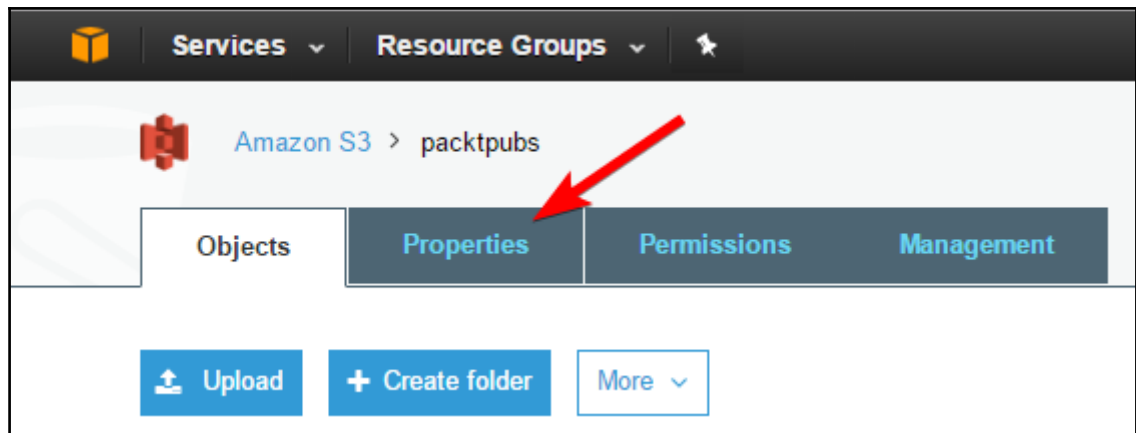
Versioning	Disabled
Logging	Disabled
Tagging	0 Tags

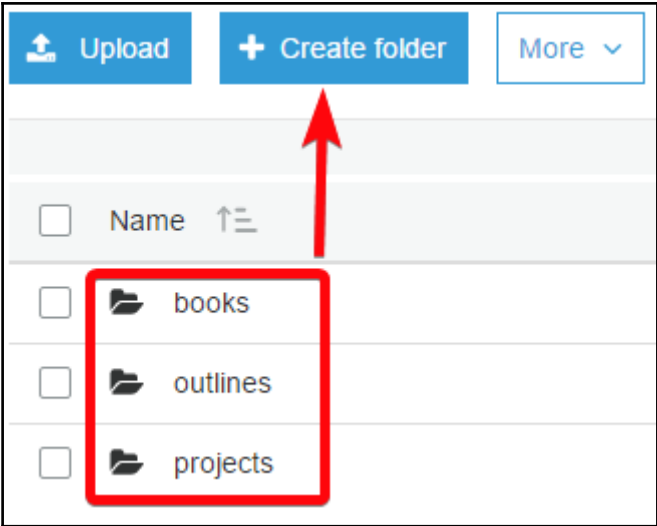
Permissions Edit

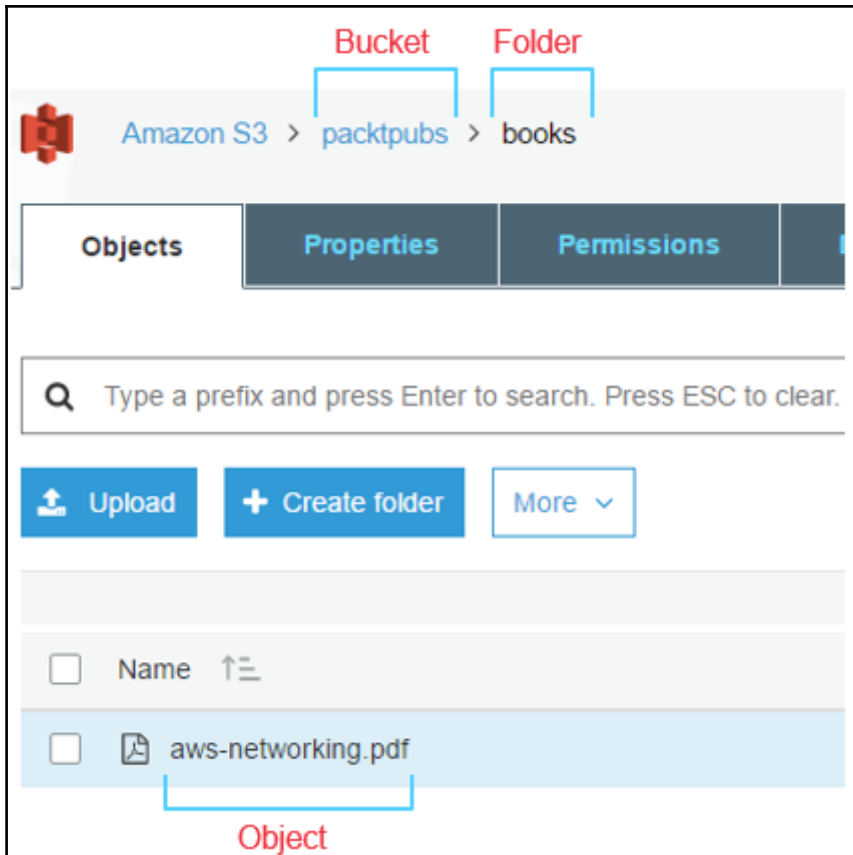
Users	1
Public permissions	Disabled
System permissions	Disabled

Previous Create bucket







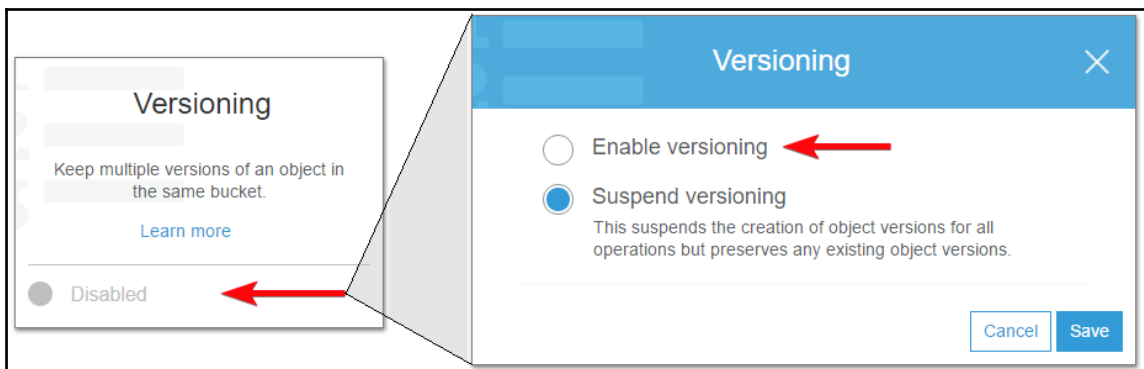
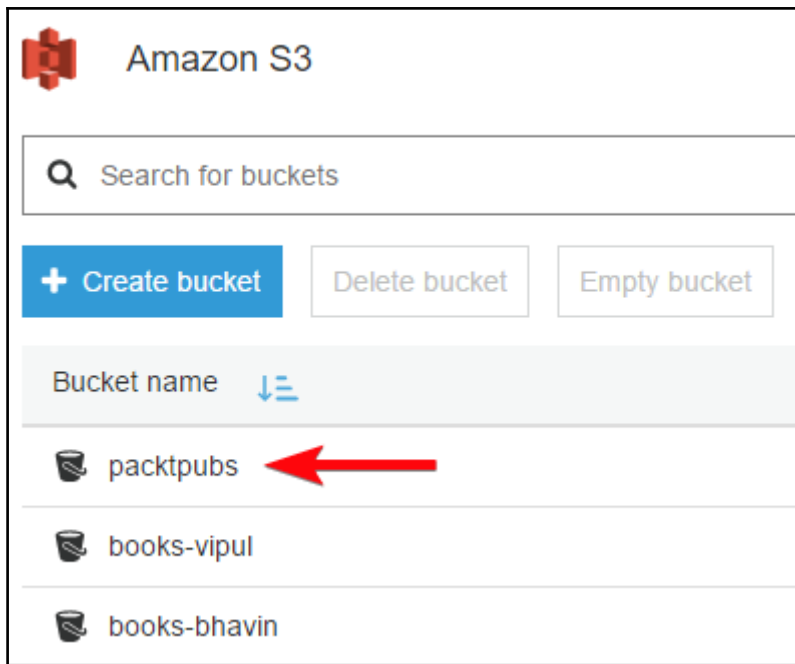


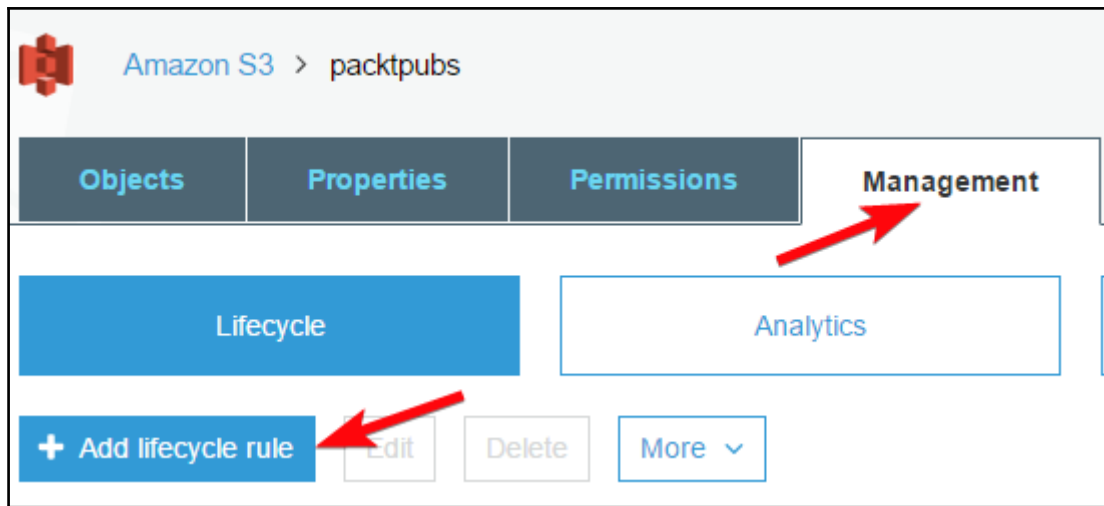
Metadata

[+ Add Metadata](#) [Delete](#) [Edit](#) [i](#)

Key	Value
<input type="radio"/> New Metadata	
<input type="text" value="x-amz-meta-book-type"/>	<input type="text" value="networking-book"/>
<input type="radio"/> Content-Type	application/pdf

The image shows a 'Metadata' dialog box with a blue header and a close button. Below the header are buttons for '+ Add Metadata', 'Delete', 'Edit', and an information icon. A table with two columns, 'Key' and 'Value', is displayed. The first row is for 'New Metadata' (indicated by a radio button) and contains two input fields: 'x-amz-meta-book-type' and 'networking-book'. The second row is for 'Content-Type' (indicated by a radio button) and contains the text 'application/pdf'. Two red arrows point to the 'x-amz-meta-book-type' and 'networking-book' fields. At the bottom right are 'Cancel' and 'Save' buttons.





Lifecycle rule ✕

① **Name and scope**② Transitions③ Expiration④ Review

Enter a rule name

←

Add filter to limit scope to prefix/tags ⓘ

←

←

←

CancelNext

Lifecycle rule

1 Name and scope 2 **Transitions** 3 Expiration 4 Review

Configure transition ⓘ

Current version Previous versions

For current version of objects

You don't have any transitions set up for **current version** of objects.

[+ Add transition](#)

For previous versions of objects ⓘ

You don't have any transitions set up for **previous versions** of objects.

[+ Add transition](#)

Previous Next

For current version of objects

Object creation

+ Add transition

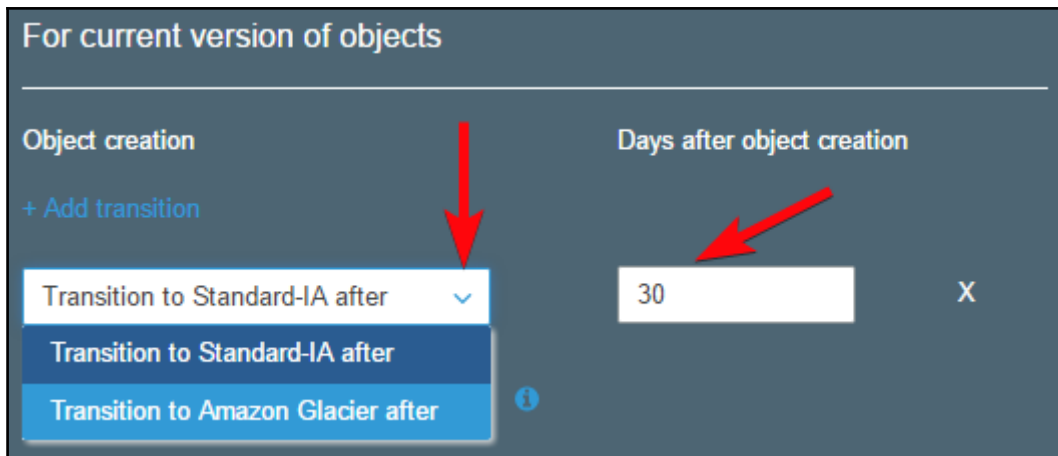
Transition to Standard-IA after ⌵

Transition to Standard-IA after

Transition to Amazon Glacier after ⓘ

Days after object creation

30 X



Configure expiration

Current version Previous versions

Clean up expired object delete markers and incomplete multipart uploads

Clean up expired object delete markers ⓘ

Clean up incomplete multipart uploads ⓘ

Lifecycle rule

✓ Name and scope✓ Transitions③ Expiration④ Review

Configure expiration

Current version Previous versions

Expire current version of object ⓘ

After days from object creation

Clean up expired object delete markers and incomplete multipart uploads

Clean up expired object delete markers ⓘ

You cannot enable clean up expired object delete markers if you enable Expiration.

Clean up incomplete multipart uploads ⓘ

After Days from start of upload

Previous Next

Lifecycle rule ✕

Name and scope Transitions Expiration **4** Review

Name and scope Edit

Name backuplifecycle
Scope Whole bucket

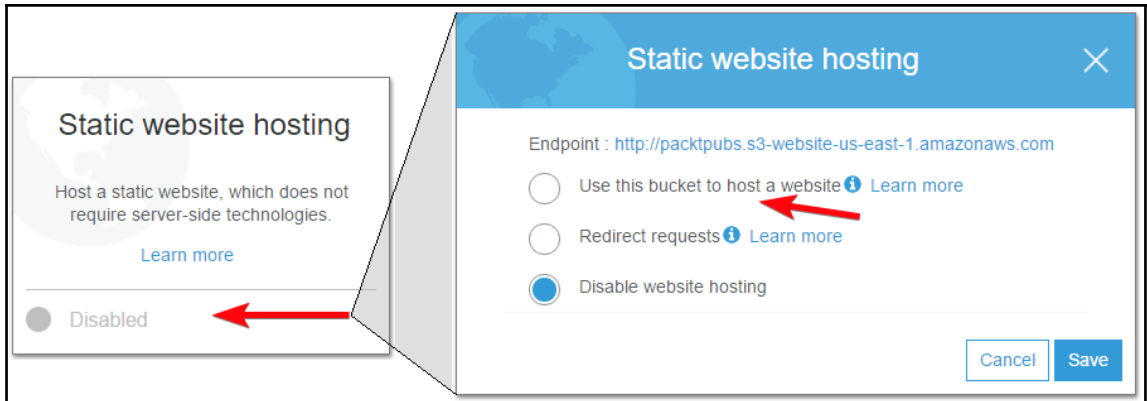
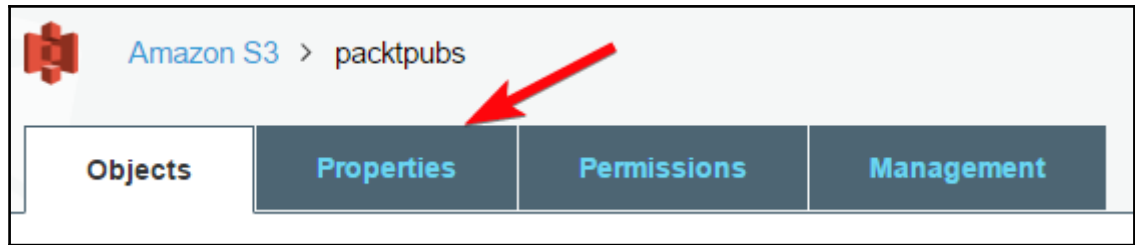
Transitions Edit

For current version of objects
Transition to Standard-IA after 30 days

Expiration Edit

Expire after 395 days
Clean up incomplete multipart uploads after 7 days

Previous Save



Static website hosting ✕

Endpoint : <http://packtpubs.s3-website-us-east-1.amazonaws.com>

Use this bucket to host a website i [Learn more](#)

Index document i

Error document i

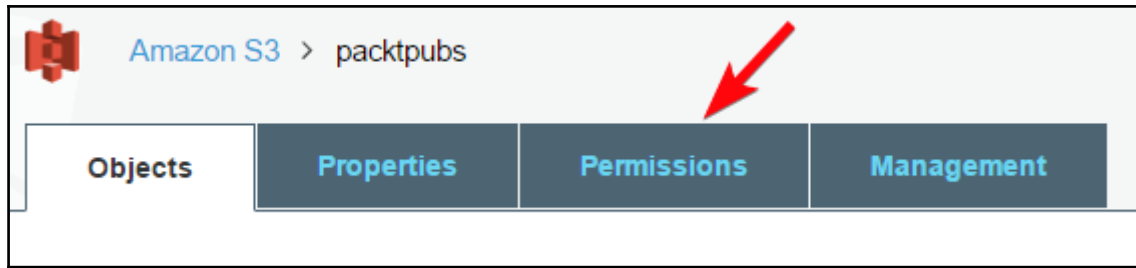
Redirection rules (optional) i

Redirect requests i [Learn more](#)

Disable website hosting

Amazon S3 > packpubs

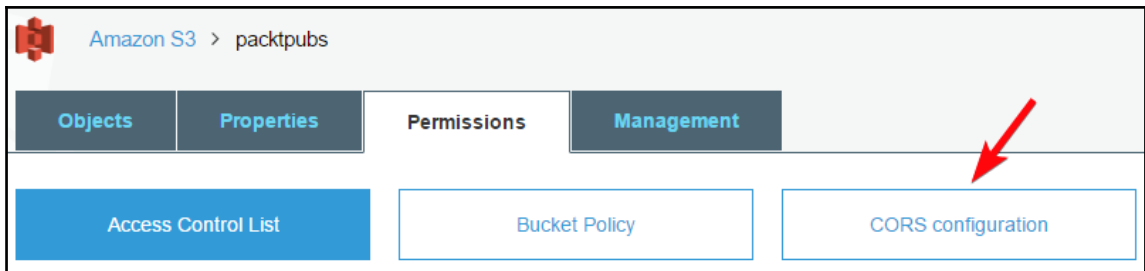
Objects Properties Permissions Management



Amazon S3 > packpubs

Objects Properties Permissions Management

Access Control List Bucket Policy CORS configuration



Amazon S3 > packpubs

Objects Properties Permissions Management

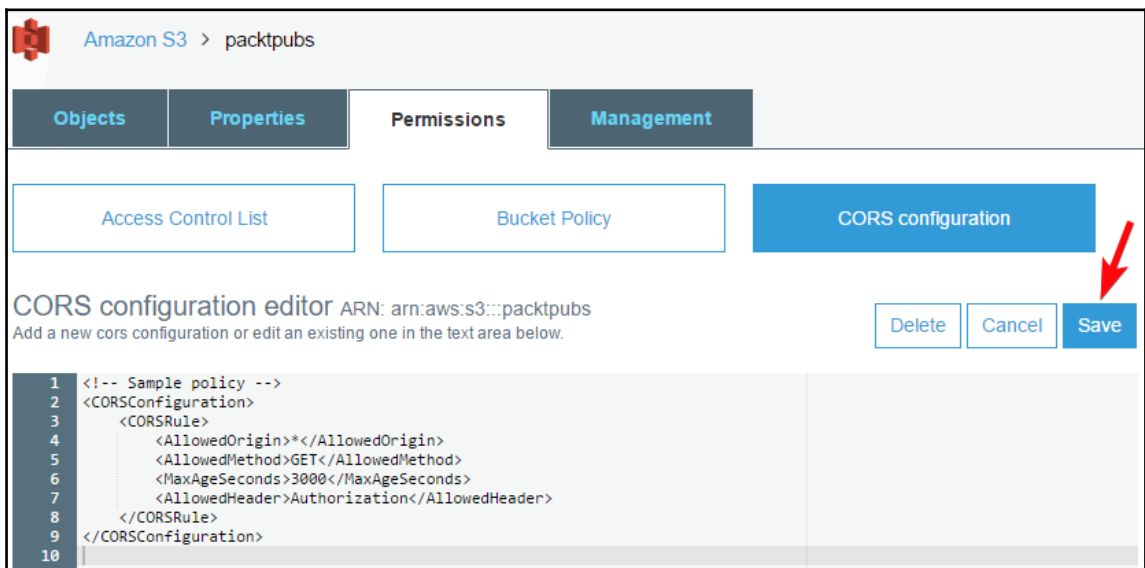
Access Control List Bucket Policy CORS configuration

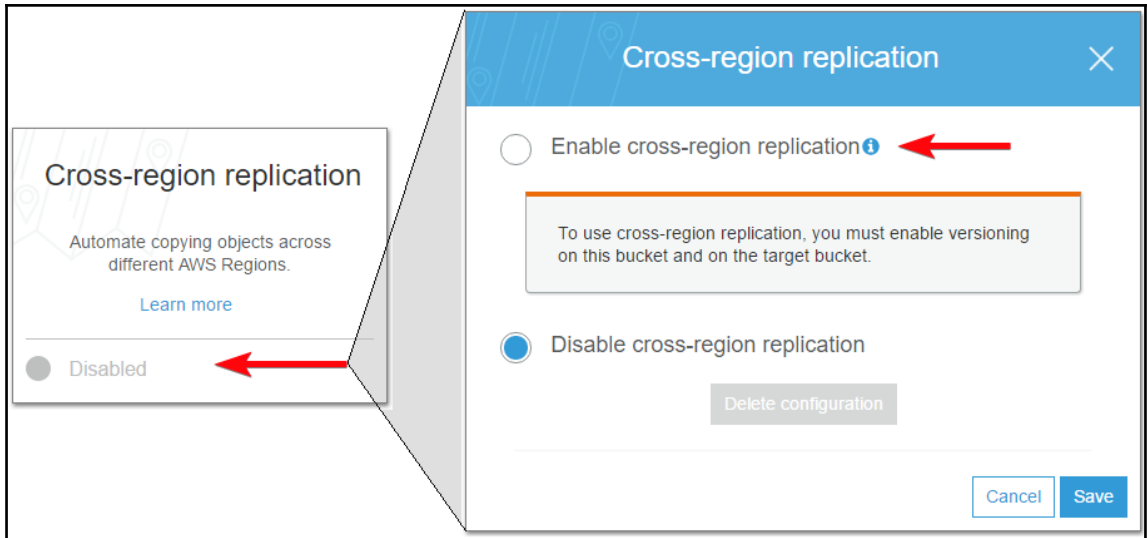
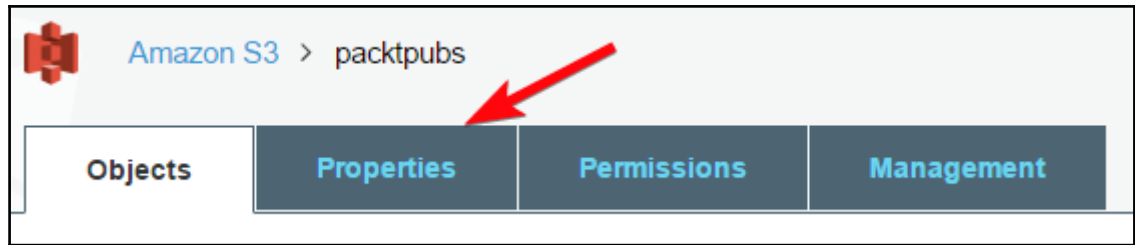
CORS configuration editor ARN: arn:aws:s3:::packpubs

Add a new cors configuration or edit an existing one in the text area below.

