

AWS Overview



Welcome to the AWS Solutions Architect Associate level lesson number one—AWS Overview.

Learning Objectives

By the end of the lesson you will be able to:

- Summarize the AWS Key Features
- Analyze the history of AWS
- Explain the global distributed infrastructure of AWS
- Describe how AWS became the market leader
- Discuss each AWS Products and Services

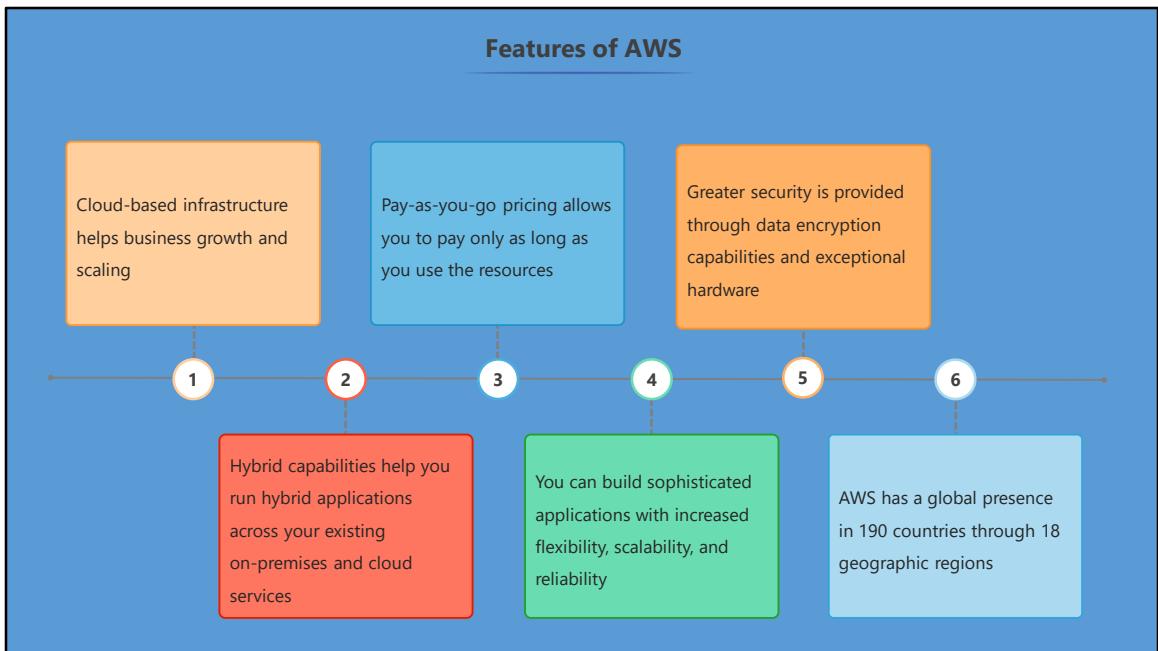


By the end of this lesson you'll be able to:

- Understand an overview of the key features of AWS
- Trace the history of AWS
- Explain the global distribution infrastructure of AWS
- Understand how AWS became the market leader
- Discuss each AWS product and service

Description of AWS

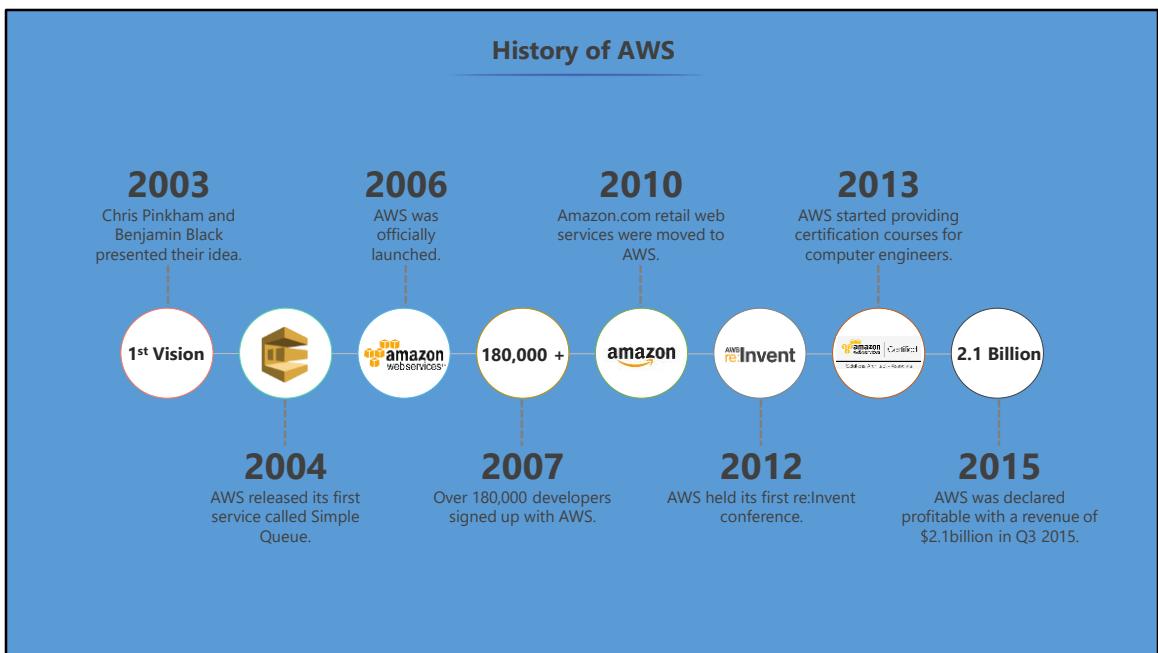
Let's start with an overview of AWS.



Amazon Web Services (AWS) is a secure cloud services platform. It offers cloud-based infrastructure for compute, database storage, content delivery, and other functionality to help businesses grow and scale. You can run “hybrid” applications across on-premises and cloud services using AWS features and services. It has pay-as-you-go pricing which is its biggest advantage compared to the existing IT infrastructure. You pay for using only the AWS resources. The vast array of AWS products and services allows you to build sophisticated applications with increased flexibility, scalability, and reliability. Security is better in the cloud than it is on-premises. AWS provides security certification and accreditation, data encryption capabilities, and exceptional hardware security.

History and Evolution of AWS

In this section, we'll discuss the history of AWS and how it evolved to its current stature.



Following is the timeline of AWS:

- In 2003, vision for AWS is presented to Amazon.com in the form of a paper by Chris Pinkham and Benjamin Black.
- In 2004, the first public AWS service Simple Queue Service was released.
- In 2006, AWS was officially launched.
- In 2007, 180,000 developers signed up to use AWS.
- In 2010, all of amazon.com was moved to AWS.
- In 2012, first reinvent conference was held, which is now a yearly event.
- In 2013, AWS certification was released.
- In 2015, AWS became profitable for the first time with a revenue of \$2.1bn in Q3 of 2015.

Global Distribution

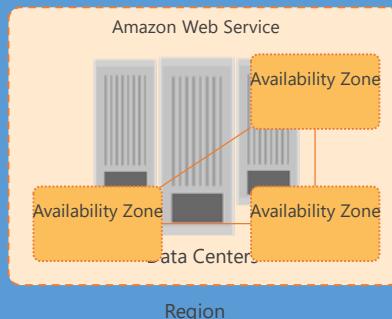
AWS offers a Cloud platform powering businesses in 190 countries.



As of Feb 2019 the AWS Cloud spans 60 Availability Zones within 20 geographic regions around the world, with announced plans for 12 more Availability Zones and four more AWS Regions in Bahrain, Cape Town, Hong Kong SAR, and Milan.

Regions and Availability Zones

A region is a geographic area isolated from other Amazon regions to provide the greatest possible fault tolerance. Availability Zones located within a region, with at least 2 per region, are connected via low-latency links.



There is always a minimum of two availability zones per region.

A region is a geographic area isolated from other Amazon regions to provide the highest possible fault tolerance.

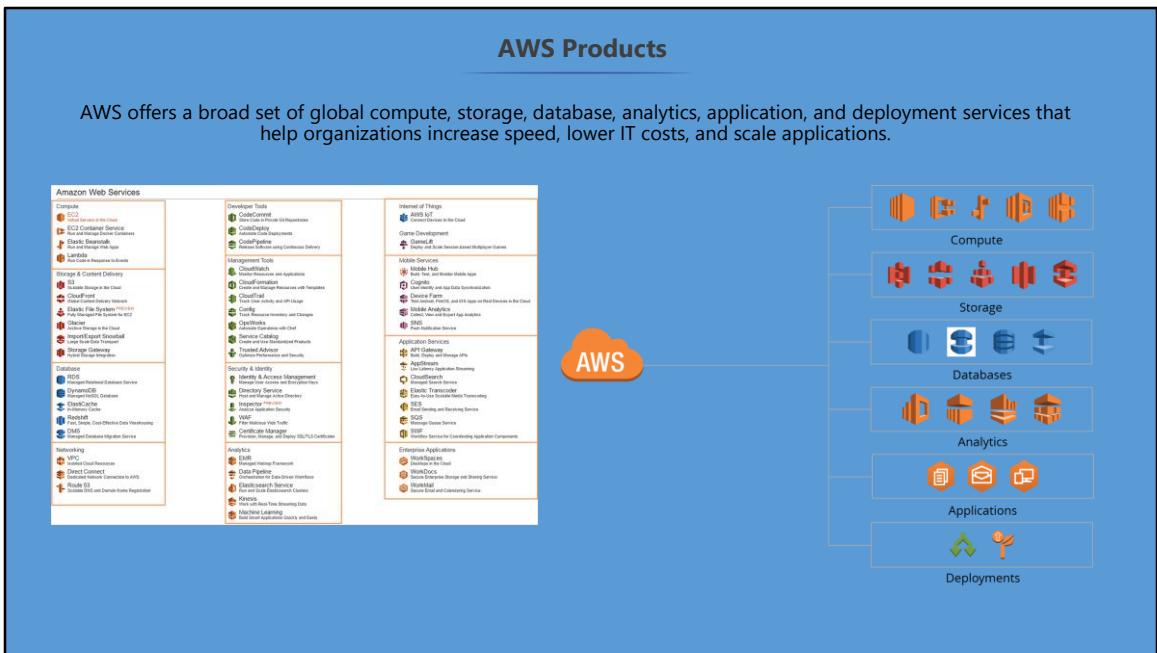
Availability Zones, located within a region, with at least 2 per region, are connected via low-latency links.

Edge Locations

Edge locations are located in most of the major cities around the world to distribute content to end users with reduced latency.



Edge locations are located in most of the major cities around the world to distribute content to end users with reduced latency.



AWS offers a broad set of global compute, storage, database, analytics, application, and deployment services. These help organizations with better speed, lower IT costs, and scale applications.



Undisputed market leader

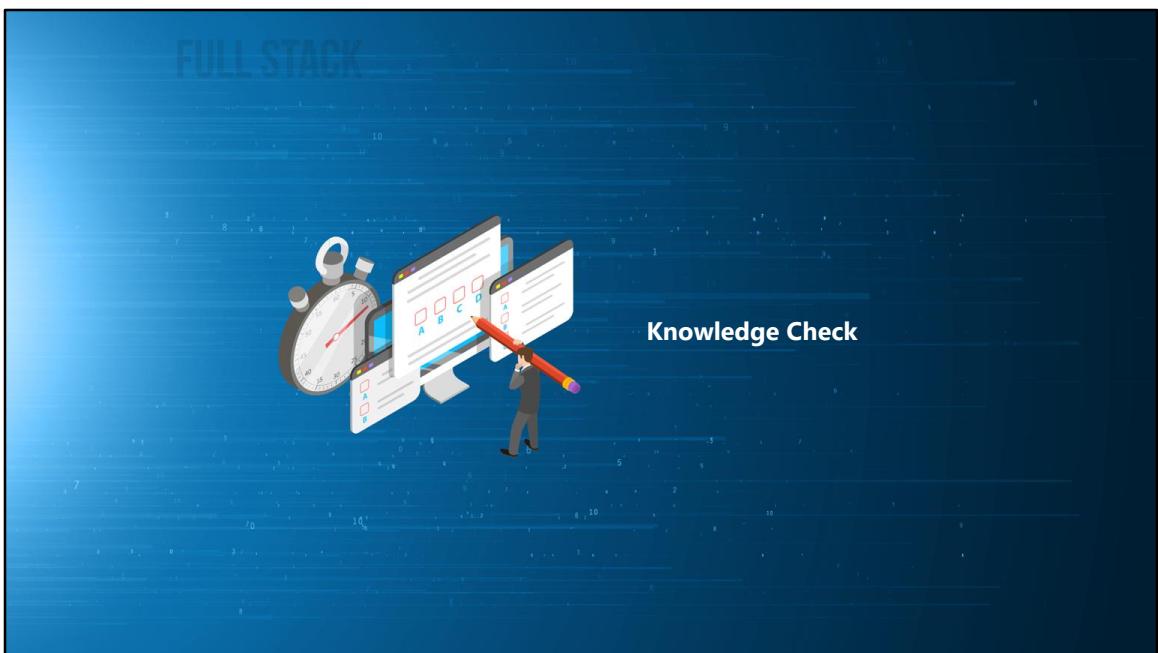
Gartner = “ability to execute and their completeness of vision”

8th year at the top of the rankings.

Gartner grade AWS as the market leader in Cloud Infrastructure as a service.

10x bigger than next 14 competitors

In the position they are due to the amount of innovation and product releases, 1000+ in 2017



Knowledge**Check****What is the minimum number of Availability Zones within a Region?****1**

- a. 5
- b. 33
- c. 3
- d. 2

**Knowledge
Check****What is the minimum number of Availability Zones within a Region?****1**

- a. 5
- b. 33
- c. 3
- d. 2

The correct answer is **d**

There are always at least two Availability Zones within a Region to provide fault tolerance.

