

# AWS Technical Essentials

## Lesson 2—Introduction to AWS

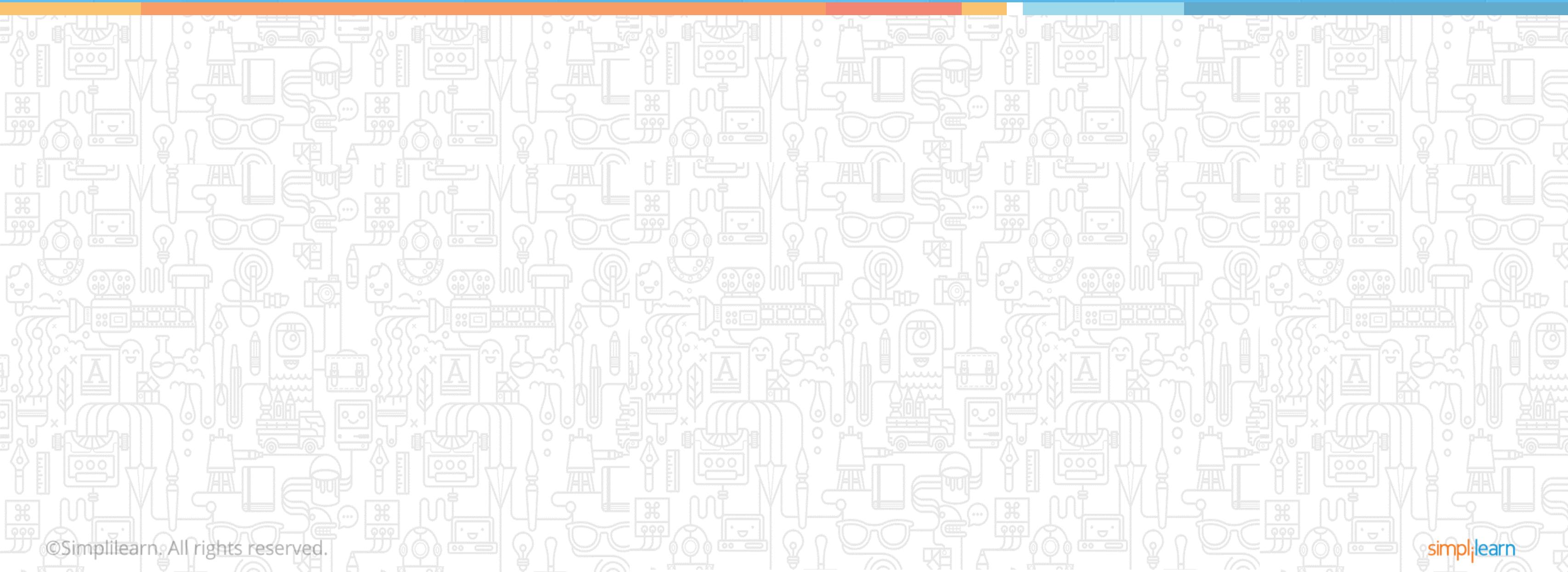


# WHAT YOU'LL LEARN

- Uses of AWS
- Advantages of AWS
- Ways to access AWS
- Creating an AWS account
- Navigation of the AWS Management Console
- AWS Global Infrastructure
- AWS security measures

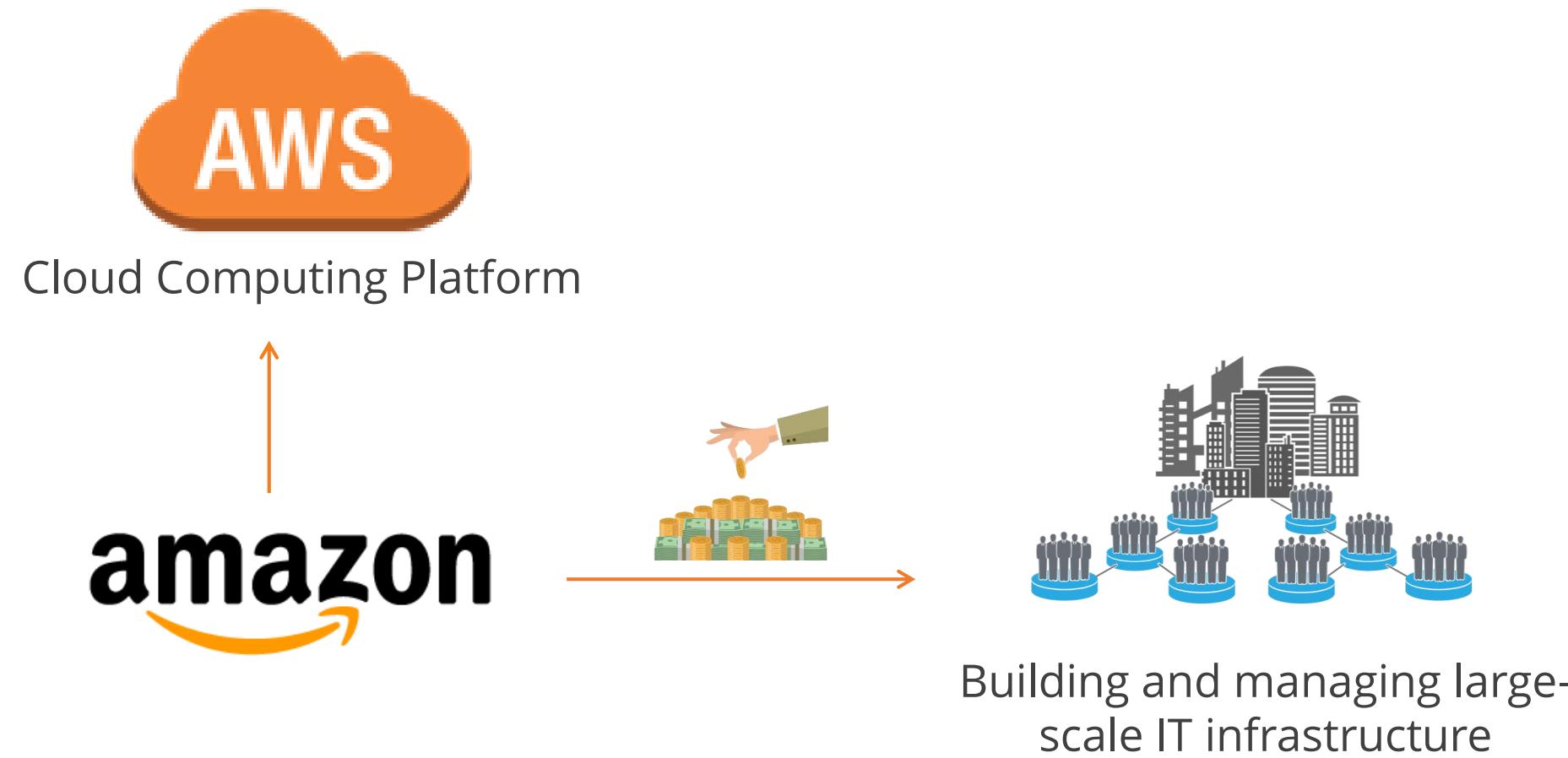


# Amazon Web Services or AWS

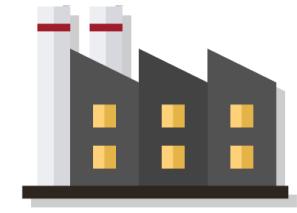


# AWS—Introduction

Amazon uses decentralized or distributed IT Infrastructure to make several IT resources available on demand.



# AWS—Use Cases



Manufacturing Organization



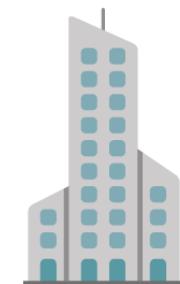
Expand Business



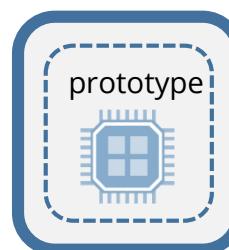
Large Enterprise



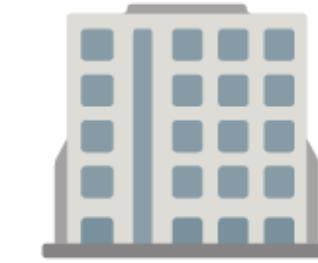
Deliver Training



Architecture Consulting Company



Get high-compute rendering of construction prototypes



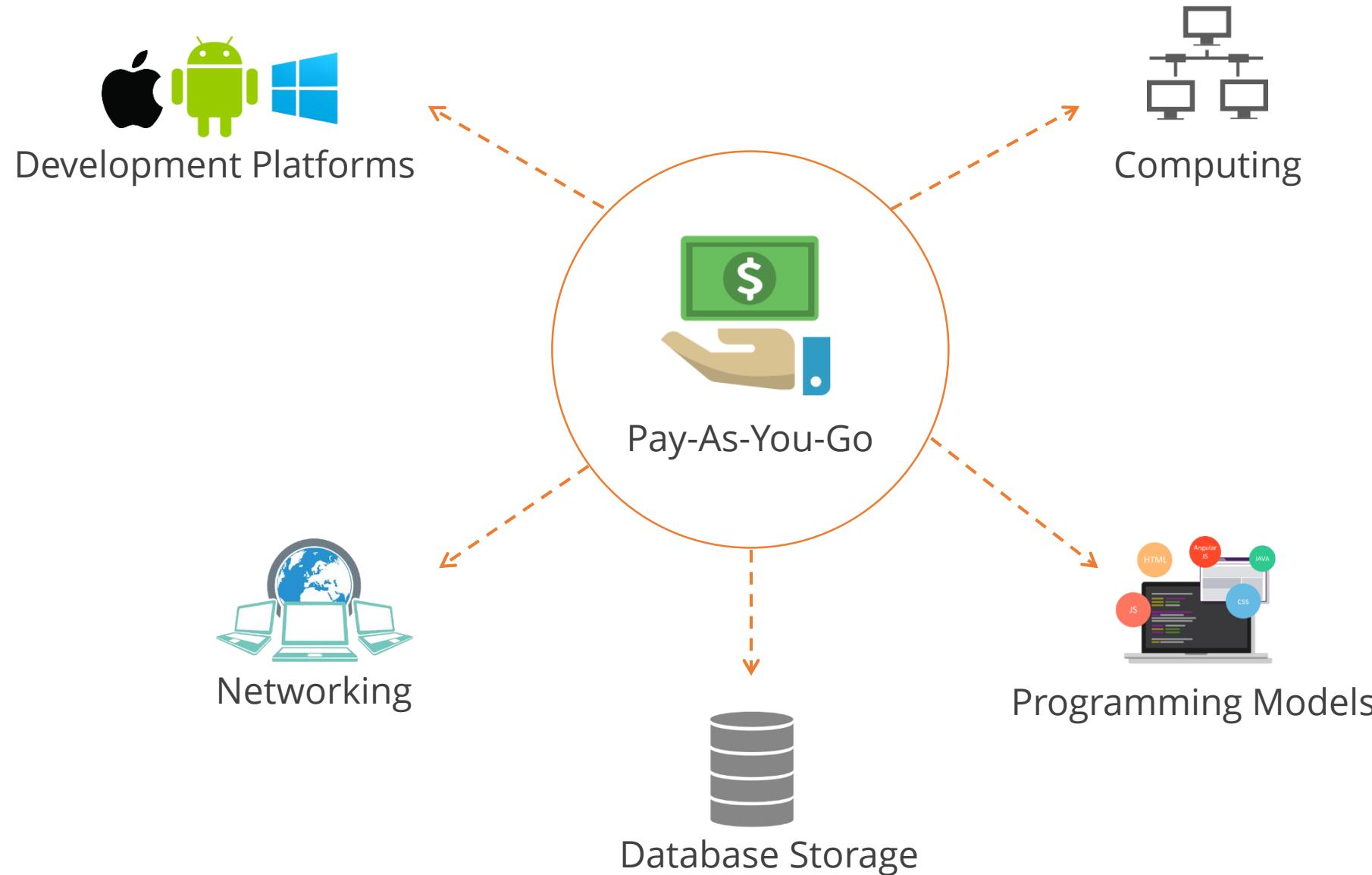
Media Company



Provide different types of content

# Pay-As-You-Go

Pay-as-you-go platform enables customers to procure services from AWS:

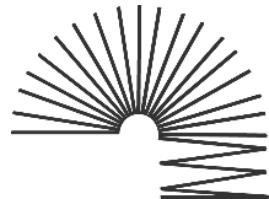


# Advantages of AWS

AWS diligently listens to its customer feedback. This enables the AWS team to efficiently deliver creative features and services.

Even today, AWS continues to hone its operational expertise continually to retain lasting reliability by employing its own advances and industry best practices into its cloud infrastructure. As a result, the customers tend to benefit significantly from AWS.

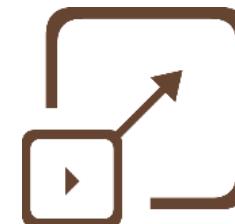
The distributed IT infrastructure provided through AWS has evolved with time, through the lessons learned from over 16 years of experience.



Flexibility



Cost-Effectiveness

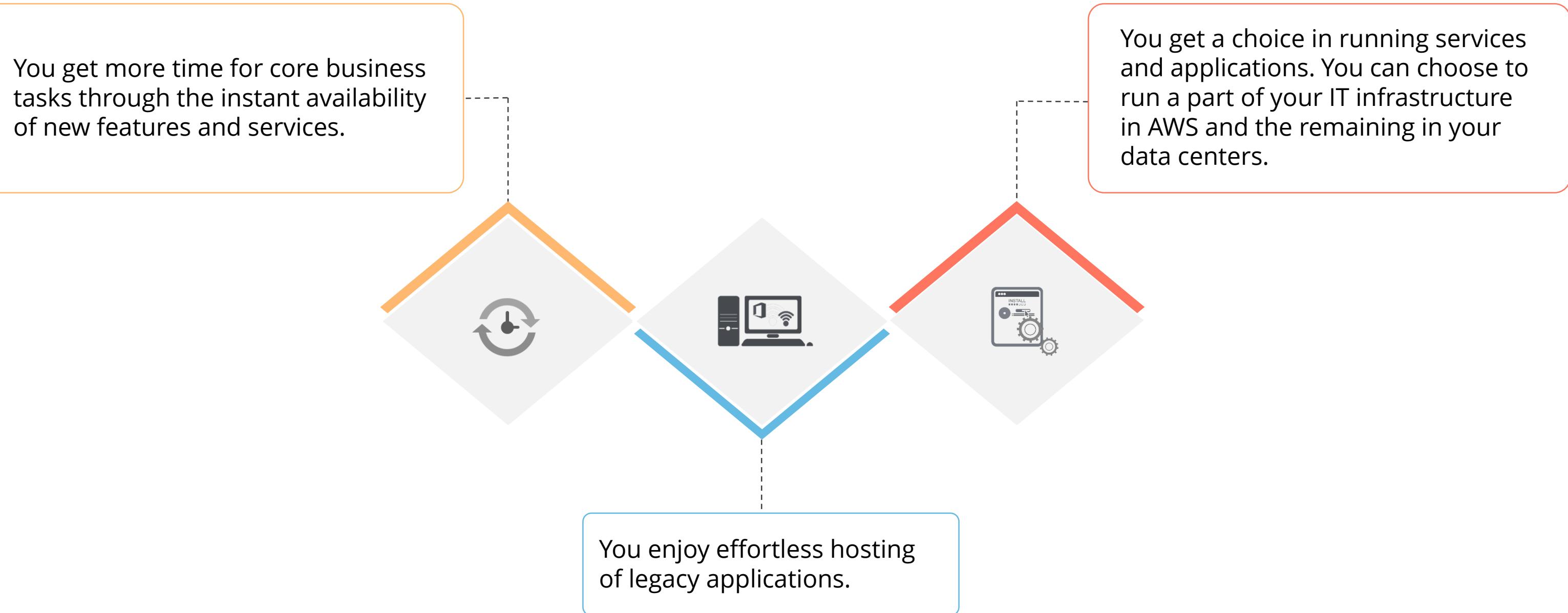


Scalability/Elasticity



Security

# Flexibility



# Cost-Effectiveness



No Upfront Investment



Long-term commitment

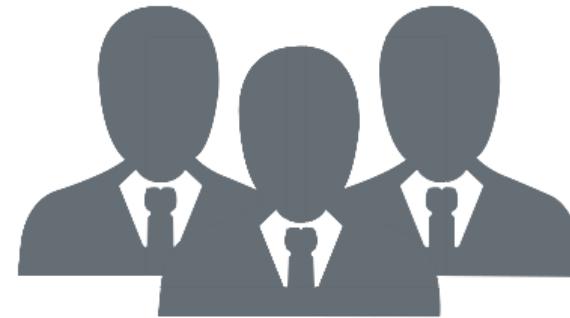


Minimum Expense

This is its significant advantage when compared to the traditional IT Infrastructure.