Delete Cancel Save

```
1 <!-- Sample policy -->
2 <CORSConfiguration>
3   <CORSRule>
4     <AllowedOrigin>*/AllowedOrigin>
5     <AllowedMethod>GET/AllowedMethod>
6     <MaxAgeSeconds>3000/MaxAgeSeconds>
7     <AllowedHeader>Authorization/AllowedHeader>
8   </CORSRule>
9 </CORSConfiguration>
10
```





Cross-region replication ✕

Enable cross-region replication i

Source

Region: US East (N. Virginia) (us-east-1)

Select a source ▼

- Whole bucket
- Prefix in this bucket

Select role

Create new role

Destination

Asia Pacific (Mumbai) ▼

Select bucket ▼

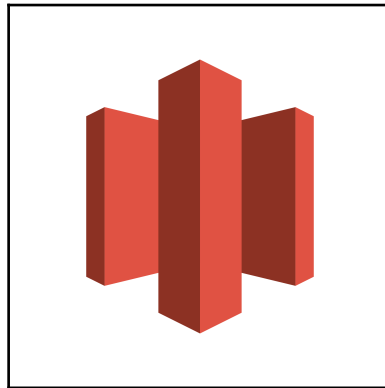
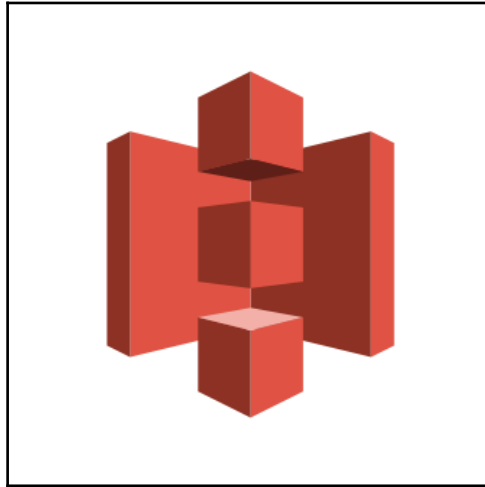
Type to search 🔍

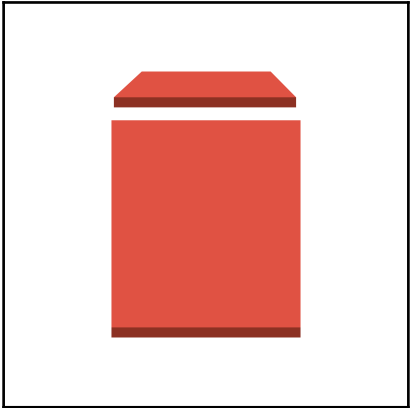
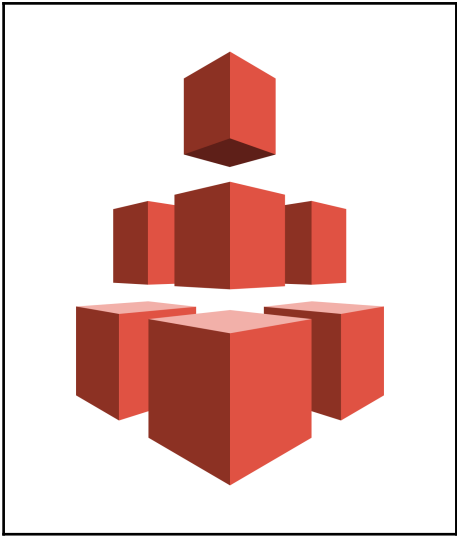
- packt-backup

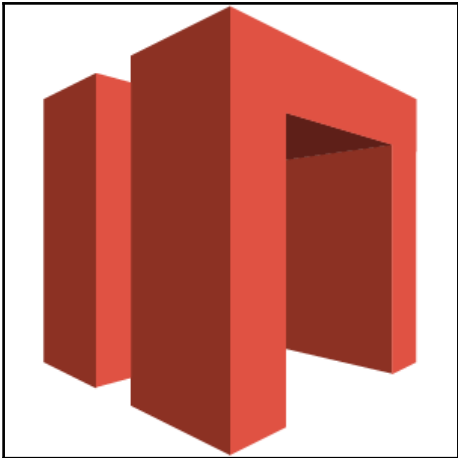
Disable cross-region replication

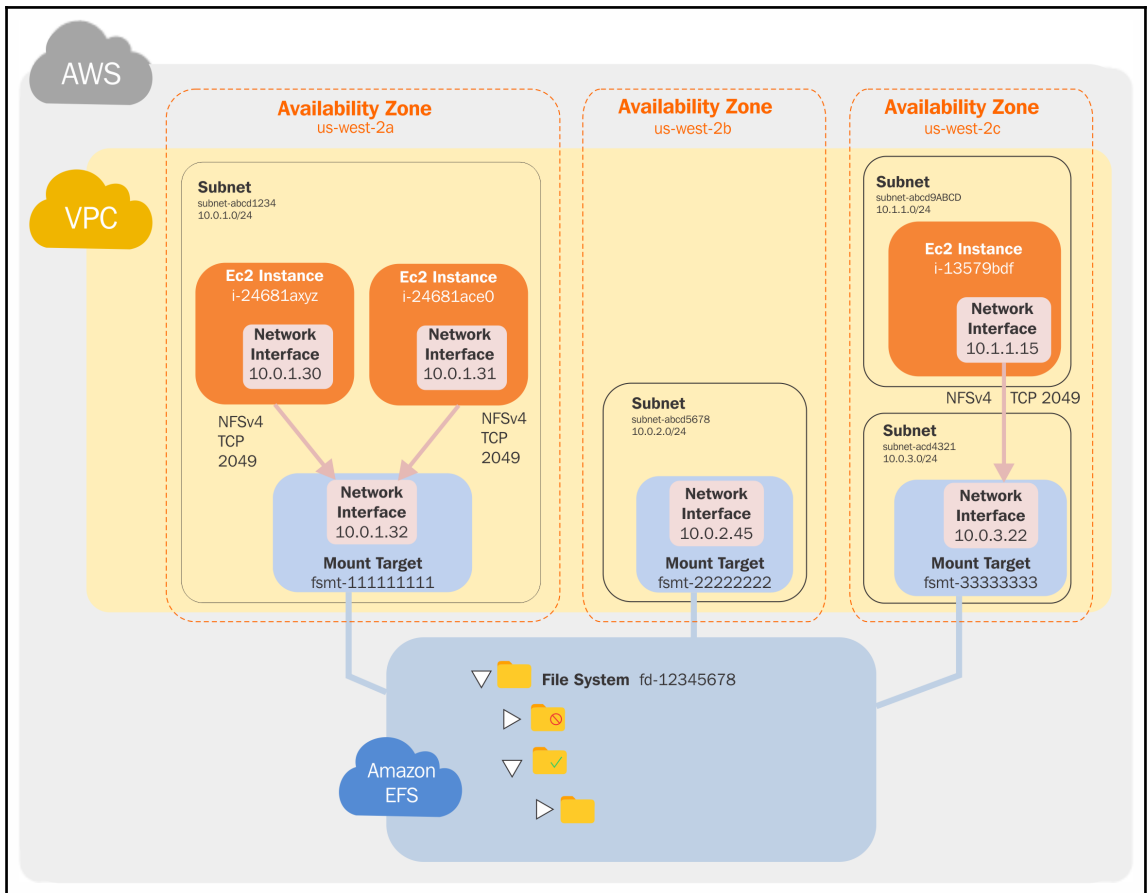
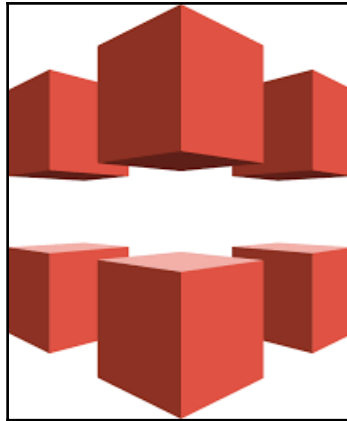
Cancel Save

Chapter 9: Other AWS Storage Options

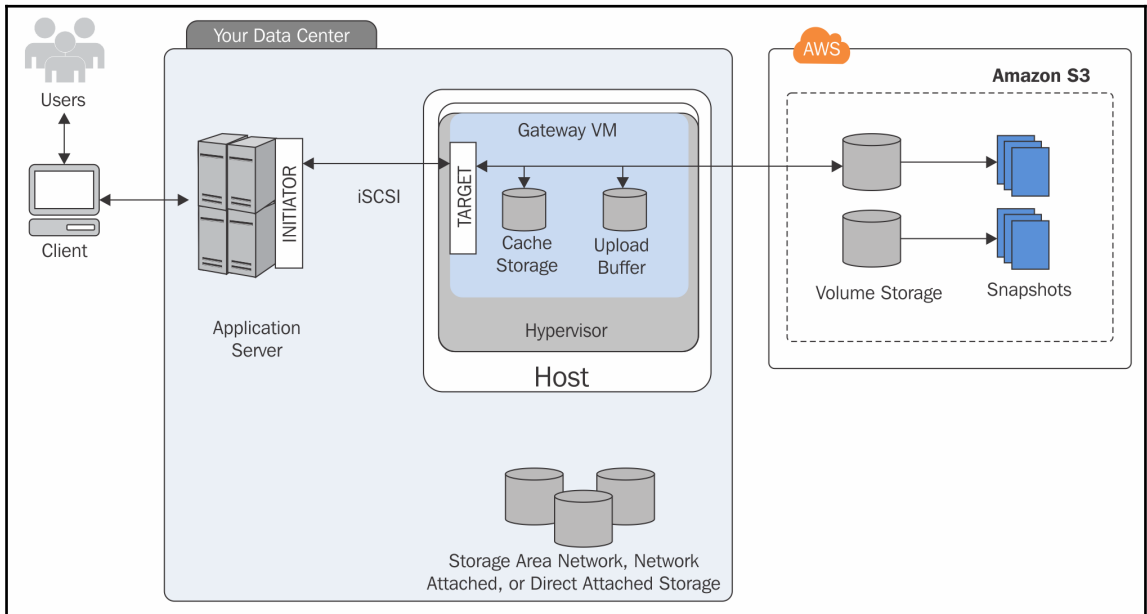
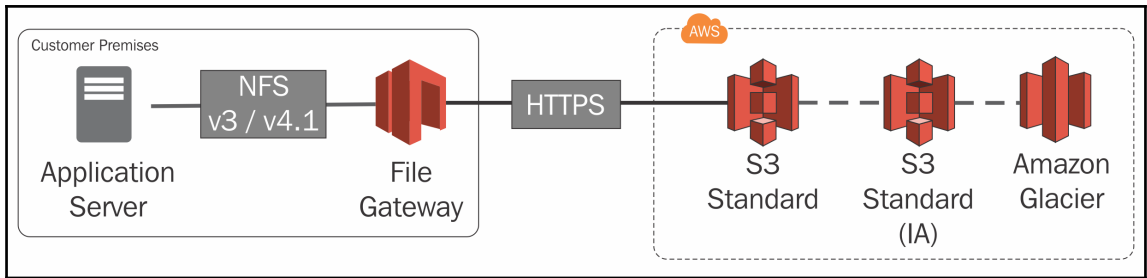


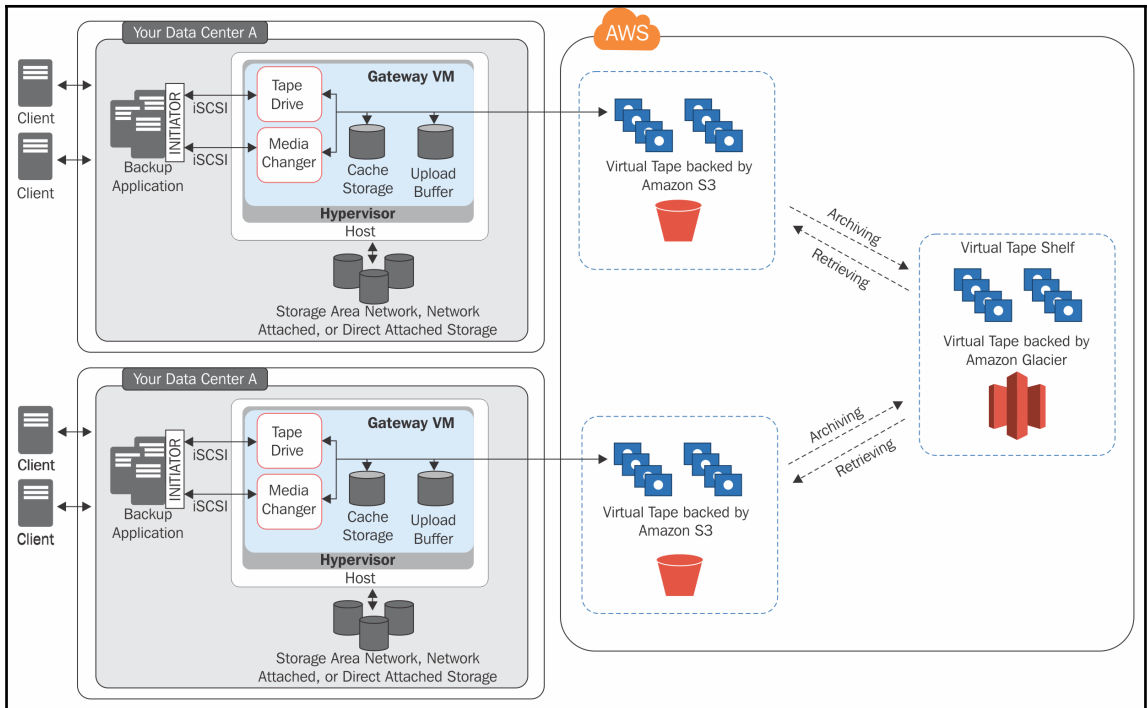
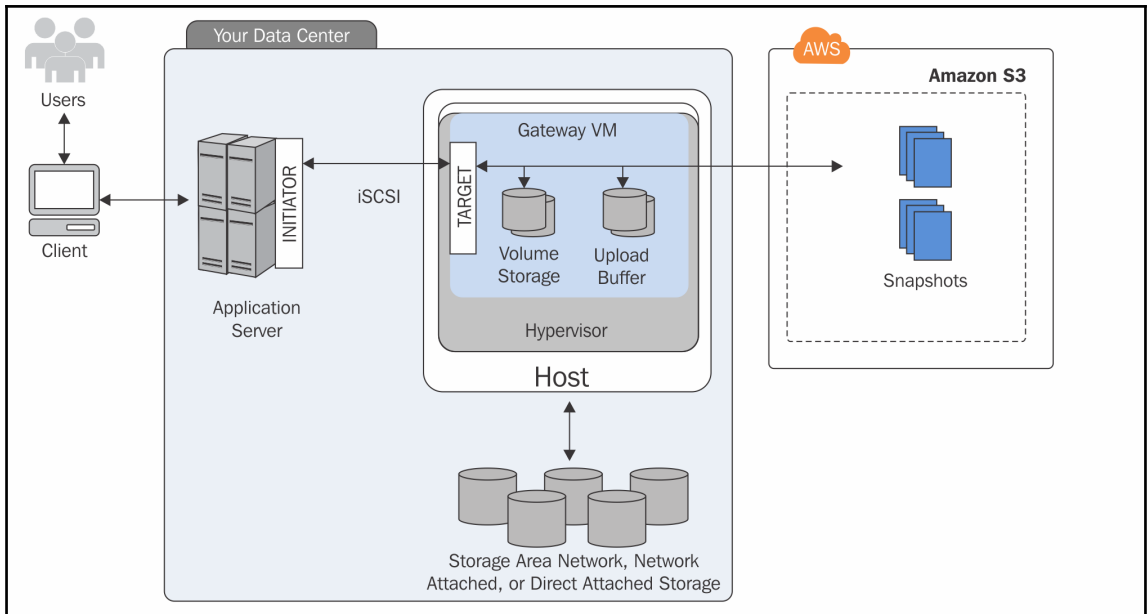






Graphic Bundle

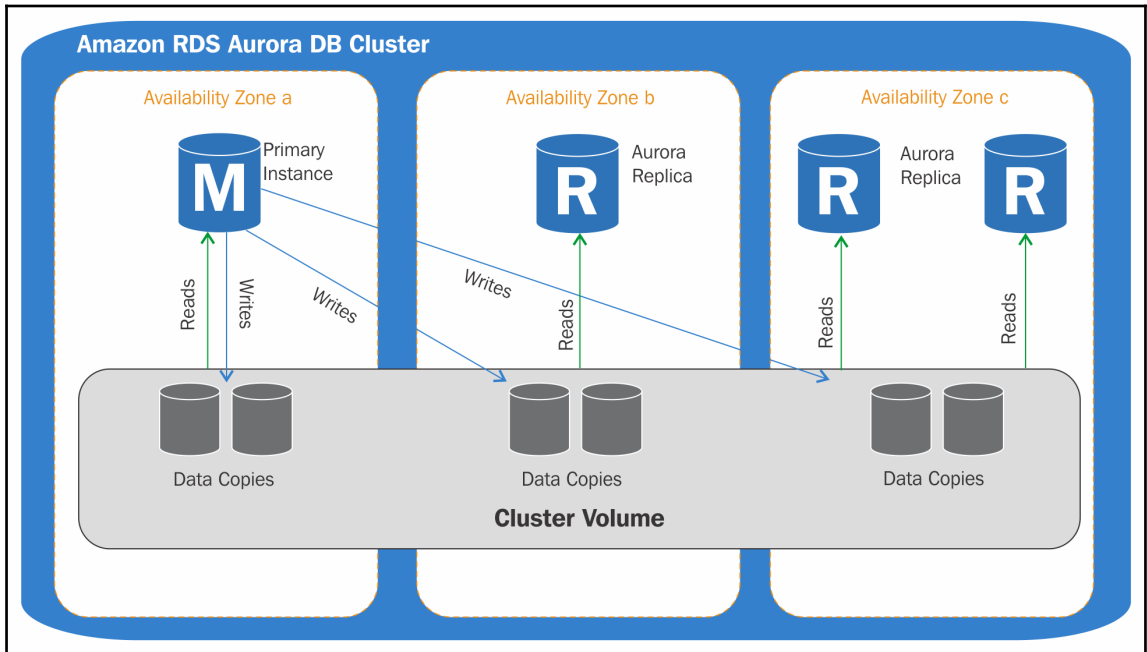




What is Snowball? Petabyte scale data transport



Chapter 10: AWS Relation Database Services



RDS Dashboard

- Instances
- Clusters
- Reserved Purchases
- Snapshots
- Parameter Groups
- External Licenses
- Option Groups
- Subnet Groups
- Events
- Event Subscriptions
- Notifications

You are using the following Amazon RDS resources in the US East (N. Virginia) region (used/quota):

DB Instances (1/40) Allocated Storage (10.00 GB/100.00 TB) Click here to increase DB instances limit	Parameter Groups (4) Default (4) Custom (0/100)
Reserved DB Purchases (0/40)	Option Groups (4) Default (4) Custom (0/20)
Snapshots (125) Manual (0/100) Automated (8)	Subnet Groups (3/50)
Recent Events (2)	Supported Platforms VPC
Event Subscriptions (0/20)	Default Network vpc-76b61e11
	External Licenses (0)

Create Instance

Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale a relational database in the cloud.

Launch a DB Instance

Note: Your DB Instances will launch in the US East (N. Virginia) region:

Step 1: Select Engine

Free tier eligible only ⓘ

Select Engine

To get started, choose a DB Engine below and click Select.

	Amazon Aurora	
	MySQL MySQL Community Edition Free tier eligible	Select
	MariaDB	
	PostgreSQL	
	ORACLE	
	Microsoft SQL Server	

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 6 TB.
- Instances offer up to 32 vCPUs and 244 GiB Memory.
- Supports automated backup and point-in-time recovery.
- Supports cross-region read replicas.

Step 1: [Select Engine](#)

Step 2: Production?

Step 3: [Specify DB Details](#)

Step 4: [Configure Advanced Settings](#)

Do you plan to use this database for production purposes?

Production

Amazon Aurora
Recommended
MySQL-compatible, enterprise-class database at 1/10th the cost of commercial databases.

MySQL
Use [Multi-AZ Deployment](#) and [Provisioned IOPS Storage](#) as defaults for high availability and fast, consistent performance.

Dev/Test

MySQL
This instance is intended for use outside of production or under the [RDS Free Usage Tier](#).

Billing is based on [RDS pricing](#).

[Cancel](#) [Previous](#) [Next Step](#)

Step 1: [Select Engine](#)

Step 2: [Production?](#)

Step 3: Specify DB Details

Step 4: [Configure Advanced Settings](#)

Info Your current selection is eligible for the free tier.
[Learn More.](#)

Info Estimate your monthly costs for the DB Instance using the [RDS Instance Cost Calculator](#).