Knowledge**Check****2****Which AWS product uses Edge Locations to provide a CDN service?**

- a. Amazon EC2
- b. Amazon Web Services
- c. Amazon CloudFront
- d. None of the above

Knowledge**Check****2****Which AWS product uses Edge Locations to provide a CDN service?**

- a. Amazon EC2
- b. Amazon Web Services
- c. Amazon CloudFront
- d. None of the above

The correct answer is **c**

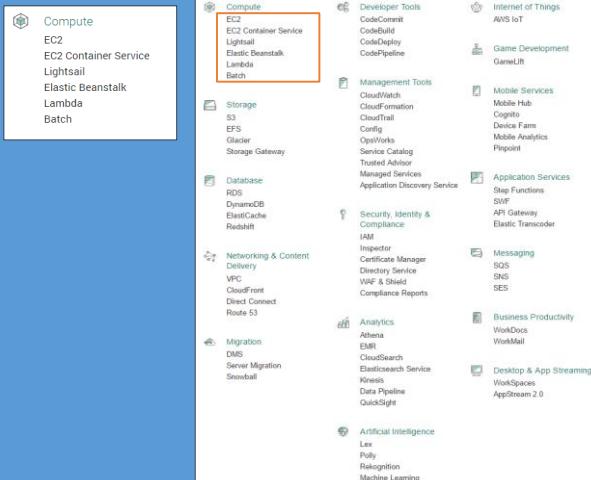
Amazon CloudFront is the Amazon Content Delivery Network (CDN) service that uses Edge Locations to provide content to end users with reduced latency.

Overview of AWS Products and Services

In this section, we will get an overview of all products and services on the AWS platform.

AWS Management Console

Let's start with the Compute section.

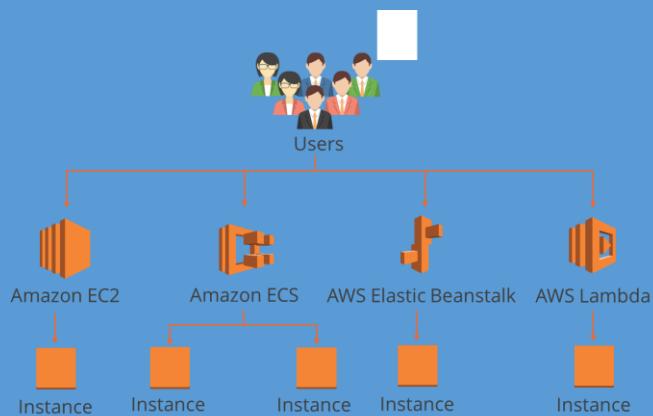


The screenshot shows the AWS Management Console navigation bar. The 'Compute' section is highlighted with a red box. Other sections include Storage, Database, Networking & Content Delivery, Migration, Developer Tools, Management Tools, CloudWatch, CloudFormation, CloudTrail, Config, OpsWorks, Service Catalog, Trusted Advisor, Managed Services, Application Discovery Service, Security, Identity & Compliance, IAM, Inspector, Certificate Manager, Directory Service, WAF & Shield, Compliance Reports, Analytics, Artificial Intelligence, Internet of Things, AWS IoT, Game Development, GameLift, Mobile Services, Application Services, Step Functions, SWF, API Gateway, Elastic Transcoder, Messaging, Business Productivity, Desktop & App Streaming, WorkSpaces, AppStream 2.0, and WorkDocs.

Let's start with the Compute section.

Compute

The Elastic Compute Cloud (EC2) from Amazon provides resizable compute capacity in the cloud, which is intended to make web-scale computing easier for developers.

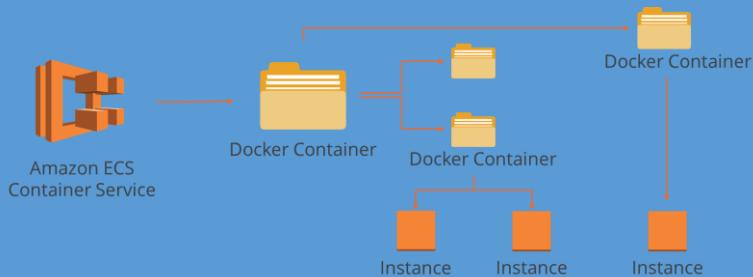


The Elastic Compute Cloud (EC2) from Amazon provides resizable compute capacity in the cloud, which is intended to make web-scale computing easier for developers.

Users maintain complete control of their computing resources, and Amazon operates under a "pay-as-you-go" model. It also takes minutes to obtain and boot new server instances, so it allows for quick scaling as computing requirements change.

Compute (Contd.)

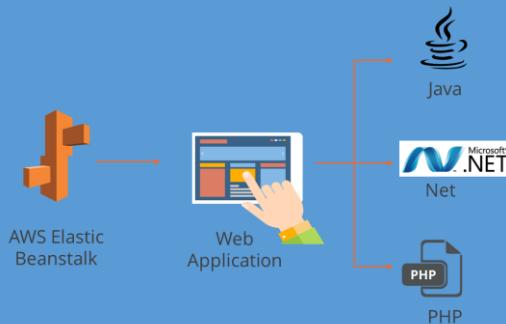
Amazon EC2 Container Service (ECS) is a highly scalable, high-performance container management service that supports Docker containers and allows you to easily run applications on a managed cluster of Amazon EC2 instances.



Amazon EC2 Container Service (ECS) is a highly scalable, high performance container management service that supports Docker containers and allows you to easily run applications on a managed cluster of Amazon EC2 instances.
It is not featured in the Solutions Architect associate exam.

Compute (Contd.)

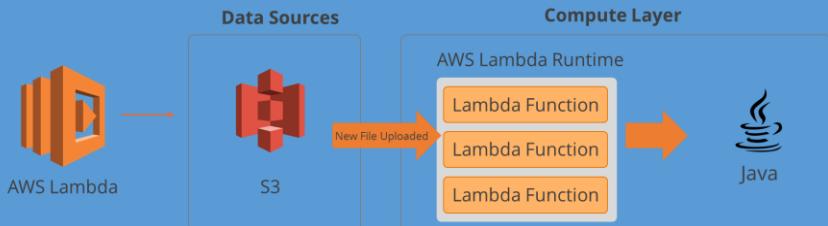
AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.



AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS. You upload your code, AWS inspects it, and then provisions the resources for it to run. Currently, it features in the exam at a high level and it will be covered later on.

Compute (Contd.)

AWS Lambda lets you run code without provisioning or managing servers. Pay only for the compute and execution time that you use.



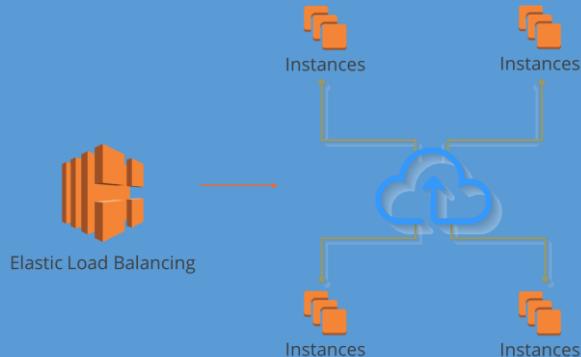
AWS Lambda lets you run code without provisioning or managing servers. You pay for the compute and execution time.

It runs small self-contained snippets of JS, Java, or Python to perform discrete tasks. It is sort of a combination of a queue and execution. It is used to store and then execute changes to your AWS setup or to respond to events in S3 or DynamoDB.

It doesn't feature regularly in the exam, but it will do so in the future.

Compute (Contd.)

Elastic Load Balancing is a networking service that automatically spreads out incoming application traffic across several available EC2 instances.



Elastic Load Balancing (ELB) is a networking service that automatically spreads out incoming application traffic across several available EC2 instances. Customers have the option of enabling ELB within a single Availability Zone or throughout multiple zones. The service can also detect unhealthy instances and reroute traffic to healthy ones.

Compute (Contd.)

Amazon Lightsail is a new service that allows you to quickly and easily create your own Virtual Private Server, or VPS, for as little as \$5 per month.



Amazon Lightsail

Amazon Lightsail

Lightsail is a new service that allows you to quickly and easily create your own Virtual Private Server, or VPS, for as little as \$5 per month.

The main idea behind Lightsail is to provide an entry point for someone who wants to create an AWS instance for a project quickly and easily without having to learn about how EC2, EBS or VPC works.

It's very simple and the user interface is much friendlier than the AWS management console that regular AWS users are used to. It's kind of like a gateway to EC2.

Compute (Contd.)

- AWS Batch is Amazon's attempt to eliminate third-party commercials or open source batch processing solutions.
- It enables you to easily and efficiently run huge quantities of batch computing jobs on AWS.
- It is a managed service, and it dynamically provisions the optimal quantity and type of compute required to run your batch jobs.



AWS Batch

AWS Batch is Amazons attempt to kill off third-party commercial or open source batch processing solutions. It enables you to easily and efficiently run huge quanitites of batch computing jobs on AWS and as it's a managed service, it dynamically provisions the optimal quantity and type of compute required to run your batch jobs. There is nothing to install and it seamlessly integrates with AWS services.

Compute (Contd.)

- EKS is an extension of ECS that runs Kubernetes.
- EKS is a managed server to handle the installation, deployment, and scaling of Kubernetes containers and clusters.



Extension of ECS to run Kubernetes

Managed server to handle the installation, deployment and scaling of Kubernetes containers and clusters

Compute (Contd.)

AWS Fargate is a fully managed service to run ECS or EKS containers. It manages and scales on your behalf.



Fully managed service to run ECS or EKS containers

Manages and scales on your behalf

Run containers without managing servers or clusters

Fargate is like EC2 but instead of giving you a virtual machine you get a container

Compute (Contd.)

VMware Cloud on AWS extends on-premises VMware vSphere-based environments to the AWS Cloud



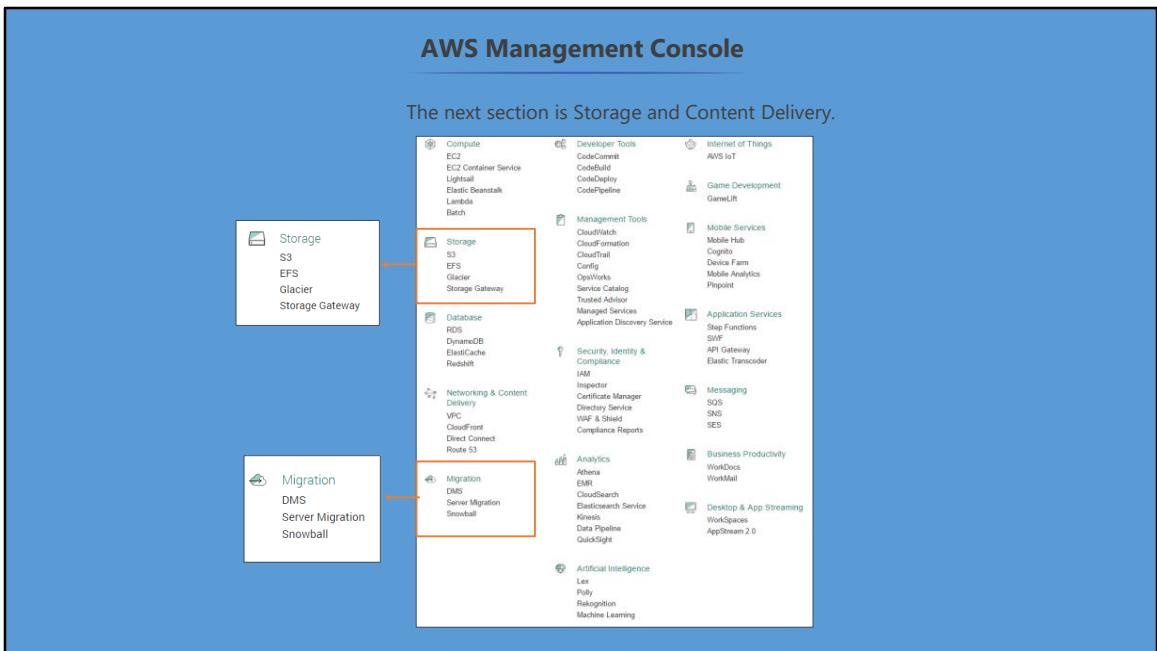
VMware Cloud on AWS is an integrated cloud offering jointly developed by AWS and VMware delivering a highly scalable, secure and innovative service that allows organizations to seamlessly migrate and extend their on-premises VMware vSphere-based environments to the AWS Cloud running on next-generation Amazon Elastic Compute Cloud (Amazon EC2) bare metal infrastructure.

Compute (Contd.)

AWS Outposts allows you to run native AWS services to your own data center.



AWS Outposts bring native AWS services, infrastructure, and operating models to virtually any data center, co-location space, or on-premises facility. You can use the same APIs, the same tools, the same hardware, and the same functionality across on-premises and the cloud to deliver a truly consistent hybrid experience.



The next section is Storage and Content Delivery.

Storage and Content Delivery

Simple Storage Service (S3) is an object-based online storage service that offers unlimited data storage space in the cloud.



Simple Storage Service (S3) is an object-based online storage service that offers unlimited data storage space in the cloud. It's a place to store your files. You can store images and other assets for websites; keep backups and share files between services; and host static websites. Additionally, many AWS services write and read from S3.

Storage and Content Delivery (Contd.)

CloudFront is a content delivery service (CDN) that integrates with other Amazon cloud services to provide an easy way for businesses and developers to distribute data through high-speed transfers.



CloudFront is a content delivery service (CDN) that integrates with other Amazon's cloud services to provide an easy way for businesses and developers to distribute data through high-speed transfers.

You can make websites load faster by spreading out static file delivery to be closer to where your users are using a global network of edge locations.

Storage and Content Delivery (Contd.)

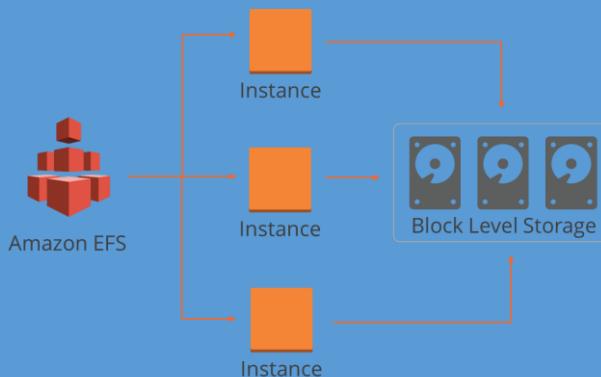
The s3/Glacier Select service allows you to query your S3 or Glacier files with SQL queries and retrieve only the required data.



Query your S3 or Glacier files with SQL queries
Retrieve only the data required by your applications

Storage and Content Delivery (Contd.)