# Scalability and Elasticity

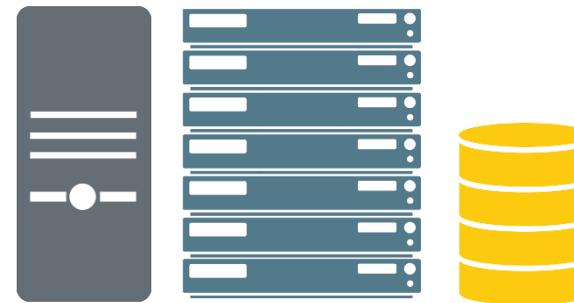
Through Amazon Web Services, techniques such as auto scaling and elastic load balancing can automatically scale resources.



Scale up the required resources  
to fulfill a sudden demand



Scale them down when the demand falls  
without affecting speed and performance



Deal with unpredictable and variable loads



Benefits of reduced cost and  
increased user satisfaction

# Security

AWS delivers end-to-end security and privacy to its customers. Its virtual infrastructure offers optimum availability while managing full privacy for customers and isolation of their operations.



Confidentiality



Integrity



Availability

Customers can expect high physical security, and this is due to Amazon's several years of experience in designing, developing, and running large-scale IT operation centers.

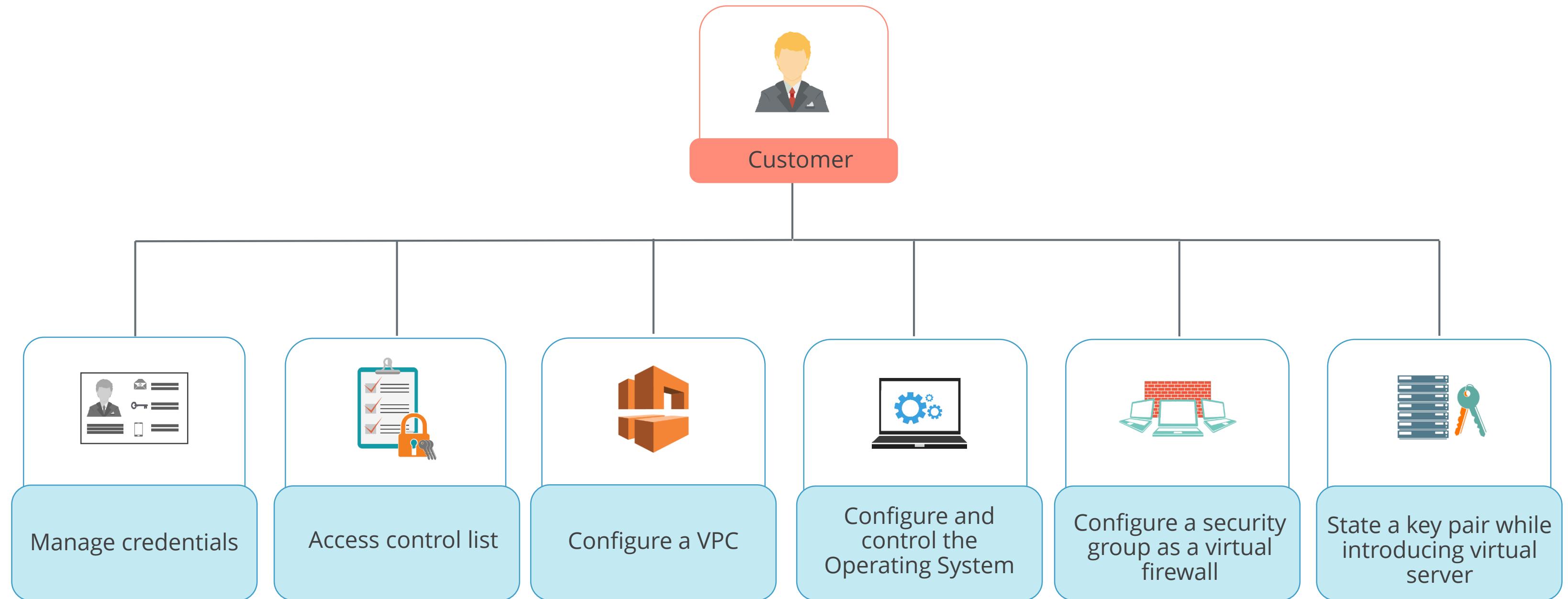
The purpose of AWS Compliance is to enable you to understand its powerful controls in action and maintain security and data protection.

# Security

AWS provides security to their global infrastructure, along with a variety of features for securing critical data in cloud.



# Security



# Security Practices, Certifications, and Standards

The AWS IT infrastructure has been designed and managed according to the best security practices, certifications, and IT security standards.



Service Organization Control or  
SOC 1, SOC 2, and SOC 3



Federal Information Security  
Management Act



Department of Defense (DoD)  
Information Assurance  
Certification and Accreditation  
Process



Federal Risk and  
Authorization  
Management Program

# Security Practices, Certifications, and Standards



DoD Cloud Computing  
Security  
Requirements Guide



Criminal Justice Information  
Services

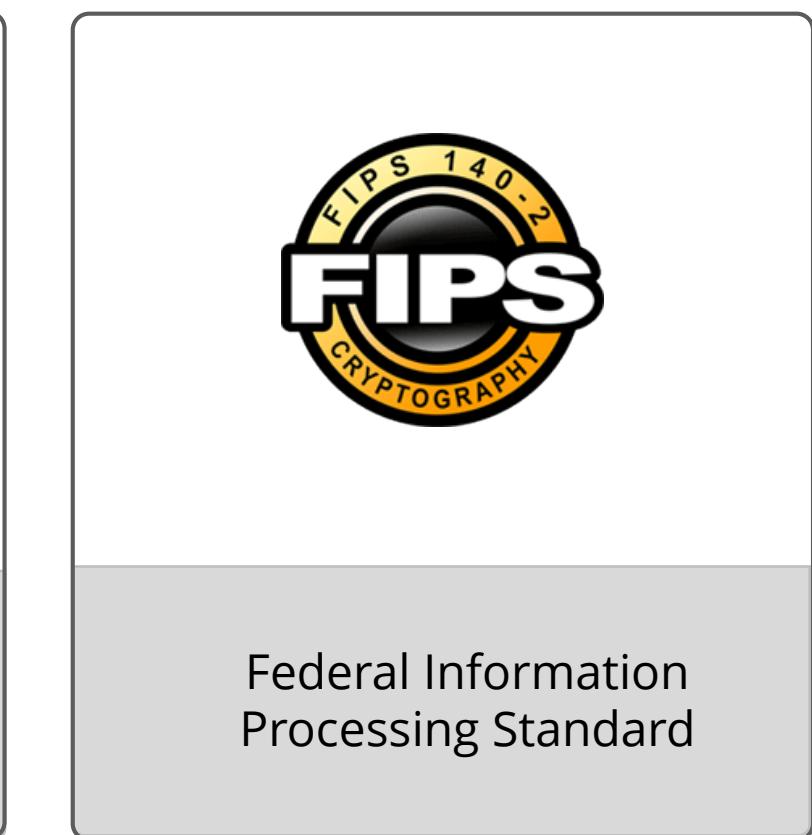
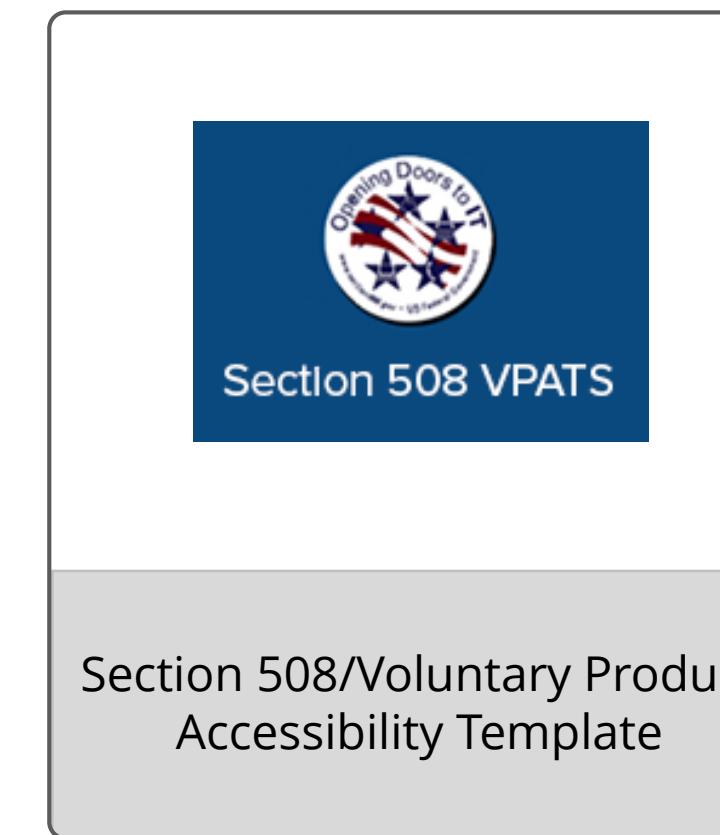
**NIST**  
**National Institute of  
Standards and Technology**  
U.S. Department of Commerce

National Institute of Standards  
and Technology



Payment Card Industry, or PCI  
Data Security Standard DSS  
Level 1

# Security Practices, Certifications, and Standards



# Security Practices, Certifications, and Standards

The industry-specific standards for customers to deploy their solutions include:



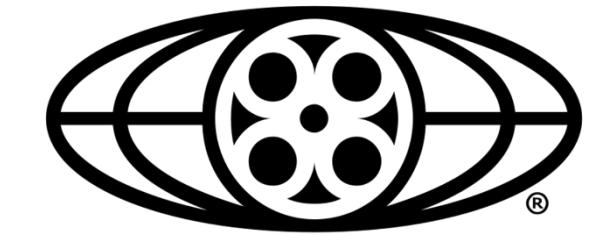
Health Insurance  
Portability  
and Accountability Act



The Family Educational Rights  
and Privacy Act



Cloud Security Alliance



Motion Picture Association  
of America



# Knowledge Check

KNOWLEDGE  
CHECK  
1

Which of the following is NOT a benefit of Amazon Web Services?

- a. Scalability
- b. Cost-effectiveness
- c. Effortless hosting
- d. Security



KNOWLEDGE  
CHECK

Which of the following is NOT a benefit of Amazon Web Services?

- a. Scalability
- b. Cost-effectiveness
- c. Effortless hosting
- d. Security



The correct answer is **c.**

**Explanation:** With the flexibility benefit of Amazon Web Services, you enjoy the effortless hosting of legacy applications.

KNOWLEDGE  
CHECK  
2

The Deployed environmental systems reduce the influence of \_\_\_\_.

- a. scalability
- b. disruptions
- c. security
- d. flexibility



KNOWLEDGE  
CHECK

The Deployed environmental systems reduce the influence of \_\_\_\_.

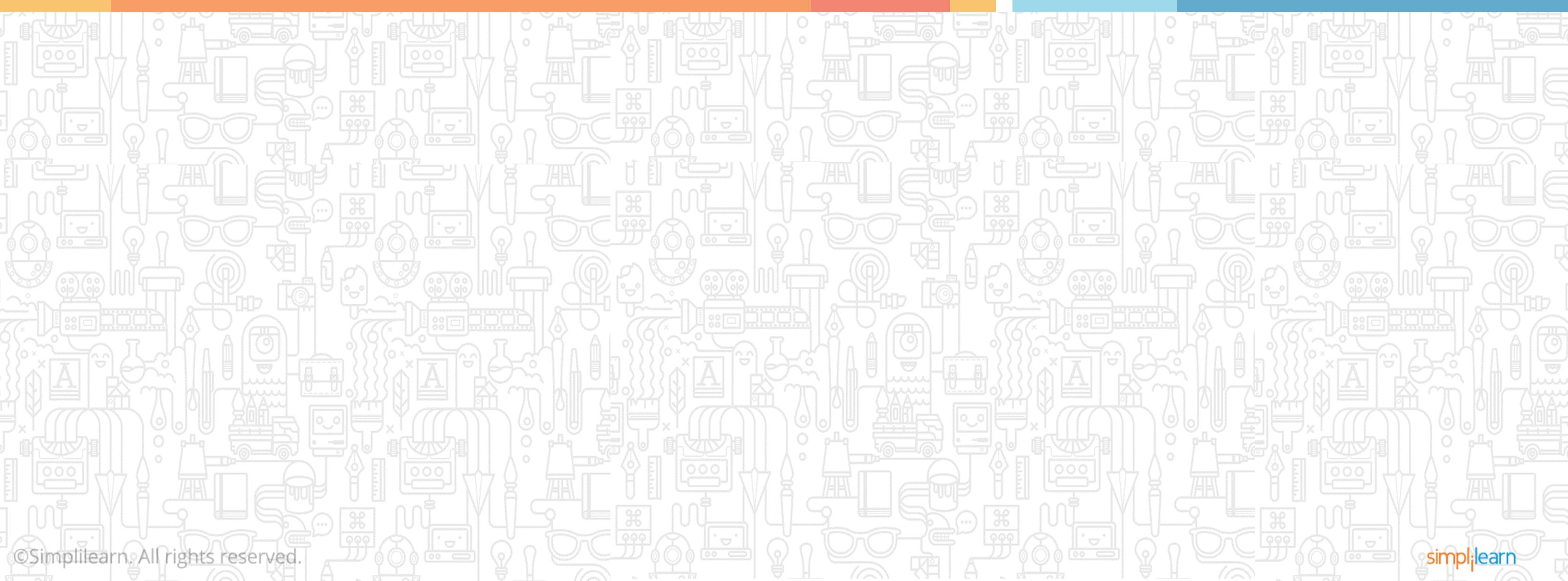
- a. scalability
- b. disruptions
- c. security
- d. flexibility