Specify DB Details

Free Tier

The Amazon RDS Free Tier provides a single db.t2.micro instance as well as up to 20 GB of storage, allowing new AWS customers to gain hands-on experience with Amazon RDS. Learn more about the RDS Free Tier and the instance restrictions [here](#).

Only show options that are eligible for RDS Free Tier

Instance Specifications

DB Engine mysql

License Model

DB Engine Version

Review the [Known Issues/Limitations](#) to learn about potential compatibility issues with specific database versions.

DB Instance Class

Multi-AZ Deployment

Storage Type

Allocated Storage* GB

Warning Provisioning less than 100 GB of General Purpose (SSD) storage for high throughput workloads could result in higher latencies upon exhaustion of the initial General Purpose (SSD) IO credit balance. [Click here](#) for more details.

Settings

DB Instance Identifier*

Master Username*

Master Password*

Confirm Password*

* Required

[Cancel](#) [Previous](#) [Next Step](#)

License type associated with the database engine

Step 1: [Select Engine](#)

Step 2: [Production?](#)

Step 3: [Specify DB Details](#)

Step 4: Configure Advanced Settings

Configure Advanced Settings

Network & Security

Refresh

VPC*

Subnet Group

Publicly Accessible

Availability Zone

VPC Security Group(s)

Database Options

Database Name

Note: if no database name is specified then no initial MySQL database will be created on the DB Instance.

Database Port

DB Parameter Group

Option Group

Copy Tags To Snapshots

Enable Encryption

Backup

Please note that automated backups are currently supported for InnoDB storage engine only. If you are using MyISAM, refer to detail [here](#).

Backup Retention Period days

Backup Window

Start Time : UTC

Duration hours

Monitoring

Enable Enhanced Monitoring

Maintenance

Auto Minor Version Upgrade

Maintenance Window

* Required

Select to encrypt the given instance. Master key ids and aliases appear in the list after they have been created using the Key Management Service(KMS) console. [Learn More](#).

RDS Dashboard

- Instances
- Clusters
- Reserved Purchases
- Snapshots
- Parameter Groups
- External Licenses
- Option Groups
- Subnet Groups
- Events
- Event Subscriptions
- Notifications

Create Alarm

You can use CloudWatch alarms to be notified automatically whenever metric data reaches a level you define.
To edit an alarm, first choose whom to notify and then define when the notification should be sent.

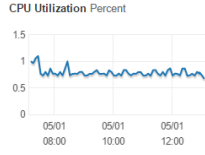
Send a notification to: create topic

Whenever: Average of CPU Utilization

Is: >= Percent

For at least: 1 consecutive period(s) of 5 Minutes

Name of alarm:



Cancel **Create Alarm**

Instance Actions ▾

- See Details
- Create Read Replica
- Promote Read Replica
- Take Snapshot**
- Restore to Point in Time
- Migrate Latest Snapshot
- Modify
- Reboot
- Delete

Take DB Snapshot

To take a snapshot of this DB instance you must provide a name for the snapshot.

DB Instance database1 ⓘ

Snapshot Name ⓘ

Cancel

Take Snapshot

Instance Actions ▾

See Details

Create Read Replica

Promote Read Replica

Take Snapshot

Restore to Point in Time

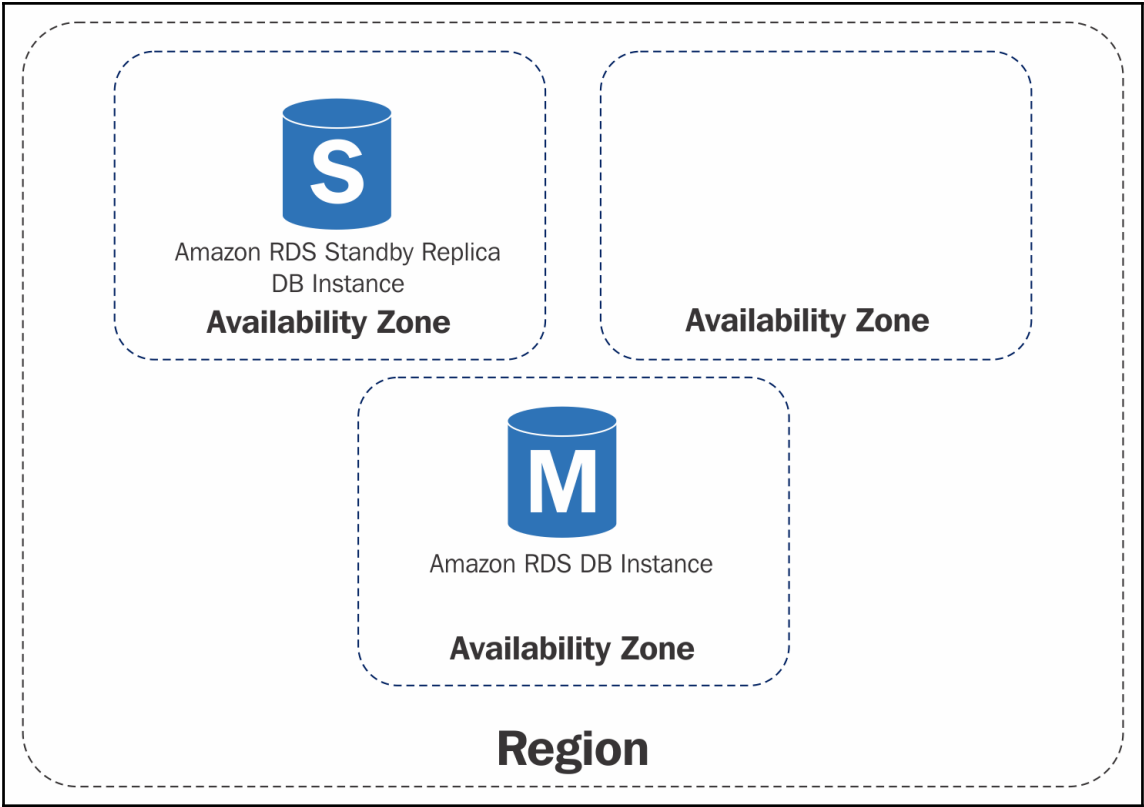
Migrate Latest Snapshot

Modify

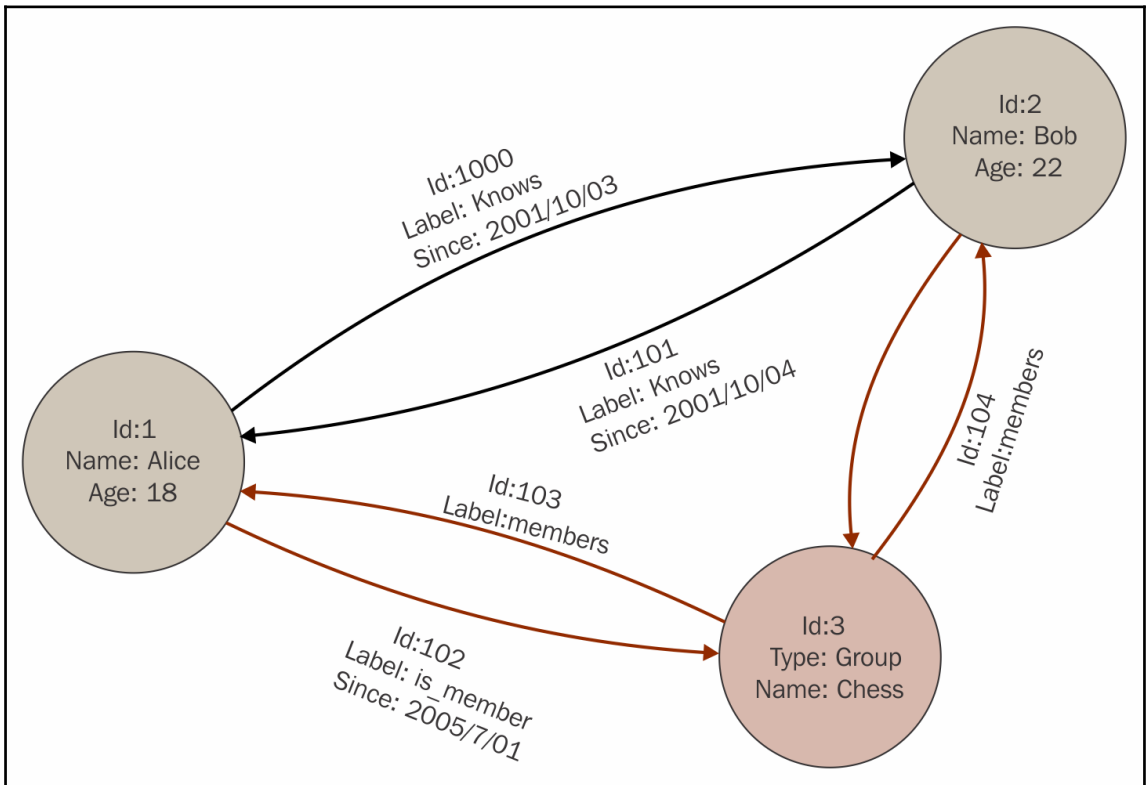
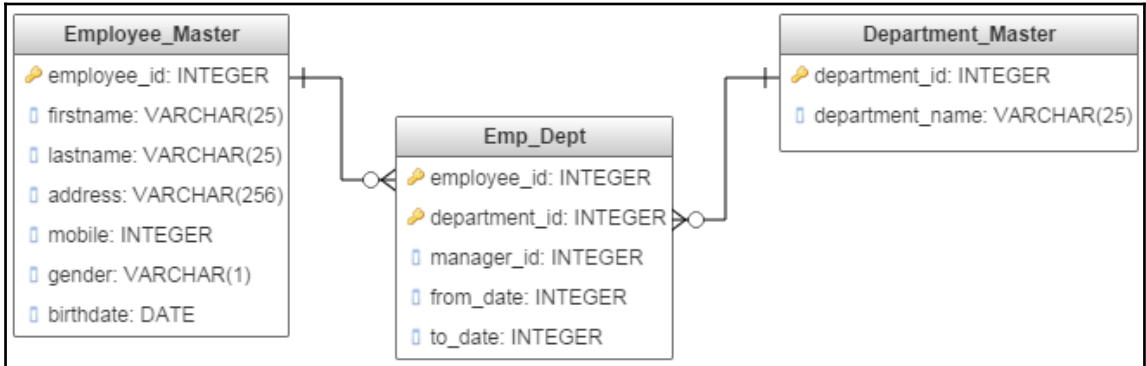
Reboot

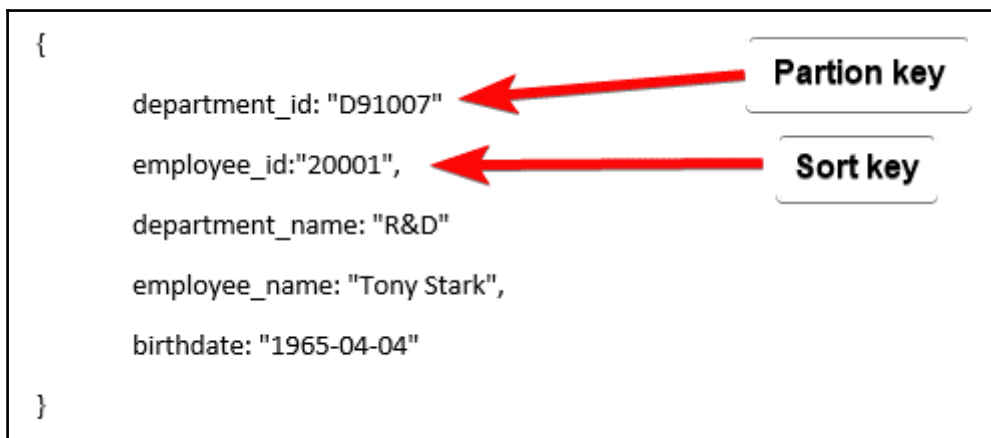
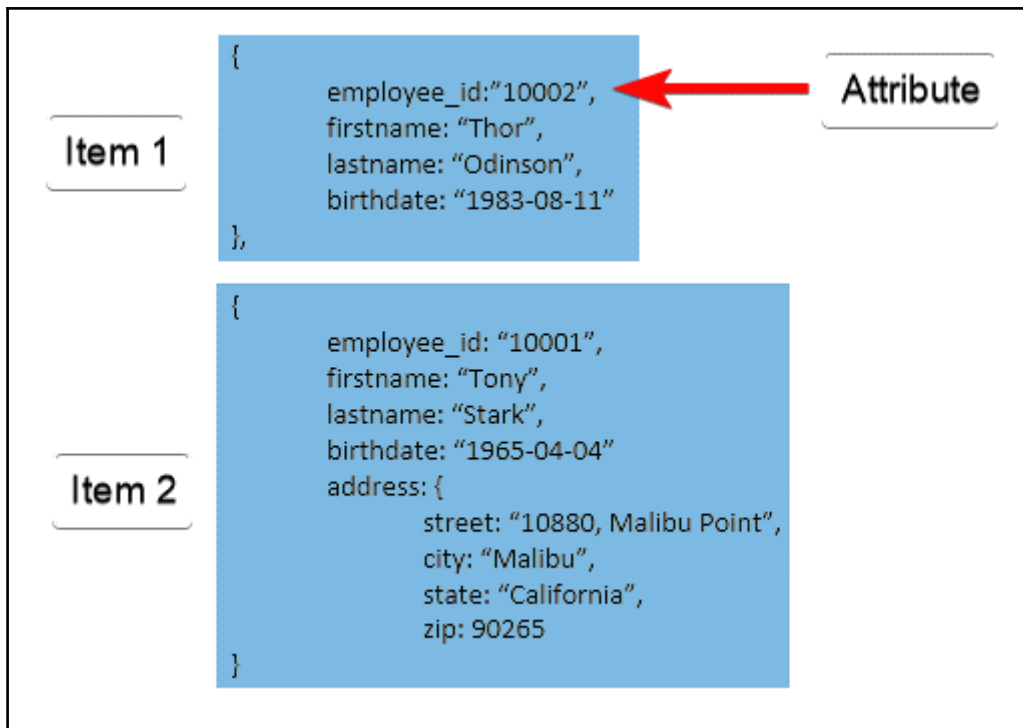
Delete

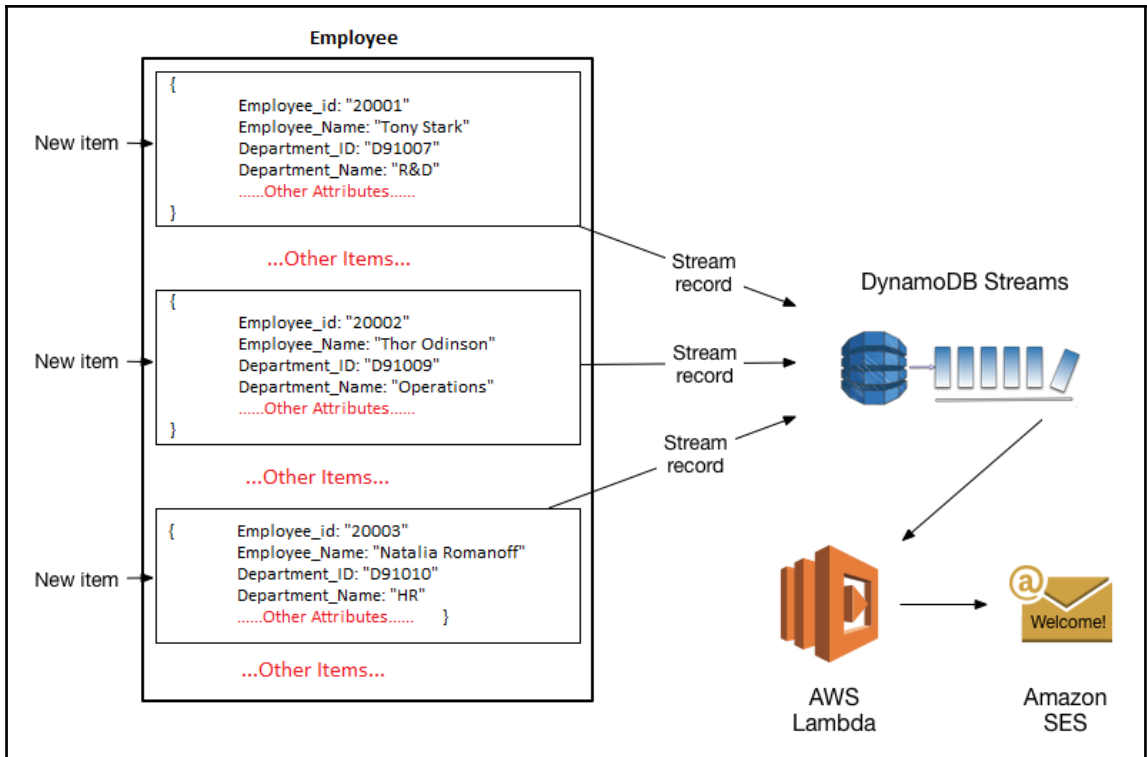
Apply Immediately



Chapter 11: AWS DynamoDB - A NoSQL Database Service







Create DynamoDB table Tutorial ?

DynamoDB is a schema-less database that only requires a table name and primary key. The table's primary key is made up of one or two attributes that uniquely identify items, partition the data, and sort data within each partition.

Table name* Between 3 and 255 characters long. (A-Z,a-z,0-9,_,-,.)

Primary key* Partition key
 String String Binary Number

Add sort key

Table settings

Default settings provide the fastest way to get started with your table. You can modify these default settings now or after your table has been created.

Use default settings

- No secondary indexes.
- Provisioned capacity set to 5 reads and 5 writes.
- Basic alarms with 80% upper threshold using SNS topic "dynamodb".

You do not have the required role to enable Auto Scaling by default. Please refer to documentation.

Additional charges may apply if you exceed the AWS Free Tier levels for CloudWatch or Simple Notification Service. Advanced alarm settings are available in the CloudWatch management console.

Cancel Create

Primary key* Partition key

String

Add sort key

String

Table settings

Default settings provide the fastest way to get started with your table. You can modify these default settings now or after your table has been created.

Use default settings

Secondary indexes

Name	Type	Partition key	Sort key	Projected Attributes
+ Add index				

Provisioned capacity

	Read capacity units	Write capacity units
Table	<input type="text" value="5"/>	<input type="text" value="5"/>
Estimated cost	\$2.91 / month (Capacity calculator)	

Auto Scaling

<input checked="" type="checkbox"/> Read capacity	<input checked="" type="checkbox"/> Write capacity
<input type="checkbox"/> Same settings as read	
Target utilization <input type="text" value="70"/> %	<input type="text" value="70"/> %
Minimum provisioned capacity <input type="text" value="5"/> units	<input type="text" value="5"/> units
Maximum provisioned capacity <input type="text" value="40000"/> units	<input type="text" value="40000"/> units
<input checked="" type="checkbox"/> Apply same settings to global secondary indexes	<input checked="" type="checkbox"/> Apply same settings to global secondary indexes

i Please check your IAM permissions to create new service role for enabling Auto Scaling. See permissions.

IAM Role I authorize DynamoDB to scale capacity using the following role:

New role: DynamoDBAutoscaleRole
 Existing role with pre-defined policies [Instructions]
Role Name*

The image shows a 'Add index' dialog box with the following fields and options:


- Primary key***: Partition key, Department_ID (String)
- Add sort key**: (Empty field, String)
- Index name***: Department_ID-index
- Projected attributes**: All
- Create as Local Secondary Index**

Callout boxes provide the following explanations:

- Primary key**: The primary key is made up of a partition key (hash key) and an optional sort key. The partition key is used to partition data across hosts for scalability and availability. Choose an attribute which has a wide range of values and is likely to have evenly distributed access patterns. For example CustomerId is good while GameId is bad if most of your traffic relates to a few popular games.
- Sort key**: The sort key allows for searching within a partition. For example, an Orders table with primary attribute CustomerId and sort attribute OrderTimestamp would allow for queries for all orders by a specific customer in a given date range.
- Index name**: When you issue query requests using the index, you will need to specify the index name. The name must be unique per table.
- Projected attributes**: Projected attributes are attributes stored in the index, and can be returned by queries and scans performed on the index. Local secondary index queries can also return attributes that are not projected by fetching them from the table. Global secondary index queries can only return projected attributes. Note, that projected attributes incur write and storage costs.
- Local Secondary Index**: An Index that shares the same partition key as the table may be created as an LSI. An LSI needs both, a partition key and a sort key, and an LSI will utilize the table's provisioned capacities.

Auto Scaling

<input checked="" type="checkbox"/> Read capacity	<input checked="" type="checkbox"/> Write capacity
<input type="checkbox"/> Same settings as read	
Target utilization <input type="text" value="70"/> %	<input type="text" value="70"/> %
Minimum provisioned capacity <input type="text" value="5"/> units	<input type="text" value="5"/> units
Maximum provisioned capacity <input type="text" value="40000"/> units	<input type="text" value="40000"/> units
<input checked="" type="checkbox"/> Apply same settings to global secondary indexes	<input checked="" type="checkbox"/> Apply same settings to global secondary indexes

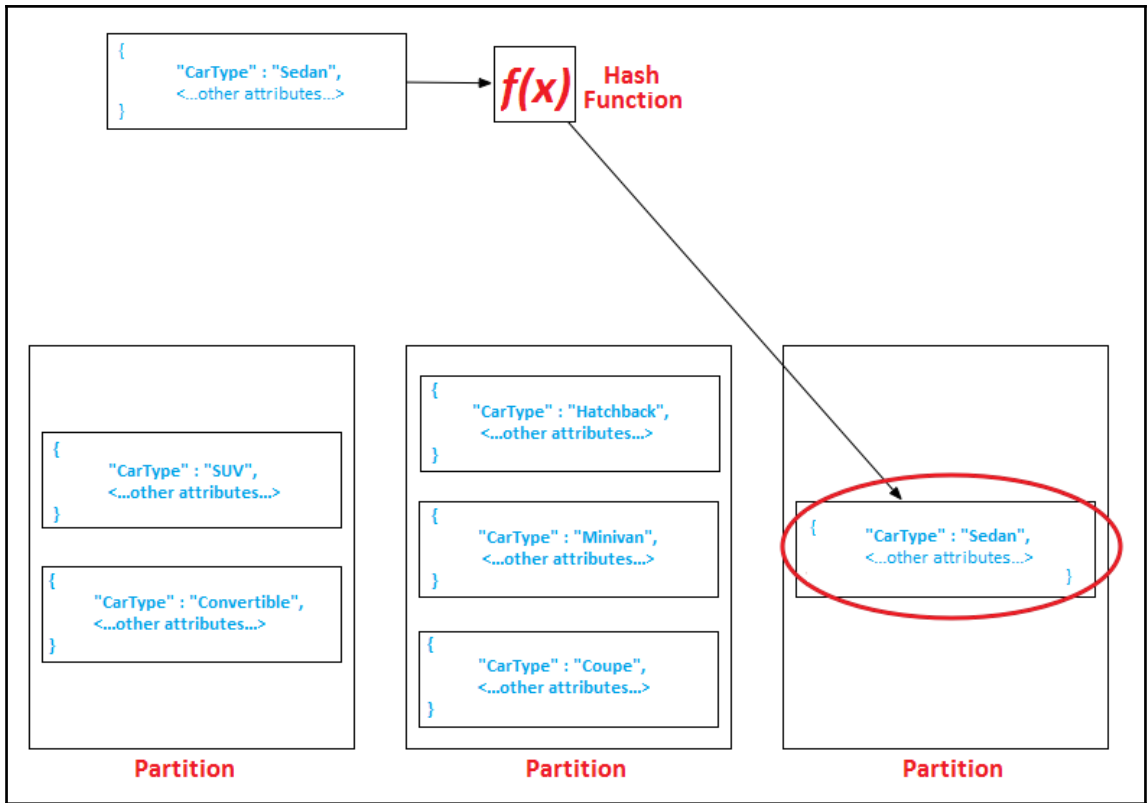
 Please check your IAM permissions to create new service role for enabling Auto Scaling. See [permissions](#).