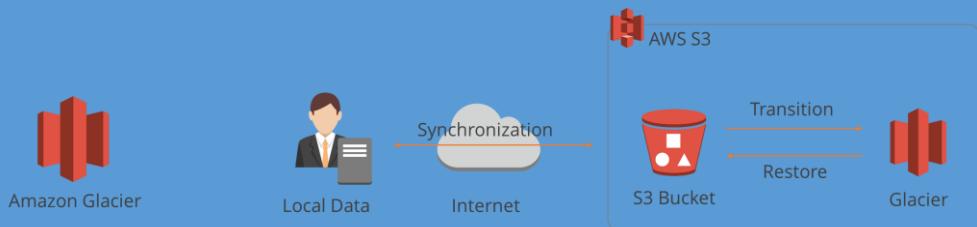
Elastic File System is a storage that can be attached to multiple EC2 instances.



Elastic File System is Network Attached Storage or NAS in the cloud. It is storage that can be attached to multiple EC2 instances. It provides block-level storage. Currently, it's only available for preview in the US-West region. It doesn't feature regularly in exams at the moment, however, later it will.

Storage and Content Delivery (Contd.)

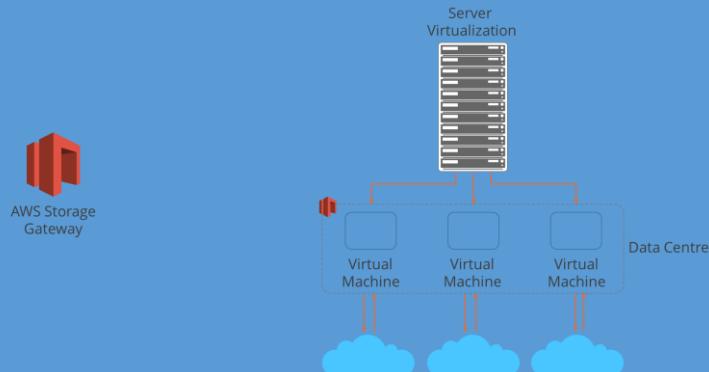
Amazon Glacier is the long-term backup/archiving service in the cloud.



Amazon Glacier is a long-term backup and archiving service in the cloud. It takes backups of your backups that you keep on S3. However, you should refrain from retrieving data in a hurry.

Storage and Content Delivery (Contd.)

Storage gateway is used to increase the capacity to store files, such as Word documents.

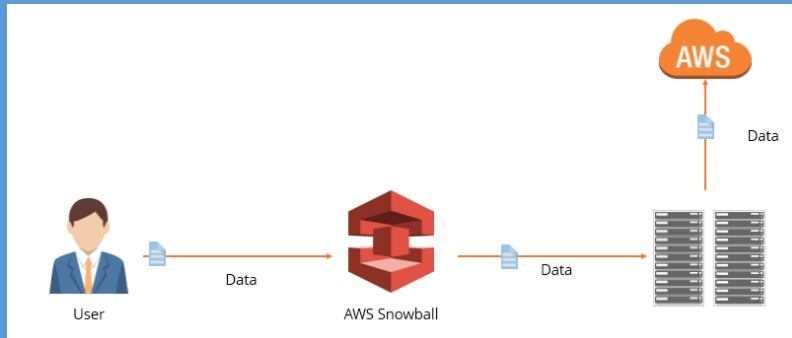


Storage gateway is used to increase the capacity to store files, such as Word documents. It also simplifies the process of file retrieval from your corporate network.

Setup a VM in your datacenter and it replicates data to and from your site to AWS. This is a cheap way of expanding your storage.

Storage and Content Delivery (Contd.)

- Amazon Snowball is used to move large amounts of data quickly (petabytes) without a network.
- Snowball Edge is a new version of Snowball; it has compute capacity that can be used to create local storage tiers.



- AWS Snowball is part of the Import/Export service.
- It is used to move large amounts of data quickly.
- The latest Snowball is 100 TB in size.
- It is a fast, secure, and cost effective way of migrating a large amount of data to AWS Cloud.
- Snowball Edge is a new version of Snowball; it has compute capacity that can be used to create local storage tiers.

Storage and Content Delivery (Contd.)

Amazon Snowmobile is an Exabyte-scale data transfer service used to move extremely large amounts of data to AWS.



AWS Snowmobile

- Snowmobile is basically a truck with a 45-foot-long container.
- It is an Exabyte-scale data transfer service used to move extremely large amounts of data to AWS.
- You can transfer up to 100PB per Snowmobile.

Storage and Content Delivery (Contd.)

Amazon FSx for Lustre is a file system optimized for compute-intensive workloads.



Amazon FSx for Lustre is a fully managed file system that is optimized for compute-intensive workloads, such as high performance computing, machine learning, and media data processing workflows.

Storage and Content Delivery (Contd.)

Amazon FSx for Windows File Server provides a fully managed native Microsoft Windows file system.



Amazon FSx for Windows File Server provides a fully managed native Microsoft Windows file system so you can easily move your Windows-based applications that require file storage to AWS.

Storage and Content Delivery (Contd.)

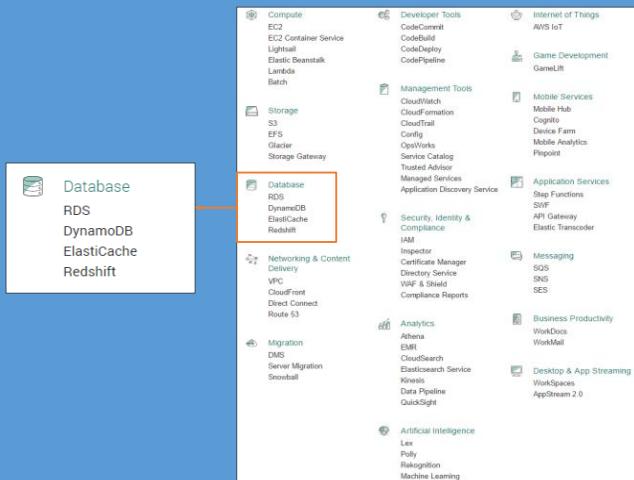
AWS Backup is a centralized, fully-managed backup service.



AWS Backup is a fully managed backup service that makes it easy to centralize and automate the back up of data across AWS services in the cloud as well as on premises using the AWS Storage Gateway.

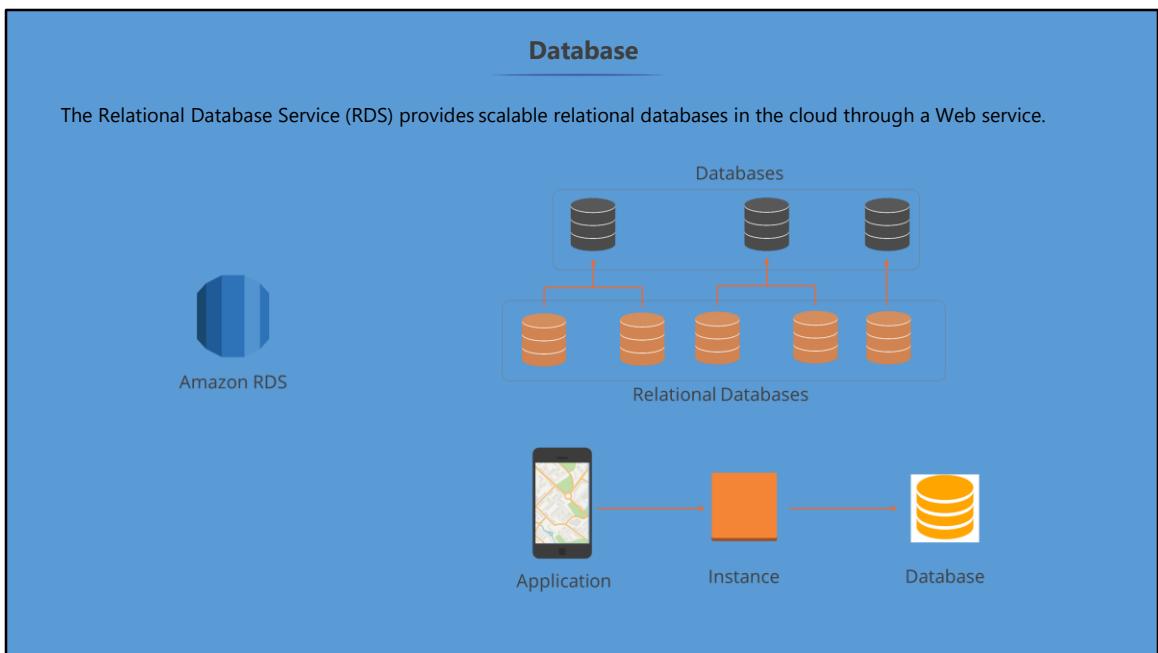
AWS Management Console

The next section deals with Database.



The screenshot shows the AWS Management Console homepage. A white box highlights the 'Database' section on the left, which contains links to RDS, DynamoDB, ElastiCache, and Redshift. An orange arrow points from this box to the 'Database' section in the main navigation menu. The main menu is organized into several categories: Compute, Storage, Database, Networking & Content Delivery, Migration, Developer Tools, Management Tools, Security, Identity & Compliance, Analytics, Artificial Intelligence, Internet of Things, Game Development, Mobile Services, Application Services, Messaging, Business Productivity, and Desktop & App Streaming.

The next section is Database.



The Relational Database Service (RDS) provides scalable relational databases in the cloud through a Web service. It manages Database administrative tasks. It can also automatically patch database software on your behalf.

Database (Contd.)

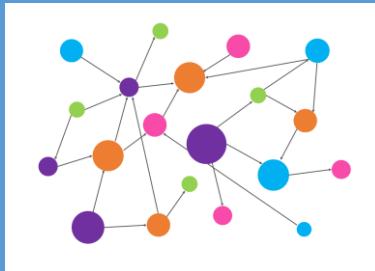
Replicate, migrate, or convert your existing onsite databases onto AWS.



Database Migration Service replicates, migrates, or converts your existing onsite databases onto AWS. This service is relatively new.

Database (Contd.)

Amazon Neptune is a graph database service built specifically for highly connected datasets and graph engines optimized for storing billions of relationships.



Graph database service built specifically for highly connected datasets
Purpose built graph engine optimized for storing billions of relationships, for example social network connections.

Database (Contd.)

DynamoDB is Amazon's NoSQL offering.



Amazon DynamoDB

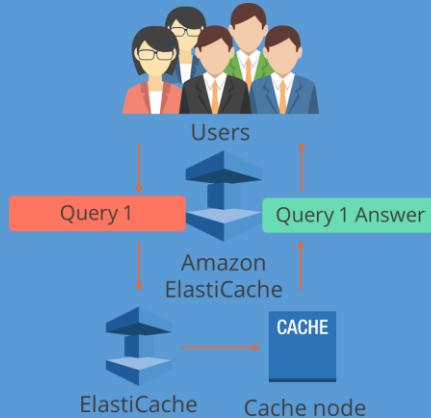


Amazon DynamoDB = No SQL

DynamoDB is Amazon's NoSQL offering.

Database (Contd.)

If you have users running the same queries, then you can cache these results in ElastiCache to reduce the load on your database instances.



ElastiCache is a way of caching your database services in the cloud. If you have multiple users running the same queries, then you can cache these results in ElastiCache to reduce the load on your database instances.

Database (Contd.)

RedShift is an Amazon Data Warehousing service.



Amazon Redshift = Data warehousing service

RedShift is Amazon's Data Warehousing service.

Database (Contd.)

Amazon RDS Database Preview Environment provides an environment for customers to test new PostgreSQL database features in conjunction with Amazon.



Amazon RDS Database Preview Environment provides an environment for customers to test new PostgreSQL database features in conjunction with Amazon.

Customers can now start testing new features and functionality of PostgreSQL within days or weeks of new versions becoming available from the PostgreSQL community to get a headstart on the latest features.

Expect to see this rolled out to other database platforms in due course.

Database (Contd.)

Amazon Time Stream is a fast, scalable, fully managed time series database service.



Amazon Timestream is a fast, scalable, fully managed time series database service for IoT and operational applications that makes it easy to store and analyze trillions of events per day at 1/10th the cost of relational databases.

Database (Contd.)

Amazon DocumentDB (with MongoDB compatibility) is a fast, scalable, highly available, and fully-managed document database service.



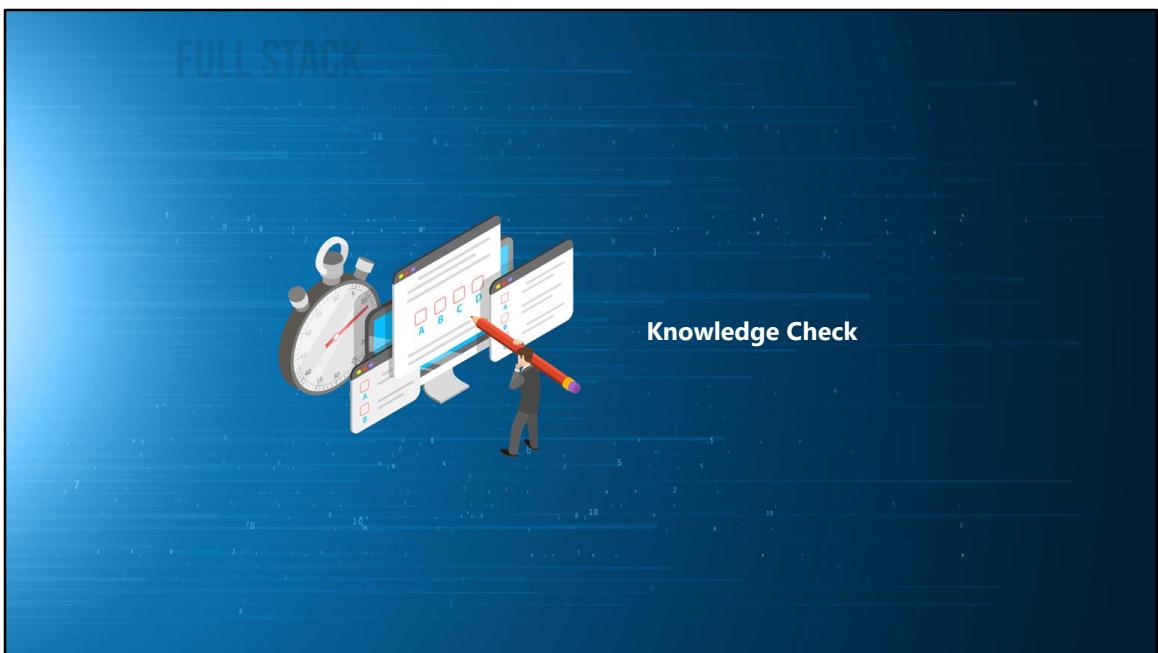
Amazon DocumentDB (with MongoDB compatibility) is a fast, scalable, highly available, and fully managed document database service .