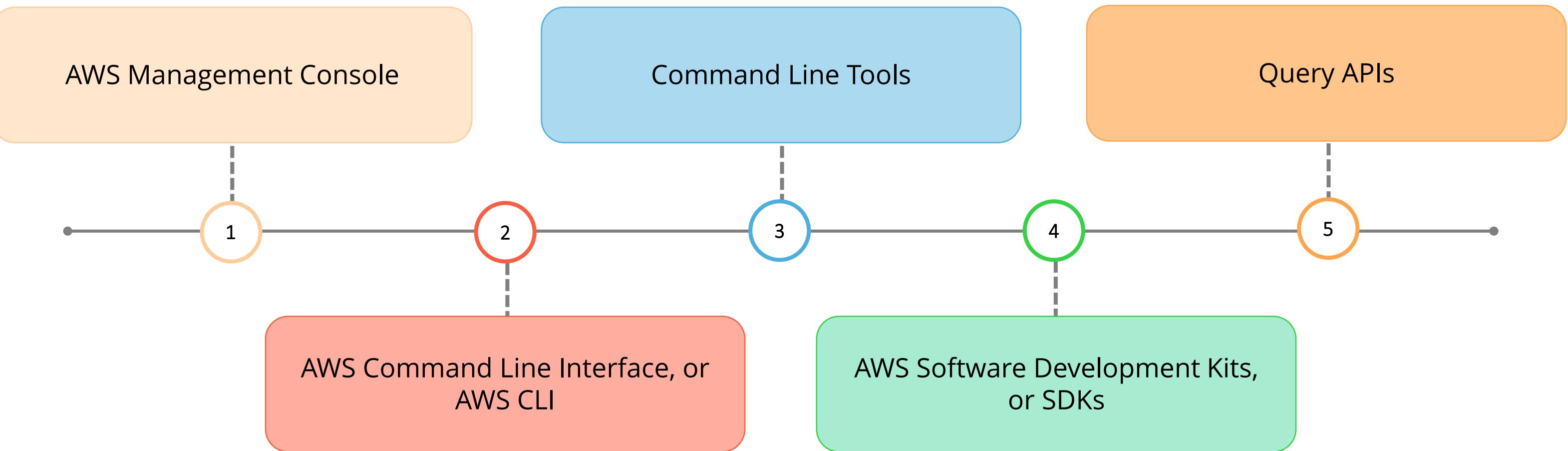
The correct answer is **b.**

**Explanation:** The Deployed environmental systems reduce the influence of disruptions.

# Accessing AWS



# Ways to Access AWS



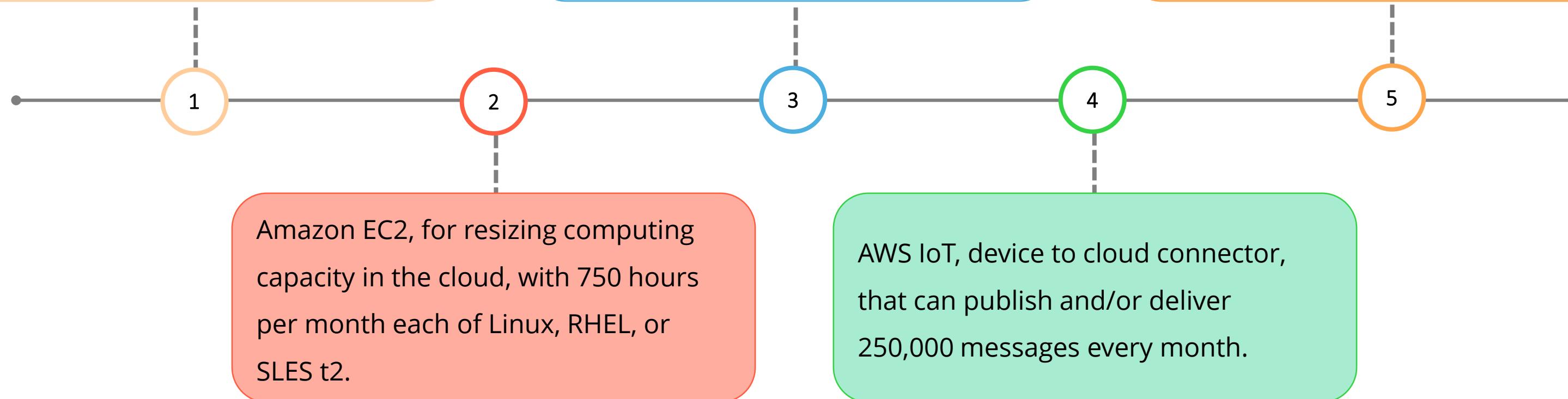
# Features of AWS Free Usage Tier

Amazon offers free usage of AWS Cloud Services for 12 months.

Amazon S3 data storage infrastructure with a standard storage of 5 GB facilitating 20,000 Get Requests, and 2,000 Put Requests.

Amazon DynamoDB with 25 units each of Read and Write capacity, and 25GB storage. It does not expire at the end of 12 months.

Amazon EC2 Container Registry, that facilitates storage and retrieval of Docker images with a storage capacity of 500MB per month.



# Limitations of AWS Free Usage Tier

The benefits of the AWS Free Tier can be availed by the user for 12 months after first signing up.

Once this free usage period expires, you will be required to Pay-As-You-Go, as per the standard usage rates.

Any leftover free monthly usage limit does not roll over to the next month.

If you exceed the free limit for a month, you Pay-As-You-Go, as per standard rates.

If you opt for Consolidated Billing, although it is spread across multiple accounts, the entry is only for one free usage account.

# AWS Pricing



Monthly Calculator to estimate the cost



Different regions have different prices

# **Demo 1—Creating an Amazon Web Services (AWS) Account**

**(Refer to the E-Learning course: Screen Number – 2.5)**



# Knowledge Check

KNOWLEDGE  
CHECK  
1

The AWS Management Console refers to a Web interface.

- a. True
- b. False



KNOWLEDGE  
CHECK  
1

The AWS Management Console refers to a Web interface.

- a. True
- b. False



The correct answer is **a.**

**Explanation:** There are five different ways to access AWS to create and manage your applications. First is the AWS Management Console which refers to a Web interface.

KNOWLEDGE  
CHECK  
2

What does Amazon Web Services provide to estimate the cost of using AWS?

- a. Simple Yearly Calculator
- b. Simple Quarterly Calculator
- c. Simple Monthly Calculator
- d. Simple Weekly Calculator



KNOWLEDGE  
CHECK

What does Amazon Web Services provide to estimate the cost of using AWS?

- a. Simple Yearly Calculator
- b. Simple Quarterly Calculator
- c. Simple Monthly Calculator
- d. Simple Weekly Calculator



The correct answer is **d.**

**Explanation:** Amazon Web Services provides the Simple Monthly Calculator to estimate the cost of using AWS.

# Navigation of AWS Management Console

# AWS Management Console

The AWS Management Console has a user-friendly web interface, and accessing the console requires an AWS account. It manages all the elements of a user's AWS account that include:



Monitor monthly expenditure  
of each service



Manage security permissions



Create new IAM users

You can download the AWS Console app from:



Amazon App Store



Google Play Store



iTunes

# AWS Management Console—Navigation

The screenshot shows the AWS Management Console interface for the EC2 Dashboard. The left sidebar is labeled "Navigation Pane" and contains a tree view of AWS services: Events, Tags, Reports, Limits, Instances, Spot Requests, Reserved Instances, Scheduled Instances, Commands, Dedicated Hosts, AMIs, Bundle Tasks, Volumes, Snapshots, Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces, Load Balancers, Launch Configurations, and Auto Scaling Groups. The "EC2 Dashboard" tab is highlighted with an orange border. The main content area displays "Resources" for the US West (Oregon) region, showing 0 Running Instances, 0 Dedicated Hosts, 0 Volumes, 0 Key Pairs, 0 Placement Groups, 0 Elastic IPs, 0 Snapshots, 0 Load Balancers, and 1 Security Group. It also features a "Create Instance" section with a "Launch Instance" button and a "Service Health" section showing normal status for all listed components. The right sidebar is labeled "Navigation Bar" and includes sections for "Account Attributes" (Supported Platforms: VPC; Default VPC: vpc-51a28e34), "Additional Information" (Getting Started Guide, Documentation, All EC2 Resources, Forums, Pricing, Contact Us), and the "AWS Marketplace" (Tableau Server, SAP HANA One, TIBCO Spotfire Analytics Platform). The top navigation bar includes links for User One, Oregon, Support, and other AWS services.

Current Page

Navigation Pane

Navigation Bar

EC2 Dashboard

Events

Tags

Reports

Limits

INSTANCES

- Instances
- Spot Requests
- Reserved Instances
- Scheduled Instances
- Commands
- Dedicated Hosts

IMAGES

- AMIs
- Bundle Tasks

ELASTIC BLOCK STORE

- Volumes
- Snapshots

NETWORK & SECURITY

- Security Groups
- Elastic IPs
- Placement Groups
- Key Pairs
- Network Interfaces

LOAD BALANCING

- Load Balancers

AUTO SCALING

- Launch Configurations
- Auto Scaling Groups

Feedback English

Resources

You are using the following Amazon EC2 resources in the US West (Oregon) region:

0 Running Instances	0 Elastic IPs
0 Dedicated Hosts	0 Snapshots
0 Volumes	0 Load Balancers
0 Key Pairs	1 Security Groups
0 Placement Groups	

Need fast, reliable, scalable, fully-managed message queuing? Try Amazon Simple Queue Service.

Create Instance

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

**Launch Instance**

Note: Your instances will launch in the US West (Oregon) region

Service Health

**Service Status:**

- US West (Oregon): This service is operating normally

**Availability Zone Status:**

- us-west-2a: Availability zone is operating normally
- us-west-2b: Availability zone is operating normally
- us-west-2c: Availability zone is operating normally

[Service Health Dashboard](#)

Scheduled Events

US West (Oregon): No events

Account Attributes

Supported Platforms

- VPC

Default VPC

- vpc-51a28e34

Resource ID length management

Additional Information

- Getting Started Guide
- Documentation
- All EC2 Resources
- Forums
- Pricing
- Contact Us

AWS Marketplace

Find free software trial products in the AWS Marketplace from the [EC2 Launch Wizard](#). Or try these popular AMIs:

**Tableau Server (10 users)**

- Provided by Tableau
- Rating ★★★★☆
- Pay by the hour for Tableau software and AWS usage
- [View all Business Intelligence](#)

**SAP HANA One 244GiB**

- Provided by SAP America, Inc
- Rating ★★★★☆
- Pay by the hour for SAP HANA One 244GiB software and AWS usage
- [View all Business Intelligence](#)

**TIBCO Spotfire Analytics Platform (Hourly)**

- Provided by TIBCO Software, Inc.
- Rating ★★★★☆
- Pay by the hour for Tibco software and AWS usage

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# AWS Management Console—Navigation

The screenshot shows the AWS Management Console navigation bar. Several UI elements are highlighted with orange arrows:

- Access Services**: Points to the "Services" button in the top navigation bar.
- Edit Navigation Bar**: Points to the "Edit" button in the top navigation bar.
- Access History List**: Points to the "History" link in the left sidebar.
- Select Region**: Points to the "Oregon" region selection dropdown in the top right.
- All AWS Services Section**: Points to the main grid of services under the "All AWS Services" heading.

**Left Sidebar (Services)**

- History
- Console Home
- EC2
- S3
- Compute
- Storage & Content Delivery
- Database
- Networking
- Developer Tools
- Management Tools
- Security & Identity
- Analytics
- Internet of Things
- Mobile Services
- Application Services
- Enterprise Applications

**All AWS Services**

API Gateway	DynamoDB	OpsWorks
AppStream	EC2	RDS
AWS IoT	EC2 Container Service	Redshift
CloudFormation	Elastic Beanstalk	Route 53
CloudFront	Elastic File System <small>PREVIEW</small>	S3
CloudSearch	Elastic Transcoder	Service Catalog
CloudTrail	ElastiCache	SES
CloudWatch	Elasticsearch Service	SNS
CodeCommit	EMR	SQS
CodeDeploy	Glacier	Storage Gateway
CodePipeline	IAM	SWF
Cognito	Import/Export Snowball	Trusted Advisor
Config	Inspector <small>PREVIEW</small>	VPC
Data Pipeline	Kinesis	WAF
Device Farm	Lambda	WorkDocs
Direct Connect	Machine Learning	WorkMail
Directory Service	Mobile Analytics	Mobile Hub <small>BETA</small>
DMS <small>PREVIEW</small>	Mobile Hub <small>BETA</small>	WorkSpaces

**Bottom Footer**

- Feedback
- English
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# Accessing AWS Services

By default the AWS Management console displays all AWS services.

But, unless you are familiar with the position of the service on the console, finding the right service from the displayed list can be cumbersome.

The Services menu in the AWS Console groups all services under All AWS Services.

The screenshot shows the AWS Management Console interface. At the top, there's a navigation bar with icons for Home, AWS, Services (which is currently selected and has a dropdown arrow), and Edit. Below the navigation bar is a sidebar on the left containing links for History, Console Home, S3, and EC2. The main content area is titled "All AWS Services" and lists various AWS services in two columns. The services listed are: API Gateway, AppStream, AWS IoT, CloudFormation, CloudFront, CloudSearch, CloudTrail, CloudWatch, CodeCommit, CodeDeploy, CodePipeline, Cognito, Config, Data Pipeline, Device Farm, Direct Connect, Directory Service, DMS PREVIEW, DynamoDB, EC2, EC2 Container Service, Elastic Beanstalk, Elastic File System PREVIEW, Elastic Transcoder, ElastiCache, Elasticsearch Service, EMR, Glacier, IAM, Import/Export Snowball, Inspector PREVIEW, Kinesis, Lambda, Machine Learning, Mobile Analytics, Mobile Hub BETA, OpsWorks, RDS, Redshift, Route 53, S3, Service Catalog, SES, SNS, SQS, Storage Gateway, SWF, Trusted Advisor, VPC, WAF, WorkDocs, WorkMail, and WorkSpaces. The "All AWS Services" link in the sidebar and the "All AWS Services" title in the main content area are both highlighted with a red border.

All AWS Services			
API Gateway	DynamoDB	OpsWorks	
AppStream	EC2	RDS	
AWS IoT	EC2 Container Service	Redshift	
CloudFormation	Elastic Beanstalk	Route 53	
CloudFront	Elastic File System PREVIEW	S3	
CloudSearch	Elastic Transcoder	Service Catalog	
CloudTrail	ElastiCache	SES	
CloudWatch	Elasticsearch Service	SNS	
CodeCommit	EMR	SQS	
CodeDeploy	Glacier	Storage Gateway	
CodePipeline	IAM	SWF	
Cognito	Import/Export Snowball	Trusted Advisor	
Config	Inspector PREVIEW	VPC	
Data Pipeline	Kinesis	WAF	
Device Farm	Lambda	WorkDocs	
Direct Connect	Machine Learning	WorkMail	
Directory Service	Mobile Analytics	WorkSpaces	
DMS PREVIEW	Mobile Hub BETA		

# Accessing AWS Services

Move the cursor over a service group to view the enclosed services.

The screenshot shows the AWS Management Console navigation bar with 'AWS' and 'Services' selected. Below the navigation bar is a sidebar with links: History, Console Home, S3, and EC2. The main content area lists service categories: All AWS Services, Compute, Storage & Content Delivery (which is highlighted with an orange border), Database, Networking, Developer Tools, Management Tools, Security & Identity, Analytics, Internet of Things, and Mobile Services. The 'Storage & Content Delivery' category is expanded, revealing three services: S3, CloudFront, and Glacier, each with a brief description and icon. The S3 service is also highlighted with an orange border.

