

Analytics

(**Amazon Athena, Amazon Redshift). **covered in Cloud Foundations Course

- AWS Data Exchange
 - to find, subscribe to, and use third-party data in the AWS Cloud
 - for providing, subscribing, and working with data-sets
- Amazon EMR (Elastic MapReduce)
 - to process large amounts of data (Big data)
 - works with Hadoop
- AWS Glue
 - prepares data for analytics
 - ETL (extract, transform, load) service
 - helps you better understand your data
- Amazon Kinesis
 - to analyze data and video streams in real time
 - for app monitoring or fraud detection
- Amazon Managed Streaming for Apache Kafka (AMS SSPS)
 - fully managed AWS streaming data service makes it easy for you to build and run applications that use Apache Kafka to process streaming data without needing to become an expert in operating Apache Kafka clusters
- Amazon OpenSearch Service
 - for querying and searching large amounts of data
 - to log analytics, full text search, application monitoring

- Amazon QuickSight
 - analytics service that makes it easy for all employees within an organization to build visualizations, perform ad-hoc analysis, and quickly get business insights from their data, anytime, on any device.

Application Integration

- Amazon EventBridge
 - delivers a stream of real-time data from your own application and AWS services and routes that data to targets such as AWS Lambda
- Amazon SNS (Simple Notification Service)
 - allows you to send emails (plain text—not pretty) and text messages from your app
 - For example, it would let the user know if someone logged into their account or if someone send them money, etc.
 - could also work with CloudWatch to send you an email when CPU utilization is reached
- Amazon SQS (Simple Queue Service)
 - a messaging queuing system that allows you to build loosely coupled systems
 - allows component to component communication using messages
- AWS Step Functions
 - a serverless orchestration service that lets you integrate with AWS Lambda functions and other AWS services to build business-critical applications.
 - a visual workflow service that helps developers use AWS services to build

distributed applications, automate processes, orchestrate microservices, and create data and machine learning (ML) pipelines.

Business Applications

- Amazon Connect
 - to build a cloud contact center or help desk, or 800 numbers
 - customer service functionality, improves productivity of help desk agents
- SES (Simple Email Service)
 - allows an email to send richly formatted HTML emails from your app (much prettier than SNS)
 - For example, marketing campaigns or used for transactional emails

Cloud Financial Management

Explorer)

(**AWS Budgets, AWS Cost and Usage Report, AWS Cost

- AWS Billing Conductor
 - models the billing relationship between you and your customers or business units.
 - it provides you with a mechanism to configure, generate, and display rates to certain customers over a given billing period.
- AWS Marketplace
 - a digital catalog of prebuilt solutions you can purchase or license (3rd party software)
 - you can sell your own solutions to others via marketplace

Compute

(**Amazon EC2, AWS Elastic Beanstalk, Amazon Lightsail)

- AWS Batch
 - batch processing at any scale
 - 100,000s of computing batch jobs (job that has a start and end)
 - dynamically launch EC2 and Spot Instances to handle them
- AWS Local Zones
 - an extension of an AWS Region to place resources in multiple locations closer to your end user
- AWS Outposts
 - to run cloud services in your internal data center for workloads that must remain on premises
 - AWS installs servers in your data center
 - hybrid experience to access cloud services and APIs to develop apps on premises
- AWS Wavelength
 - to build applications that deliver ultra-low latencies to 5G devices and end users

Containers (** Amazon ECR, Amazon ECS, Amazon EKS)

Customer Engagement

- AWS Activate for Startups
 - provides startups with the resources they need to build, launch, and scale on AWS

- AWS IQ
 - connects you to AWS Certified experts for hands-on help for your AWS projects
 - find, engage, and pay AWS Certified third-party experts for on-demand project work
- AWS Managed Services (AMS)
 - specializes in managing AWS infrastructure and services
 - can work with application teams to develop application specific health monitoring through standard AWS services such as Amazon CloudWatch
- AWS Support
 - provide you with proactive planning and communications, advisory, automation, and cloud expertise to help you achieve business outcomes with increased speed and scale in the cloud