Database (Contd.)

AWS Lake Formation is a service that makes it easy to set up a secure data lake in days.



AWS Lake Formation is a service that makes it easy to set up a secure data lake in days. A data lake is a centralized, curated, and secured repository that stores all your data, both in its original form and prepared for analysis. Coming soon in 2019.



Knowledge**Check****Which AWS service is used to run Docker?****1**

- a. Elastic Beanstalk
- b. EC2 Container Service
- c. Lambda
- d. Direct Connect

**Knowledge
Check****Which AWS service is used to run Docker?****1**

- a. Elastic Beanstalk
- b. EC2 Container Service
- c. Lambda
- d. Direct Connect

The correct answer is **b**

EC2 Container Service is a management service that supports Docker containers. Elastic Beanstalk is used to deploy and scale web applications. Lambda lets you run code without provisioning or managing servers, and Direct Connect allows you to directly join your corporate site with AWS.

Knowledge**Check****What is an Amazon NoSQL product?****2**

- a. RDS
- b. DMS
- c. RedShift
- d. DynamoDB

Knowledge**Check****What is an Amazon NoSQL product?****2**

- a. RDS
- b. DMS
- c. RedShift
- d. DynamoDB

The correct answer is **DMS**

DynamoDB is the NoSQL offering from AWS. RDS is its relational database server; DMS is its database migration server; and RedShift is its data warehousing service.

Knowledge**Check****What service would you use to archive data for long-term storage?****3**

- a. Glacier
- b. Snowball
- c. S3
- d. Storage Gateway

Knowledge**Check****What service would you use to archive data for long-term storage?****3**

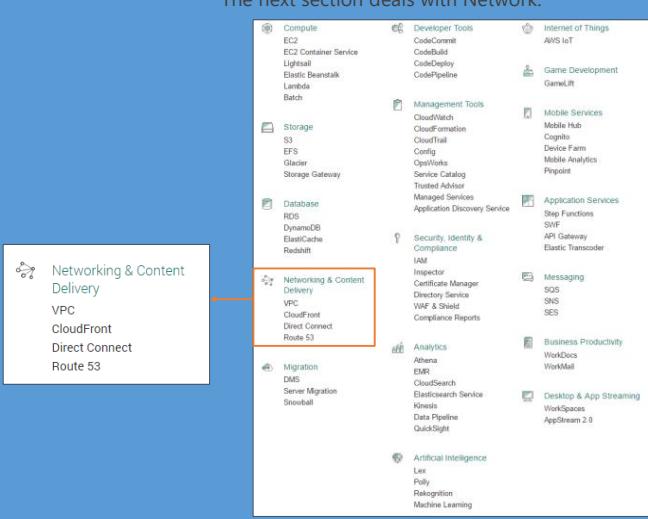
- a. Glacier
- b. Snowball
- c. S3
- d. Storage Gateway

The correct answer is **a**

Glacier is used to cost-effectively store data for long-term archival. Snowball is used to transfer large amounts of data to AWS without using the Internet, S3 is the storage solution for files that you want to access immediately, and Storage Gateway is a service that allows you to extend your onsite storage into the cloud.

AWS Management Console

The next section deals with Network.

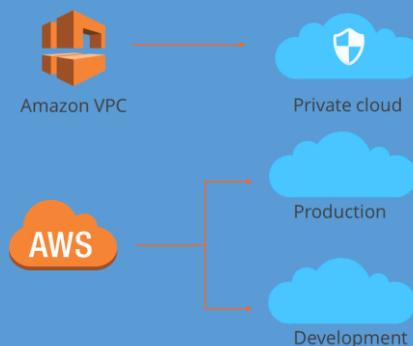


A screenshot of the AWS Management Console. On the left, there's a sidebar with several service categories: Compute, Storage, Database, Migration, Networking & Content Delivery, and others. The 'Networking & Content Delivery' category is highlighted with a red box and contains the following services: VPC, CloudFront, Direct Connect, and Route 53. An arrow points from this highlighted box to a larger callout box on the left side of the screen. The main content area shows various AWS services grouped into categories: Developer Tools, Internet of Things, Game Development, Management Tools, Mobile Services, Application Services, Security, Identity & Compliance, Messaging, Business Productivity, Analytics, Artificial Intelligence, and Desktop & App Streaming.

The next section is Network.

Networking

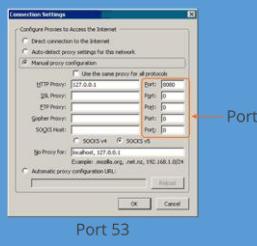
Virtual Private Cloud (VPC) works as a bridge between a user's existing IT infrastructure and Amazon's cloud.



Virtual Private Cloud (VPC) is a Virtual Data Center and works as a bridge between a user's existing IT infrastructure and Amazon's cloud. The result is a safe, secure private cloud service that appears as if all your AWS services are on your own network. You can have numerous VPCs within your Amazon account.

Networking (Contd.)

Route53 is Amazon DNS and Domains service.



Port 53

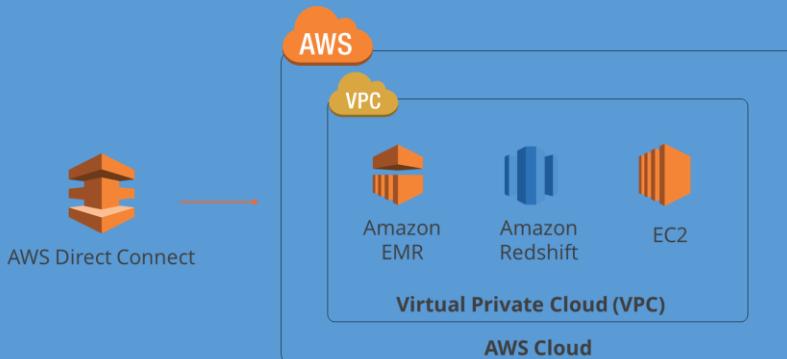


Route 66

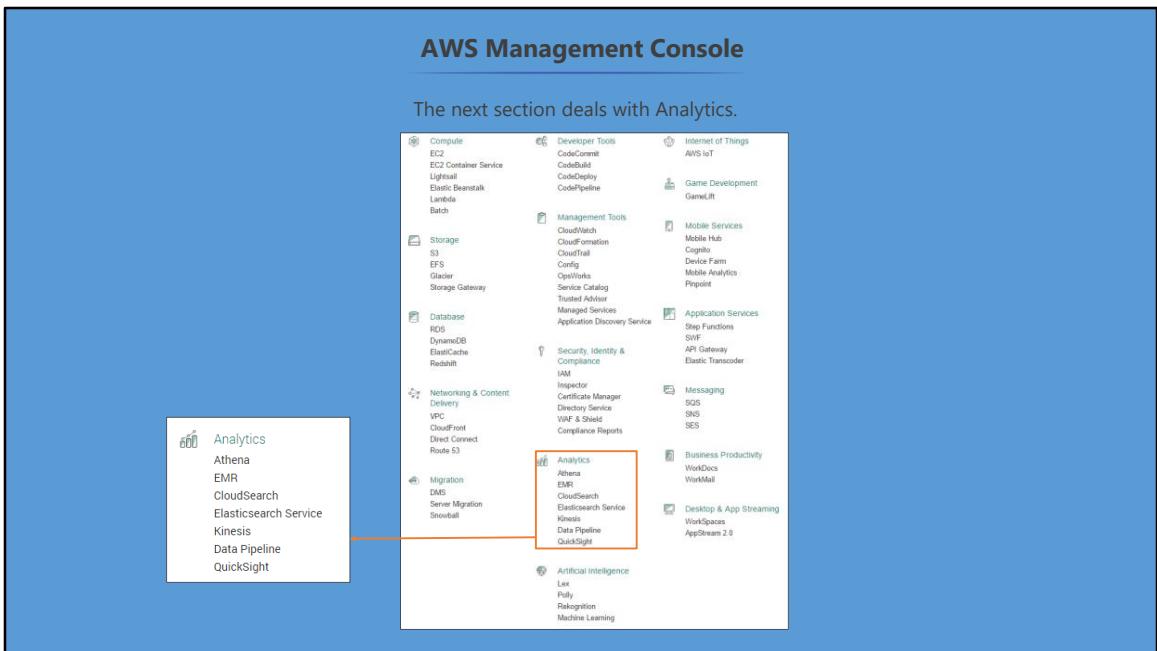
Route53 is Amazon DNS and Domains service. It allows you to manage your DNS entries for public and private networks. You can buy a new domain and set up the DNS records for that domain.

Networking (Contd.)

Direct Connect is a way of connecting into the AWS environment without using an Internet connection.



Direct Connect is a way of connecting into the AWS environment without using an Internet connection. Leased lines connect directly from your data center or network to AWS.



The next section is Analytics.

Analytics

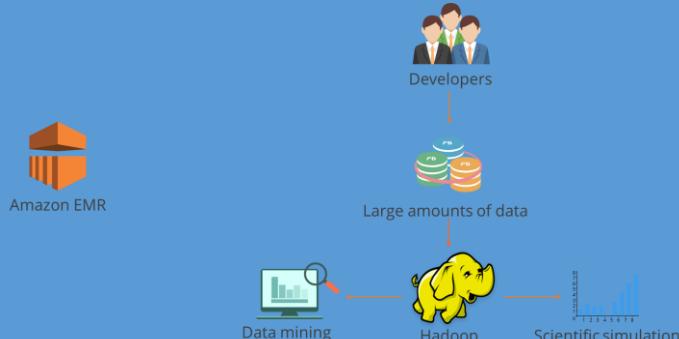
Elasticsearch allows you to use the popular open source search and analytics engine as a managed service in AWS.



Elasticsearch allows you to use the popular open source search and analytics engine as a managed service in AWS.

Analytics (Contd.)

Elastic MapReduce allows businesses and developers to process large amounts of data using a Hadoop framework. It's ideal for processes like data mining and scientific simulation.



Elastic MapReduce allows businesses and developers to process large amounts of data using a Hadoop framework. It is useful for processes like data mining and scientific simulation.

Analytics (Contd.)

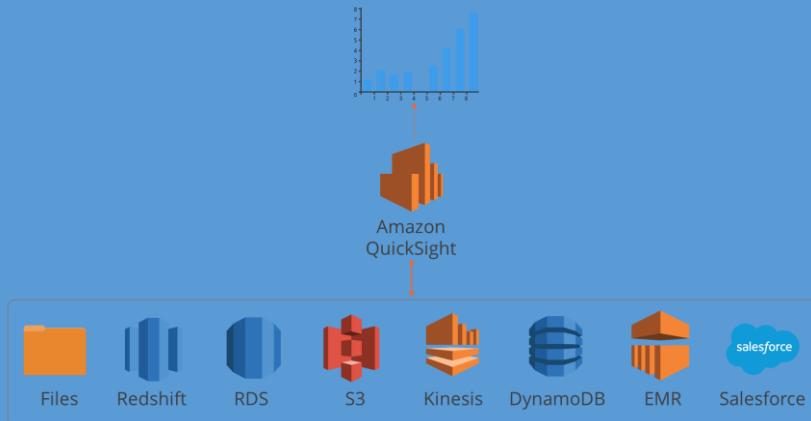
Kinesis can ingest lots of data very quickly from mobile apps, sensors, and other sources.



Kinesis is a way of streaming data to AWS. Kinesis can ingest lots of data very quickly from mobile apps, sensors, and others.

Analytics (Contd.)

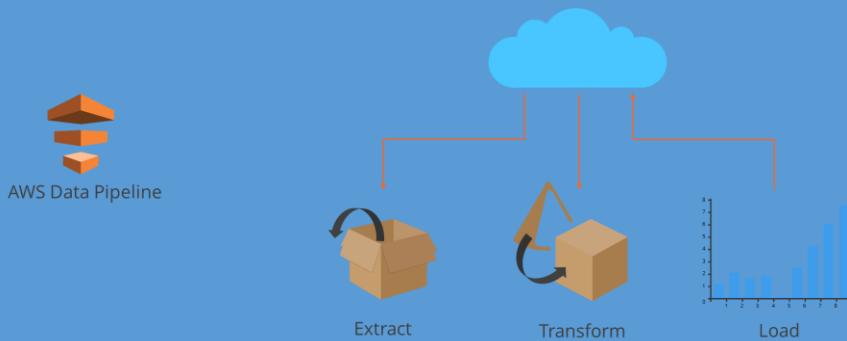
QuickSight is a fast, cloud-powered business intelligence (BI) service that makes it easy for all employees to build visualizations, perform ad-hoc analysis, and quickly get business insights from their data.



QuickSight is a fast, cloud-powered Business Intelligence (BI) service that makes it easy for all employees to build visualizations, perform ad-hoc analysis, and quickly get business insights from their data.

Analytics (Contd.)

Data pipeline is used to extract, transform, and load data from other locations in AWS.



Data pipeline is used to extract, transform, and load data from other locations in AWS. You can schedule the activity and get alerts when it fail.

Analytics (Contd.)

Amazon Athena is an interactive query service that allows you to analyze data in Amazon S3 using standard SQL.



Amazon Athena

- Amazon Athena is an interactive query service that allows you to analyze data in Amazon S3 using standard SQL.
It is a server-less service, so you only have to pay for the queries that you run.
It removes the need to have complex ETL transformations, and allows you to query data directly from the file system.

Analytics (Contd.)

Amazon CloudSearch is a managed service that allows you to easily set up, manage, and scale a search solution for your website or application.



Amazon CloudSearch

- Amazon CloudSearch is a managed service that allows you to easily set up, manage, and scale a search solution for your website or application.
- It supports 34 languages and popular search features such as highlighting, autocomplete, and geospatial search.

Analytics (Contd.)

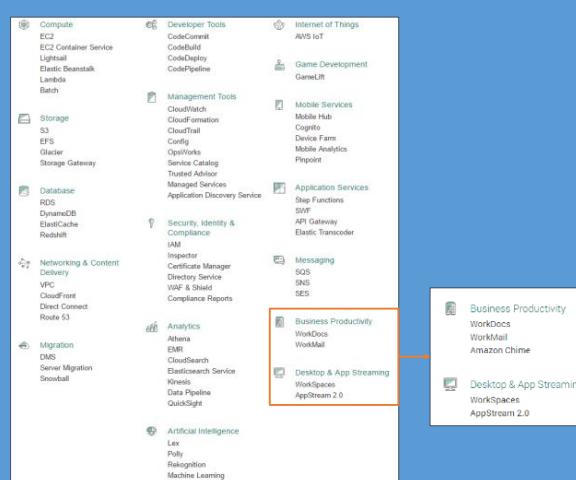
AWS Glue is fully managed ETL (Extract, transform, load) service that simplifies and automates the difficult and time consuming tasks of data discovery, conversion, mapping, and job scheduling.