<b>S3</b> Amazon Simple Storage Service (S3) can be used to store and retrieve any amount of data.	<b>Elastic File System</b> Amazon Elastic File System (Amazon EFS) is a file storage service for Amazon Elastic Compute Cloud (Amazon EC2) instances.	<b>Import/Export Snowball</b> AWS Import/Export Snowball accelerates moving large amounts of data into and out of AWS using secure appliances for transport.
<b>CloudFront</b> Amazon CloudFront provides a way to distribute content to end users with low latency and high data transfer speeds.	<b>Glacier</b> Amazon Glacier is a low-cost storage service that provides secure and durable storage for data archiving and backup.	<b>Storage Gateway</b> AWS Storage Gateway securely integrates on-premises IT environments with cloud storage for backup and disaster recovery.

# History List

The History list contains up to six recently used services.

The screenshot shows the AWS Management Console navigation bar with 'AWS' and 'Services' dropdowns, and an 'Edit' dropdown. To the left, a sidebar titled 'History' lists recent services: 'Console Home', 'S3', and 'EC2', all enclosed in an orange box. The main content area is titled 'All AWS Services' and lists categories: 'Compute', 'Storage & Content Delivery', 'Database', 'Networking', 'Developer Tools', 'Management Tools', and 'Security & Identity'. To the right of each category is its corresponding AWS logo icon.

All AWS Services	
Compute	API Gateway
Storage & Content Delivery	AppStream
Database	AWS IoT
Networking	CloudFormation
Developer Tools	CloudFront
Management Tools	CloudSearch
Security & Identity	CloudTrail
	CloudWatch

# Edit Feature

To customize one-click navigation shortcuts simply drag your services to and from the menu bar above.

API Gateway	DynamoDB	OpsWorks
AppStream	EC2	RDS
AWS IoT	EC2 Container Service	Redshift
CloudFormation	Elastic Beanstalk	Route 53
CloudFront	Elastic File System	S3
CloudSearch	Elastic Transcoder	Service Catalog
CloudTrail	ElastiCache	SES
CloudWatch	Elasticsearch Service	SNS
CodeCommit	EMR	SQS
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Config	Inspector	VPC
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Device Farm	Lambda	WorkDocs
Direct Connect	Machine Learning	WorkSpaces
Directory Service	Mobile Analytics	WorkMail
DMS	Mobile Hub	WorkSpaces

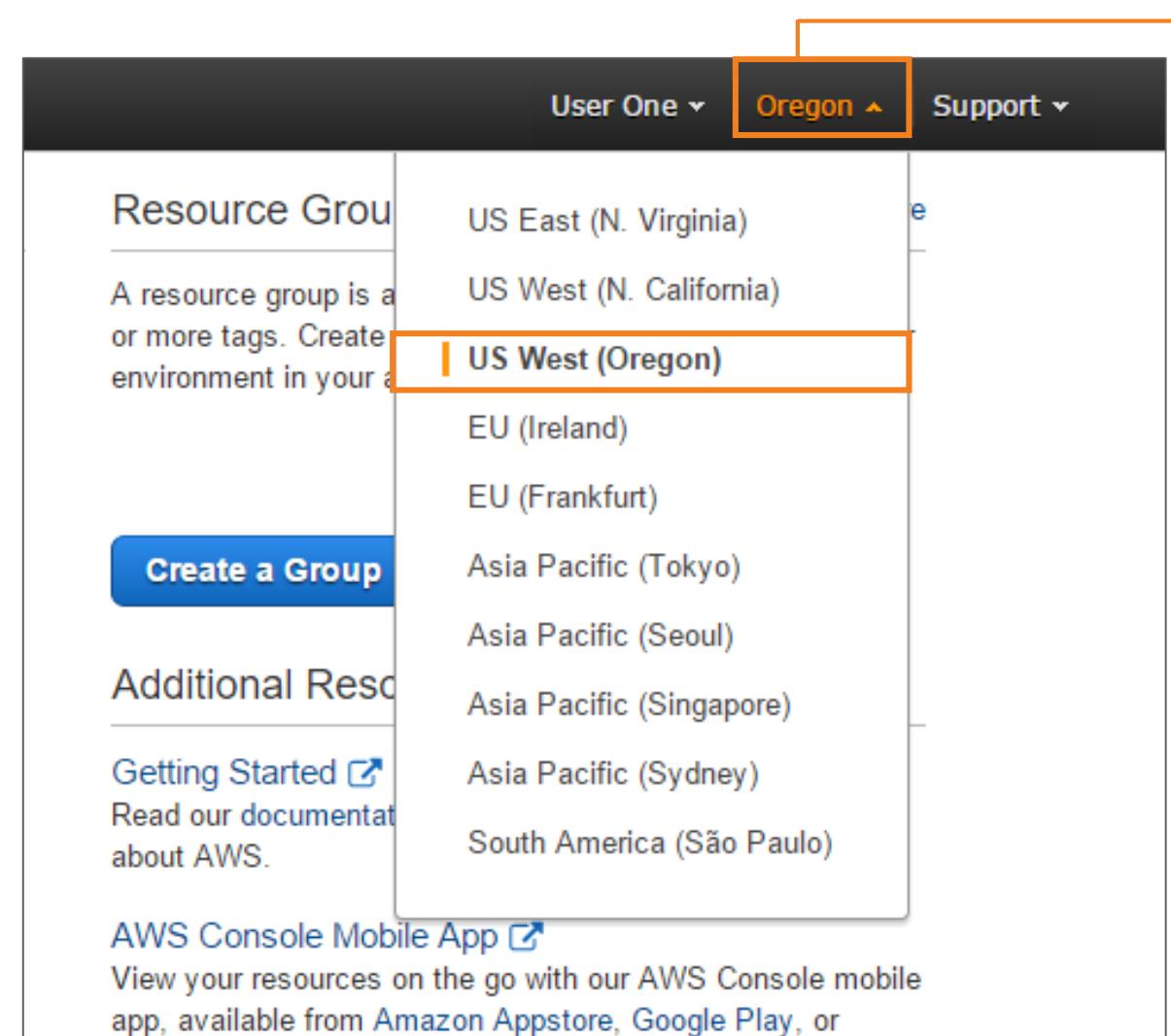
Edit menu



If you regularly work with Amazon S3, placing the S3 icon on the Navigation bar would enable accessing the service with just one click.

# Selecting a Region

Some services, such as S3 and IAM, are global resources, and do not require a specific region.



Select a region, to view and manage resources in that region.

# User Account and Support

The screenshot shows the AWS User Account and Support interface. At the top, there's a navigation bar with 'User One' (dropdown), 'Oregon' (dropdown), and 'Support' (dropdown). Below the navigation bar, there's a sidebar on the left with 'Resource Groups' (dropdown) and 'Additional Resources'. The main content area has sections for 'My Account', 'Billing & Cost Management', 'Security Credentials', and 'Sign Out'. At the bottom, there are 'Create a Group' and 'Tag Editor' buttons.

**Resource Groups**

A resource group is a collection of resources that share one or more tags. Create a group for each project, application, or environment in your account.

**Create a Group** **Tag Editor**

**Additional Resources**

**Getting Started** Read our documentation or view our training to learn more about AWS.

The screenshot shows the AWS User Account and Support interface. At the top, there's a navigation bar with 'User One' (dropdown), 'Oregon' (dropdown), and 'Support' (dropdown). Below the navigation bar, there's a sidebar on the left with 'Resource Groups' (dropdown) and 'Additional Resources'. The main content area has sections for 'Support Center', 'Forums', 'Documentation', 'Training', and 'Other Resources'. At the bottom, there are 'Create a Group' and 'Tag Editor' buttons.

**Resource Groups**

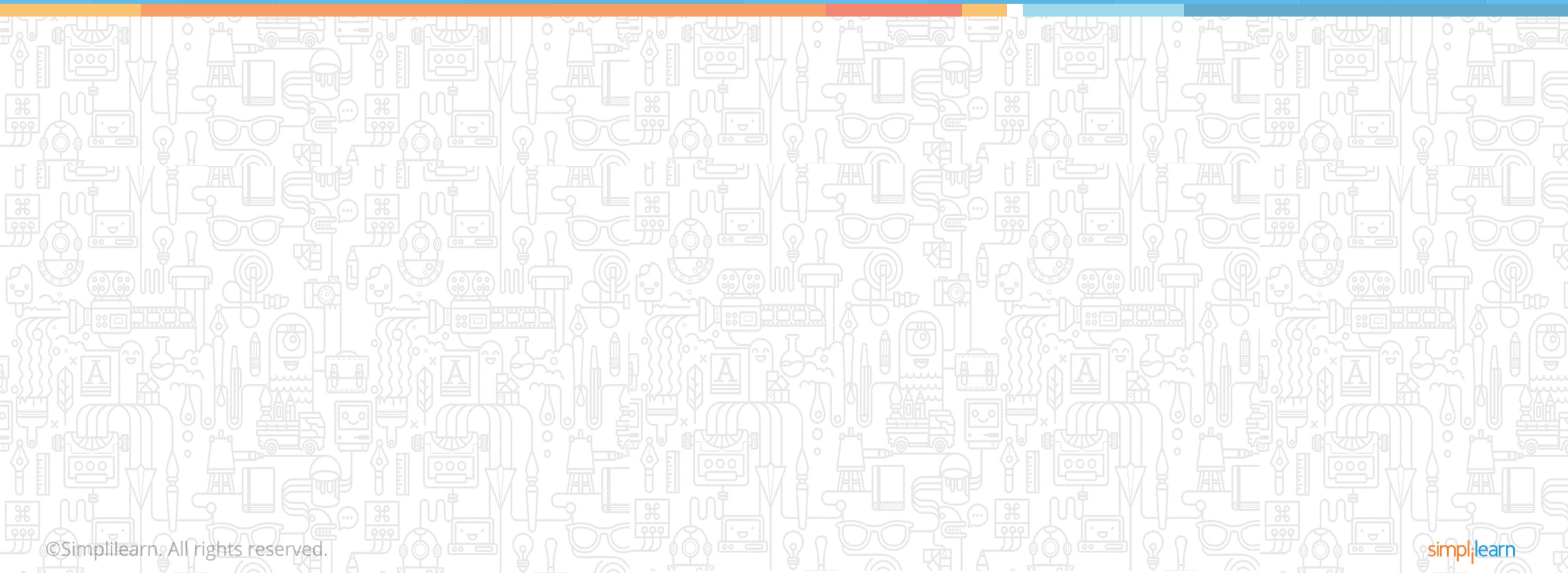
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**Create a Group** **Tag Editor**

**Additional Resources**

**Getting Started** Read our documentation or view our training to learn more about AWS.

# AWS Global Infrastructure



# AWS Global Infrastructure

AWS has turned out to be one of the preferred cloud computing services in the last decade.



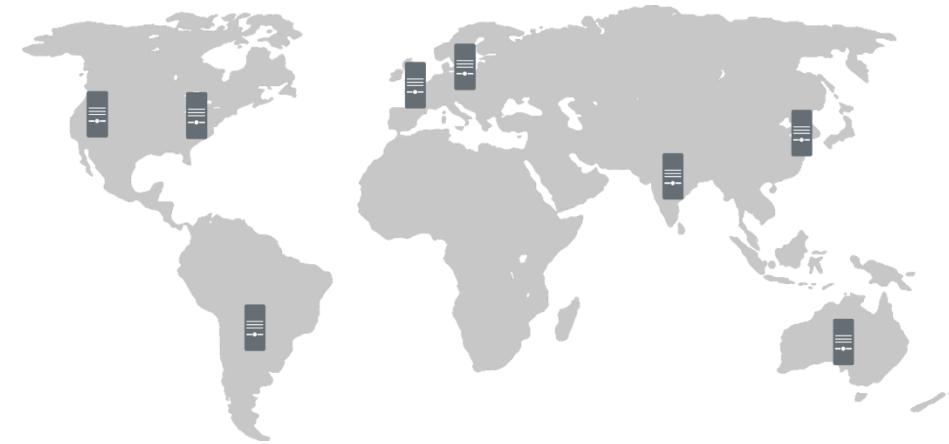
Active Customers Across Countries



Resilient Organizational Structure



Operating Through the Internet



Global Infrastructure

# Regions

Amazon has its own datacenters across the globe to host the AWS infrastructure.



By placing resources in distinct regions, you can design a website or application, such that it is closer to its specific customers, and fulfills legal, contractual and other requirements.

# Regions and Availability Zones

Each datacenter site is termed as a region, and each region consists of several distinct sites, termed as Availability Zones (AZ).



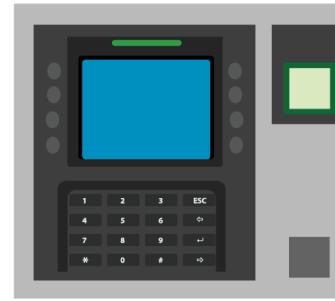
By placing resources in different Availability Zones, you can shield your data, site, or application from the failure at one location.

# Regions and Availability Zones



# Regions

AWS physically secures datacenters by:



Employing multi-factor access control systems and state-of-the-art electronic scrutiny



Deploying environmental systems



Several regions along with their Availability Zones are resilient against most failures, including even the one due to natural disaster.



# Characteristics of Region and Availability Zone

## Region

## Availability Zone

- It is an isolated physical location or a geographical area in the world.
- It is used to:
  - Run applications and workloads
  - Minimize the gap between request and response time, or latency for end-users
  - Manage long-term commitments
  - Tackle challenges to scale and manage a global infrastructure
- It consists of minimum two Availability Zones connected through low-latency links.

# Characteristics of Region and Availability Zone

Region

Availability Zone

- It is an isolated location with single or multiple advanced datacenters.
- The presence of multiple availability zones enable the customers to distribute their computing resources among several tier 1 Internet Service and Power providers.

## **Demo 2—Selecting a Region**

**(Refer to the E-Learning course: Screen Number – 2.9)**



# Knowledge Check

KNOWLEDGE  
CHECK  
1

Which of the given feature includes six recently used services?

- a. Navigation bar
- b. Task Manager
- c. Region
- d. History list



KNOWLEDGE  
CHECK

Which of the given feature includes six recently used services?

- a. Navigation bar
- b. Task Manager
- c. Region
- d. History list



The correct answer is **d.**

**Explanation:** One of the convenient features of AWS console is the History List. It contains up to six recently used services.

KNOWLEDGE  
CHECK  
2

A region should consist of minimum four Availability Zones.

- a. True
- b. False



KNOWLEDGE  
CHECK  
2

A region should consist of minimum four Availability Zones.

- a. True
- b. False



The correct answer is **b.**

**Explanation:** A region consists of minimum two Availability Zones connected through low-latency links.

KNOWLEDGE  
CHECK  
3

From the following options, identify the number of Availability Zones within the current 12 geographic AWS Regions.

- a. 32
- b. 31
- c. 35
- d. 36



KNOWLEDGE  
CHECK

From the following options, identify the number of Availability Zones within the current 12 geographic AWS Regions.