IAM Role I authorize DynamoDB to scale capacity using the following role:

New role: DynamoDBAutoscaleRole

Existing role with pre-defined policies [\[Instructions\]](#)

Role Name*



Movies [Close](#)

[Overview](#) [Items](#) [Metrics](#) [Alarms](#) [Capacity](#) [Indexes](#) [Triggers](#) [Access control](#) [Tags](#)

[Create item](#) [Actions](#) ▾

Query: [Table] Movies: year, title ^

Query ▾ [Table] Movies: year, title ▾ ^

Partition key year Number = 2014

Sort key title String **Begins with** ▾ Enter value

+ Add filter

Sort

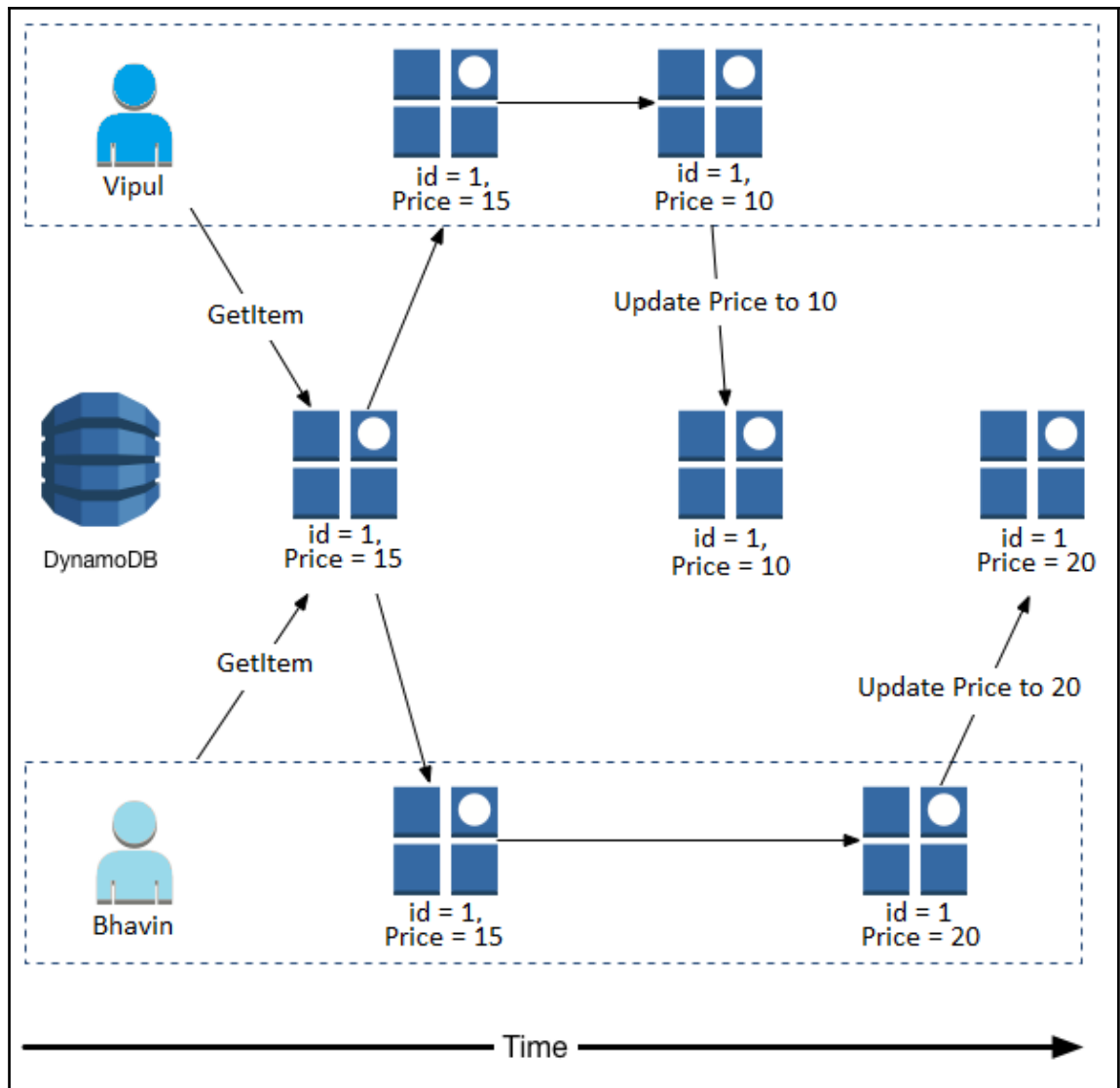
- Ascending
- Descending

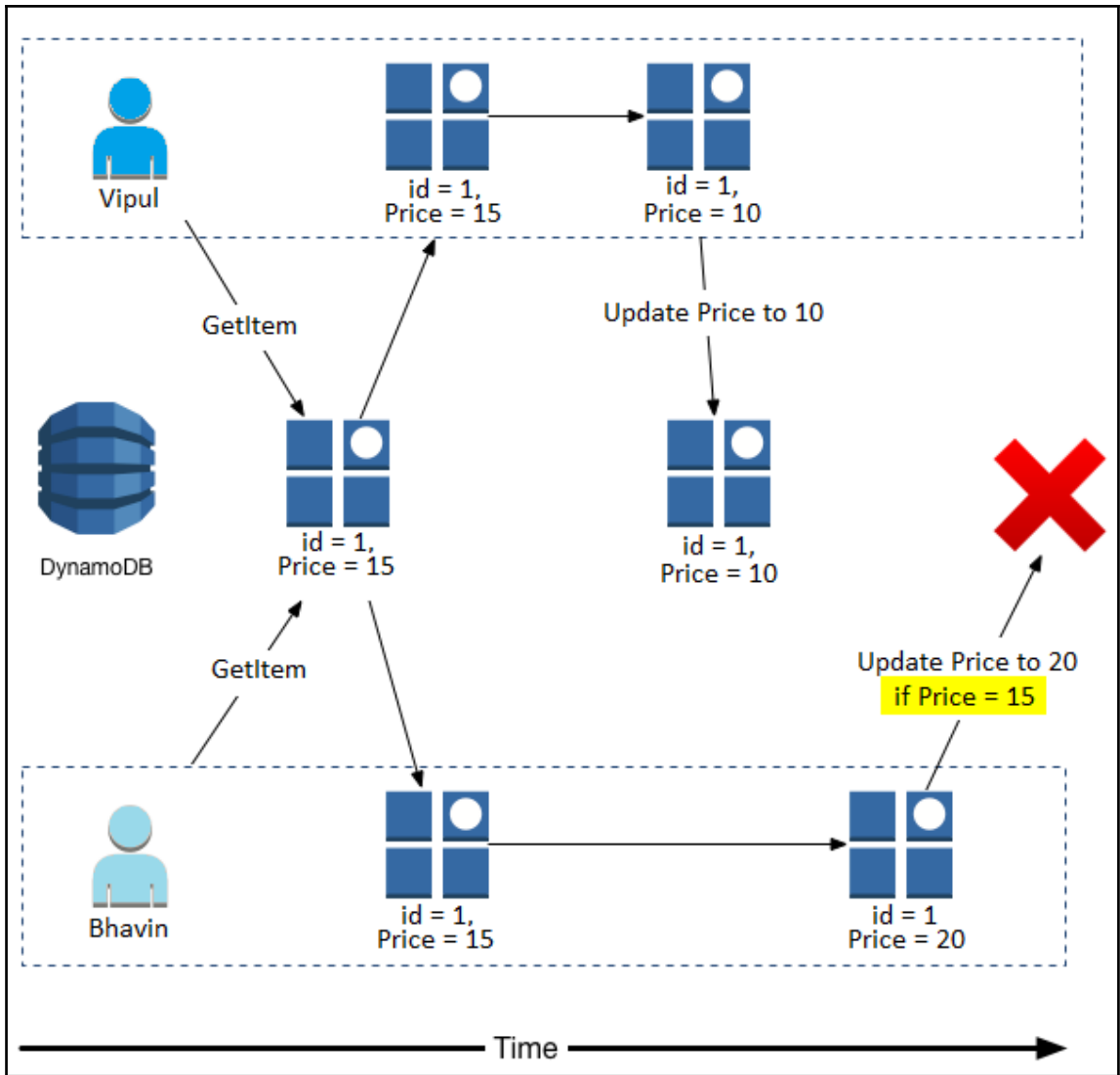
Attributes

- All
- Projected

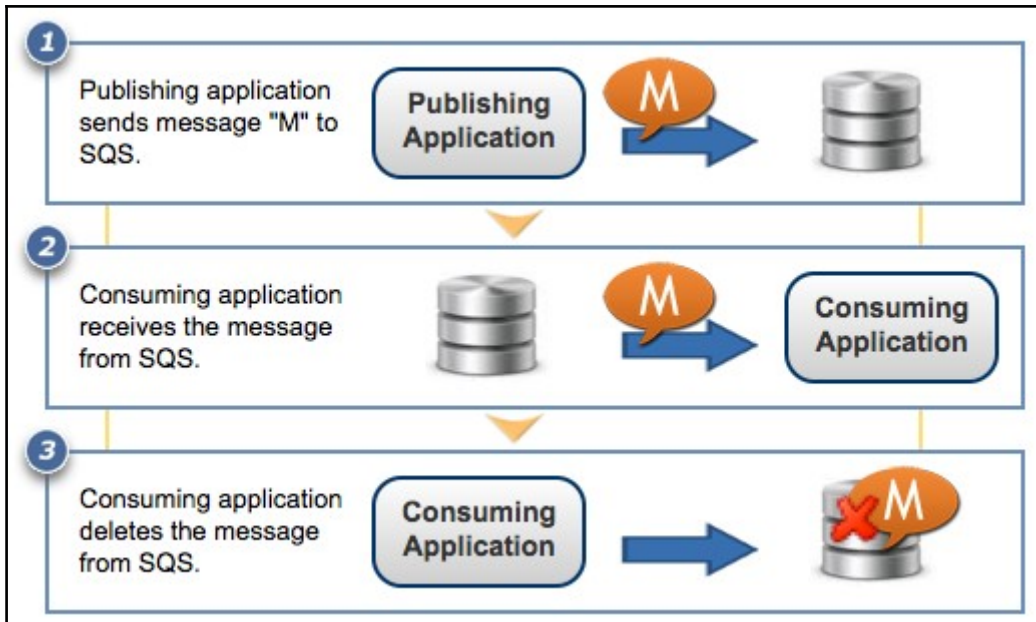
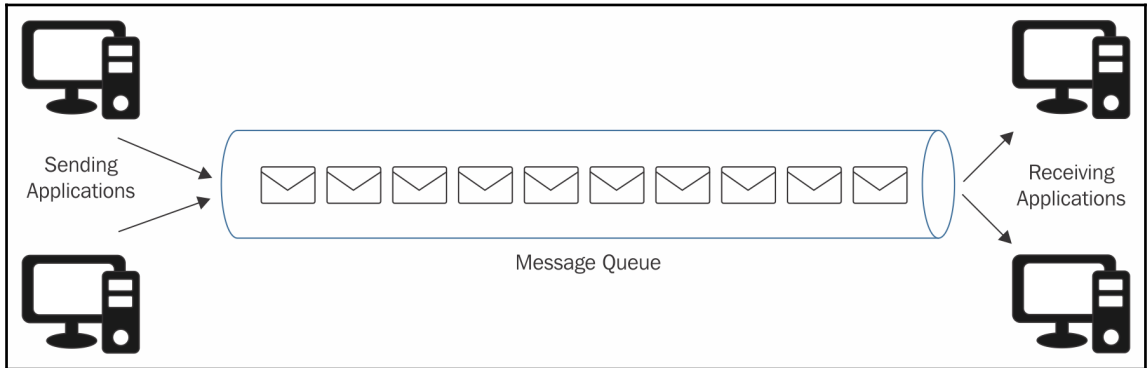
[Start search](#)

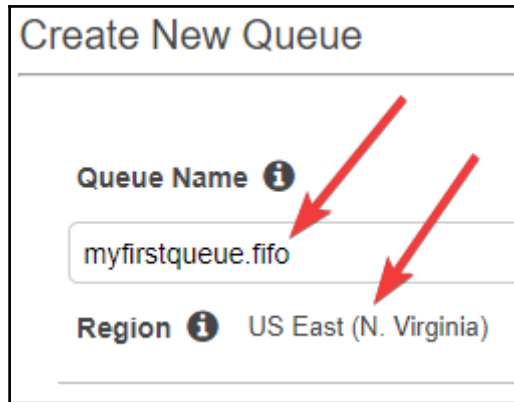
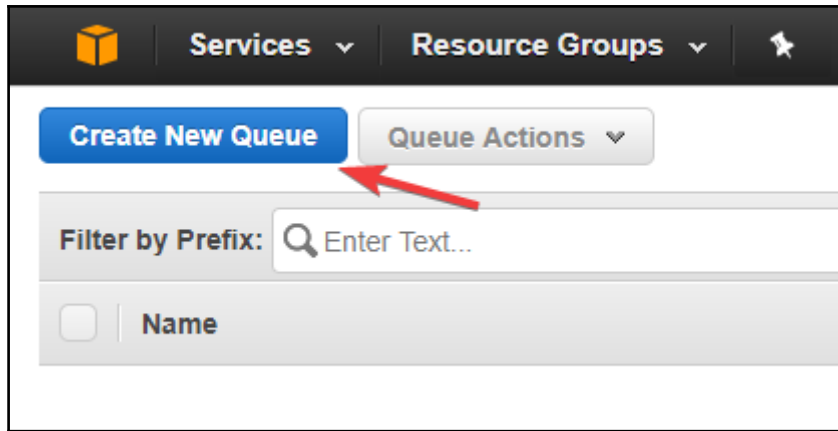
<input type="checkbox"/>	year	title	info
<input type="checkbox"/>	2014	300: Rise of an Empire	{ "actors": { "L": [{ "S": "Sullivan Stapleton" }, { "S": ...
<input type="checkbox"/>	2014	Captain America: The Winter Soldier	{ "actors": { "L": [{ "S": "Chris Evans" }, { "S": "Fran...
<input type="checkbox"/>	2014	Divergent	{ "actors": { "L": [{ "S": "Shailene Woodley" }, { "S": ...
<input type="checkbox"/>	2014	Dumb and Dumber To	{ "actors": { "L": [{ "S": "Jennifer Lawrence" }, { "S": ...





Chapter 12: Amazon Simple Queue Service





What type of queue do you need?

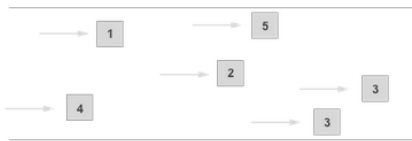
Standard

FIFO

High Throughput: Standard queues have nearly-unlimited transactions per second (TPS).

At-Least-Once Delivery: A message is delivered at least once, but occasionally more than one copy or a message is delivered.

Best-Effort Ordering: Occasionally, messages are delivered in an order different from which they were sent.



Send data between applications when the throughput is important, for example:

- Decouple live user requests from intensive background work: let users upload media while resizing or encoding it.
- Allocate tasks to multiple worker nodes: process a high number of credit card validation requests.
- Batch messages for future processing: schedule multiple entries to be added to a database.

First-In-First-out Delivery: The order in which messages are sent and received is strictly preserved.

Exactly-Once Processing: A message is guaranteed to be delivered at least once, but all duplicates of the message are removed.

Limited Throughput: 300 transactions per second (TPS).



Send data between applications when the order of events is important, for example:

- Ensure that user-entered commands are executed in the right order.
- Display the correct product price by sending price modifications in the right order.
- Prevent a student from enrolling in a course before registering for an account.

You can change these default parameters.

Queue Attributes

Default Visibility Timeout ⓘ Value must be between 0 seconds and 12 hours.

Message Retention Period ⓘ Value must be between 1 minute and 14 days.


Maximum Message Size ⓘ KB Value must be between 1 and 256 KB.


Delivery Delay ⓘ Value must be between 0 seconds and 15 minutes.


Receive Message Wait Time ⓘ seconds Value must be between 0 and 20 seconds.

Content-Based Deduplication ⓘ



Dead Letter Queue Settings


Use Redrive Policy  

Dead Letter Queue  Value must be an existing queue name.

Maximum Receives  Value must be between 1 and 1000.

Server-Side Encryption (SSE) Settings


Use SSE  

AWS KMS Customer Master Key (CMK) 

Description Default master key that protects my SQS messages when no other key is defined

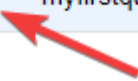
Account 835808778612

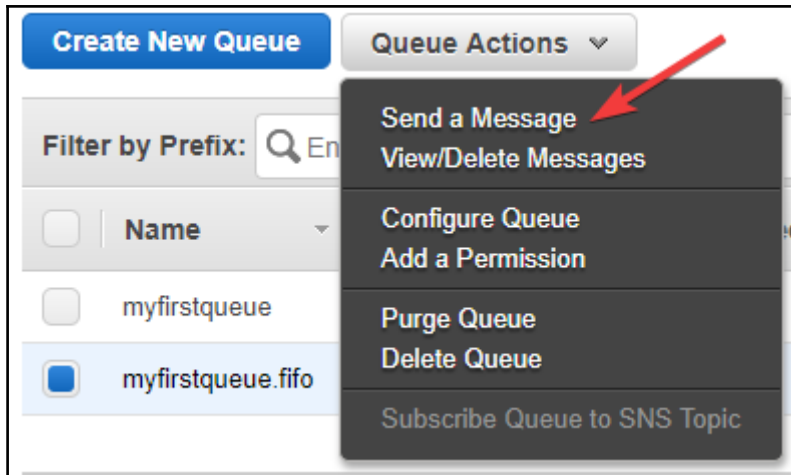
Key ARN arn:aws:kms:us-east-1:XXXXXXXXXXXX:key/XXXXXXXX-XXXX-XXXX-XXXXXXXXXXXX

Data Key Reuse Period  This value must be between 1 minute and 24 hours.

Filter by Prefix:

<input type="checkbox"/>	Name	Queue Type	Content-Based Deduplication	Messages Available	Messages in Flight	Created
<input type="checkbox"/>	myfirstqueue.fifo	FIFO	Disabled	0	0	2017-09-16 12:22:11 GMT+05:30

<input type="checkbox"/>	Name	Queue Type
<input type="checkbox"/>	myfirstqueue	Standard
<input checked="" type="checkbox"/> 	myfirstqueue.fifo	FIFO



Send a Message to myfirstqueue.fifo ✕

Message Body **Message Attributes**

Enter the text of a message you want to send.

My first queue message.

Message Group ID ⓘ MyFirstMessageGroupId9876543210

Message Deduplication ID ⓘ MyFirstDeduplicationId9876543210

[Cancel](#) [Send Message](#)

Send a Message to myfirstqueue.fifo ✕

Message Body | **Message Attributes**

Name:

Type: ▼

(Custom Type: Optional)

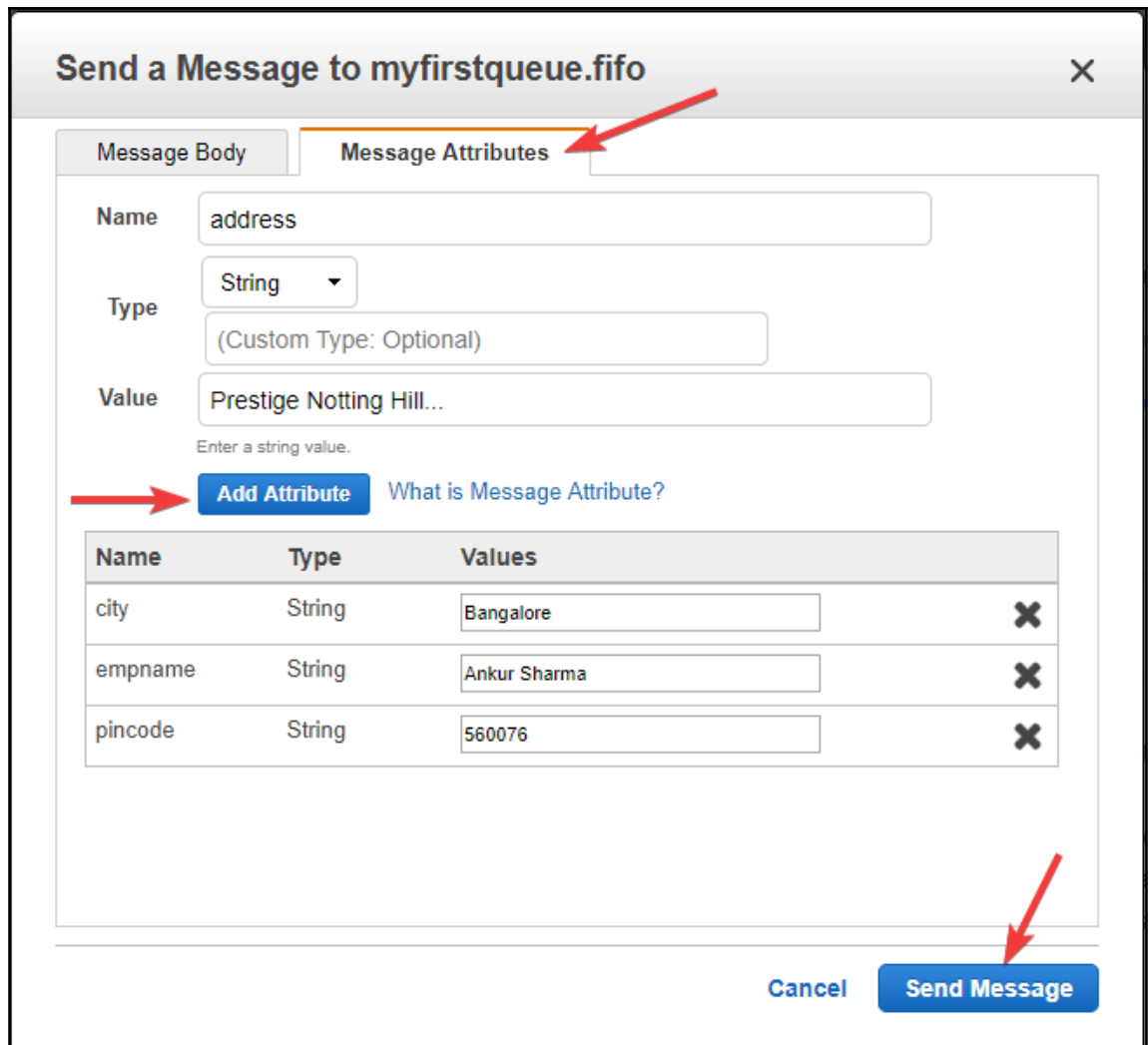
Value:

Enter a string value.