- AWS Glue is fully managed ETL (Extract, transform, load) service that simplifies and automates the difficult and time consuming data discovery, conversion, mapping, and job scheduling tasks.
It guides you through the process of moving your data with a user-friendly console that helps you understand your data sources, prepare the data for analytics, and load it reliably from data sources to destinations.
It integrates with Amazon S3, Amazon RDS, and Amazon Redshift.

AWS Management Console

The next section deals with Enterprise Application.



The next section is Enterprise Application.

Enterprise Applications

Amazon WorkDocs allows you to share Word Documents with your colleagues.



WorkDocs is an enterprise dropbox used to share Word Docs with your colleagues.

Enterprise Applications (Contd.)

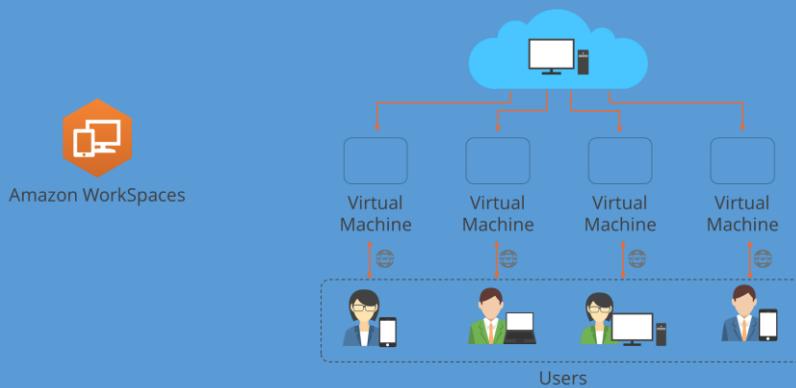
Through Amazon WorkMail, you can give everyone in your company the same email system and calendar.



WorkMail is Amazon's answer to exchange. You can provide everyone in your company the same email system and calendar.

Enterprise Applications (Contd.)

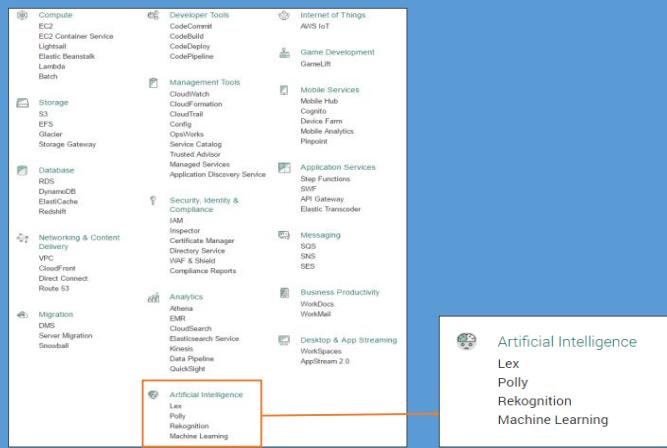
WorkSpaces is an enterprise application that gives you a standard Windows desktop that you can control remotely.



WorkSpaces is an enterprise application that gives you a standard Windows desktop that you can control remotely.

AWS Management Console

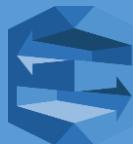
The next section deals with Artificial Intelligence.



The next section is Artificial Intelligence.

Artificial Intelligence

Amazon Lex provides a conversational interface for your applications; it is powered by the same deep learning technologies used in Amazon Echo.



Amazon Lex

- Amazon Lex provides a conversational interface for your applications; it is powered by the same deep learning technologies used in Amazon Echoes. You can build conversational interfaces into any application using voice and text.

Artificial Intelligence (Contd.)

Amazon Machine Learning can predict future behavior from existing data; for example, people that bought x also bought y. It can also perform functions such as fraud detection.



Amazon Machine
Learning

Amazon Machine Learning can predict future behavior from existing data, for example, "people that bought x also bought y." It can also perform functions such as fraud detection.

Artificial Intelligence (Contd.)

Amazon Polly is a service that turns text into lifelike speech so you can create applications that talk.



Amazon Polly

- Amazon Polly is a service that turns text into lifelike speech so you can create applications that talk.
It uses advanced deep learning technologies to synthesize speech that sounds like a human voice.
It includes 47 lifelike voices spread across 24 languages.

Artificial Intelligence (Contd.)

Amazon Rekognition is a service that makes it easy to add image analysis to your applications.



Amazon Rekognition

- Amazon Rekognition is a service that makes it easy to add image analysis to your applications.
With Rekognition, you can detect objects, scenes, and faces in images.
You can also search and compare faces.

Artificial Intelligence (Contd.)

Amazon Sumerian helps in creating Virtual Reality, Augmented Reality, and 3D applications.

It allows you to build apps for Oculus Rift, HTC Vive, etc.



Service to help you create Virtual Reality, Augmented Reality and 3D applications
Build apps for Oculus Rift, HTC Vive, etc.

Artificial Intelligence (Contd.)

Amazon DeepLens is a fully programmable video camera with deep learning capabilities that is pre-loaded with models to assist your deep learning skills



AWS DeepLens

Artificial Intelligence (Contd.)

Amazon Rekognition Video is the video analysis service that tracks people and recognizes activities, objects, celebrities, and inappropriate content.

It analyzes the videos stored in S3 and returns specific labels.



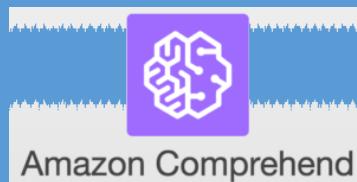
Video analysis service that tracks people, recognizes activities, objects and celebrities. And inappropriate content!

Analyzes video stored in S3 and returns specific labels

Artificial Intelligence (Contd.)

Amazon comprehend is an AI-based Natural Language Processing service that provides insights and relationships regarding your text documents.

It helps to identify key extracts from the text, such as phrases, people, locations, and brands, and provides an organized output of the results.



AI based Natural Language Processing service that provides insights and relationships in your text documents

Identifies key extracts from the text, such as phrases, people, locations, brands, etc. and provides an organized output of the results.

Artificial Intelligence (Contd.)

- Translate - Provides fast, high-quality language translation
- Transcribe - Speech recognition service that makes it easy to add speech-to-text functionality to applications



Translate - Provides fast, high quality language translation

Transcribe – Speech recognition service that makes it easy to add speech-to-text functionality to applications

Artificial Intelligence (Contd.)

Amazon Forecast accurately time-series forecasting service, based on the same technology used at Amazon.com



Accurate time-series forecasting service, based on the same technology used at Amazon.com

No machine learning experience required. Coming soon.

Artificial Intelligence (Contd.)

Amazon Personalize provides real-time personalization and recommendation.



Real-time personalization and recommendation, based on the same technology used at Amazon.com. Amazon Personalize is a machine learning service that makes it easy for developers to create individualized recommendations for customers using their applications. Coming soon.

Artificial Intelligence (Contd.)

Amazon Textract allows you to easily extract text and data from virtually any document

Amazon Textract

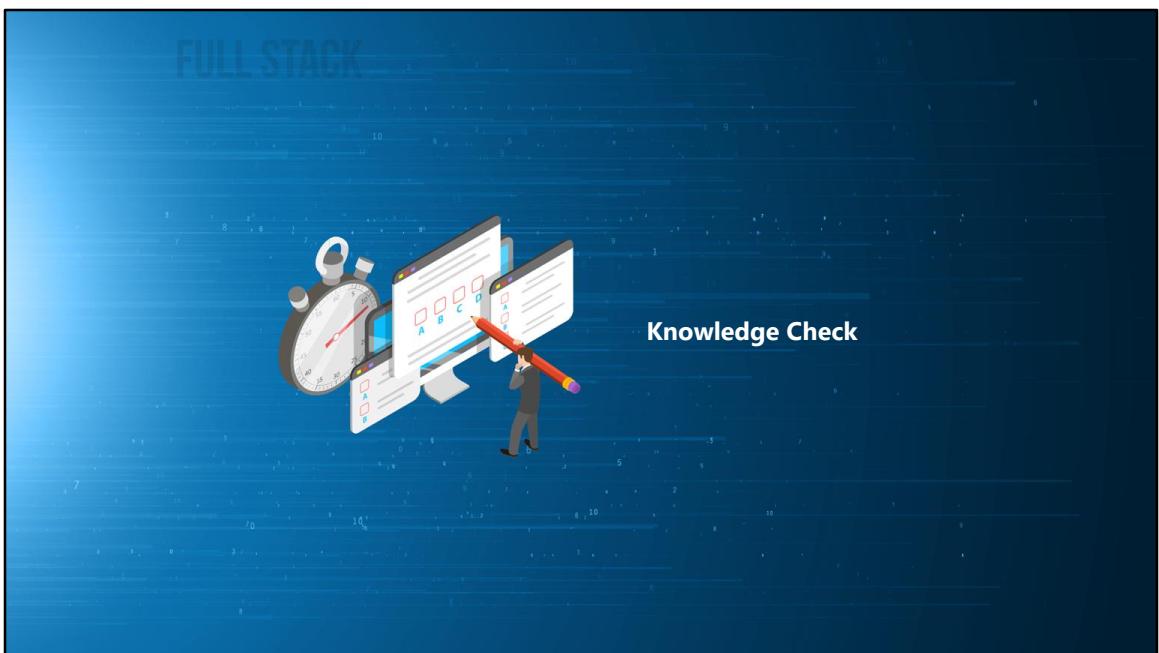
Easily extract text and data from virtually any document. Amazon Textract is a service that automatically extracts text and data from scanned documents. Amazon Textract goes beyond simple optical character recognition (OCR) to also identify the contents of fields in forms and information stored in tables. Coming soon.

Artificial Intelligence (Contd.)

AWS DeepRacer a fully autonomous 1/18th scale race car driven by reinforcement learning.



AWS DeepRacer is the fastest way to get rolling with machine learning, literally. Get hands-on with a fully autonomous 1/18th scale race car driven by reinforcement learning, 3D racing simulator, and global racing league. Coming soon.



Knowledge**Check****Where does Route53 get its name?****1**

- a. 53 is the port that DNS uses
- b. From the 53 available AWS routes
- c. It doesn't have specific significance
- d. On average, the ping latency between AWS resources is 53 ms

**Knowledge
Check****Where does Route53 get its name?****1**

- a. 53 is the port that DNS uses
- b. From the 53 available AWS routes
- c. It doesn't have specific significance
- d. On average, the ping latency between AWS resources is 53 ms

The correct answer is **a**

53 is the DNS port, and it's a play on words of Route66.

Knowledge**Check****2 Which service allows you to stream data to AWS?**

- a. Elastic MapReduce
- b. QuickSight
- c. Kinesis
- d. Data Pipeline

Knowledge**Check****Which service allows you to stream data to AWS?****2**

- a. Elastic MapReduce
- b. QuickSight
- c. Kinesis
- d. Data Pipeline

The correct answer is **c**

Kinesis allows you to stream large amounts of data to AWS from mobile apps or sensors. Elastic MapReduce is used for data mining or scientific simulation with Hadoop frameworks running on EC2 instances. QuickSight is a cloud powered BI service, and Data Pipeline is the AWS ETL tool.

Knowledge**Check****3 Which of these is NOT an AWS Enterprise Application?**

- a. WorkDocs
- b. WorkMail
- c. WorkServer
- d. WorkSpaces

Knowledge**Check****Which of these is NOT an AWS Enterprise Application?****3**

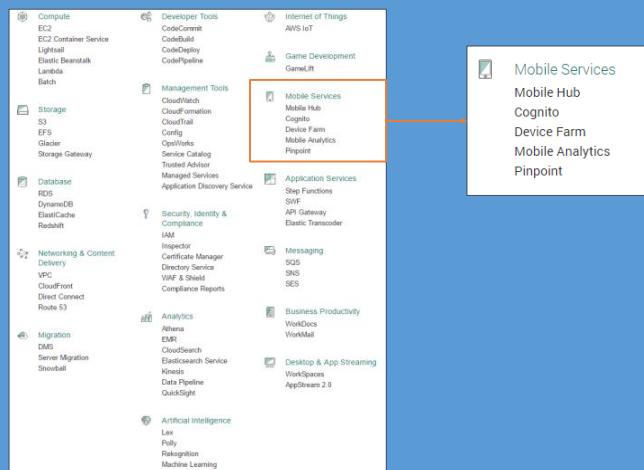
- a. WorkDocs
- b. WorkMail
- c. WorkServer
- d. WorkSpaces

The correct answer is **c**

WorkDocs allows you to share documents with your colleagues. WorkMail is Amazon's answer to Microsoft Exchange, and WorkSpaces allows you to run Windows desktops in the cloud.

AWS Management Console

The next section deals with Mobile Services.



The next section is Mobile Services.

Mobile Services

Amazon Cognito saves mobile user data in the AWS cloud.



Amazon Cognito saves mobile user data in the AWS cloud.

Mobile Services (Contd.)

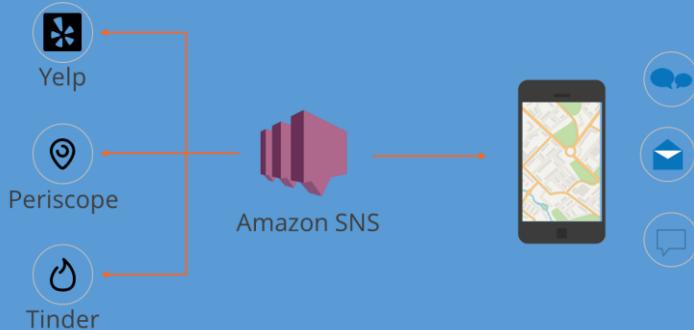
Amazon Mobile Analytics tracks and measures in-app activity.



Amazon Mobile Analytics tracks and measures in-app activity.

Mobile Services (Contd.)

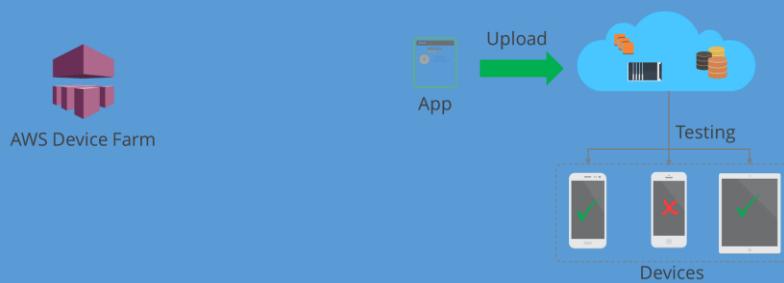
Amazon Simple Notification Service (SNS) sends mobile notifications, emails, and/or SMS messages.