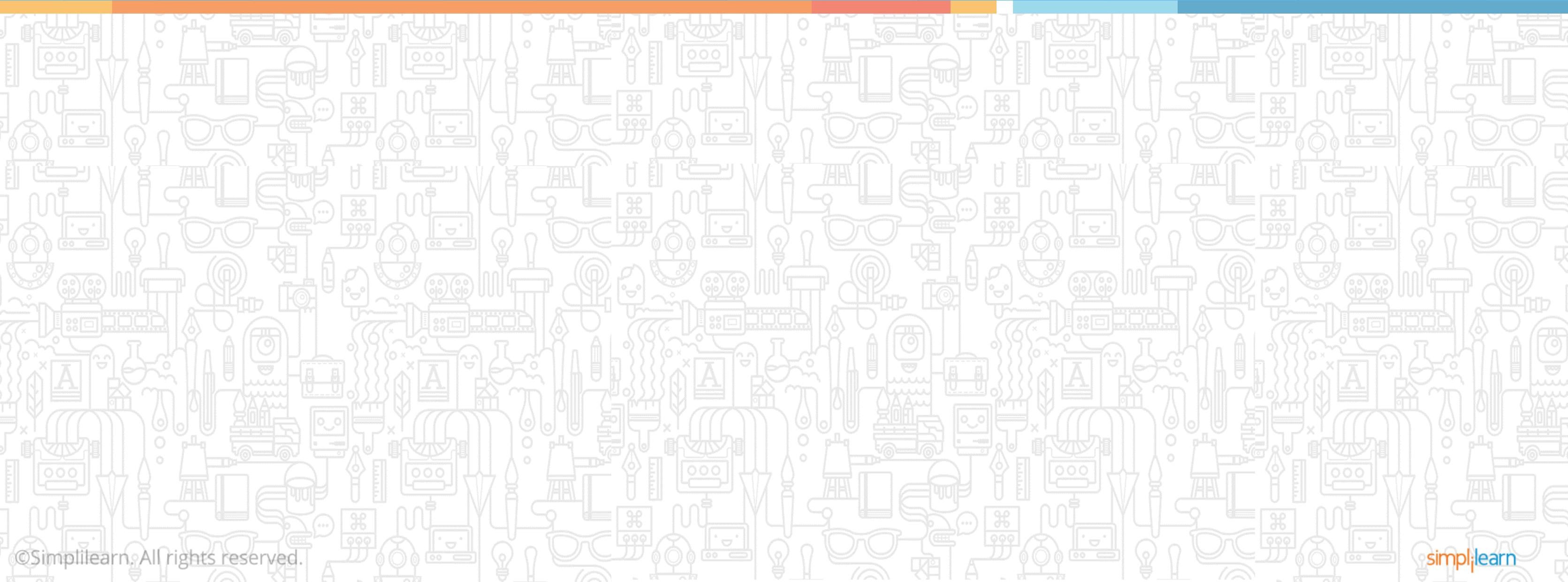
- a. 32
- b. 31
- c. 35
- d. 36



The correct answer is **a.**

**Explanation:** Currently, AWS Cloud operates in 32 Availability Zones within 12 geographic Regions, across the globe.

# Security Measures Provided by AWS



# Cloud Security

The AWS provides data security by employing state of the art datacenters and network architecture that help you meet security related objectives such as:



# Information Security

AWS delivers the information related to the implemented security using different mediums such as:



Papers



Reports



Certifications

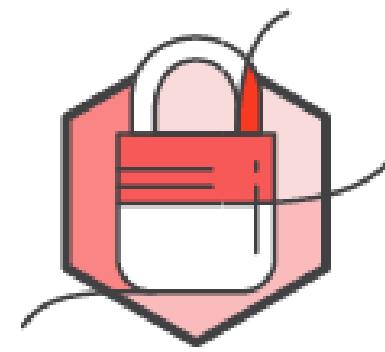


Third-party Attestations

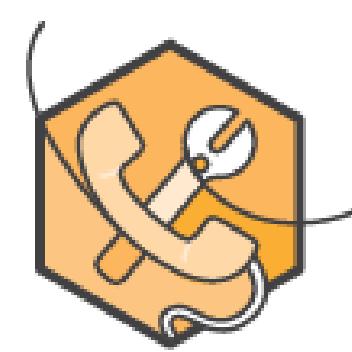


Information Security plays a vital role in letting the customers get acquainted with AWS security controls, and how an independent auditor would validate these controls.

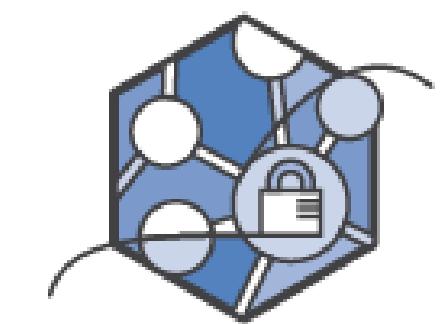
# Security Measures of AWS



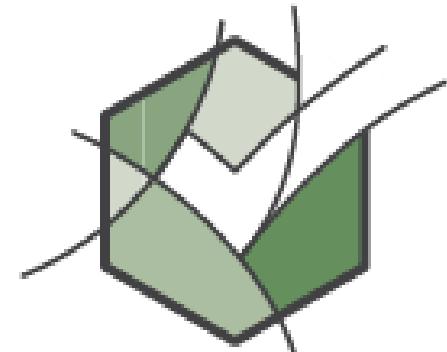
Security Benefits



Expert Guidance



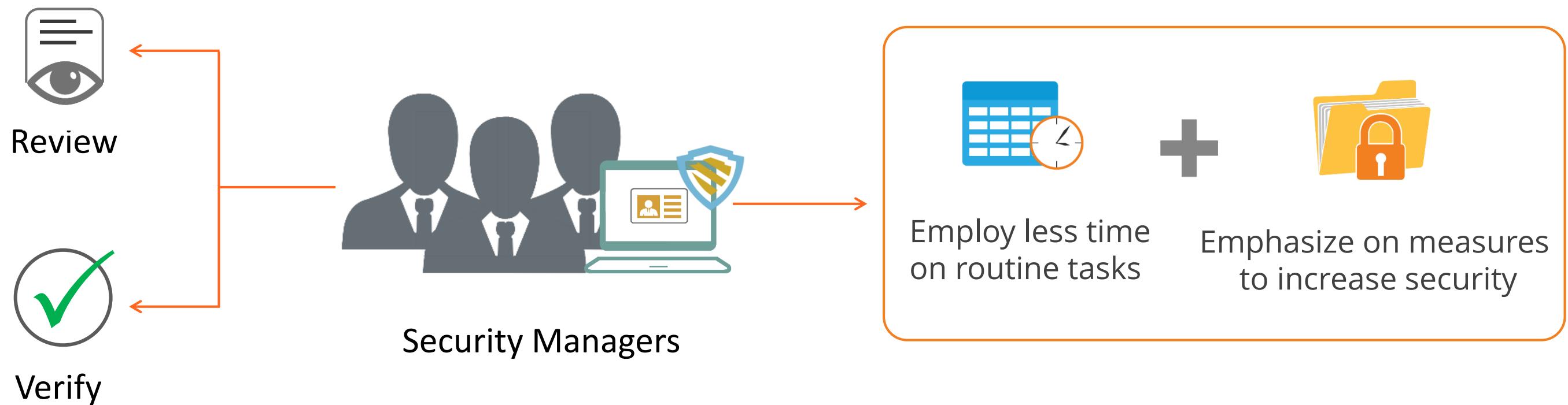
Access to Different Tools



Privacy and Data Protection

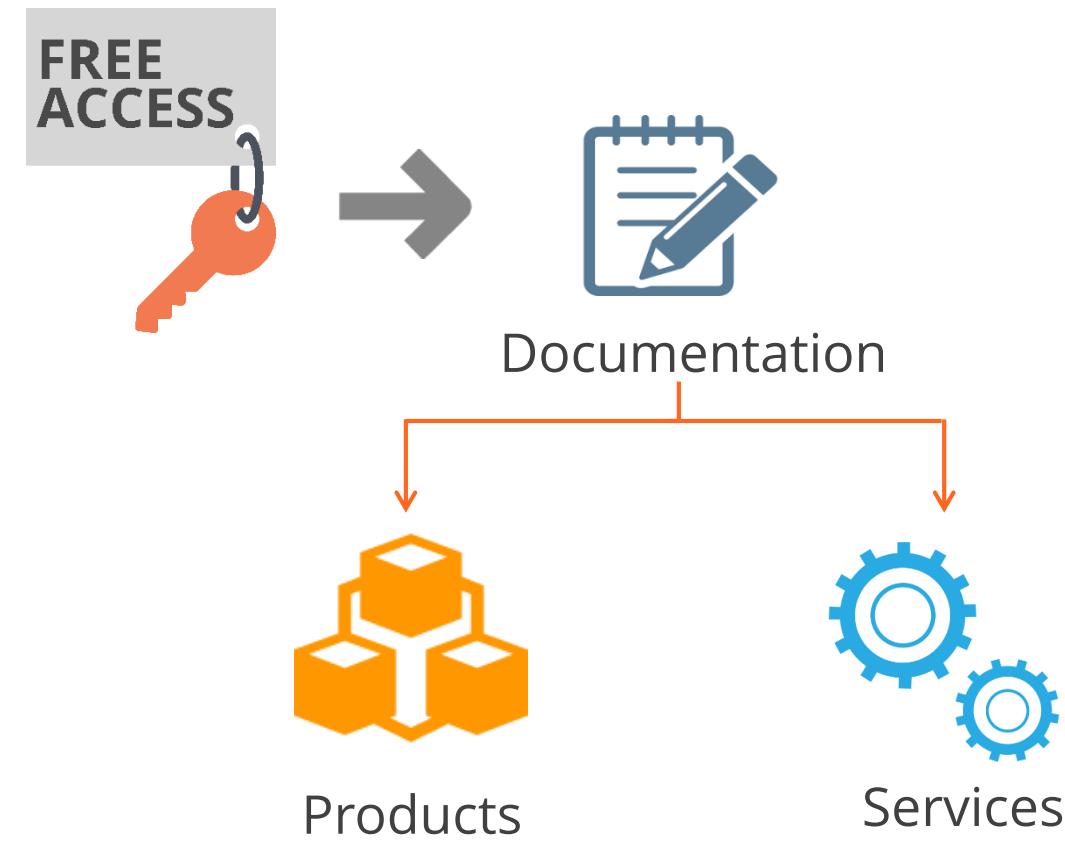
# Security Benefits

AWS infrastructure is designed to offer the highest degree of data security, and robust safety mechanism.



# Expert Guidance

Following are the expert guidance provided by Amazon Web Services.



## Expert Guidance

AWS offers Trusted Advisor, an online tool to:



Examine the customer's  
AWS environment



Identify security gaps,  
and fill them



Customers seeking a single point of contact to resolve their technical queries, can always connect with their Technical Account Manager (TAM).

# Key Features of Security Tools



Ensuring infrastructure security by providing mechanisms such as data encryption, and built-in network firewalls.



Evaluating applications for weaknesses or deviations, using tools such as Amazon Inspector.



Defining user account permissions and hardware-based authenticators, using AWS Identity and Access Management, and AWS Multi-Factor Authentication.



Monitoring and maintaining logs of access and changes in the customer's AWS environment.

# Compliance

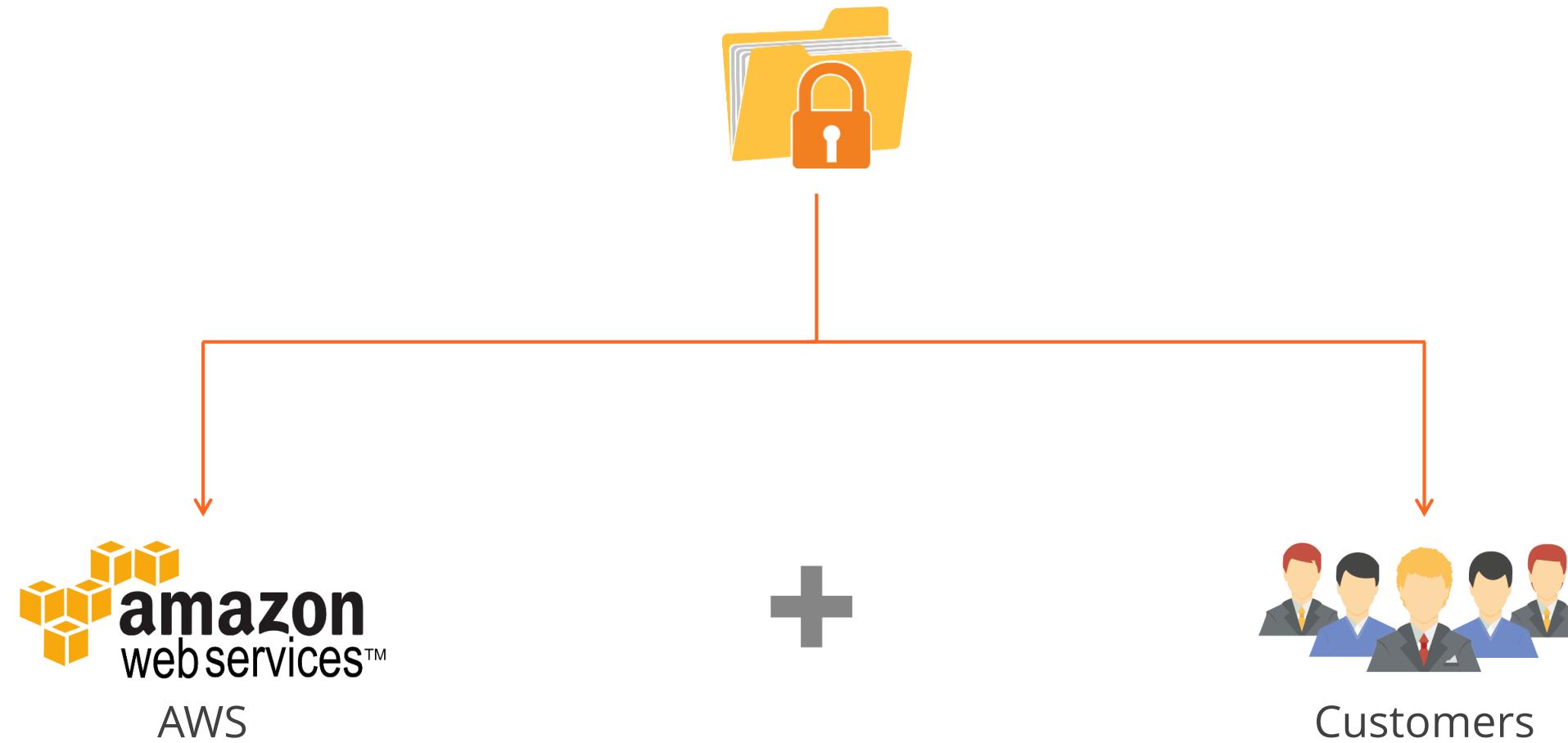
AWS products and services cater to different industries, and each industry adheres to their own compliance and audit standards.