Database (**Aurora, DynamoDB, Neptune, RDS)

- Amazon MemoryDB for Redis
 - a durable, in-memory database service that delivers ultra-fast performance
 - MemoryDB is compatible with Redis, a popular open source data store

Developer Tools (**AWS CLI)

- AWS AppConfig
 - simplifies the administration of applications at scale by deploying configuration changes from a central location

- helps deploy application configuration changes with features like validation check and deployment without needing to additional code or restarting the application service
- AWS Cloud9
 - an IDE (Integrated Development Environment) to write and debug code
- AWS CloudShell
 - a browser-based shell that makes it easier to securely manage, explore, and interact with your AWS resources. CloudShell is pre-authenticated with your console credentials.
- AWS CodeArtifact
 - a secure, highly scalable, managed artifact repository service that helps organizations to store and share software packages for application development
- AWS CodeBuild
 - build and test your app source code
 - produces artifacts ready to be deployed
 - For example, to run tests before deploying a new version of an app
- AWS CodeCommit
 - a source control system for private Git repositories
 - create repos, commit, branch, merge, etc. (similar to GitHub)
 - collaborate with other developers
- AWS CodeDeploy
 - manages the deployment of code to compute services in the cloud or on premises

- For example, when rolling out a new version this would eliminate downtime due to rolling deployments
- AWS CodePipeline
 - automates software release process
 - quickly delivers new features and updates
 - integrates with CodeBuild and CodeCommit to retrieve source code
- AWS CodeStar
 - helps developers collaboratively work on development projects
 - contains an issue tracking dashboard
- AWS X-Ray
 - debug and analyze production apps
 - map application components and view requests end-to-end

End-user Computing

- Amazon AppStream 2.0
 - empower your remote workforce and react quickly to changing conditions with access to applications and desktops from anywhere
 - secure, reliable, and scalable access to applications and non-persistent desktops from any location
- Amazon Workspaces
 - to host virtual desktops in the cloud
 - enables employees to work from home

- Amazon Workspaces Web
 - on-demand, fully managed, Linux-based service designed to facilitate secure browser access to internal websites and software-as-a-service (SaaS) applications
 - access the service from existing web browsers, without the administrative burden of infrastructure management, specialized client software, or virtual private network (VPN) solutions.

Frontend web and mobile services

- AWS Amplify
 - for building feature-rich, full-stack web and mobile apps
 - create a cross-platform backend for your iOS, Android, Flutter, web, or React Native app with real-time and offline functionality
- AWS AppSync
 - connects apps to data and events with real-time updates and offline functionality
 - creates serverless GraphQL and Pub/Sub APIs
- AWS Device Farm
 - an application testing service that lets you improve the quality of your web and mobile apps by testing them across an extensive range of desktop browsers and real mobile devices; without having to provision and manage any testing infrastructure.
 - run your tests concurrently on multiple desktop browsers or real devices to speed up the execution of your test suite, and generates videos and logs to help you quickly identify issues with your app

Internet of Things (IoT)

- AWS IoT Core
 - a managed cloud service that lets connected devices easily and securely interact with cloud applications and other devices.
 - support billions of devices and trillions of messages, and can process and route those messages to AWS endpoints and to other devices reliably and securely.
- AWS IoT Greengrass
 - helps you build, deploy and manage IoT applications on your devices
 - enables your devices to collect and analyze data closer to where that data is generated, react autonomously to local events, and communicate securely with other devices on the local network.