Amazon Simple Notification Service (SNS) sends mobile notifications, emails, and/or SMS messages.

Mobile Services (Contd.)

AWS Device Farm tests your app on a bunch of different iOS and Android devices simultaneously.



AWS Device Farm tests your app on a bunch of different iOS and Android devices simultaneously.

Mobile Services (Contd.)

AWS Mobile Hub builds, tests, and monitors mobile apps.



AWS Mobile Hub builds, tests, and monitors mobile apps.

Mobile Services (Contd.)

Amazon Pinpoint makes it easy to run targeted campaigns to drive user engagement in mobile apps.

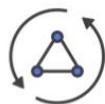


Amazon Pinpoint

- Amazon Pinpoint makes it easy to run targeted campaigns to drive user engagement in mobile apps.
It helps you to understand user behavior, define which users to target, and determine which messages to send.

Mobile Services (Contd.)

Amazon AppSync allows web and mobile application data to be updated in real time so that offline users are updated as soon as they reconnect.



Introducing AWS AppSync

Allows web and mobile application data to be updated in real time
Offline users are updated as soon as they reconnect

AWS Management Console

The next section deals with Internet of Things.

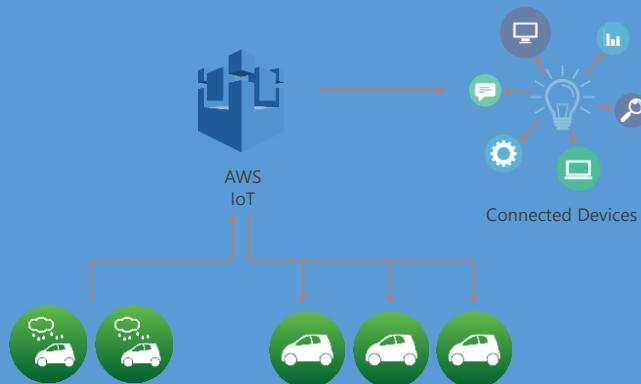


IoT **Internet of Things**
 AWS IoT

The next section is Internet of Things.

Internet of Things

AWS IoT is a managed cloud platform that lets connected devices interact with cloud applications and other devices easily and securely.



AWS Internet of Things (IoT) is a managed cloud platform that lets connected devices, such as cars, light bulbs, and sensor grids interact with cloud applications and other devices easily and securely.

Internet of Things (Contd.)

AWS Greengrass is a software that lets you securely run local compute, messaging, and data caching for connected devices.



AWS Greengrass

- AWS Greengrass is a software that lets you securely run local compute, messaging, and data caching for connected devices.
With AWS Greengrass, connected devices can run AWS Lambda functions, keep device data in sync, and communicate with other devices securely even when not connected to the Internet.

Internet of Things (Contd.)

Amazon IoT analytics makes it easy to run sophisticated analytics on huge volumes of IoT data.
IoT Analytics is a BI tool for IoT data.



Makes it easy to run sophisticated analytics on huge volumes of IoT data
BI tool for IoT data

Internet of Things (Contd.)

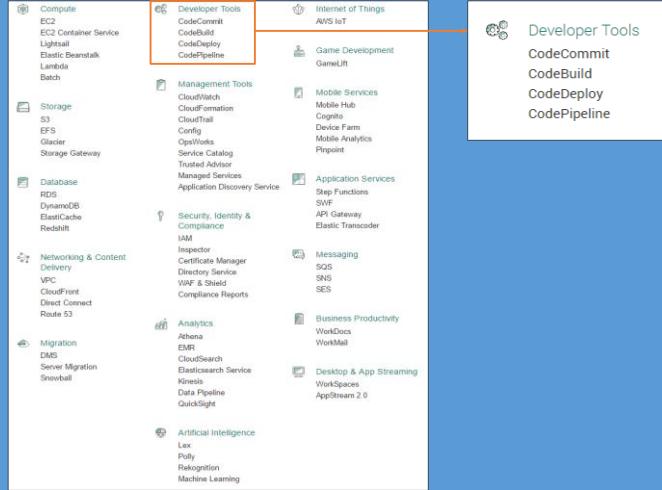
Managing all your IoT devices in one central location makes it easy to onboard, organize, monitor, and manage them.



Manage all your IoT devices in one central location
Easy to onboard, organize, monitor and manage

AWS Management Console

The next section deals with Developer Tools.



The screenshot shows the AWS Management Console with a focus on the 'Developer Tools' section. A red arrow points from the 'Developer Tools' link in the main navigation bar to the 'Developer Tools' section in the center. This section contains links to CodeCommit, CodeBuild, CodeDeploy, and CodePipeline. The rest of the console interface shows various other service categories like Compute, Storage, Database, Networking & Content Delivery, Migration, and more, each with their respective service icons and names.

The next section is Developer Tools.

Developer Tools

AWS CodeCommit creates AWS hosted version control for your code.



CodeCommit allows you to create AWS hosted version control for your code.

Developer Tools (Contd.)

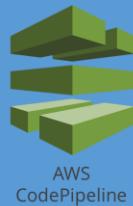
Through AWS CodeDeploy, you can get your code from CodeCommit repository and deploy it to your EC2 instances.



Code Deploy allows you to get your code from CodeCommit repository and deploy it to your EC2 instances.

Developer Tools (Contd.)

AWS CodePipeline is a continuous delivery service for fast and reliable application updates.



AWS CodePipeline is a continuous delivery service for fast and reliable application updates. CodePipeline builds, tests, and deploys your code every time there is a code change based on the release process models you define.

Developer Tools (Contd.)

AWS X-Ray helps developers analyze and debug production and distributed applications, such as those built using micro services.



- AWS X-Ray helps developers analyze and debug production and distributed applications, such as those built using micro services. X-Ray can help you to understand how your application and its underlying services are performing so you can identify and troubleshoot the root cause of performance issues and errors.

Developer Tools (Contd.)

AWS CodeBuild is a fully-managed build service that compiles source code, runs tests, and produces software packages that are ready to be deployed.



AWS CodeBuild

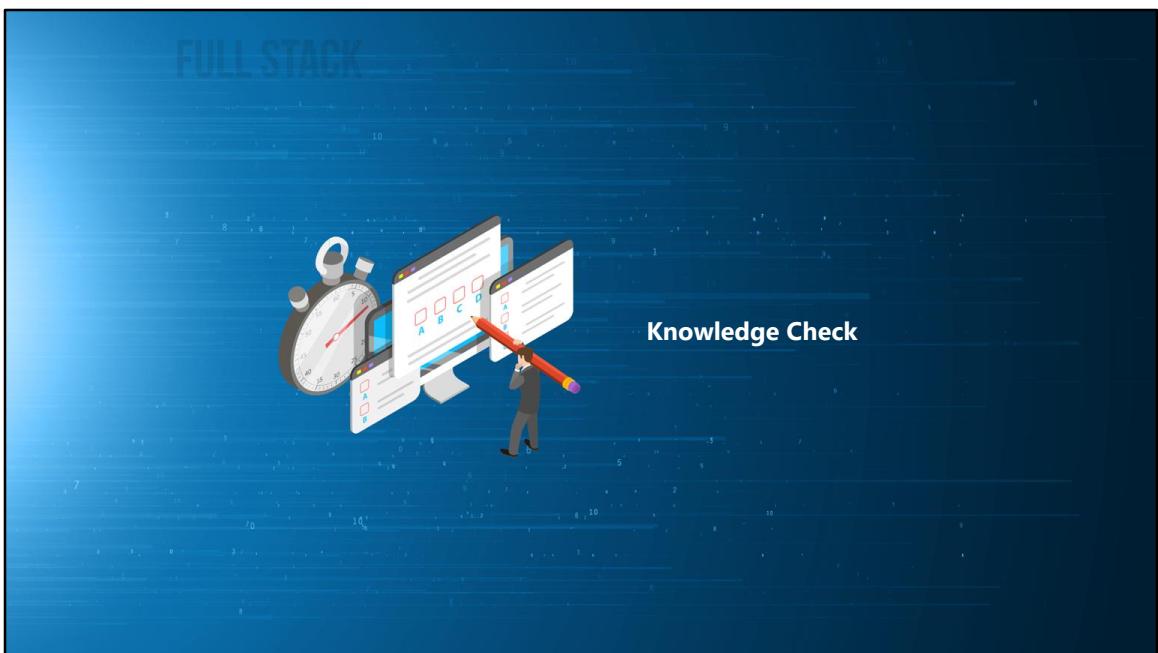
- AWS CodeBuild is a fully managed build service that compiles source code, runs tests, and produces software packages that are ready to be deployed.

Developer Tools (Contd.)

Amazon cloud9 is a cloud-based development environment that runs in a browser and can be shared with the team to allow pair programming.



A cloud based development environment that runs in a browser
Shareable with team to allow for pair programming



Knowledge**Check**

Which service allows you to save mobile user data in the AWS cloud?

1

- a. Cognito
- b. SNS
- c. Device Farm
- d. Mobile Hub

**Knowledge
Check****Which service allows you to save mobile user data in the AWS cloud?****1**

- a. Cognito
- b. SNS
- c. Device Farm
- d. Mobile Hub

The correct answer is **a**

Cognito allows you to save mobile user data in the cloud. SNS (Simple Notification Service) allows you to send mobile notifications, emails, and SMS; Mobile Hub is the tool to build, test, and monitor your mobile apps.

Knowledge**Check****2 Which AWS service is used as a code repository?**

- a. CodeDeploy
- b. CodeCommit
- c. CodePipeline
- d. Lambda

Knowledge**Check****Which AWS service is used as a code repository?****2**

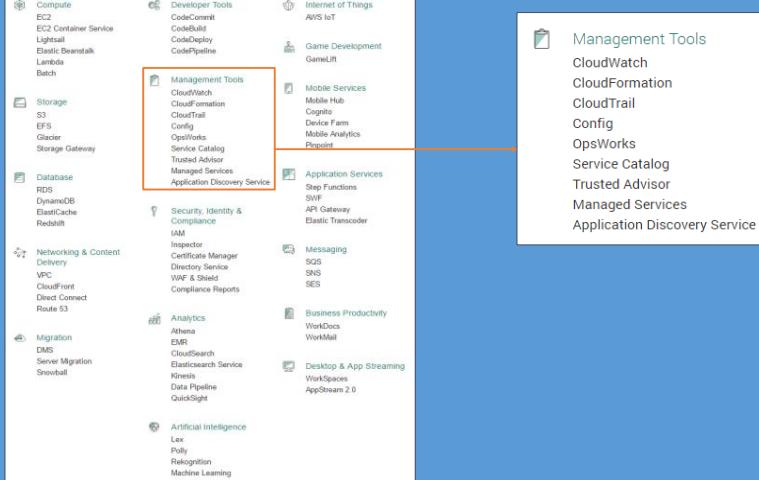
- a. CodeDeploy
- b. CodeCommit
- c. CodePipeline
- d. Lambda

The correct answer is **b**

CodeCommit allows you to store code repositories in the cloud. CloudDeploy is used to get code from your repository and deploy it to your EC2 instances; CodePipeline builds, tests, and deploys your code every time there is a code change; Lambda allows you to run code without having to provision or manage servers.

AWS Management Console

The next section deals with Management Tools.



The screenshot shows the AWS Management Console interface. On the left, there's a navigation pane with several categories: Compute (EC2, Lambda, Batch), Storage (S3, EFS, Glacier, Storage Gateway), Database (RDS, DynamoDB, ElastiCache, Redshift), Networking & Content Delivery (VPC, CloudFront, Direct Connect, Route 53), Migration (DMS, Server Migration, Snowball), and Artificial Intelligence (Lex, Polly, Rekognition, Machine Learning). The middle section contains various service links like Developer Tools (CodeCommit, CodeBuild, CodeDeploy, CodePipeline), Internet of Things (AWS IoT), Game Development (GameLift), Management Tools (CloudWatch, CloudFormation, CloudTrail, Config, OpsWorks, Service Catalog, Trusted Advisor, Managed Services, Application Discovery Service), Application Services (Step Functions, API Gateway, Elastic Transcoder), Messaging (SQS, SNS, SES), Analytics (Athena, EMR, CloudSearch, Elasticsearch Service, Kinesis, Data Pipeline, QuickSight), Business Productivity (WorkDocs, WorkMail), and Desktop & App Streaming (WorkSpaces, AppStream 2.0). A callout box on the right highlights the 'Management Tools' section, which includes CloudWatch, CloudFormation, CloudTrail, Config, OpsWorks, Service Catalog, Trusted Advisor, Managed Services, and Application Discovery Service.

The next section is Management Tools.

Management Tools

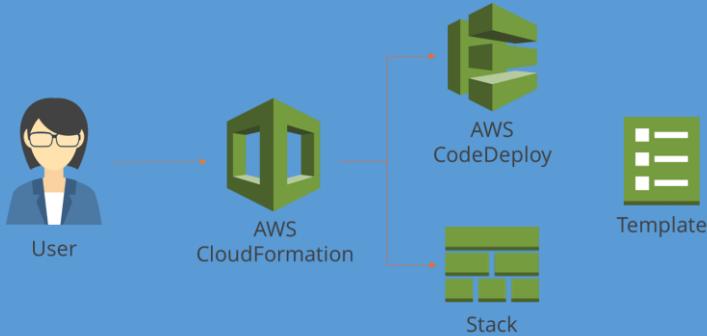
CloudWatch enables monitoring of EC2 and other Amazon cloud services so you can get alerts when an error occurs or when AWS services are disconnected.



CloudWatch enables monitoring of EC2 and other Amazon cloud services, so you can get alerts when an error occurs or when AWS services are disconnected.

Management Tools (Contd.)

CloudFormation allows you to set up a bunch of connected AWS services together.



CloudFormation allows you to set up a bunch of connected AWS services together.

Management Tools (Contd.)

CloudTrail audits user activity on your AWS resources.



CloudTrail audits user activity on your AWS resources.

Management Tools (Contd.)

AWS Config keeps track of configuration management changes.



Config keeps track of configuration management changes. You can create rules to ensure that your config isn't changing.

Management Tools (Contd.)