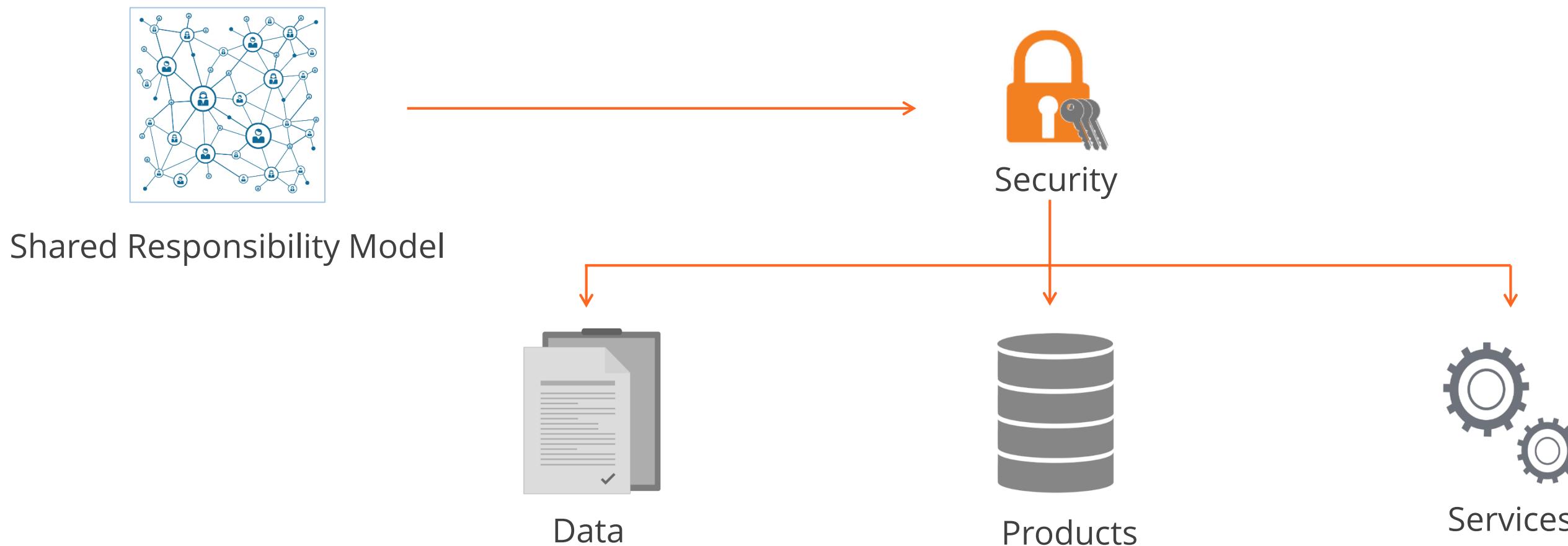
Some of the key compliance programs include:

HIPAA, PCI, ISO 9001:2008, ISO 27001:2013, ISO 27017:2015, ISO 27018:2014, EU Data Protection, SOC, FedRAMP, DoD CSM, and Data Privacy.

# Shared Responsibility Model for Security



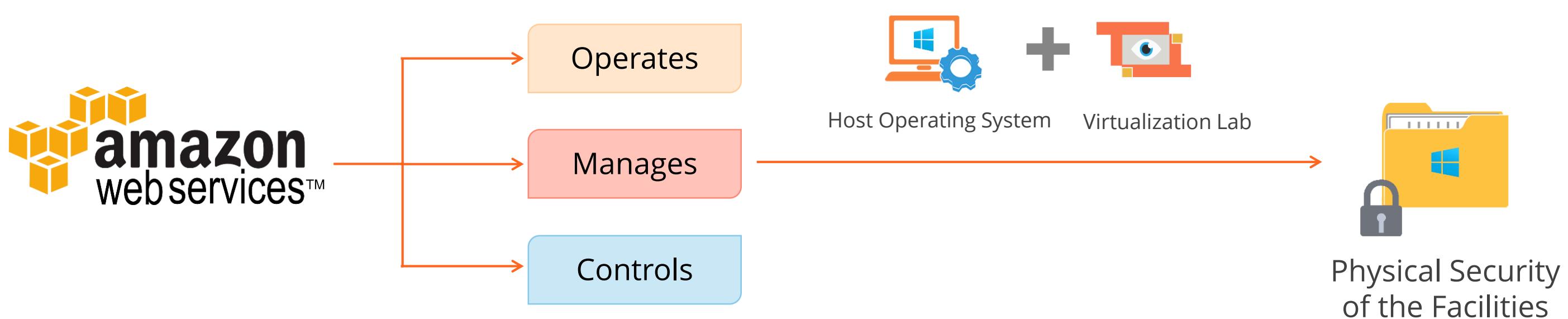
# Shared Responsibility Model for Security



# Shared Responsibility Model for Security



# Shared Responsibility Model for Security



# Shared Responsibility Model for Security

Customers have the control to protect:



Content



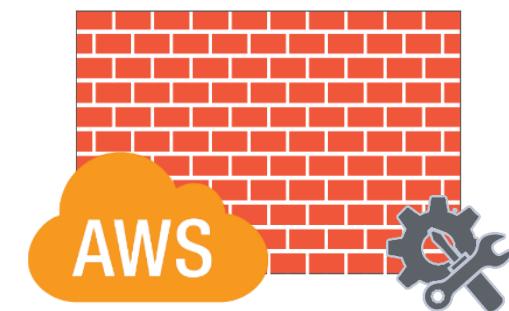
Platform



Applications



Applications Software



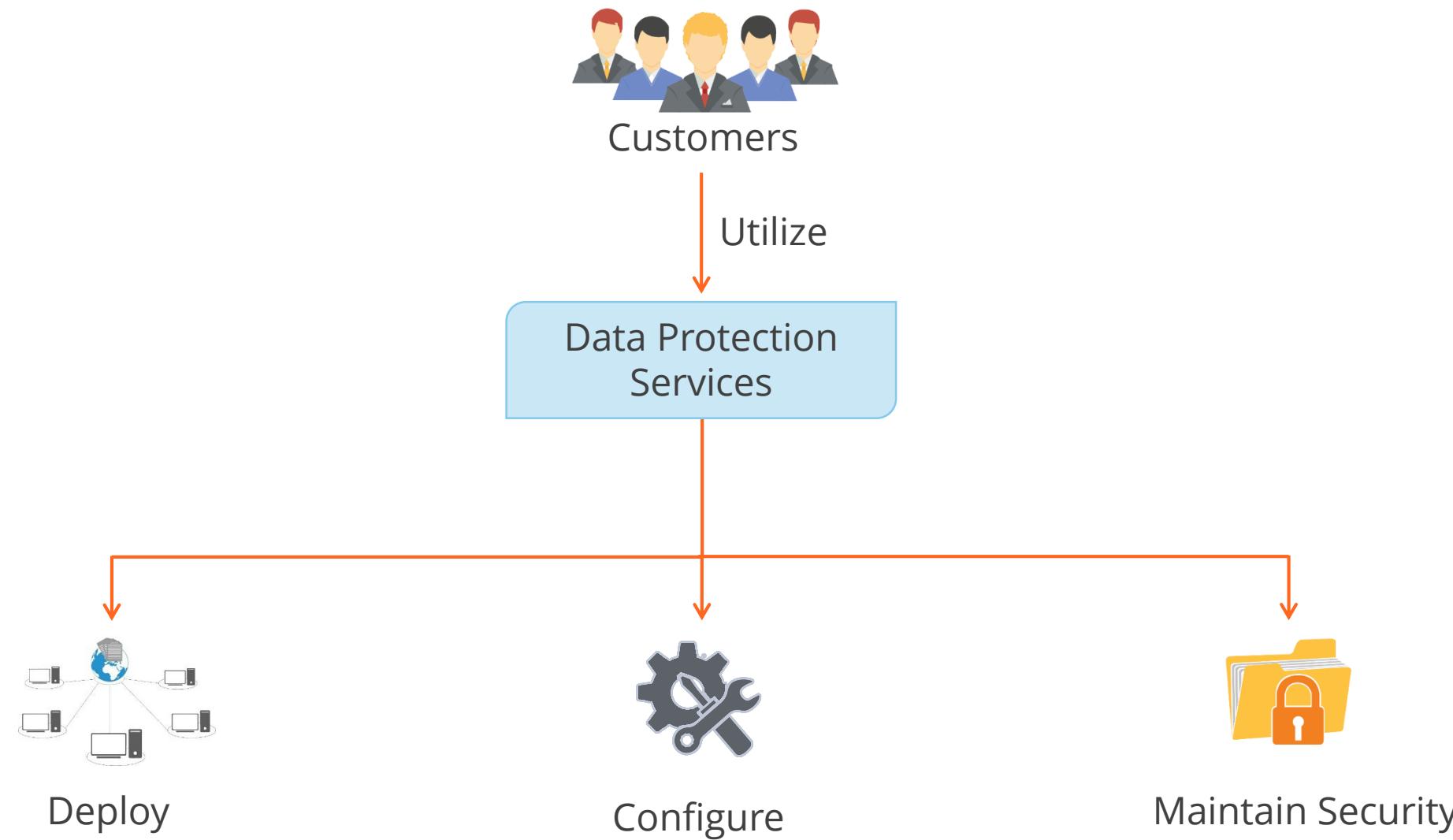
Security Group Firewall

# Shared Responsibility Model for Security

AWS provides multiple data protection services.

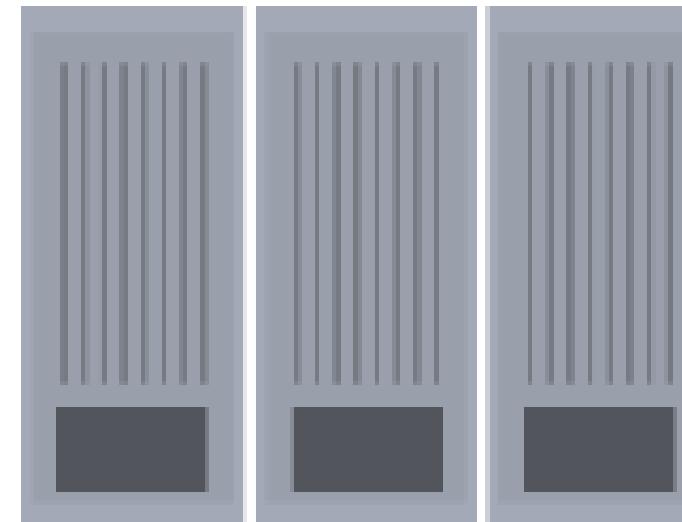


# Shared Responsibility Model for Security



# Physical Security

The crucial components of AWS are their Datacenters, and keeping them physically secure is their prime responsibility.



Datacenters



The AWS team has the expertise to design, build, and operate within large-scale datacenters, and maintain their physical security.

# Physical Security

AWS team undertakes the following key measures to ensure physical security of their facilities and datacenters:



Deploying trained security guards



Implementing two-factor authentication



Allowing only individuals with  
approved and authorized access



Providing non-stop monitoring, logging,  
and auditing of physical access controls

# AWS Monitoring Tools

AWS services provide security for all supported hardware and software products using different AWS monitoring tools.

These tools monitor:



Usage of network  
and server



Port scanning  
activities



Applications

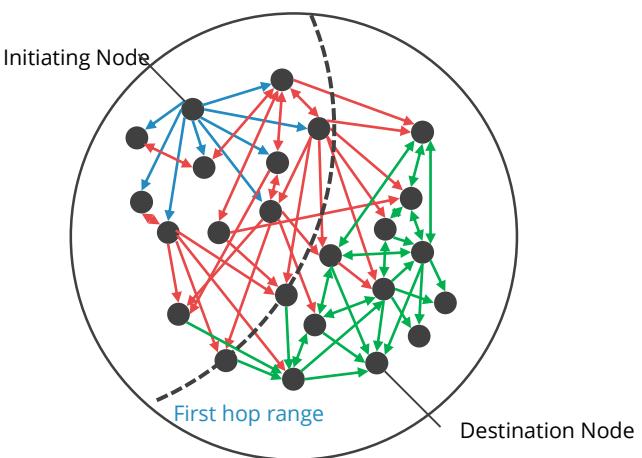


Unauthorized  
intrusion attempts

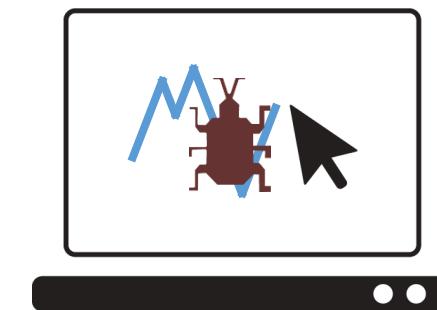
# AWS Monitoring Tools



Denial of Service or DoS Attacks



Flooding



Software or Logic Attacks

# Key AWS Security Measures

AWS implements other key security measures that include the following:



Monitoring and  
controlling change



Only authorized individuals  
gain access



Access to confidential software or  
hardware only using SSH login



Monitoring and controlling  
communications

# Measures Implemented by AWS Tools



Use SSL and secured API endpoints or customer access points for encrypted transmission over HTTPS.



Allow only users and software with cryptographic keys and certificates to access an AWS API.



Control external access to EC2 instances using built-in firewalls, called security groups.



Create individual user accounts in the IAM tool.



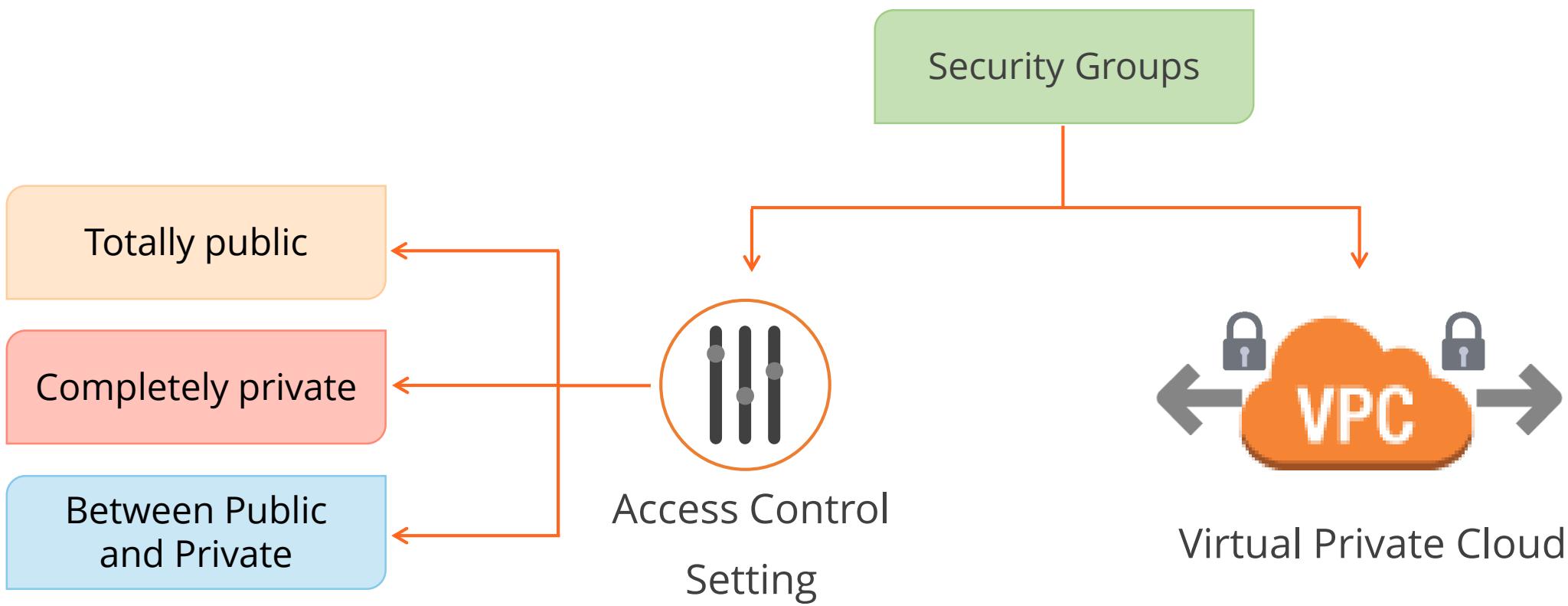
Enable multi-factor authentication or MFA with the help of hardware token or a Software app.