Machine Learning

- Amazon Comprehend
 - a natural language processing (NLP) service that finds insight and relationships in text
 - For example, to review social media posts
- Amazon Kendra
 - search large sets of text documents with intelligent enterprise search powered by machine learning to quickly create AI-powered conversational experiences for your users
- Amazon Lex
 - build conversational interfaces like chatbots (it's what powers Alexa)

- recognizes speech and understands language
- Amazon Polly
 - turns text into speech
 - naturally sounding, many languages, and custom voice
- Amazon Rekognition
 - automate image and video analysis
 - identify custom labels or face and text detection in images and videos
- Amazon SageMaker
 - build, train, and deploy machine
 - prepare data for models, then, train and deploy models
 - provide deep learning AMIs
 - For example, recommendation engine like Netflix or Amazon recommendations
- AmazonTextract
 - automatically extract printed text, handwriting, and data from any document
- Amazon Transcribe
 - convert video, audio to text
- Amazon Translate
 - language translator

Management and Governance

(**AWS Auto Scaling, AWS CloudTrail, Amazon

CloudWatch, AWS Config, AWS Health Dashboard, AWS Management Console, AWS Organizations, AWS Trusted Advisor, AWS Well-Architected Tool)

- AWS CloudFormation
 - a declarative way of outlining your AWS infrastructure using IaC (Infrastructure as code)
 - For example, in the AWS CloudFormation template you could tell it that you want a security group with two EC2 instances and an S3 bucket and a load balancer (ELB) in front of the machines and it would create it all for you in the right order with the exact configurations that you specify.
- AWS Compute Optimizer
 - a service that uses machine learning to analyzes the configuration and utilization metrics of your AWS resources. It reports whether your resources are optimal and generates optimization recommendations to reduce the cost and improve the performance of your workloads.
- AWS Control Tower
 - ensures your accounts conform to company-side policy
 - works with organizations and provides a dashboard to manage accounts
- AWS Launch Wizard
 - a guided way of sizing, configuring, and deploying AWS resources for third party applications without the need to manually identify and provision individual AWS resources.
- AWS License Manager
 - helps manage software licenses (on-premise or AWS)
- AWS Resource Groups and Tag Manager
 - to add, edit, or delete tags from multiple resources at once

- you can build a query for resources of various types, and then add, remove, or replace tags for the resources in your search results
- AWS Service Catalog
 - enables organizations to create and manage catalogs of IT services that are approved for AWS
 - End users can quickly deploy only the approved IT services they need, following the constraints set by your organization.
- AWS System Manager
 - visibility and control over AWS resources by automating operational tasks
 - For example, patch and run commands on multiple EC2 instances or manage RDS instances

Migration and Transfer (**AWS Database Migration Service)

- AWS Application Discovery Service
 - helps you plan application migration projects. It automatically identifies servers, virtual machines (VMs), and network dependencies in your on-premises data centers.
- AWS Application Migration Service
 - to migrate applications
 - automates the conversion of your source servers to run natively on AWS
- AWS Migration Hub
 - provides a single place to discover your existing servers, plan migrations, and track the status of each application migration.
- AWS SCT (Schema Conversion Tool)
 - provides a project-based user interface to automatically convert the database schema of your source database into a format compatible with your target Amazon RDS instance

- AWS Snow Family
 - Snowcone - smallest data transport device (8TB)
 - Snowball
 - petabyte scale to transfer in and out
 - cheaper than transferring over the Internet
 - Snowmobile - multi-petabyte or exabyte scale
- AWS Transfer Family
 - a secure transfer service that enables you to transfer files into and out of AWS storage service

Networking and Content Delivery (**Amazon CloudFront, AWS Direct Connect, Amazon Route 53, Amazon VPC, AWS VPN)

- Amazon API Gateway
 - for building APIs like REST or HTTP or websocket APIs
- Amazon Global Accelerator
 - speeds up delivery and improves latency and availability of single region apps
 - sends traffic through AWS global infrastructure and re-routes to healthy endpoints

Security, Identity, and Compliance (** AWS Artifact, Amazon Cognito, Amazon GuardDuty, AWS IAM, AWS KMS, AWS Shield)

- AWS Audit Manager
 - to map your compliance requirements to AWS usage data with prebuilt and custom frameworks and automated evidence collection.