OpsWorks helps configure and manage operations using Chef.



OpsWorks is a configuration management service that helps configure and manage operations using Chef. It handles your application running with features such as auto-scaling.

Management Tools (Contd.)

Service Catalog gives other AWS users in your group access to preset apps you've built.



Service Catalog gives other AWS users in your group access to the preset apps you've built.

Management Tools (Contd.)

Trusted Advisor is an automated service that identifies areas in your AWS setup where you're overpaying (for example, unused EC2 instances).



Trusted Advisor is an automated service that identifies areas in your AWS setup where you're overpaying.

Management Tools (Contd.)

AWS Personal Health Dashboard provides alerts and remediation guidance when AWS is experiencing events that may impact you.



AWS Personal Health Dashboard

AWS Personal Health Dashboard provides alerts and remediation guidance when AWS is experiencing events that may impact you.

Management Tools (Contd.)

Amazon Systems Manager is a unified UI that provides a view of all operational data from multiple AWS services.
It allows automation of operation tasks.



<http://www.msbiblog.com/2017/07/20/data-warehouse-automation-thoughts/>

Unified UI to provide a view of all operational data from multiple AWS services
Allows automation of operation tasks

Management Tools (Contd.)

AWS Control Tower allows you to set up and govern a secure, compliant multi-account AWS environment

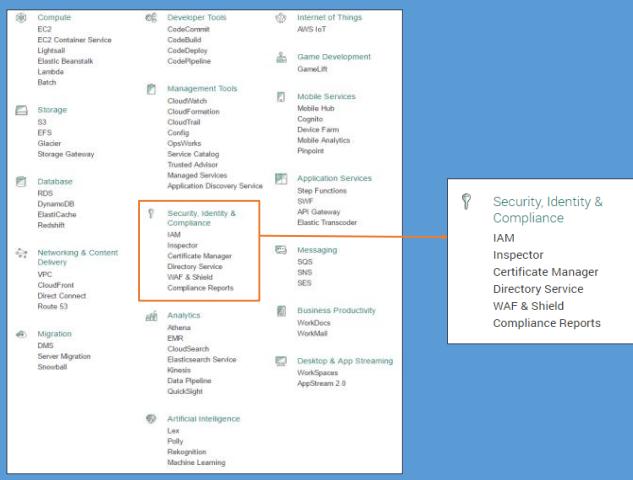


AWS Control Tower

The easiest way to set up and govern a secure, compliant multi-account AWS environment. Coming soon.

AWS Management Console

The next section deals with Security and Identity.



Navigation menu:

- Compute
 - EC2
 - EC2 Container Service
 - Lambda
 - Elastic Beanstalk
 - Batch
- Storage
 - S3
 - Amazon EFS
 - Glacier
 - Storage Gateway
- Database
 - RDS
 - DynamoDB
 - Elasticache
 - Redshift
- Networking & Content Delivery
 - VPC
 - CloudFront
 - Direct Connect
 - Route 53
- Migration
 - DMS
 - Server Migration
 - Snowball
- Analytics
 - Amazon EMR
 - CloudSearch
 - Elasticsearch Service
 - QuickSight
- Artificial Intelligence
 - Lex
 - Foto
 - Rekognition
 - Machine Learning
- Developer Tools
 - CodeCommit
 - CodeBuild
 - CodeDeploy
 - CodePipeline
- Internet of Things
 - AWS IoT
- Game Development
 - Gamelift
- Management Tools
 - CloudWatch
 - CloudFormation
 - CloudTrail
 - Config
 - OpsWorks
 - Service Catalog
 - Trusted Advisor
 - Managed Services
 - Amazon CloudWatch Metrics Insights Service
- Mobile Services
 - Mobile Hub
 - Cognito
 - Device Farm
 - Mobile Analytics
 - Pinpoint
- Application Services
 - Step Functions
 - API Gateway
 - Elastic Transcoder
- Messaging
 - SQS
 - SNS
 - SES
- Business Productivity
 - WorkDocs
 - WorkMail
- Desktop & App Streaming
 - WorkSpaces
 - AppStream 2.0

Security, Identity & Compliance

- IAM
- Inspector
- Certificate Manager
- Directory Service
- WAF & Shield
- Compliance Reports

The next section is Security and Identity.

Security and Identity

Identity and Access Management allows you to set up additional users, new AWS Keys, and policies.



Identity and access management allows you to set up additional users, new AWS Keys, and policies.

Security and Identity (Contd.)

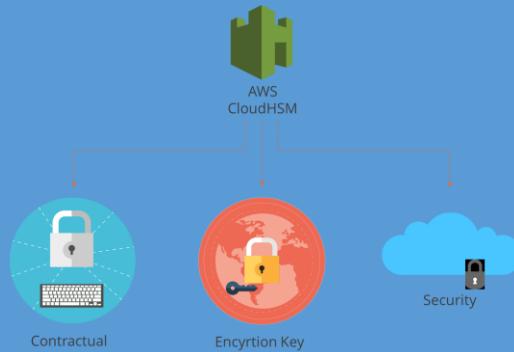
Amazon Inspector installs agents on your EC2 instances to scan AWS setup to determine its security.



Inspector installs agents on your EC2 instances to scan your AWS setup to determine if you've set it up in an insecure way.

Security and Identity (Contd.)

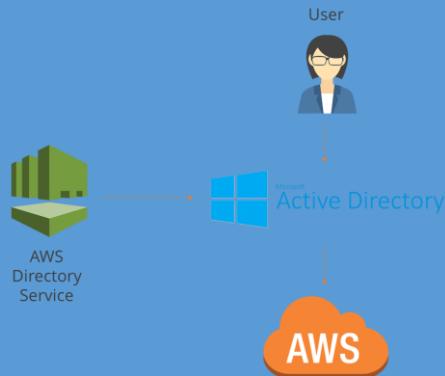
AWS CloudHSM service helps you meet corporate, contractual, and regulatory compliance requirements for data security using dedicated Hardware Security Module (HSM) appliances within the AWS cloud.



The AWS CloudHSM service helps you meet corporate, contractual, and regulatory compliance requirements for data security by using dedicated Hardware Security Module (HSM) appliances within the AWS cloud. With CloudHSM, you control the encryption keys and cryptographic operations performed by the HSM.

Security and Identity (Contd.)

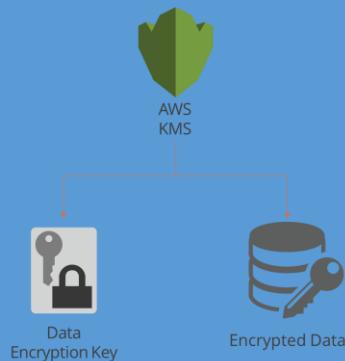
AWS Directory Service makes it easy to set up and run Microsoft Active Directory (AD) in the AWS cloud or connect your AWS resources with an existing on-premises Microsoft Active Directory.



AWS Directory Service makes it easy to set up and run Microsoft Active Directory (AD) in the AWS cloud, or connect your AWS resources with an existing on-premises Microsoft Active Directory.

Security and Identity (Contd.)

AWS Key Management Service (KMS) is a managed service that makes it easy for you to create and control the encryption keys used to encrypt your data and uses Hardware Security Modules (HSMs) to protect the security of your keys.



AWS Key Management Service (KMS) makes it easy for you to create and control the encryption keys used to encrypt your data and uses Hardware Security Modules (HSMs) to protect the security of your keys.

Security and Identity (Contd.)

Web application firewall blocks bad requests to CloudFront protected sites.



Web application firewall blocks bad requests to CloudFront protected sites.

Security and Identity (Contd.)

AWS Shield is a managed Distributed Denial of Service (DDoS) protection service that safeguards web applications running on AWS.



AWS Shield

- AWS Shield is a managed Distributed Denial of Service (DDoS) protection service that safeguards web applications running on AWS.
- Two tiers of AWS Shield are available:
 - Standard
 - Advanced

Security and Identity (Contd.)

AWS Certificate Manager (ACM) handles the complexity of provisioning, deploying, and managing SSL/TLS certificates for your AWS-based websites and applications.



AWS Certificate Manager

AWS Certificate Manager (ACM) handles the complexity of provisioning, deploying, and managing SSL/TLS certificates for your AWS-based websites and applications.

Security and Identity (Contd.)

The AWS Artifact portal provides on-demand access to AWS security and compliance documents, also known as audit artifacts.



The AWS Artifact portal provides on-demand access to AWS security and compliance documents, also known as audit artifacts.

Security and Identity (Contd.)

Amazon GuardDuty is a threat detection service. It protects your AWS accounts and workloads by continuously monitoring for unusual API calls or signs of compromised accounts.



Managed threat detection service

Protects your AWS accounts and workloads by continuously monitoring for unusual API calls or signs of compromised accounts.

Security and Identity (Contd.)

AWS Security Hub allows you to centrally view and manage security alerts and automate compliance checks

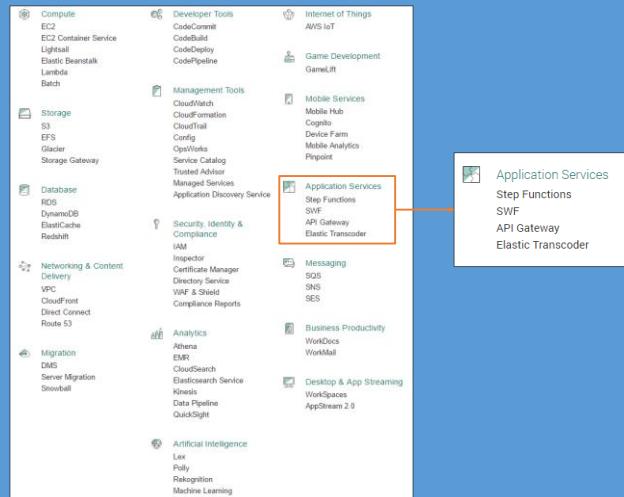


AWS Security Hub

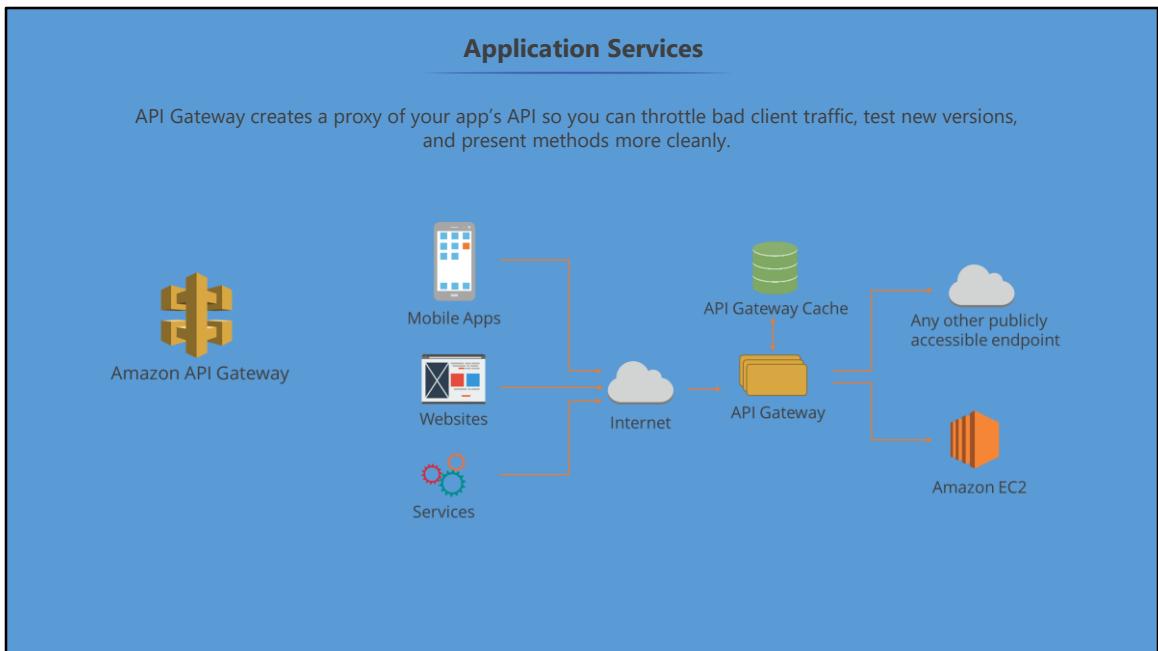
Centrally view and manage security alerts and automate compliance checks

AWS Management Console

The next section deals with Application Services.



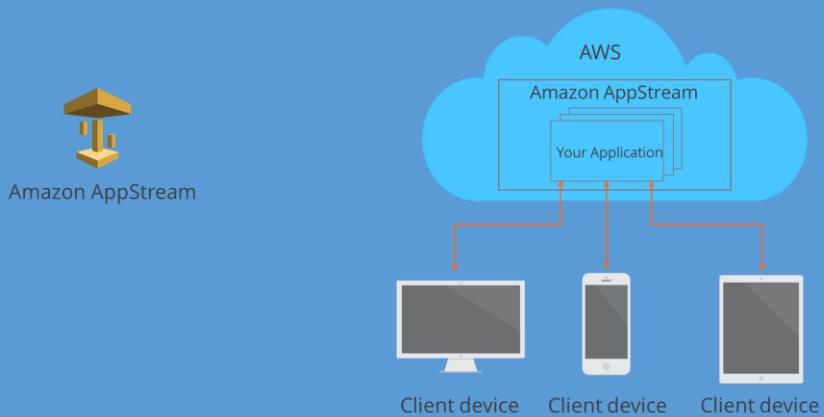
The next section is Application Services.



API Gateway proxy your apps API, so you can throttle bad client traffic, test new versions, and present methods more cleanly.

Application Services (Contd.)

AppStream lets you deliver your Windows applications to any device.



AppStream lets you deliver your Windows applications to any device. It puts a copy of a Windows application on a Windows machine, which can be remotely accessible by users.

Application Services (Contd.)

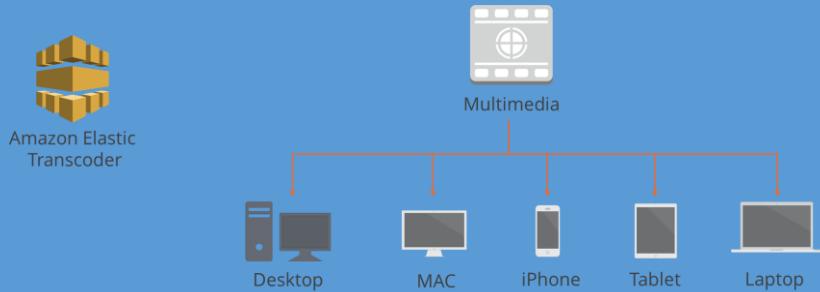
CloudSearch is Amazon's full-text search.