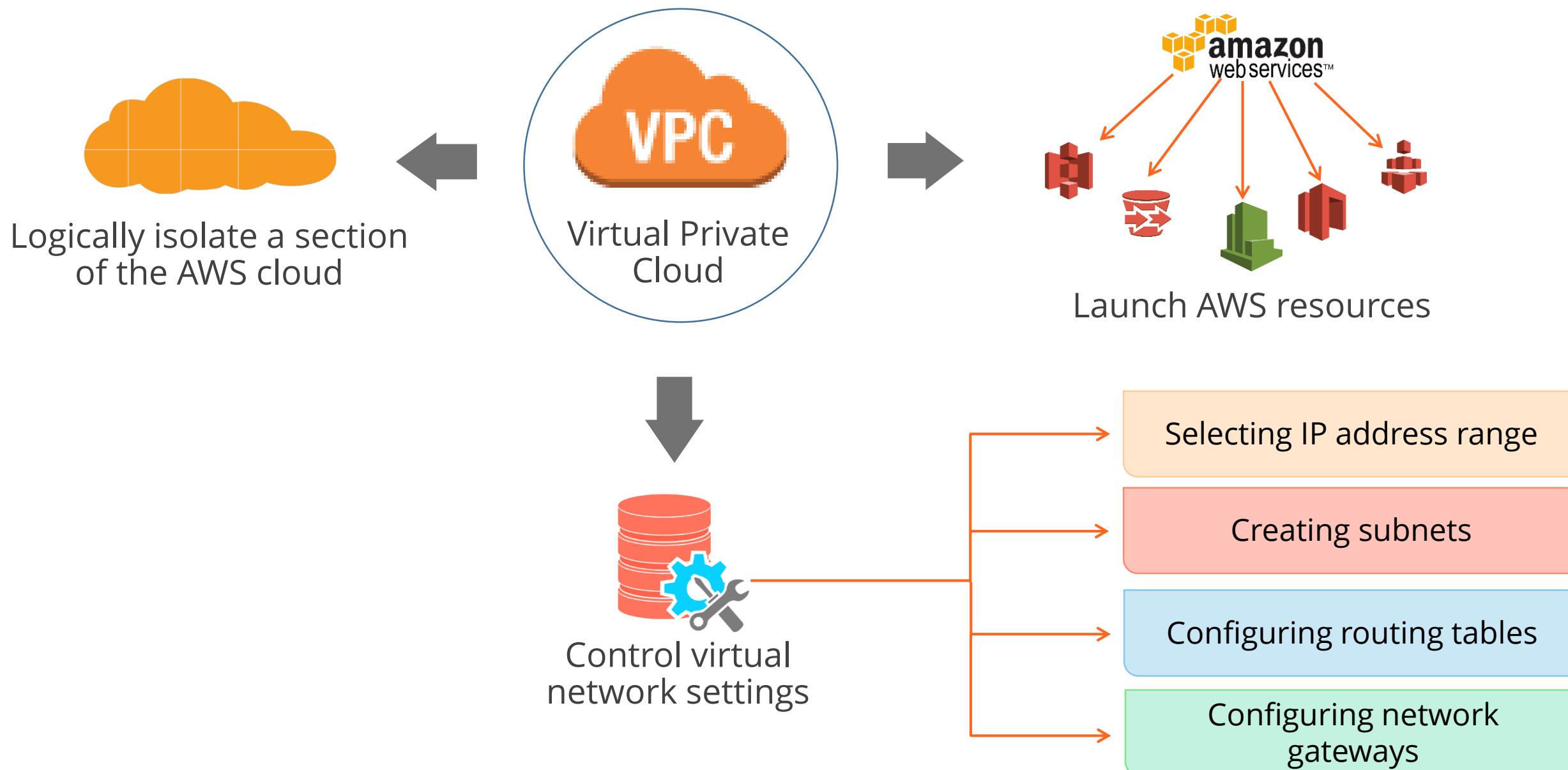
Offer data encryption of files and objects stored using AWS services such as Amazon S3, Amazon Glacier, Amazon Redshift, Oracle RDS, and others.

# Security Groups

AWS provides security groups that work as built-in firewalls for your virtual servers.

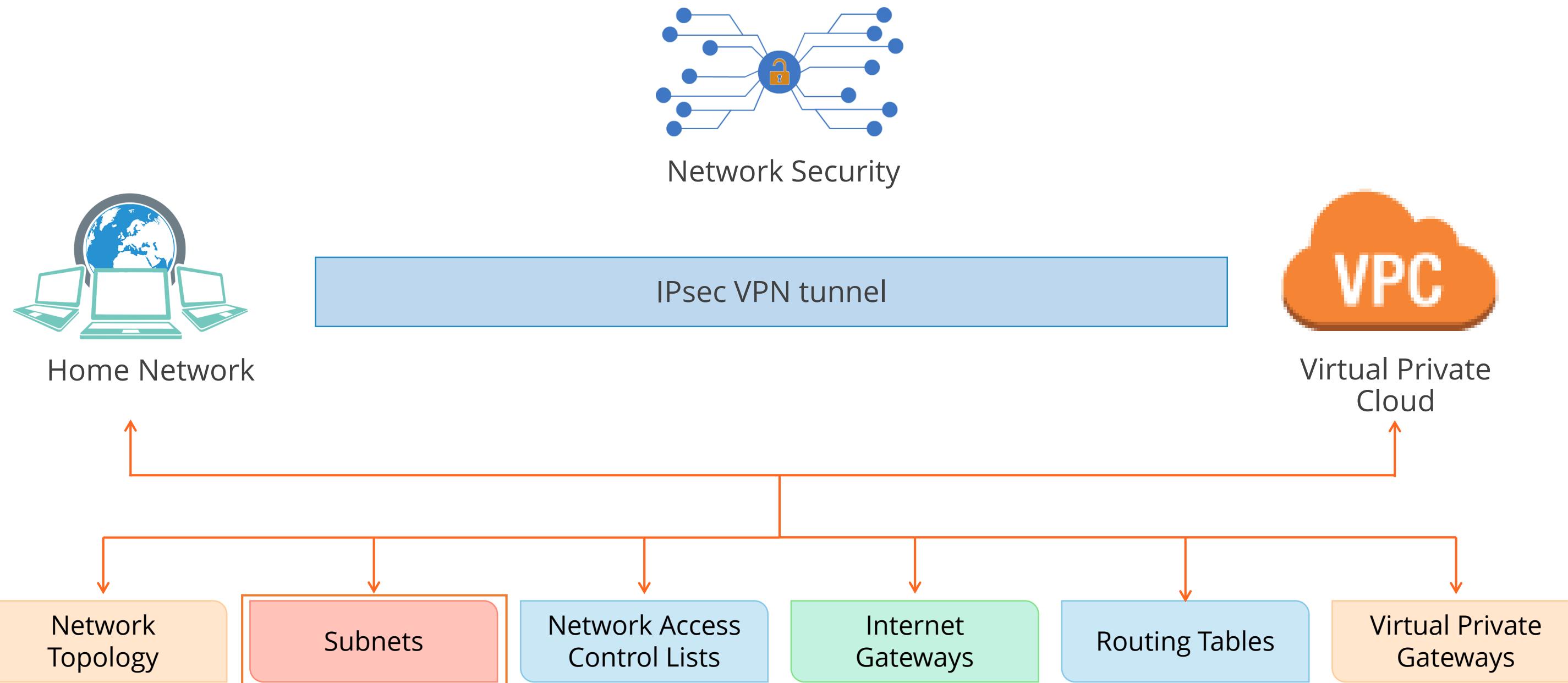


# Virtual Private Cloud

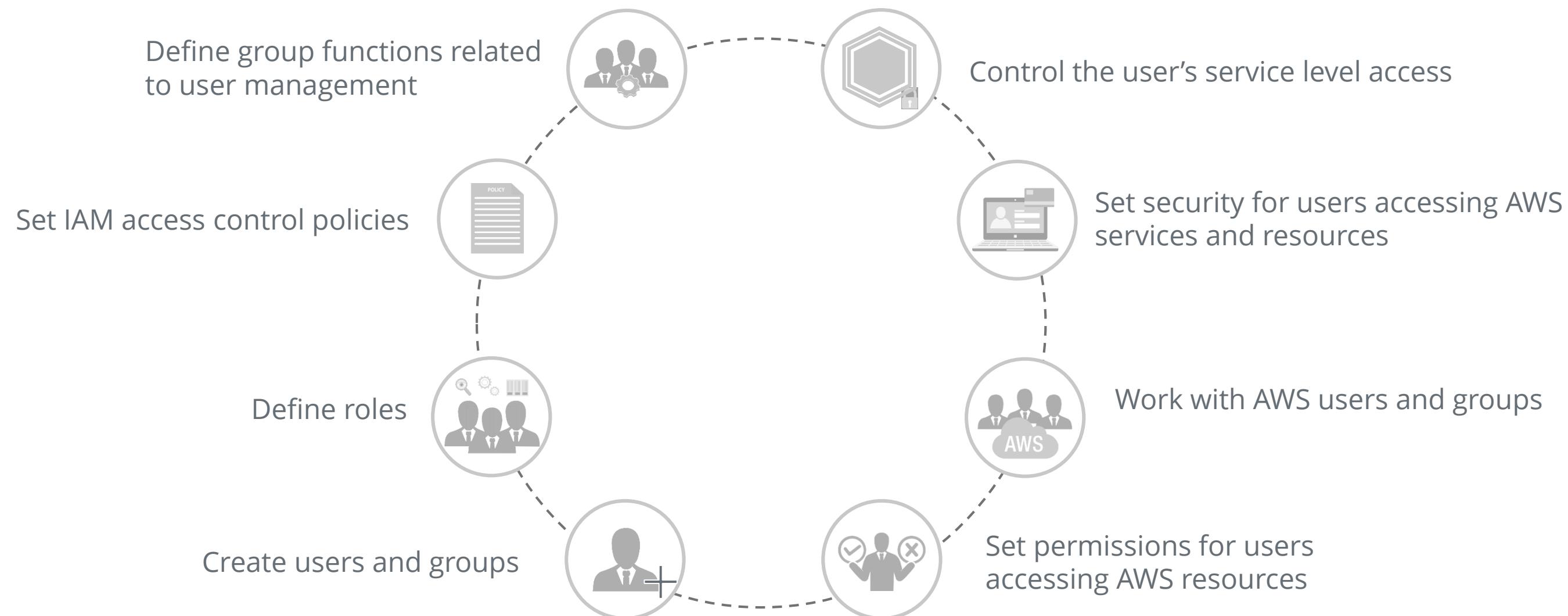


# Virtual Private Cloud

Amazon VPC adds a network security layer to your data instances.



# Identity and Access Management



IAM fails to provide any solution to set application level security, and control resource level access. In case of single user policies, it uses the least privileged model to aggregate permissions, and maintains a deny bias.



# Knowledge Check

KNOWLEDGE  
CHECK  
1

\_\_\_\_\_ permits customers to recognize the strong controls in place at AWS.

- a. Compliance
- b. Cloud Security
- c. Availability zones
- d. Regions



KNOWLEDGE  
CHECK

\_\_\_\_\_ permits customers to recognize the strong controls in place at AWS.

- a. Compliance
- b. Cloud Security
- c. Availability zones
- d. Regions



The correct answer is **a.**

**Explanation:** AWS Cloud Compliance permits customers to recognize the strong controls in place at AWS to maintain security and data protection in the cloud.

KNOWLEDGE  
CHECK  
2

Which of the following adds another layer of network security to your instances?

- a. Security Groups
- b. Physical Security
- c. Compliance
- d. Virtual Private Cloud



KNOWLEDGE  
CHECK

Which of the following adds another layer of network security to your instances?

- a. Security Groups
- b. Physical Security
- c. Compliance
- d. Virtual Private Cloud



The correct answer is **d.**

**Explanation:** Virtual Private Cloud adds another layer of network security to your instances.



**QUIZ  
1**

In the context of user data, Amazon Web Services ensures all of the following except \_\_\_\_\_.

- a. confidentiality
- b. integrity
- c. availability
- d. security



QUIZ  
1

In the context of user data, Amazon Web Services ensures all of the following except \_\_\_\_\_.

- a. confidentiality
- b. integrity
- c. availability
- d. security



The correct answer is **d.**

**Explanation:** Amazon Web Services ensures confidentiality, integrity, and availability of the user's data.

**QUIZ  
2**

Which of the following services assists you in securing your systems and data in the cloud?

- a. Compute and Networking
- b. Security and Identity
- c. Storage and Content Delivery
- d. Analytics and Database



QUIZ  
2

Which of the following services assists you in securing your systems and data in the cloud?

- a. Compute and Networking
- b. Security and Identity
- c. Storage and Content Delivery
- d. Analytics and Database



The correct answer is **b.**

**Explanation:** The product category, Security and Identity services, assists you in securing your systems and data in the cloud.

**QUIZ  
3**

Which of the following enables you to get hands-on experience with AWS?

- a. Free Computing
- b. Free Networking
- c. Free Tier
- d. Free Analytics



QUIZ  
3

Which of the following enables you to get hands-on experience with AWS?

- a. Free Computing
- b. Free Networking
- c. Free Tier
- d. Free Analytics



The correct answer is **c.**

**Explanation:** The Free Tier enables you to get hands-on experience with AWS cloud services.

QUIZ  
4

A \_\_\_\_\_ is a physical location in the world, which has a multiple Availability Zone.

- a. Availability Zone
- b. Data center
- c. Region
- d. Resource location



QUIZ  
4

A \_\_\_\_\_ is a physical location in the world, which has a multiple Availability Zone.

- a. Availability Zone
- b. Data center
- c. Region
- d. Resource location



The correct answer is **c.**

**Explanation:** A Region is a physical location in the world, which has a multiple Availability Zone.

QUIZ  
5

AWS has planned to expand their real estate, with how many more Availability Zones and Regions?

- a. 12, 6
- b. 11, 5
- c. 13, 3
- d. 15, 5



QUIZ  
5

AWS has planned to expand their real estate, with how many more Availability Zones and Regions?

- a. 12, 6
- b. 11, 5
- c. 13, 3
- d. 15, 5



The correct answer is **b.**

**Explanation:** AWS has planned to expand their real estate, with 11 more Availability Zones and 5 more Regions coming online throughout the next year.

QUIZ  
6

AWS replicates data between physical Regions, to avoid \_\_\_\_\_.

- a. Disruptive network and Security breach
- b. Time and Disruptive network
- c. Security breach and Time
- d. Idle time and Fault tolerance



QUIZ  
6

AWS replicates data between physical Regions, to avoid \_\_\_\_\_.

- a. Disruptive network and Security breach
- b. Time and Disruptive network
- c. Security breach and Time
- d. Idle time and Fault tolerance



The correct answer is **d**.

**Explanation:** For avoiding idle time and fault tolerance, AWS replicates data between physical Regions.

**QUIZ**  
**7**

Which of the following is not the feature of security measures provided by AWS?

- a. Expert Guidance
- b. Product Features
- c. On-Premises Security
- d. Security Benefits



QUIZ  
7

Which of the following is not the feature of security measures provided by AWS?