Add Attribute [What is Message Attribute?](#)

Name	Type	Values	
city	String	<input type="text" value="Bangalore"/>	✕
empname	String	<input type="text" value="Ankur Sharma"/>	✕
pincode	String	<input type="text" value="560076"/>	✕

Cancel **Send Message**



Your message has been sent and is ready to be received.

Note: It may take up to 60 seconds for the *Messages Available* column to update.

Sent Message Attributes:

Message Identifier: 83fd7112-6ce8-4723-8a9c-3c8f222f5397

MD5 of Body: 634404ebecf889e4e4a8f26097127553

MD5 of Message Attributes: 06c8bc6f7034c7ecd2e1bbcb8d7b52eb

Sequence Number: 18832165418875119616

<input type="checkbox"/>	Name	Queue Type
<input type="checkbox"/>	myfirstqueue	Standard
<input checked="" type="checkbox"/>	myfirstqueue.fifo	FIFO

Create New Queue Queue Actions

Filter by Prefix:

<input type="checkbox"/>	Name
<input type="checkbox"/>	myfirstqueue
<input checked="" type="checkbox"/>	myfirstqueue.fifo

- Send a Message
- View/Delete Messages
- Configure Queue
- Add a Permission
- Purge Queue
- Delete Queue
- Subscribe Queue to SNS Topic

View/Delete Messages in myfirstqueue.fifo

View up to: messages Poll queue for: seconds

Start Polling for Messages Stop Now

Polling for new messages once every 2 seconds.

View/Delete Messages in myfirstqueue.fifo

View up to: messages Poll queue for: seconds

Start Polling for Messages Stop Now

Polling for new messages once every 2 seconds.

Delete	Body	Message Group ID	Message Deduplication ID	Sequence Number	Size	Sent
<input checked="" type="checkbox"/>	My first queue message.	MyFirstMessageGroupI98...	MyFirstDeduplicationId9876543...	18832165418875119616	23 bytes	2017-09-16 14:25:29 GMT+

100%

Stopped after polling the queue at 0.5 receives/second for 30.7 seconds. Messages shown above are now available to other consumers.

Close Delete 1 Message

Delete Messages

Are you sure you want to delete the following message?

You may uncheck messages that you do not want to delete.

My first queue message. (23 bytes)

Cancel Yes, Delete Checked Messages

<input type="checkbox"/>	Name	Queue Type
<input type="checkbox"/>	myfirstqueue	Standard
<input checked="" type="checkbox"/>	myfirstqueue.fifo	FIFO

Create New Queue Queue Actions

Filter by Prefix:

<input type="checkbox"/>	Name
<input type="checkbox"/>	myfirstqueue
<input checked="" type="checkbox"/>	myfirstqueue.fifo

- Send a Message
- View/Delete Messages
- Configure Queue
- Add a Permission
- Purge Queue
- Delete Queue
- Subscribe Queue to SNS Topic

Purge Queues

Are you sure you want to purge the following queue (removing all the messages left in it)?

- myfirstqueue.fifo - contains 1 message.

[Cancel](#) [Yes, Purge Queue](#)

<input type="checkbox"/>	Name	Queue Type
<input type="checkbox"/>	myfirstqueue	Standard
<input checked="" type="checkbox"/>	myfirstqueue.fifo	FIFO

Create New Queue Queue Actions

Filter by Prefix:

<input type="checkbox"/>	Name
<input type="checkbox"/>	myfirstqueue
<input checked="" type="checkbox"/>	myfirstqueue.fifo

- Send a Message
- View/Delete Messages
- Configure Queue
- Add a Permission
- Purge Queue
- Delete Queue
- Subscribe Queue to SNS Topic

Delete Queues

Are you sure you want to delete the following queue, and any messages left in it?

- myfirstqueue.fifo - contains 1 message.

Cancel Yes, Delete Queue

<input type="checkbox"/>	Name	Queue Type
<input checked="" type="checkbox"/>	myfirstqueue	Standard
<input type="checkbox"/>	myfirstqueue.fifo	FIFO

Create New Queue Queue Actions ▾

Filter by Prefix:

<input type="checkbox"/>	Name
<input checked="" type="checkbox"/>	myfirstqueue
<input type="checkbox"/>	myfirstqueue.fifo

- Send a Message
- View/Delete Messages
- Configure Queue
- Add a Permission
- Purge Queue
- Delete Queue
- Subscribe Queue to SNS Topic**

Subscribe to a Topic

Select an SNS Topic from the *Choose a Topic* drop-down or enter a topic's ARN in the *Topic ARN* text box and then press *Subscribe* to allow your queue(s) to receive SNS notifications from the topic and to subscribe your queue(s) to the topic.

Topic Region ⓘ

Choose a Topic ⓘ

Topic ARN ⓘ

Topic Subscription Result

Successfully subscribed the following queue to the SNS topic MyFirstSNSTopic. Permission to receive SNS notifications was added to the queue.

- myfirstqueue

[OK](#)

<input type="checkbox"/>	Name	Queue Type
<input checked="" type="checkbox"/>	myfirstqueue	Standard
<input type="checkbox"/>	myfirstqueue.fifo	FIFO

Create New Queue Queue Actions

Filter by Prefix:

<input type="checkbox"/>	Name
<input checked="" type="checkbox"/>	myfirstqueue
<input type="checkbox"/>	myfirstqueue.fifo

- Send a Message
- View/Delete Messages
- Configure Queue
- Add a Permission
- Purge Queue
- Delete Queue
- Subscribe Queue to SNS Topic

Add a Permission to myfirstqueue ✕

Permissions enable you to control which operations a user can perform on a queue. [Click here](#) to learn more about access control concepts.

Effect ⓘ Allow Deny

Principal ⓘ Everybody (*)

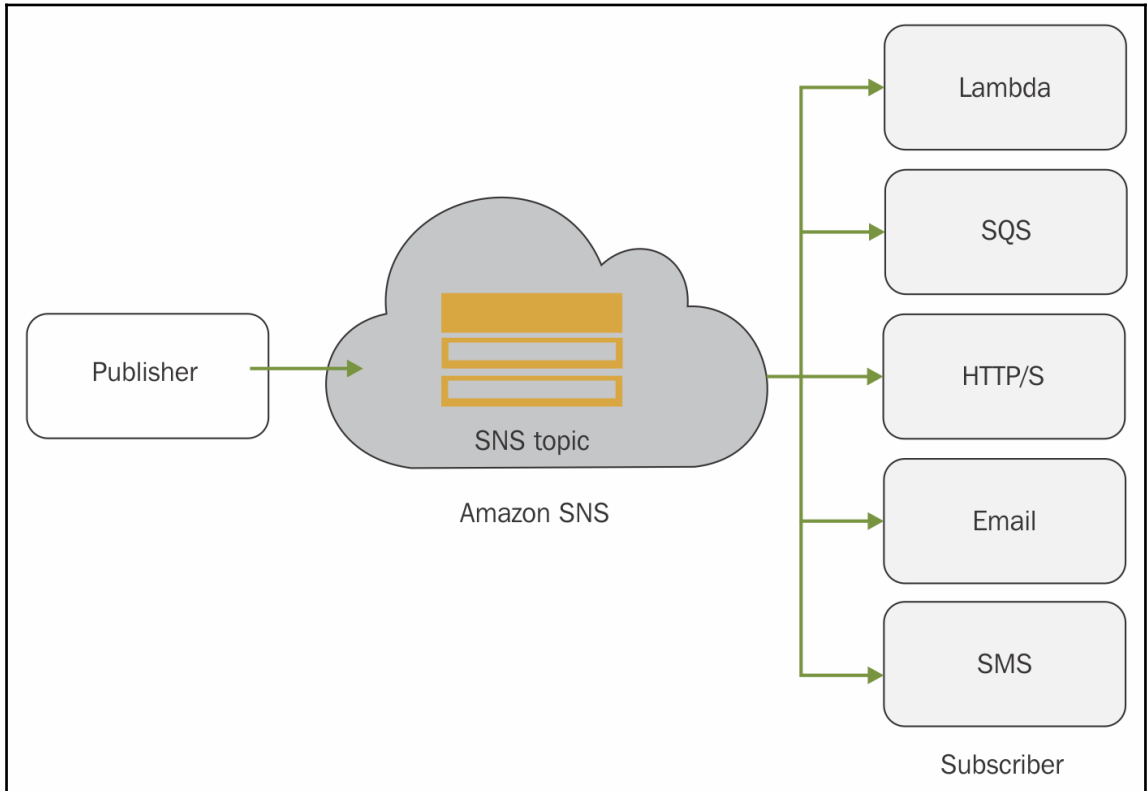
Use commas between multiple values.

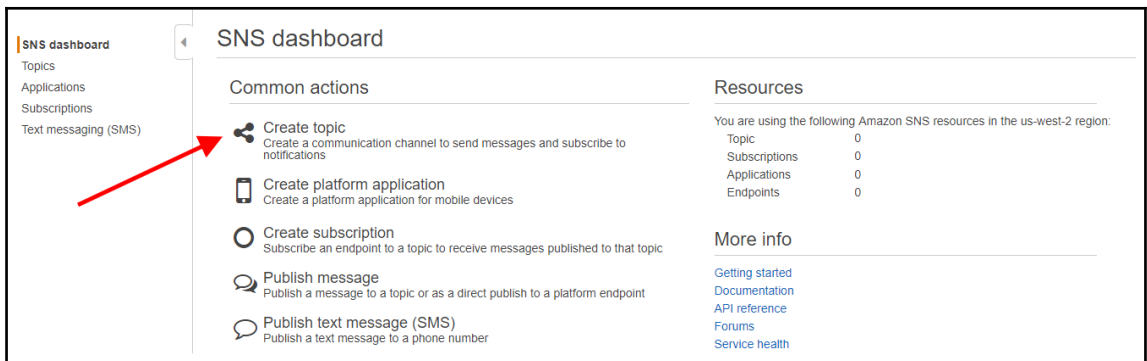
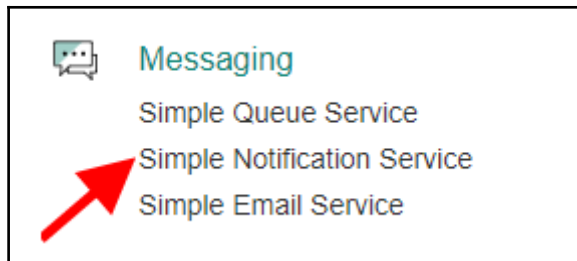
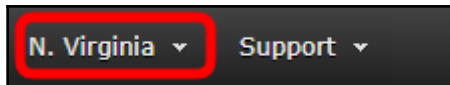
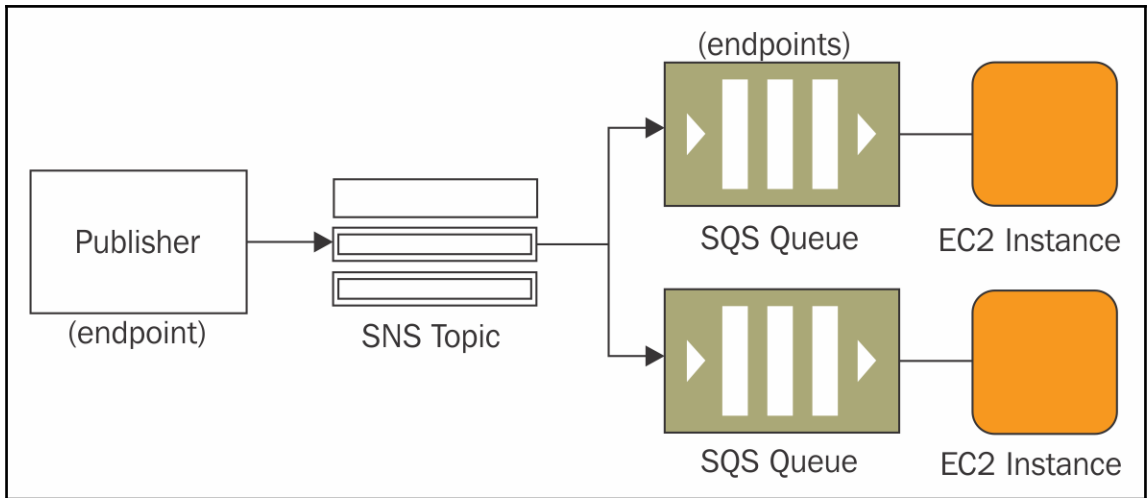
Actions ⓘ All SQS Actions (SQS:*)

- SendMessage
- ReceiveMessage
- PurgeQueue
- DeleteMessage
- ChangeMessageVisibility
- GetQueueAttributes
- GetQueueUrl

Cancel **Add Permission**

Chapter 13: Simple Notification Service





Create new topic

A topic name will be used to create a permanent unique identifier called an Amazon Resource Name (ARN).

Topic name ⓘ

Display name ⓘ

[Cancel](#) [Create topic](#)

SNS dashboard

Common actions

- Create topic**
Create a communication channel to send messages and subscribe to notifications
- Create platform application**
Create a platform application for mobile devices
- Create subscription**
Subscribe an endpoint to a topic to receive messages published to that topic
- Publish message**
Publish a message to a topic or as a direct publish to a platform endpoint
- Publish text message (SMS)**
Publish a text message to a phone number

Resources

You are using the following Amazon SNS resources in the us-west-2 region:

Topic	1
Subscriptions	0
Applications	0
Endpoints	0

More info

- [Getting started](#)
- [Documentation](#)
- [API reference](#)
- [Forums](#)
- [Service health](#)

Topics

[Publish to topic](#) [Create new topic](#) [Actions](#)

Filter

<input type="checkbox"/>	Name	ARN
<input type="checkbox"/>	LearnSNS	arn:aws:sns:us-west-2:123456789012:LearnSNS

SNS dashboard

Topics
Applications
Subscriptions ←
Text messaging (SMS)

SNS dashboard

Common actions

- Create topic**
Create a communication channel to send messages and subscribe to notifications
- Create platform application**
Create a platform application for mobile devices
- Create subscription**
Subscribe an endpoint to a topic to receive messages published to that topic
- Publish message**
Publish a message to a topic or as a direct publish to a platform endpoint
- Publish text message (SMS)**
Publish a text message to a phone number

Resources

You are using the following Amazon SNS resources in the us-west-2 region:

Topic	1
Subscriptions	0
Applications	0
Endpoints	0

More info

- [Getting started](#)
- [Documentation](#)
- [API reference](#)
- [Forums](#)
- [Service health](#)

SNS dashboard

Topics
Applications
Subscriptions ←
Text messaging (SMS)

Subscriptions

Create subscription Request confirmations Actions

Filter

Subscription ARN	Proto...	Endpoint	Topic ARN
------------------	----------	----------	-----------

Create subscription

Topic ARN

Protocol

Endpoint

[Cancel](#) [Create subscription](#)

SNS dashboard

- Topics
- Applications
- Subscriptions
- Text messaging (SMS)

Topics

[Publish to topic](#) [Create new topic](#) [Actions](#)

Filter

Name	ARN
<input type="checkbox"/> LearnSNS	arn:aws:sns:.....:LearnSNS

SNS dashboard

- Topics
- Applications
- Subscriptions
- Text messaging (SMS)

Topics

[Publish to topic](#) [Create new topic](#) [Actions](#)

Filter

Name	ARN
<input type="checkbox"/> LearnSNS	arn:aws:sns:.....:LearnSNS

SNS dashboard

- Topics
- Applications
- Subscriptions
- Text messaging (SMS)

Topic details: LearnSNS

[Publish to topic](#) [Other topic actions](#)

Topic ARN [arn:aws:sns:.....:LearnSNS](#)
Topic owner 586582896940
Region us-west-2
Display name LEARN-SNS

Subscriptions

[Create subscription](#) [Request confirmations](#) [Confirm subscription](#) [Other subscription actions](#)

Filter

Subscription ID	Protocol	Endpoint	Subscriber
<input type="checkbox"/> arn:aws:sns:.....:LearnSNS:45a542af-bd8d-45f7-809c-397db7952525	email
<input type="checkbox"/> arn:aws:sns:.....:LearnSNS:58f9778c-62a7-46ea-8af0-1c5dc4ba3367	sms

SNS dashboard

- Topics
- Applications
- Subscriptions
- Text messaging (SMS)

Publish a message

Amazon SNS enables you to publish notifications to all subscriptions associated with a topic as well as to an individual endpoint associated with a platform application.

Topic ARN ⓘ

Subject ⓘ

Message format Raw JSON

Message

Time to live (TTL) ⓘ

JSON message generator

The JSON message generator tool allows you to convert your messages to the appropriate JSON format.

Message

Test notification from Amazon SNS.



Email

SQS

Lambda

HTTP

HTTPS

SMS

Target platforms

iOS Prod

iOS Dev

VoIP Prod

VoIP Dev

MacOS Prod

MacOS Dev

Android

Amazon FireOS

Baidu

Windows MPNS

Windows 8.1+

Cancel

Generate JSON

SNS dashboard

- Topics
- Applications
- Subscriptions
- Text messaging (SMS)

Publish a message

Amazon SNS enables you to publish notifications to all subscriptions associated with a topic as well as to an individual endpoint associated with a platform application.

Topic ARN

Subject

Message format Raw JSON

Message

```
{
  "default": "Test Notification from Amazon SNS.",
  "email": "Test Notification from Amazon SNS.",
  "sqs": "Test Notification from Amazon SNS.",
  "lambda": "Test Notification from Amazon SNS.",
  "http": "Test Notification from Amazon SNS.",
  "https": "Test Notification from Amazon SNS.",
  "sms": "Test Notification from Amazon SNS.",
  "APNS": "{\"aps\":{\"alert\":\"Test Notification from Amazon SNS.\"}}",
  "APNS_SANDBOX": "{\"aps\":{\"alert\":\"Test Notification from Amazon SNS.\"}}",
  "APNS_VOIP": "{\"aps\":{\"alert\":\"Test Notification from Amazon SNS.\"}}",
  "APNS_VOIP_SANDBOX": "{\"aps\":{\"alert\":\"Test Notification from Amazon SNS.\"}}",
  "MACOS": "{\"aps\":{\"alert\":\"Test Notification from Amazon SNS.\"}}",
  "MACOS_SANDBOX": "{\"aps\":{\"alert\":\"Test Notification from Amazon SNS.\"}}",
  "GCM": "{\"data\":{\"message\":\"Test Notification from Amazon SNS.\"}}",
  "ADM": "{\"data\":{\"message\":\"Test Notification from Amazon SNS.\"}}",
}
```

Time to live (TTL)

SNS dashboard

- Topics
- Applications
- Subscriptions
- Text messaging (SMS)

SNS dashboard

Common actions

- Create topic**
Create a communication channel to send messages and subscribe to notifications
- Create platform application**
Create a platform application for mobile devices
- Create subscription**
Subscribe an endpoint to a topic to receive messages published to that topic
- Publish message**
Publish a message to a topic or as a direct publish to a platform endpoint
- Publish text message (SMS)**
Publish a text message to a phone number

Resources

You are using the following Amazon SNS resources in the us-west-2 region:

Topic	1
Subscriptions	4
Applications	0
Endpoints	0

More info

- [Getting started](#)
- [Documentation](#)
- [API reference](#)
- [Forums](#)
- [Service health](#)

SNS dashboard
Topics
Applications
Subscriptions
Text messaging (SMS)

Subscriptions

Create subscription Request confirmations Actions

Filter

- Edit subscription delivery policy
- Edit subscription attributes
- Delete subscriptions**

Subscription ARN	Proto...	Endpoint	Topic ARN
<input checked="" type="checkbox"/> PendingConfirmation	http		arn:aws:sns:...
<input checked="" type="checkbox"/> arn:aws:sns:...:58f97f8c-82a7-46ea-8af0-1c5dc4ba3367	sms		arn:aws:sns:...
<input checked="" type="checkbox"/> arn:aws:sns:...:45a542af-bd8d-45f7-809c-397db7952525	email		arn:aws:sns:...
<input checked="" type="checkbox"/> PendingConfirmation	email		arn:aws:sns:...

Delete

4 subscriptions are selected for deletion. Are you sure you wish the delete the selected resources?