- AWS Certificate Manager (ACM)
 - provision and manage SSL and TLS certificates
- AWS CloudHSM (Hardware Security module)
 - dedicated hardware for security (AWS provides, but doesn't have access to your keys)
 - allows you to generate and manage your own keys
- Amazon Detective
 - automatically collects log data from your AWS resources and uses machine learning (ML), statistical analysis, and graph theory to build a linked dataset that you can use to conduct more efficient security investigations.
- AWS Directory Service
 - provides multiple directory choices for customers who want to use existing Microsoft AD or Lightweight Directory Access Protocol (LDAP)–aware applications in the cloud. It also offers those same choices to developers who need a directory to manage users, groups, devices, and access.
- AWS Firewall Manager
 - a security management service which allows you to centrally configure and manage firewall rules across your accounts and applications in AWS Organization.
- AWS IAM Identity Center
 - a single place where you can assign your workforce users, also known as workforce identities, consistent access to multiple AWS accounts and applications.
 - for single sign-on access to multiple AWS accounts
- Amazon Inspector

- works with EC2 instances to uncover and report vulnerabilities
- the agent is installed on EC2 and reports on vulnerabilities found
- Amazon Macie
 - discover and protect sensitive data using machine language
 - evaluates S3 environments to uncover (PII) personal identifiable information like SSN, passwords, credit card numbers, etc
- AWS Network Firewall
 - stateful, managed, network firewall and intrusion detection and prevention service for your virtual private cloud (VPC)
- AWS Resource Access Manager (AWS RAM)
 - helps you securely share your resources across AWS accounts, within your organization or organizational units (OUs) in AWS Organizations, and with IAM roles and IAM users for supported resource types
 - you can use AWS RAM to share resources with other AWS accounts\
- AWS Secrets Manager
 - rotate, manage, retrieve and store secrets (passwords or keys)
 - encrypts secrets at rest
 - integrates with RDS, RedShift, and DocumentDB
- AWS Security Hub
 - to automate security best practice checks, aggregate security alerts into a single place and format, and understand your overall security posture across all of your AWS accounts.

- AWS WAF (Web Application Firewall)
 - protects web apps against common web attacks like SQL injection and cross-site scripting
 - for example, you could deploy WAF on CloudFront as part of CDN solution to block malicious traffic

Serverless

(**AWS Fargate, AWS Lambda)

Storage

(**AWS Backup, Amazon EBS, Amazon EFS, Amazon S3, Amazon S3 Glacier)

- AWS Elastic Disaster Recovery (AWS DRS)
 - reliable recovery of on-premises and cloud-based applications using affordable storage, minimal compute, and point-in-time recovery
 - to initiate secure data replication
- Amazon FSx
 - to launch, run, and scale feature-rich, high-performance file systems in the cloud
- AWS Storage Gateway
 - a hybrid cloud storage service (on-premise to AWS) for backups
 - gives you on-premises access to virtually unlimited cloud storage
 - optimizes data transfer to AWS by sending only changed data and compressed data

Technical Resources and AWS Support Options

- AWS Prescriptive Guidance

- provides time-tested strategies, guides, and patterns to help accelerate your cloud migration, modernization, and optimization projects.
- AWS Knowledge Center
 - articles and videos covering the most frequent questions and requests
- AWS re:Post
 - a cloud knowledge service that helps builders remove technical roadblocks, accelerate innovation, and operate efficiently
 - covers the most frequent questions and requests from builders.
- AWS Health API
 - the primary channel to communicate service degradation, scheduled changes, and resource impacting issues
- AWS Trust and Safety
 - a global team that helps protect against abusive use of AWS services while simultaneously working to build trust with AWS's customers, partners, and other stakeholders.
- Security Center
 - a central location from which you can obtain the latest versions of our security whitepaper, receive security updates and where you can report any security concern
- Security Blog
 - real-world solutions, announcements, and event coverage from AWS security specialists
- APN (AWS Partner Network)
 - a global community of approved partners that offer software solutions and

consulting services for AWS

- where you can find consulting partners offering professional services
- can find approved vendors with deep AWS expertise
- help with designing and building a new app