- a. Expert Guidance
- b. Product Features
- c. On-Premises Security
- d. Security Benefits



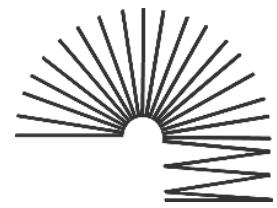
The correct answer is **c.**

**Explanation:** AWS offers several measures in relation to security. It provides security benefits, expert guidance, expert guidance, and compliance.

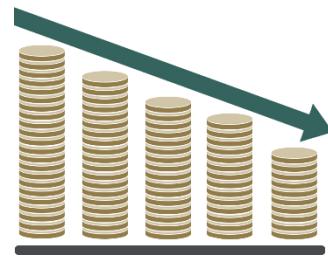
# Key Takeaways

# Key Takeaways

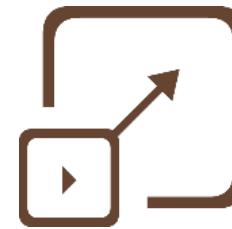
AWS is Amazon's cloud computing environment offering significant advantages of flexibility, economies of scale, scalability, and security.



Flexibility



Cost-Effectiveness



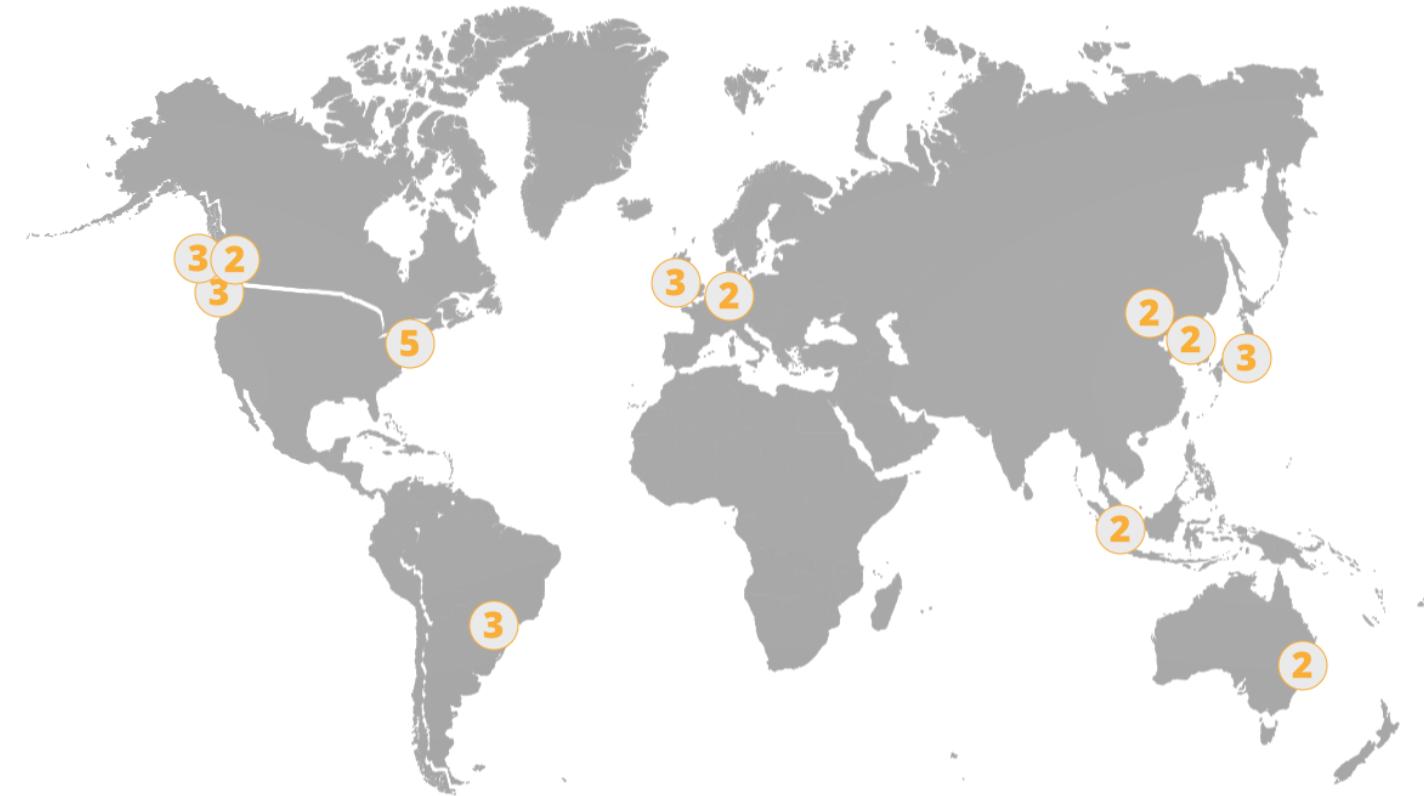
Scalability/Elasticity



Security

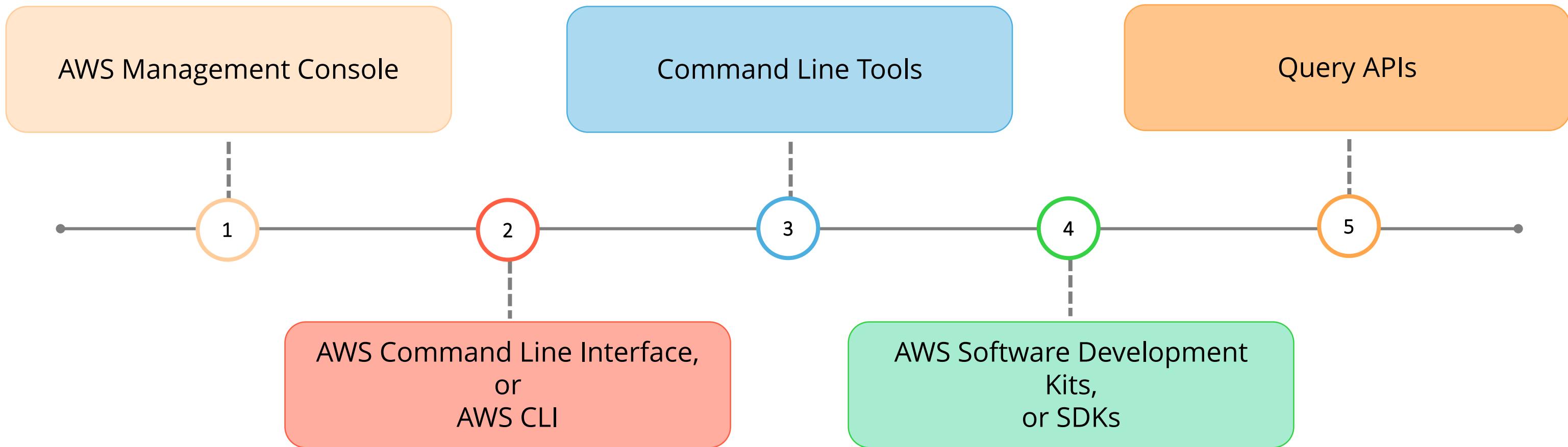
# Key Takeaways

The infrastructure of AWS resides in Amazon data centers spread across the globe. These sites are called regions.



# Key Takeaways

You can access AWS through the Management Console, the Command Line Interface, Command Line Tools, AWS Software Development Kits, and Query APIs.



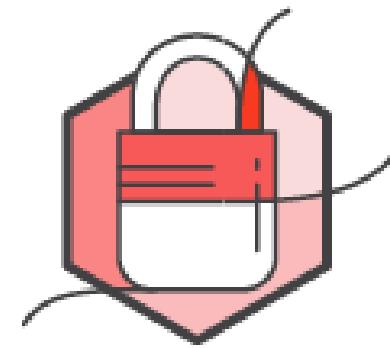
## **Key Takeaways**

AWS provides the Simple Monthly Calculator to estimate the cost of using AWS.

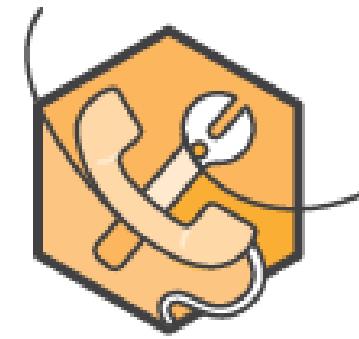


## Key Takeaways

AWS offers several security benefits, provides expert guidance, allows access to different tools, and ensures complete privacy and data protection.



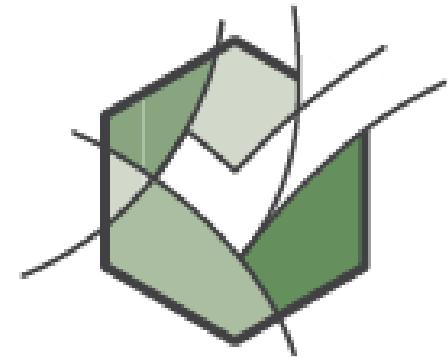
Security Benefits



Expert Guidance



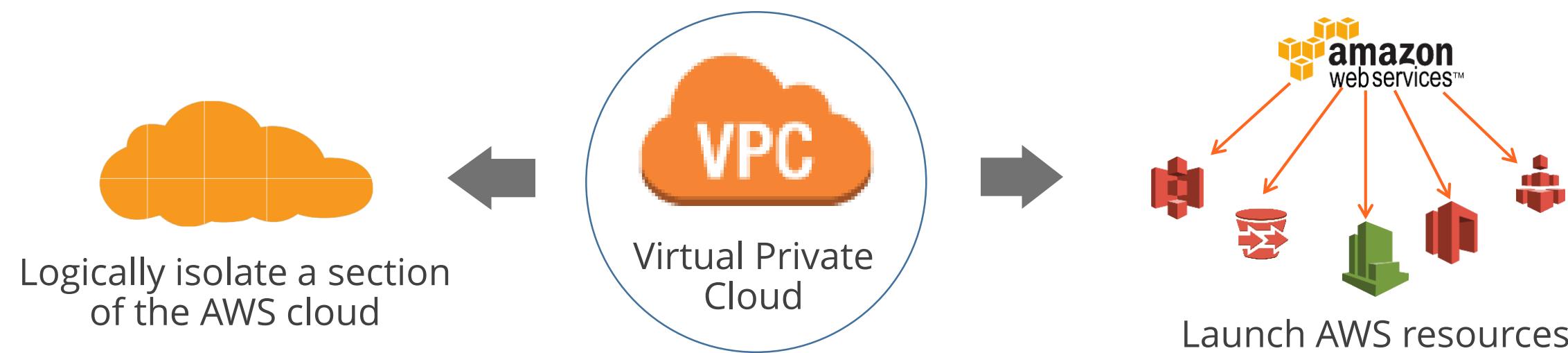
Access to Different Tools



Privacy and Data Protection

# Key Takeaways

Amazon VPC offers you the facility to logically isolate a section of the AWS cloud, and launch AWS resources in your defined virtual network.



-  AWS is Amazon's cloud computing environment offering significant advantages of flexibility, economies of scale, scalability, and security.
-  The infrastructure of AWS resides in Amazon data centers spread across the globe. These sites are called regions.
-  You can access AWS through the Management Console, the Command Line Interface, Command Line Tools, AWS Software Development Kits, and Query APIs.
-  AWS provides the Simple Monthly Calculator to estimate the cost of using AWS.

## Key Takeaways

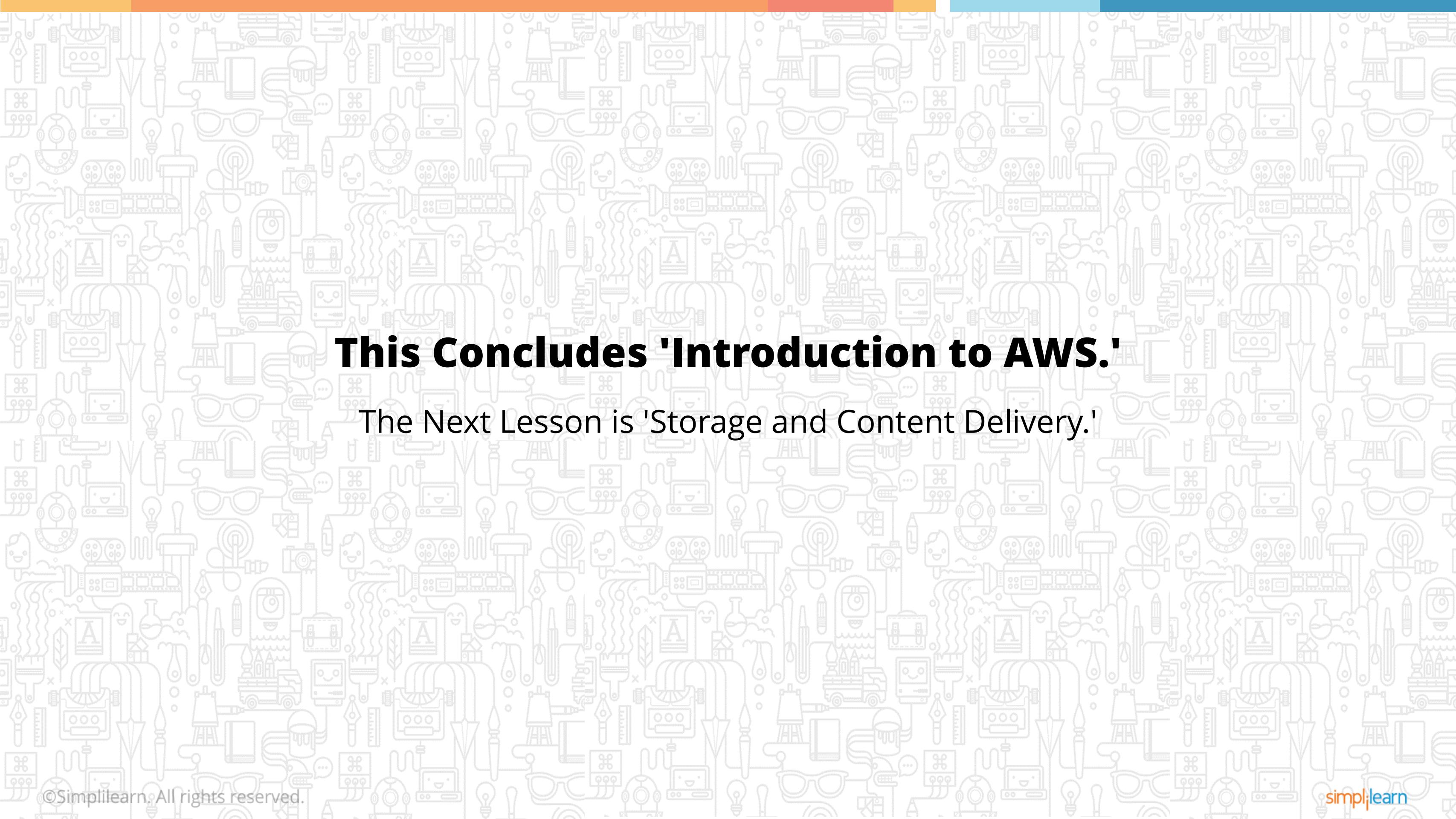
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AWS offers several security benefits, provides expert guidance, allows access to different tools, and ensures complete privacy and data protection.



Amazon VPC offers you the facility to logically isolate a section of the AWS cloud, and launch AWS resources in your defined virtual network.



# **This Concludes 'Introduction to AWS.'**

The Next Lesson is 'Storage and Content Delivery.'