Cancel **Delete**

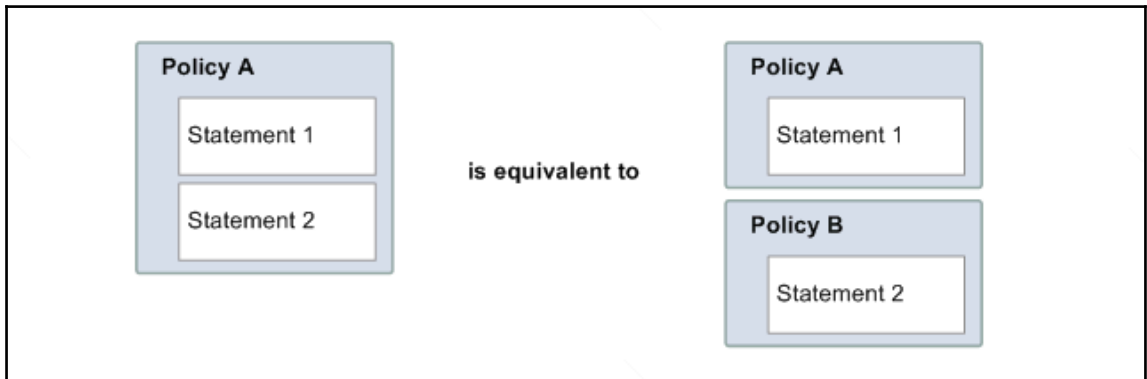
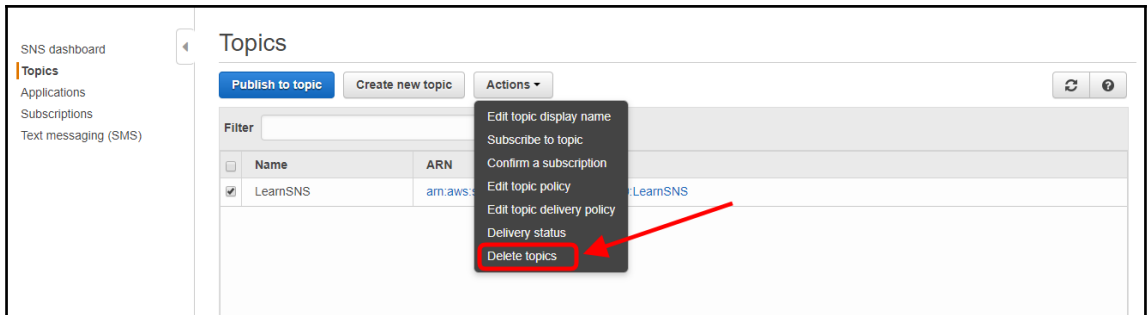
SNS dashboard
Topics
Applications
Subscriptions
Text messaging (SMS)

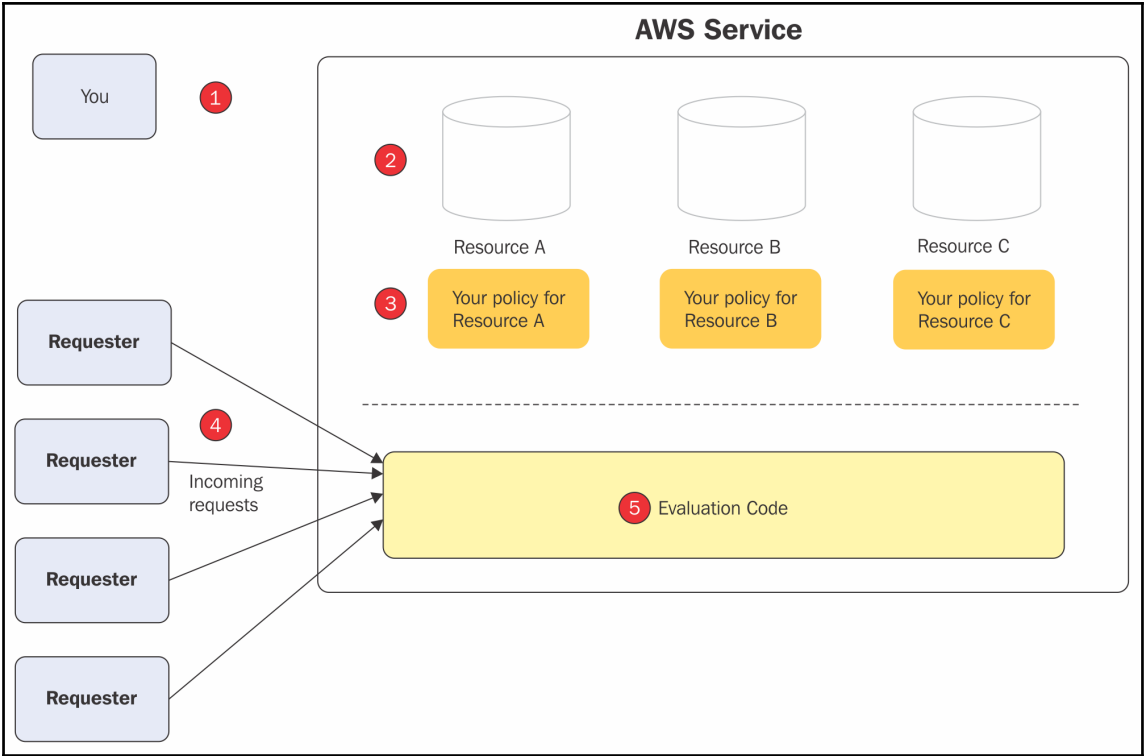
Subscriptions

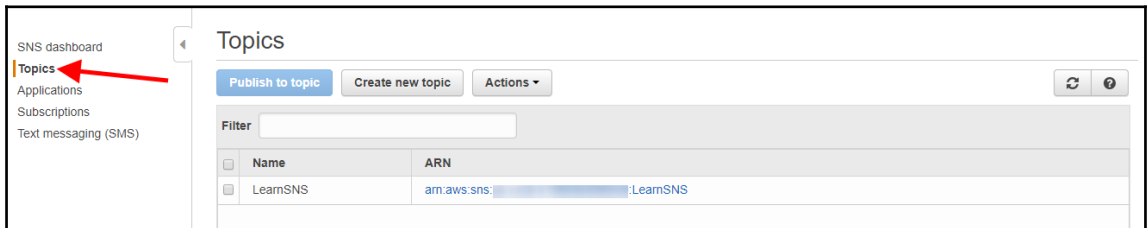
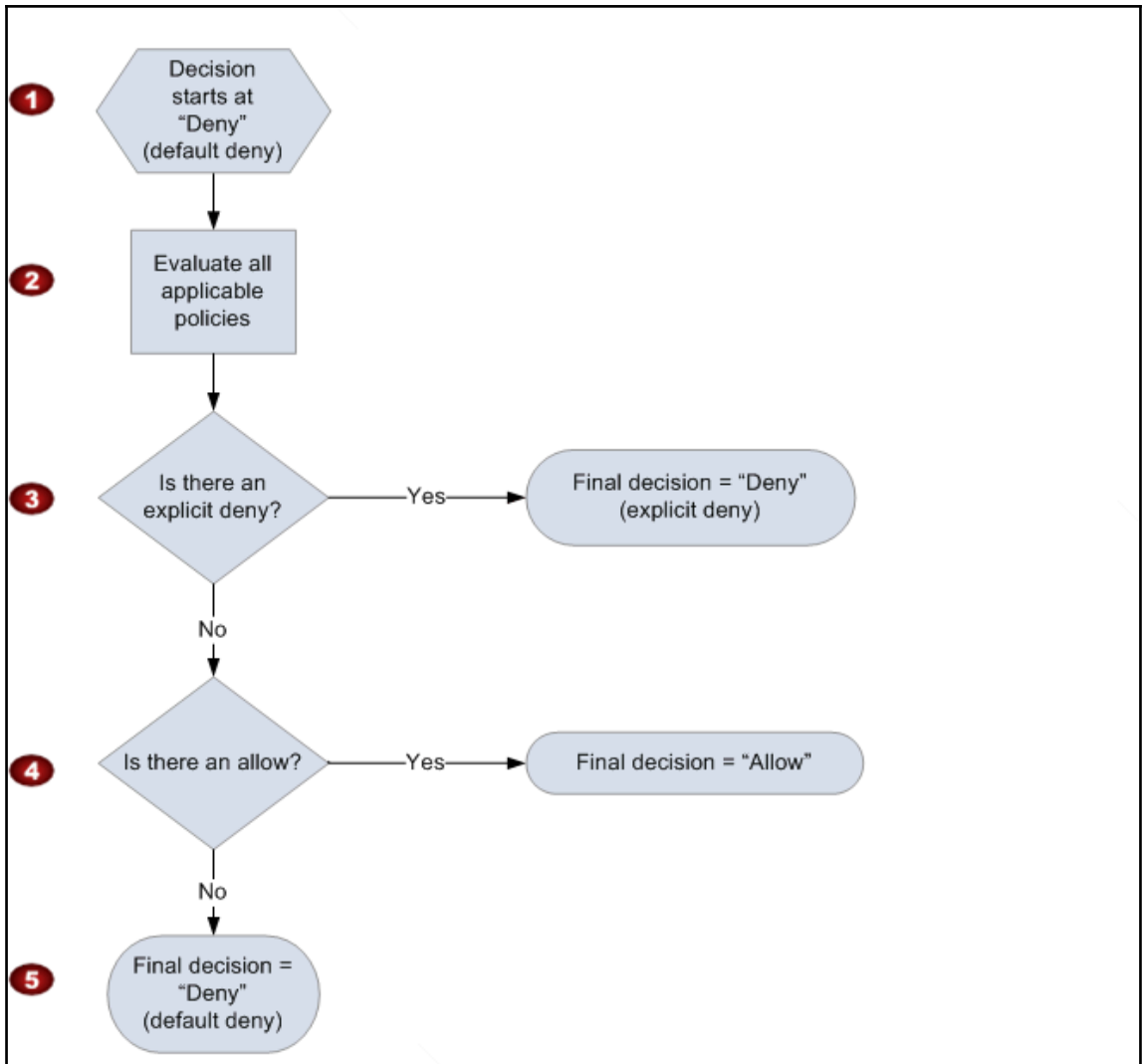
Create subscription Request confirmations Actions

Filter

Subscription ARN	Proto...	Endpoint	Topic ARN
<input checked="" type="checkbox"/> PendingConfirmation	http		arn:aws:sns:...
<input checked="" type="checkbox"/> PendingConfirmation	email		arn:aws:sns:...







SNS dashboard

Topics

Applications

Subscriptions

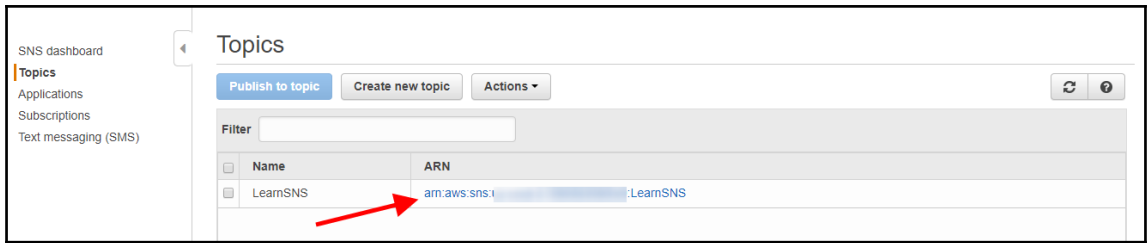
Text messaging (SMS)

Topics

Publish to topic Create new topic Actions

Filter

Name	ARN
LearnSNS	arn:aws:sns:1...:LearnSNS



SNS dashboard

Topics

Applications

Subscriptions

Text messaging (SMS)

Topic details: LearnSNS

Publish to topic Other topic actions

Topic ARN: arn:aws:sns:1...:LearnSNS

Topic owner: 586582896940

Region: us-west-2

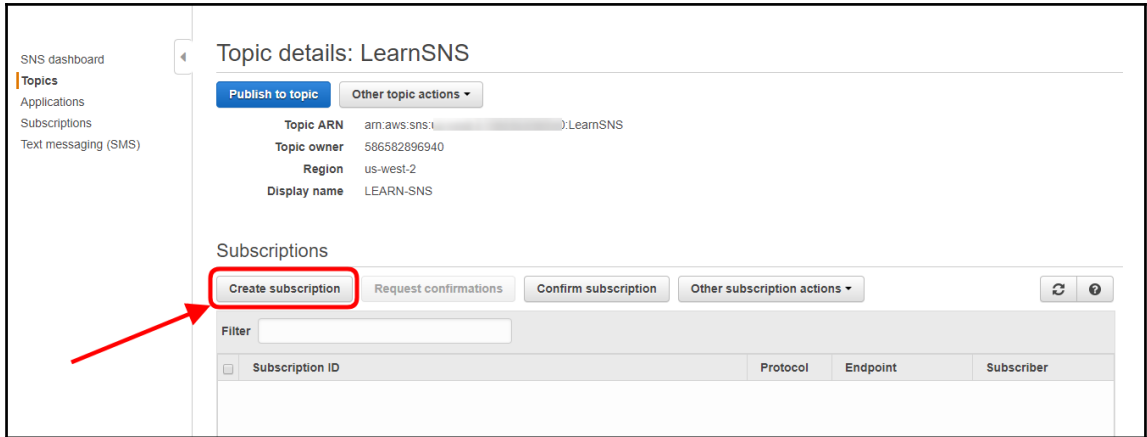
Display name: LEARN-SNS

Subscriptions

Create subscription Request confirmations Confirm subscription Other subscription actions

Filter

Subscription ID	Protocol	Endpoint	Subscriber
-----------------	----------	----------	------------



Create subscription

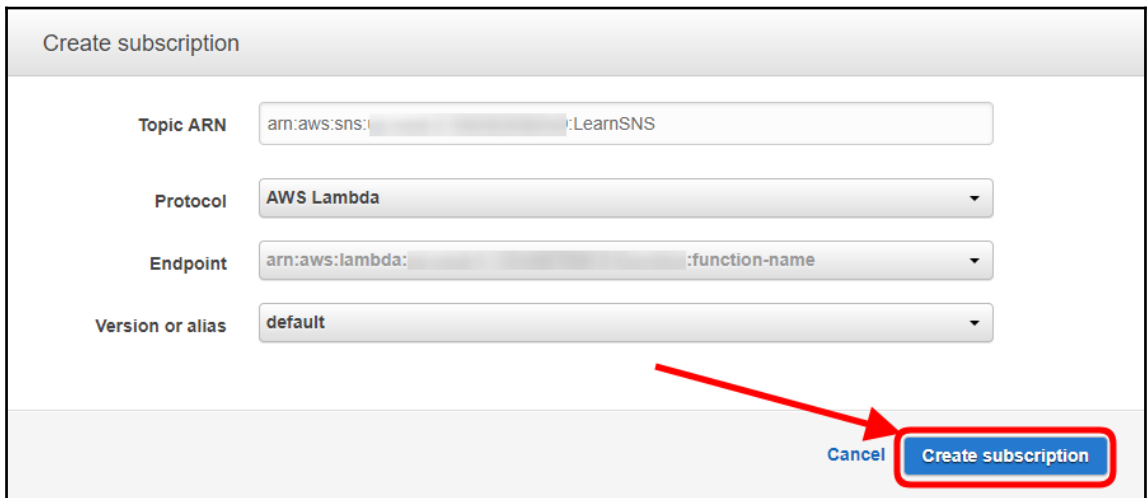
Topic ARN: arn:aws:sns:1...:LearnSNS

Protocol: AWS Lambda

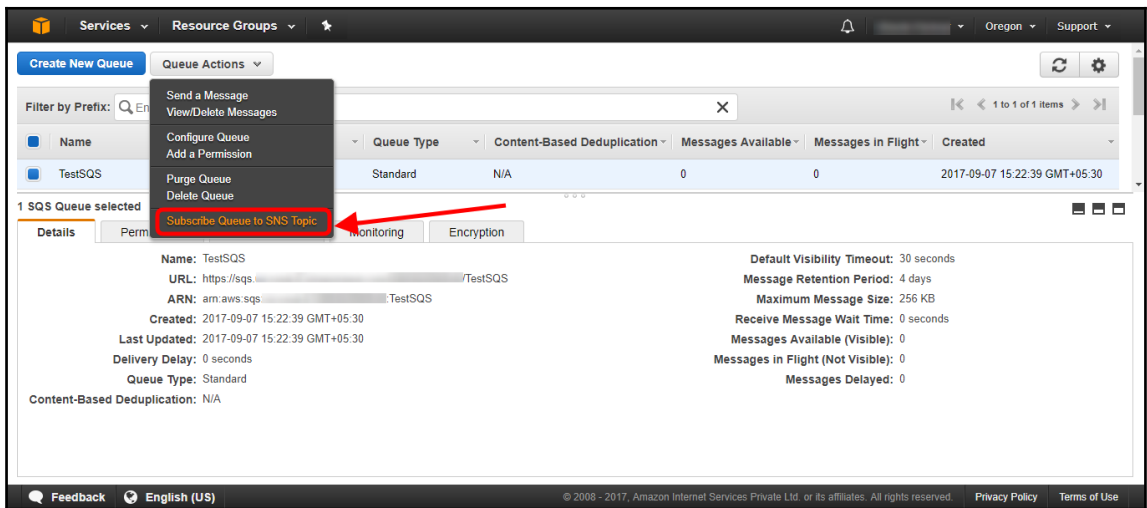
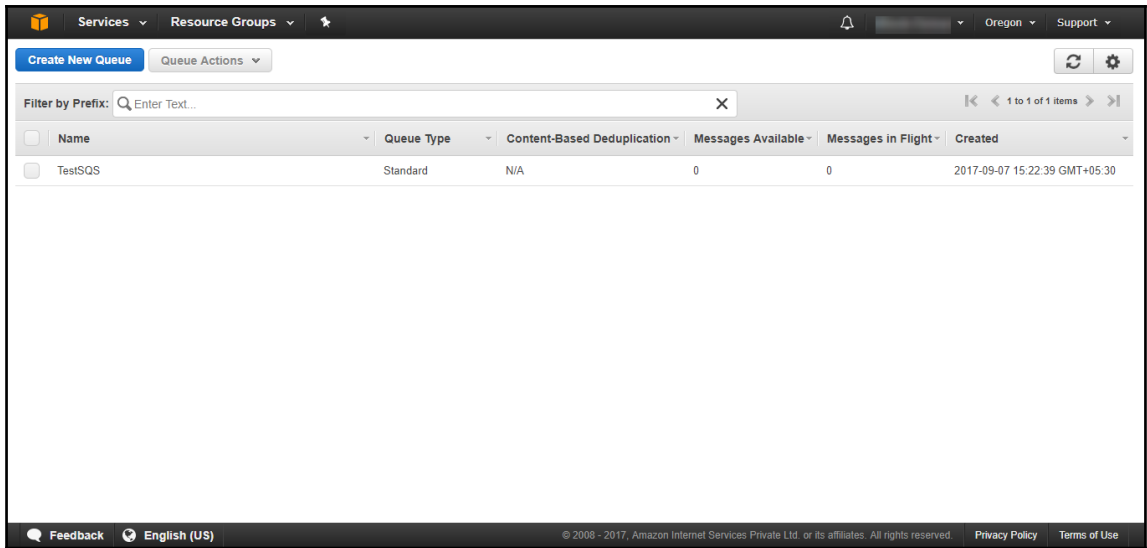
Endpoint: arn:aws:lambda:1...:function-name

Version or alias: default

Cancel Create subscription



Graphic Bundle



Subscribe to a Topic ✕


Select an SNS Topic from the *Choose a Topic* drop-down or enter a topic's ARN in the *Topic ARN* text box and then press *Subscribe* to allow your queue(s) to receive SNS notifications from the topic and to subscribe your queue(s) to the topic.

Topic Region ⓘ US West (Oregon) ▼

Choose a Topic ⓘ LearnSNS ▼

Topic ARN ⓘ am:aws:sns: [redacted] :LearnSNS

Cancel **Subscribe**



Topic Subscription Result ✕

Successfully subscribed the following queue to the SNS topic LearnSNS.
Permission to receive SNS notifications was added to the queue.

- TestSQS

OK

The screenshot shows the AWS SNS console interface. At the top, there are navigation tabs for 'Services' and 'Resource Groups'. The main header reads 'Topic details: LearnSNS'. Below this, there are two buttons: 'Publish to topic' and 'Other topic actions'. The topic information is displayed as follows:

- Topic ARN: arn:aws:sns:us-west-2:586582896940:LearnSNS
- Topic owner: 586582896940
- Region: us-west-2
- Display name: LEARN-SNS

Below the topic information is a 'Subscriptions' section with buttons for 'Create subscription', 'Request confirmations', 'Confirm subscription', and 'Other subscription actions'. A table lists the subscriptions:

Subscription ID	Protocol	Endpoint	Subscriber
arn:aws:sns:us-west-2:586582896940:LearnSNS:49371c4e-0b94-483e-b00c-ef29abf75a10	email	586582896940@...	586582896940
arn:aws:sns:us-west-2:586582896940:LearnSNS:2e663ad2-6626-4fec-98f7-776030518b99	sqs	arn:aws:sqs:us-west-2:586582896940:TestSQS	586582896940

The screenshot shows the AWS SQS console interface. At the top, there are navigation tabs for 'Services' and 'Resource Groups'. The main header reads 'Queue Actions'. Below this, there are buttons for 'Create New Queue' and 'Queue Actions'. A table lists the queues:

Name	Queue Type	Content-Based Deduplication	Messages Available	Messages in Flight	Created
TestSQS	Standard	N/A	1	0	2017-09-07 15:22:39 GMT+05:30

Below the table, there is a section for '1 SQS Queue selected' with tabs for 'Details', 'Permissions', 'Redrive Policy', 'Monitoring', and 'Encryption'. The 'Details' tab is selected, showing the following information:

- Name: TestSQS
- URL: https://sqs.us-west-2.amazonaws.com/586582896940/TestSQS
- ARN: arn:aws:sqs:us-west-2:586582896940:TestSQS
- Created: 2017-09-07 15:22:39 GMT+05:30
- Last Updated: 2017-09-07 15:38:41 GMT+05:30
- Delivery Delay: 0 seconds
- Queue Type: Standard
- Content-Based Deduplication: N/A
- Default Visibility Timeout: 30 seconds
- Message Retention Period: 4 days
- Maximum Message Size: 256 KB
- Receive Message Wait Time: 0 seconds
- Messages Available (Visible): 1
- Messages in Flight (Not Visible): 0
- Messages Delayed: 0

A red arrow points to the 'Messages Available (Visible): 1' value.

Services ▾ **Resource Groups** ▾ ⌵

CloudWatch
Dashboards
Alarms
ALARM
INSUFFICIENT
OK
Billing
Events
Rules
Event Buses **NEW**
Logs
Metrics

Metric Summary

Amazon CloudWatch monitors operational and performance metrics for your AWS cloud resources and applications. You currently have **322 CloudWatch metrics available** in the US West (Oregon) region.

Browse or search your metrics to get started graphing data and creating alarms.

[Browse Metrics](#)

Alarm Summary

You do not have any alarms created in the US West (Oregon) region. Alarms allow you to send notifications or execute Auto Scaling actions in response to any CloudWatch metric.

You can now use Amazon CloudWatch alarms to monitor the estimated charges on your AWS bill and receive email alerts whenever charges exceed a threshold you define. Visit the CloudWatch US East (N. Virginia) region to manage your billing alarms.