CloudSearch is Amazon's full-text search. You can pull in data on S3 or in RDS and then search it for every instance of the words.

Application Services (Contd.)

Elastic Transcoder is a way of transcoding media files.



Elastic Transcoder is a way of transcoding media files. You can change formats or compress, video files in the cloud so that the media is usable on other devices.

Application Services (Contd.)

Simple Email Service or SES allows you to send one-off emails such as transactional marketing emails, password resets, and notifications.



Simple Email Service or SES allows you to send one-off emails such as transactional marketing emails, password resets, and notifications. You can link it with other AWS services such as Lambda.

Application Services (Contd.)

Simple Queue Service (SQS) is a hosted queue that increases the workflow between distributed components of applications that perform different tasks.



Simple Queue Service (SQS) is a hosted queue that increases the workflow between distributed components of applications that perform different tasks. SQS allows developers to easily move data without losing messages or requiring each component to be available always. SQS doesn't have any logic; it's a location to place and retrieve data.

Application Services (Contd.)

Amazon uses Simple Workflow Service (SWF) in its warehouses.



Amazon uses Simple Workflow Service (SWF) in its warehouses. SWF builds a service of "deciders" and "workers" on top of EC2 to accomplish a set task. Unlike SQS logic is set up inside the service to determine the time and the activity.

Application Services (Contd.)

Amazon MQ is a managed message broker service for Apache ActiveMQ.

It makes configuring and operating cloud-based message brokers easier and provides industry-standard APIs and protocols for messaging.



A managed message broker service for Apache ActiveMQ
Makes it easy to configure and operate cloud based message brokers
Provides industry standard APIs and protocols for messaging

Blockchain

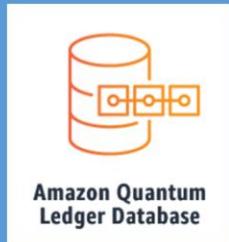
Amazon Managed Blockchain allows you to create and manage scalable blockchain networks



Amazon Managed Blockchain is a fully managed service that makes it easy to create and manage scalable blockchain networks using the popular open source frameworks Hyperledger Fabric and Ethereum*. Coming soon.

Blockchain (contd.)

Amazon Quantum Ledger Database (QLDB) is a fully managed ledger database



Amazon Quantum Ledger Database (QLDB)

Fully managed ledger database that provides a transparent, immutable, and cryptographically verifiable transaction log. Coming soon.

Migrations

AWS Migration Hub simplify and accelerate migrations to the AWS Cloud



AWS Migration Hub provides a single location to track the progress of application migrations across multiple AWS and partner solutions. Using Migration Hub allows you to choose the AWS and partner migration tools that best fit your needs, while providing visibility into the status of migrations across your portfolio of applications.

Migrations (Contd.)

AWS Transfer for SFTP is a fully managed SFTP service



AWS Transfer for SFTP is a fully managed service that enables the transfer of files directly into and out of Amazon S3 using the Secure File Transfer Protocol (SFTP)—also known as Secure Shell (SSH) File Transfer Protocol.

Migrations (contd.)

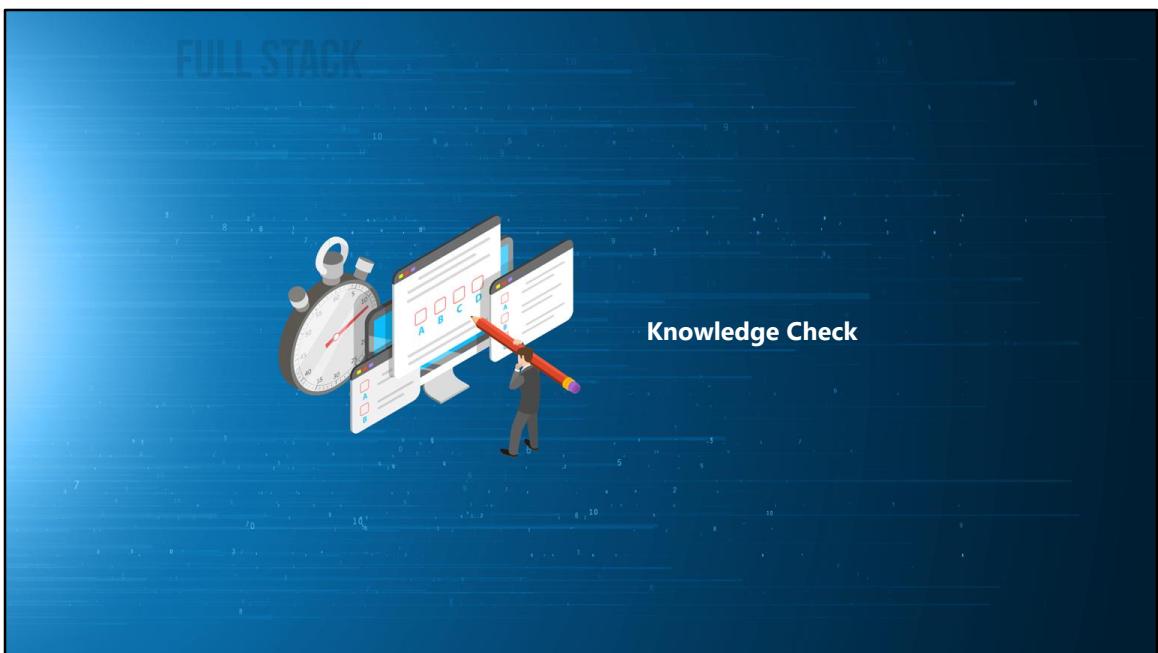
AWS offers a suite of services to help you migrate servers, data and applications to the cloud:

- [Database Migration Service](#)
- [Server Migration Service](#)
- [Snowball](#)

AWS Server Migration Service (SMS) is an agentless service which makes it easier and faster for you to migrate thousands of on-premises workloads to AWS

AWS Database Migration Service helps you migrate databases to AWS quickly and securely. The source database remains fully operational during the migration, minimizing downtime to applications that rely on the database. The AWS Database Migration Service can migrate your data to and from most widely used commercial and open-source databases.

The Snow family of services offers a number of physical devices and capacity points, including some with built-in compute capabilities



**Knowledge
Check****Which service is designed to assist with workflow?****1**

- a. SQS
- b. SES
- c. SNS
- d. SWF

**Knowledge
Check****Which service is designed to assist with workflow?****1**

- a. SQS
- b. SES
- c. SNS
- d. SWF

The correct answer is **d**

Simple Workflow Service (SWF) is a workflow control process that Amazon uses in its warehouses. Simple Queue Service (SQS) is a hosted queue that increases the workflow between distributed components of applications. Simple Notification Service (SNS) is used to send mobile notifications, emails, and/or SMS messages. Simple Email Service (SES) is used to send one-off emails.

Knowledge**Check****2 Which AWS service is used to control Active Directory?**

- a. Directory Service
- b. Direct Connect
- c. IoT
- d. KMS

Knowledge**Check****2****Which AWS service is used to control Active Directory?**

- a. Directory Service
- b. Direct Connect
- c. IoT
- d. KMS

The correct answer is **a**

Directory Service allows you to create Microsoft AD services in the cloud or join them to your existing on-site directories. Direct Connect joins your existing site with AWS directly. IoT is the AWS Internet of Things service, and KMS is key management service.

Knowledge**Check****Which AWS tool is used to track, monitor, and log IAM user activity?****3**

- a. CloudFormation
- b. Inspector
- c. CloudWatch
- d. CloudTrail

Knowledge**Check****Which AWS tool is used to track, monitor, and log IAM user activity?****3**

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- c. CloudWatch
- d. CloudTrail

The correct answer is **Inspector**

CloudTrail is used to track user activity. **CloudFormation** allows you to manage resources with templates. **CloudWatch** monitors application activity, and **Inspector** analyzes application security.

Key Takeaways

1. Amazon Web Services (AWS) is a secure cloud services platform that offers cloud-based infrastructure for compute, database storage, content delivery, and other functionalities to help businesses scale and grow.
2. AWS is truly global; it is available all over the world through 16 geographic Regions.
3. A region is a geographic area isolated from other Amazon regions to provide the greatest possible fault tolerance. Availability Zones are located within a region, with at least two per region, and are connected via low-latency links.
4. Edge locations are CDNs and are located all over the world in major cities. They are used to provide content to end users with low latency.
5. AWS has various cloud-based products to help your business grow.

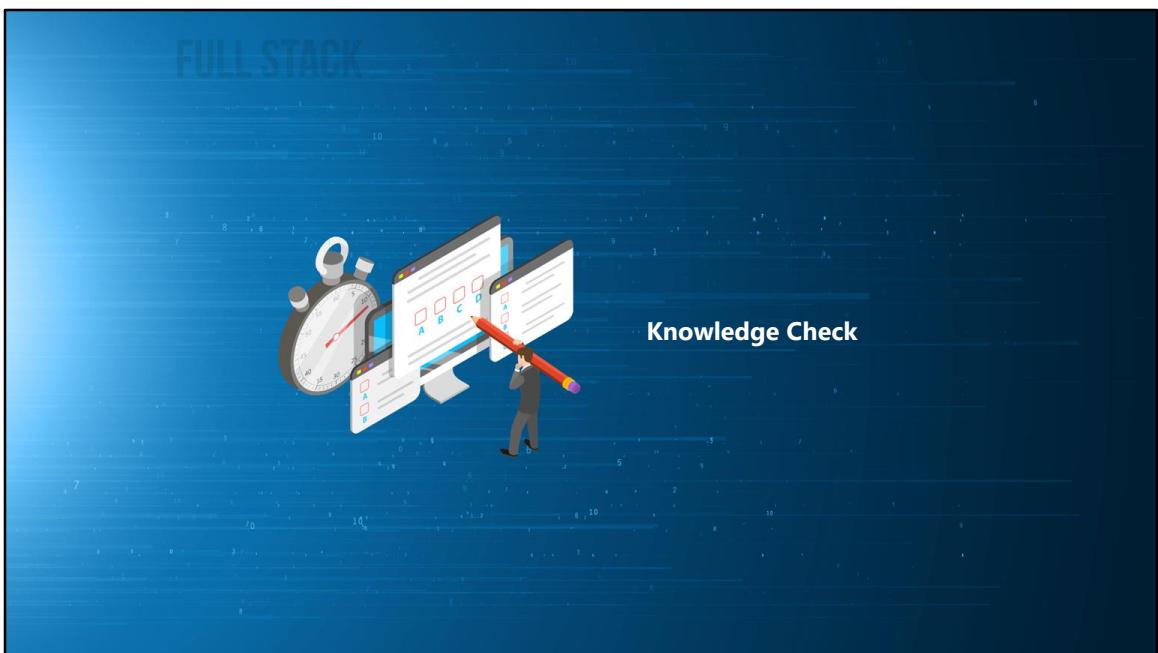
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Key Takeaways

- Amazon Web Services (AWS) is a secure cloud services platform that offers cloud-based infrastructure
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- AWS has various cloud-based products to help your business grow.
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**Knowledge
Check****What is Amazon's NoSQL product?****1**

- a. RDS
- b. DMS
- c. RedShift
- d. DynamoDB

**Knowledge
Check****What is Amazon's NoSQL product?****1**

- a. RDS
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The correct answer is **DMS**

DynamoDB is the NoSQL offering from AWS. RDS is their relational database server, DMS is their database migration server, and RedShift is their data warehousing service.

Knowledge**Check****2 Which of these services would you use for Data Warehousing?**

- a. DynamoDB
- b. Aurora
- c. RedShift
- d. ElastiCache

Knowledge**Check****Which of these services would you use for Data Warehousing?****2**

- a. DynamoDB
- b. Aurora
- c. RedShift
- d. ElastiCache

The correct answer is **c**

RedShift is the AWS Data Warehousing tool. DynamoDB is a NoSQL database, Aurora is Amazon's version of MySQL, and ElastiCache is used to cache database queries to reduce load on your database instances.

Knowledge**Check****Which AWS service can you use to create Chef recipes?****3**

- a. Elastic Map Reduce
- b. EC2 Container Service
- c. Lambda
- d. OpsWorks

Knowledge**Check****Which AWS service can you use to create Chef recipes?****3**

- a. Elastic Map Reduce
- b. EC2 Container Service
- c. Lambda
- d. OpsWorks

The correct answer is **d**

OpsWorks helps configure and manage operations using chef. Elastic Map Reduce helps to process large amounts of data using Hadoop, EC2 Container Service is used to run Docker containers, and Lambda lets you run code without provisioning or managing servers.

**Knowledge
Check****What is an AWS Region?**

4

- a. A distinct location within a geographic area designed to provide high availability to a specific geography
- b. An isolated data center
- c. A collection of RDS instances
- d. A service distributed all over the world to assist with content delivery

**Knowledge
Check****What is an AWS Region?**

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- d. A service distributed all over the world to assist with content delivery

The correct answer is **a**

There are multiple AWS Regions around the world (for example, on the US east coast or in Germany), and there are more coming online in different countries all the time.

**Knowledge
Check****What is an Availability Zone?**

5

- a. A networking term used in Route53
- b. A service configured in Elastic Load Balancing
- c. A monitoring metric defined in CloudWatch
- d. An isolated location inside a region

**Knowledge
Check****What is an Availability Zone?**

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- a. A networking term used in Route53
- b. A service configured in Elastic Load Balancing
- c. A monitoring metric defined in CloudWatch
- d. An isolated location inside a region

The correct answer is **d**

An Availability Zone is effectively a data center or collection of data centers that are located inside a Region.

Knowledge**Check****What is the minimum number of Availability Zones in a Region?****6**

- a. One
- b. Two
- c. Three
- d. Five

**Knowledge
Check****What is the minimum number of Availability Zones in a Region?****6**

- a. One
- b. Two
- c. Three
- d. Five

The correct answer is **b**

There are always at least two Availability Zones in a Region to provide fault tolerance.

Knowledge**Check****What is the main benefit of using an Edge Location?**

7

- a. Lower cost
- b. Reduced complexity
- c. Lower latency
- d. Workflow control

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- a. Lower cost
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- d. Workflow control

The correct answer is **c**

An edge location is where end users access services located at AWS. They are located in most of the major cities around the world and are specifically used by CloudFront (CDN) to distribute content to end user to reduce latency.