[Go to CloudWatch US East \(N. Virginia\) region](#)

Service Health

Current Status	Details
✔ Amazon CloudWatch Service	Service is operating normally

[View complete service health details](#)

Additional Info
[Getting Started Guide](#)
[Monitoring Scripts Guide](#)
[Overview and Features](#)
[Documentation](#)
[Forums](#)
[Report an Issue](#)

[Create Alarm](#)

Services ▾ **Resource Groups** ▾ ⌵

CloudWatch
Dashboards
Alarms
ALARM
INSUFFICIENT
OK
Billing
Events
Rules
Event Buses **NEW**
Logs
Metrics

Untitled graph

1h 3h 12h 1d 3d 1w custom ▾ Line ▾ [Actions](#) [Refresh](#) [Close](#)

1.00
0.5
0

07:50 07:55 08:00 08:05 08:10 08:15 08:20 08:25 08:30 08:35 08:40 08:45 08:50

● NumberOfMessagesPublished

All metrics **Graphed metrics (1)** **Graph options**

322 Metrics

EBS 72 Metrics	EC2 142 Metrics	ELB 97 Metrics
ElasticBeanstalk 1 Metric	S3 2 Metrics	SNS 8 Metrics

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Graphic Bundle

The screenshot shows the AWS CloudWatch Metrics console. At the top, there are navigation tabs for 'Services', 'Resource Groups', and a search icon. Below this is a sidebar with navigation options: CloudWatch, Dashboards, Alarms (with sub-items: ALARM, INSUFFICIENT, OK), Billing, Events, Rules, Event Buses (NEW), Logs, and Metrics. The main area displays an 'Untitled graph' with a line chart showing 'NumberofMessagesPublished' over time from 07:50 to 08:50. The y-axis ranges from 0 to 1.00. Below the graph, there are tabs for 'All metrics', 'Graphed metrics (1)', and 'Graph options'. A search bar is present with the text 'Search for any metric, dimension or resource id'. Below the search bar, there are three metric categories: 'Country, SMSType' (1 Metric), 'Topic Metrics' (6 Metrics), and 'Metrics with no dimensions' (1 Metric). A red box highlights the 'Topic Metrics' category, and a red arrow points to it from the right. At the bottom, there is a footer with 'Feedback', 'English (US)', and copyright information: '© 2008 - 2017, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use'.

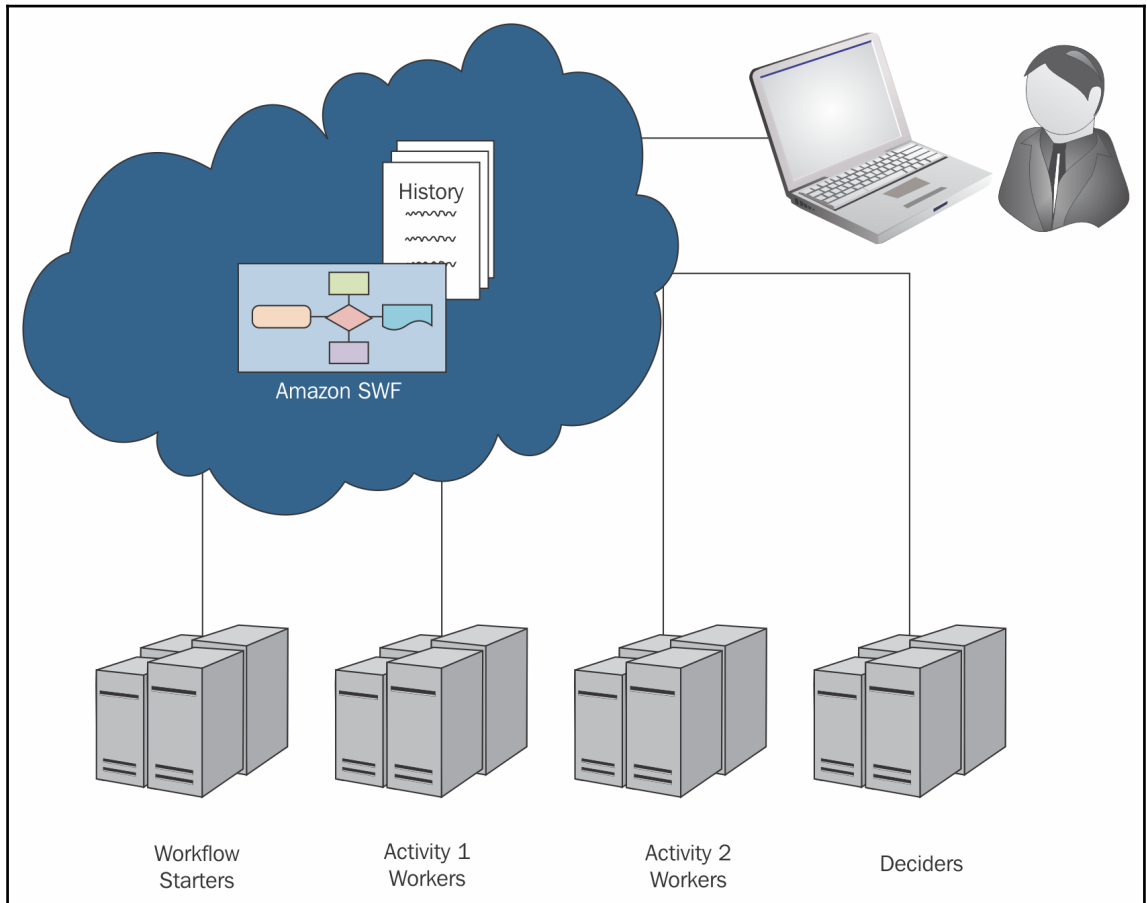
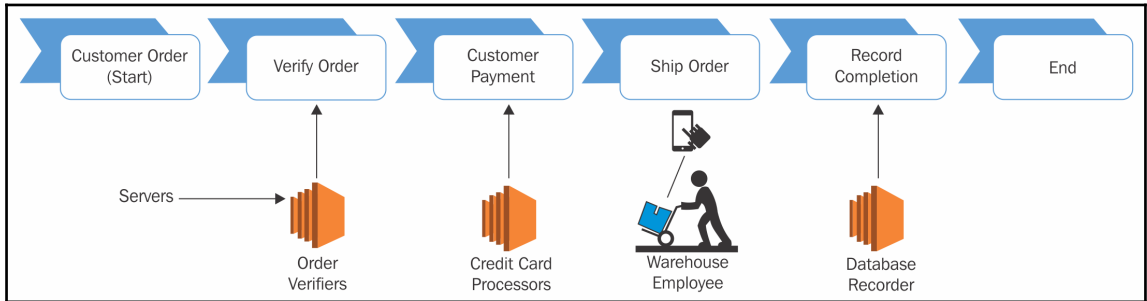
>

This screenshot shows a more detailed view of the 'Topic Metrics' category. The top navigation and sidebar are the same as in the first screenshot. The main area shows the 'Untitled graph' with a zoomed-in view of the 'NumberofMessagesPublished' metric from 08:20 to 09:20. The y-axis ranges from 0 to 1.00. Below the graph, the 'Graphed metrics (1)' tab is active. A search bar contains the text 'Search for any metric, dimension or resource id'. Below the search bar, there is a table with 6 columns: 'TopicName (6)' and 'Metric Name'. The table contains the following data:

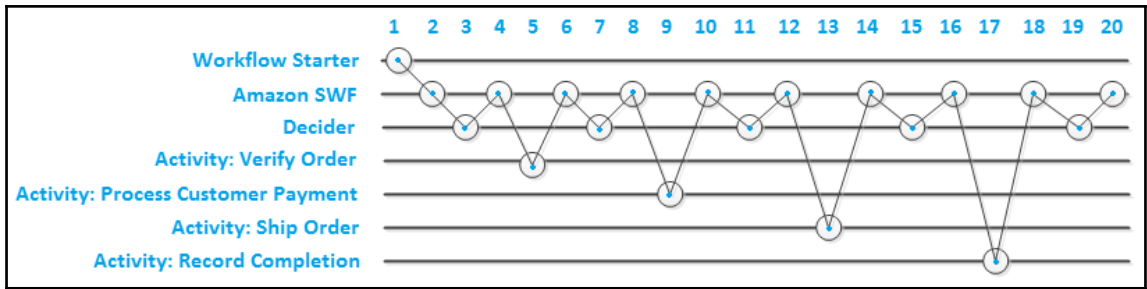
TopicName (6)	Metric Name
<input checked="" type="checkbox"/> LearnSNS	NumberOfMessagesPublished
<input type="checkbox"/> test	NumberOfNotificationsDelivered
<input type="checkbox"/> test	NumberOfNotificationsFailed

At the bottom, there is a footer with 'Feedback', 'English (US)', and copyright information: '© 2008 - 2017, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use'.

Chapter 14: Simple Workflow Service

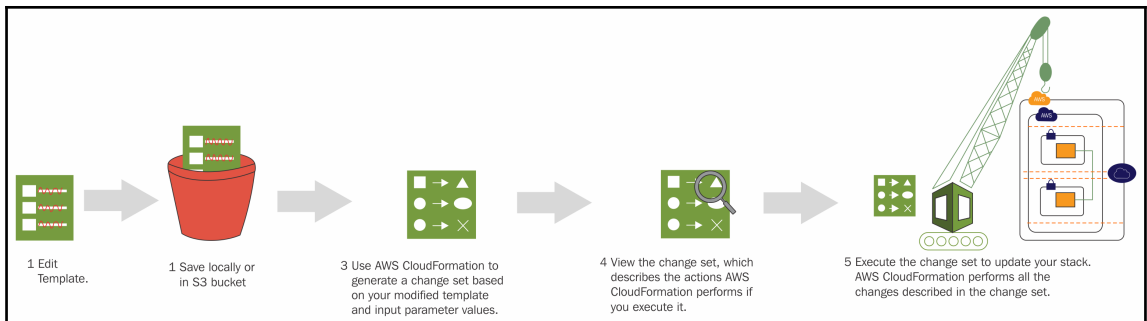
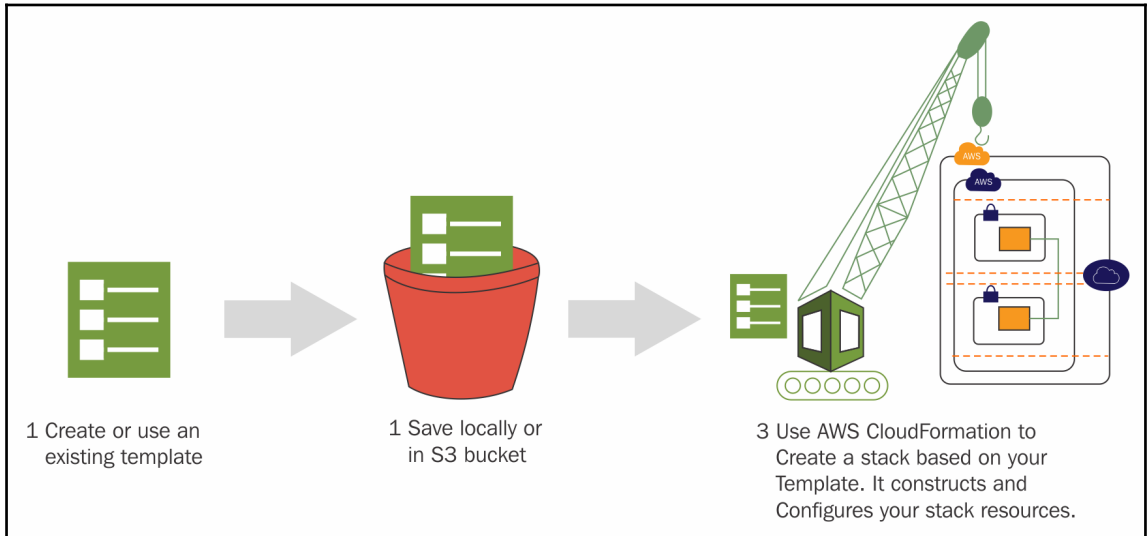


Graphic Bundle

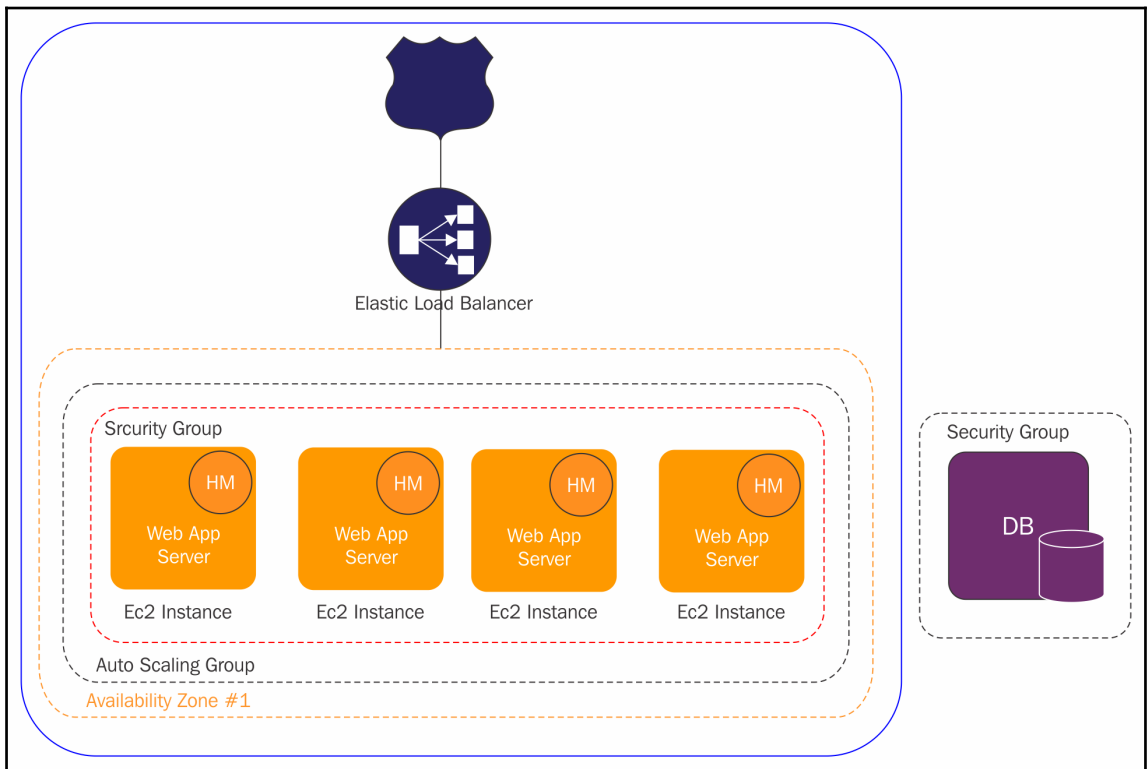
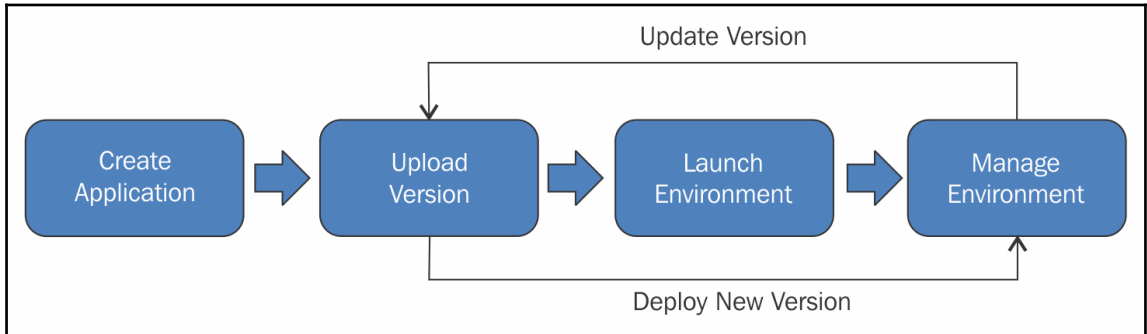


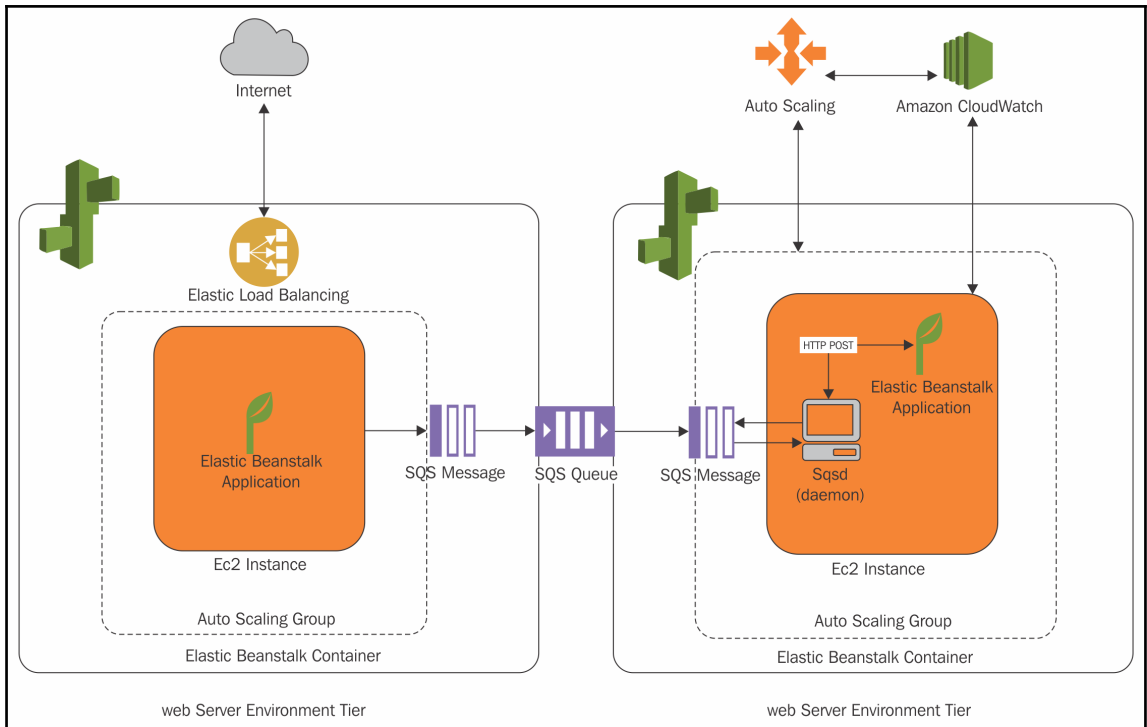
Region Name	Region	Endpoint	Protocol
Asia Pacific (Mumbai)	ap-south-1	swf.ap-south-1.amazonaws.com	HTTPS
Asia Pacific (Seoul)	ap-northeast-2	swf.ap-northeast-2.amazonaws.com	HTTPS
Asia Pacific (Singapore)	ap-southeast-1	swf.ap-southeast-1.amazonaws.com	HTTPS
Asia Pacific (Sydney)	ap-southeast-2	swf.ap-southeast-2.amazonaws.com	HTTPS
Asia Pacific (Tokyo)	ap-northeast-1	swf.ap-northeast-1.amazonaws.com	HTTPS
Canada (Central)	ca-central-1	swf.ca-central-1.amazonaws.com	HTTPS
EU (Frankfurt)	eu-central-1	swf.eu-central-1.amazonaws.com	HTTPS
EU (Ireland)	eu-west-1	swf.eu-west-1.amazonaws.com	HTTPS
EU (London)	eu-west-2	swf.eu-west-2.amazonaws.com	HTTPS
South America (São Paulo)	sa-east-1	swf.sa-east-1.amazonaws.com	HTTPS
US East (N. Virginia)	us-east-1	swf.us-east-1.amazonaws.com	HTTPS
US East (Ohio)	us-east-2	swf.us-east-2.amazonaws.com	HTTPS
US West (N. California)	us-west-1	swf.us-west-1.amazonaws.com	HTTPS
US West (Oregon)	us-west-2	swf.us-west-2.amazonaws.com	HTTPS

Chapter 15: AWS CloudFormation



Chapter 16: Elastic Beanstalk





N. Virginia ▾ Support ▾

- Compute
- EC2
- EC2 Container Service
- Lightsail ↗
- Elastic Beanstalk →
- Lambda
- Batch



Create a web app

Create a new application and environment with a sample application or your own code. By creating an environment, you allow AWS Elastic Beanstalk to manage AWS resources and permissions on your behalf. [Learn more](#)

Application information

Application name

Up to 100 Unicode characters, not including forward slash (/).

Environment information

Choose the name, subdomain, and description for your environment. These cannot be changed later.

Environment name

Domain

Description

Base configuration

Tier Web Server ([Choose tier](#))

Platform Preconfigured platform
Platforms published and maintained by AWS Elastic Beanstalk.

Custom platform ^{NEW}
Platforms created and owned by you. [Learn more](#)

Application code Sample application
Get started right away with sample code.


Upload your code
Upload a source bundle from your computer or copy one from Amazon S3.
 ZIP or WAR

Platform Preconfigured platform

Platforms published and maintained by AWS Elastic Beanstalk.

-- Choose a platform --

- Choose a platform --
- Preconfigured**
- .NET (Windows/IIS)
- Java
- Node.js
- PHP
- Python
- Ruby
- Tomcat**
- Go
- Packer
- Preconfigured – Docker**
- GlassFish
- Go
- Python
- Generic**
- Docker
- Multi-container Docker

 **Validation Error** ×

Solution stack is required.



Configure GettingStarted-env

Start from a preset that matches your use case or choose *Custom configuration* to unset recommended values and use the service's default values.

- Configuration presets**
- Low cost (*Free Tier eligible*)
 - High availability
 - Custom configuration

Platform 64bit Amazon Linux 2017.03 v2.6.3 running Tomcat 8 Java 8 [Change platform configuration](#)

<h3>Tags</h3> <p>Tags: none</p> <p>Modify</p>	<h3>Software</h3> <p>AWS X-Ray: disabled Rotate logs: disabled (default) Log streaming: disabled (default) Environment properties: 0</p> <p>Modify</p>	<h3>Instances</h3> <p>EC2 instance type: t1.micro EC2 image ID: ami-5d063026 Root volume type: container default Root volume size (GB): container default Root volume IOPS: container default</p> <p>Modify</p>
<h3>Capacity</h3> <p>Environment type: load balancing, auto scaling Availability Zones: Any Instances: 1-4</p> <p>Modify</p>	<h3>Load balancer</h3> <p>Port: HTTP on port 80 Secure port: disabled Cross-zone load balancing: disabled Connection draining: disabled (default)</p> <p>Modify</p>	<h3>Rolling updates and deployments</h3> <p>Deployment policy: All at once Rolling updates: disabled Health check: disabled</p> <p>Modify</p>
<h3>Security</h3> <p>Service role: aws-elasticbeanstalk-service-role Virtual machine key pair: -- Virtual machine instance profile: aws-elasticbeanstalk-ec2-role</p> <p>Modify</p>	<h3>Monitoring</h3> <p>Health check path: blank Health reporting system: basic</p> <p>Modify</p>	<h3>Notifications</h3> <p>Email address: --</p> <p>Modify</p>
<h3>Network</h3> <p>VPC: -- Load balancer visibility: public Load balancer subnets: none Associate public IP address: -- Instance subnets: none Security groups: none</p> <p>Modify</p>	<h3>Database</h3> <p>Engine: -- Instance class: -- Storage (GB): -- Multi-AZ: --</p> <p>Modify</p>	

[Cancel](#) [Previous](#) [Create app](#)

All Applications > getting-started > GettingStarted-env (Environment ID: e-9caxqmzk8, URL: GettingStarted-env.kqdc2wkvng.us-east-1)

i **Creating GettingStarted-env**
This will take a few minutes.

```
2:19pm Created Auto Scaling launch configuration named:
awseb-e-9caxqmzk8-stack-AWSEBAutoScalingLaunchConfiguration-1Q9U3WVGQ2C6O

2:19pm Created security group named:
awseb-e-9caxqmzk8-stack-AWSEBSecurityGroup-QKTWLTOK39FG

2:19pm Created load balancer named:
awseb-e-9-AWSEBLoa-1BDBXR8WQ6FZX

2:19pm Created security group named:
sg-21c94b51

2:18pm Using elasticbeanstalk-us-east-1-508708549947 as Amazon S3 storage bucket for environment data.

2:18pm createEnvironment is starting.
```

Elastic Beanstalk | getting-started | My First Elastic Beanstalk Application | [Create New Application](#)

Learn More
[Get started using Elastic Beanstalk](#)
[Modify the code](#)
[Create and connect to a database](#)
[Add a custom domain](#)

Featured
[Create your own custom platform](#)

Command Line Interface (v3)
[Installing the AWS EB CLI](#)
[EB CLI Command Reference](#)

If you want to use a command line to create, manage, and scale your Elastic Beanstalk applications, please use the Elastic Beanstalk Command Line Interface (EB CLI).

Get Started
\$ mkdir HelloWorld
\$ cd HelloWorld
\$ eb init -p PHP

All Applications

Filter by Application Name:

getting-started Actions ▾

GettingStarted-env

Environment tier: Web Server
Platform: 64bit Amazon Linux 2017.03 v2.6.3 running Tomcat 8 Java 8
Running versions: Sample Application
Last modified: 2017-08-22 14:22:19 UTC+0530
URL: GettingStarted-env.kqdc2wkvng.us-east-1.elas...

My First Elastic Beanstalk Application Actions ▾

No environments currently exist for this application. [Create one now.](#)


Elastic Beanstalk getting-started My First Elastic Beanstalk Application [Create New Application](#)

All Applications > getting-started > GettingStarted-env (Environment ID: e-9caxqmzkg8, URL: GettingStarted-env.kqc2wkvng.us-east-1.elasticbeanstalk.com) [Actions](#)


Dashboard Overview [Refresh](#)

Configuration

Logs

Health  **Health**
Green
[Causes](#)

Running Version
Sample Application
[Upload and Deploy](#)



Configuration
64bit Amazon Linux 2017.03
v2.6.3 running Tomcat 8 Java 8
[Change](#)

Managed Updates

Events [Show All](#)

Tags

Time	Type	Details
2017-08-22 14:22:19 UTC+0530	INFO	Successfully launched environment: GettingStarted-env
2017-08-22 14:21:25 UTC+0530	INFO	Environment health has been set to GREEN
2017-08-22 14:20:26 UTC+0530	INFO	Created CloudWatch alarm named: awseb-e-9caxqmzkg8-stack-AWSEBCloudwatchAlarmHigh-LA0042MM2H52


Elastic Beanstalk getting-started [Create New Application](#)

All Applications > getting-started > GettingStarted-env (Environment ID: e-kqrw9dd5av, URL: GettingStarted-env.yzswt3m9dd.us-west-2.elasticbeanstalk.com) [Actions](#)


Dashboard Overview [Refresh](#)

Configuration


Logs

Health  **Health**
Green
[Causes](#)

Running Version
Sample Application
[Upload and Deploy](#)



Configuration
64bit Amazon Linux 2017.03
v2.6.4 running Tomcat 8 Java 8
[Change](#)



Upload and Deploy

i To deploy a previous version, go to the [Application Versions page](#).

Upload application: java-tomcat-v3.zip **← 1.**

Version label: **← 2.**

► Deployment Preferences

Current number of instances: 1

3. **Cancel** **Deploy**

All Applications > getting-started > GettingStarted-env-1 (Environment ID: e-kqr9dd6av, URL: GettingStarted-env-1.yzsw3m9dd.us-west-2.elasticbeanstalk.com) **Actions**

Dashboard Overview **Refresh**

Configuration

Logs

Health **Green** **Causes**

Monitoring

Alarms

Managed Updates

Recent Events **Show All**

Running Version
java-tomcat-v3 **Upload and Deploy**

Configuration
64bit Amazon Linux 2017.03
v2.6.4 running Tomcat 8 Java 8 **Change**

Scaling

Environment type: Load balanced, auto scaling

Number instances: 1 - 4

Scale based on Average network out

Add instance when > 6000000

Remove instance when < 2000000

▼ Auto Scaling

Use the following settings to control auto scaling behavior. [Learn more.](#)

Minimum instance count: Minimum number of instances to run.

Maximum instance count: Maximum number of instances to run.

Availability Zones: Number of Availability Zones to run in.

Custom Availability Zones: Specific Availability Zones to launch instances in.

Scaling cooldown (seconds): The amount of time after a scaling activity before any further trigger-related scaling activities can occur.

Filter: << 1 to 1 of 1 >>

Name	DNS name	State	VPC ID	Availability Zones	Type
awseb-e-9-AWSEBLoa-1BD...	awseb-e-9-AWSEBLoa-1BD...		vpc-3473d353	us-east-1a, us-east-1b,...	classic

Load balancer: **awseb-e-9-AWSEBLoa-1BDBXR8WQ6FZX**

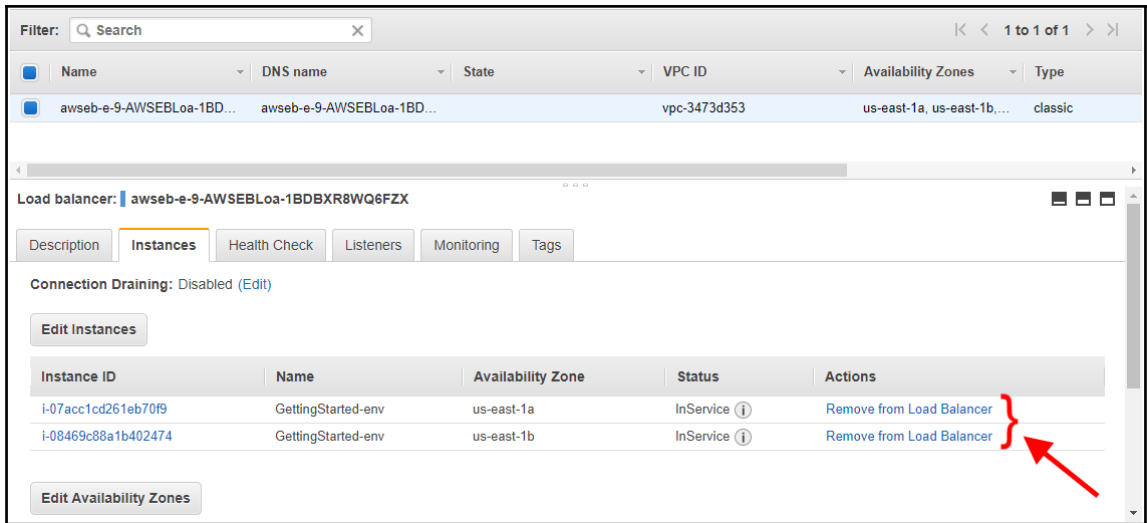
Description **Instances** Health Check Listeners Monitoring Tags

Connection Draining: Disabled (Edit)

Edit Instances

Instance ID	Name	Availability Zone	Status	Actions
i-07acc1cd261eb70f9	GettingStarted-env	us-east-1a	InService ⓘ	Remove from Load Balancer
i-08469c88a1b402474	GettingStarted-env	us-east-1b	InService ⓘ	Remove from Load Balancer

Edit Availability Zones



All Applications > getting-started > GettingStarted-env (Environment ID: e-vncrj85v3, URL: GettingStarted-env.shdcy28cn.us-west-2.elasticbeanstalk.com) Actions

Dashboard Overview Period 1 hour Edit ↻

Configuration

Logs

Health **1.0** Healthy Host Count **55.0%** CPU Utilization **2.2** Average Latency in Seconds **1.0** Sum Requests **26KB** Max Network In **14KB** Max Network Out

Alarms

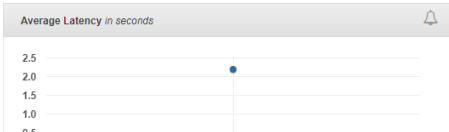
Managed Updates

Events

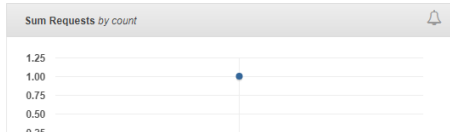
Tags

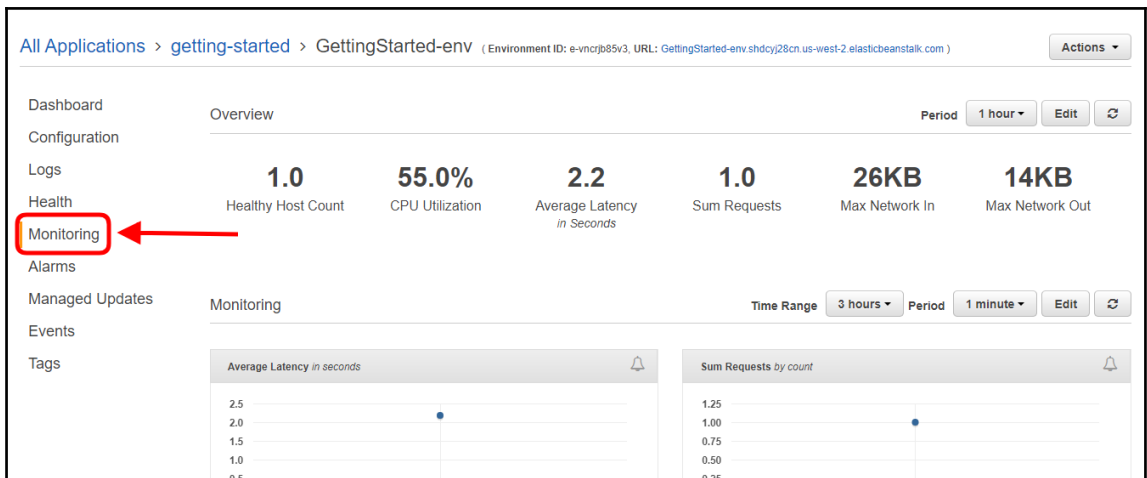
Monitoring Time Range 3 hours Period 1 minute Edit ↻

Average Latency in seconds

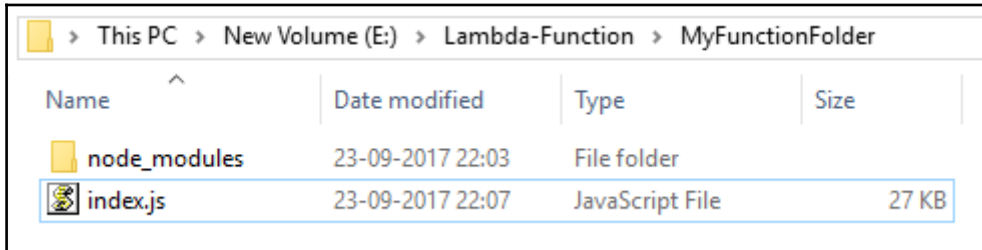


Sum Requests by count

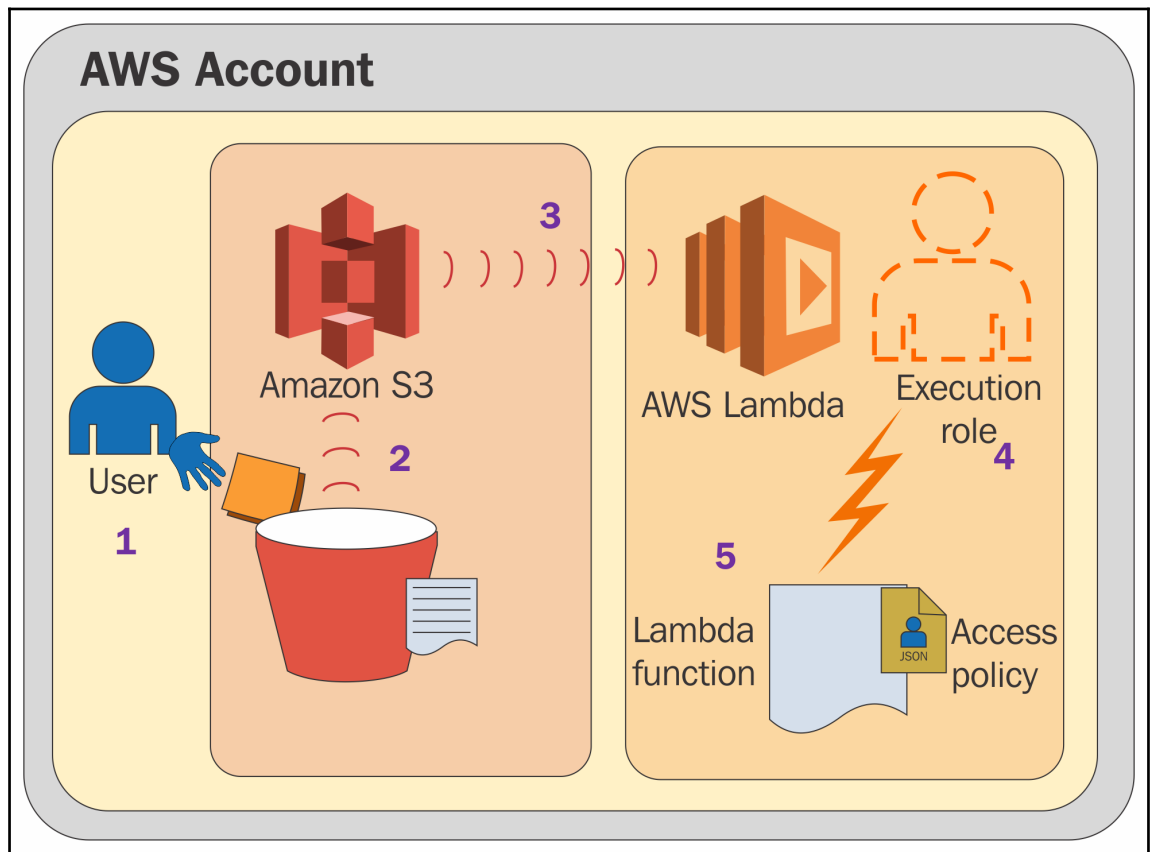


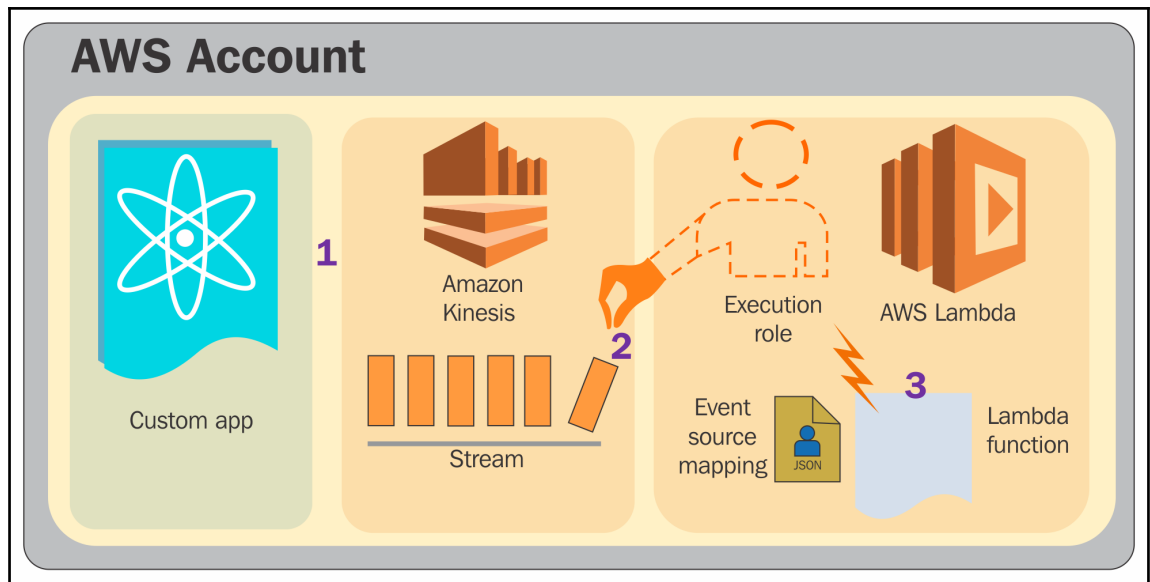


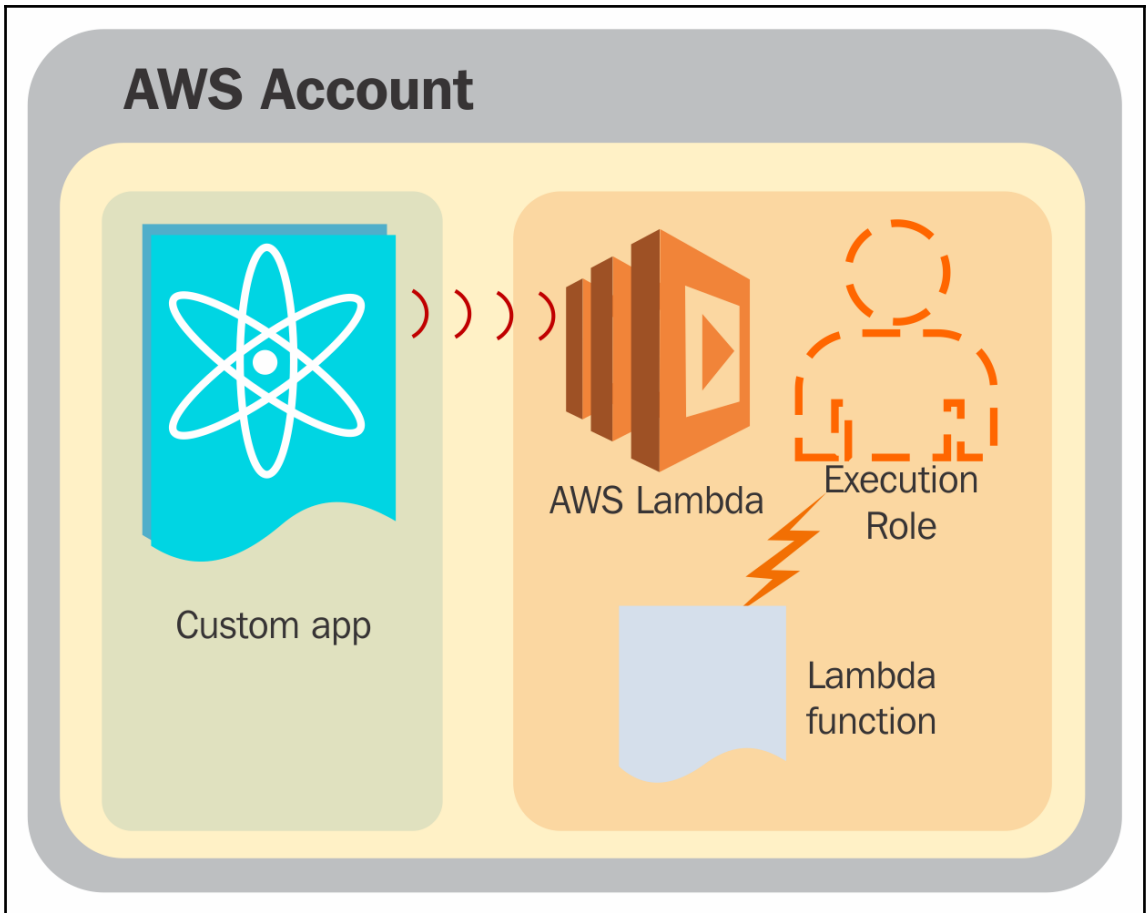
Chapter 17: Overview of AWS Lambda



Name	Date modified	Type	Size
node_modules	23-09-2017 22:03	File folder	
index.js	23-09-2017 22:07	JavaScript File	27 KB







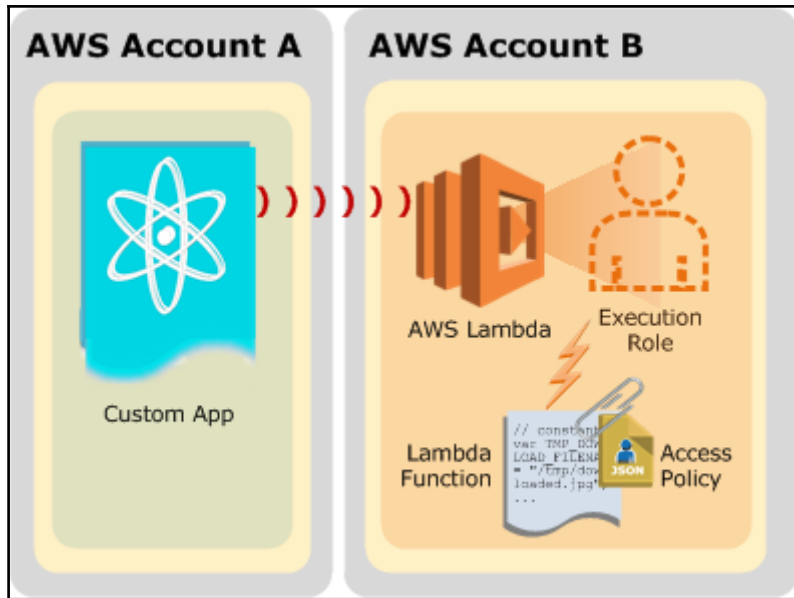


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