

Compute		
Category	Service	Description
<b>Instances (Virtual machines)</b>	EC2	Provides secure, resizable compute capacity in the cloud. It makes web-scale cloud computing easier for developers. EC2
	EC2 Spot	Run fault-tolerant workloads for up to 90% off. EC2Spot
	EC2 AutoScaling	Automatically add or remove compute capacity to meet changes in demand. EC2_AutoScaling

Compute (cont)		
	Lightsail	Designed to be the easiest way to launch & manage a virtual private server with AWS. An easy-to-use cloud platform that offers everything need to build an application or website. Lightsail
	Batch	Enables developers, scientists, & engineers to easily & efficiently run hundreds of thousands of batch computing jobs on AWS. Fully managed batch processing at any scale. Batch
<b>Containers</b>	Elastic Container Service (ECS)	Highly secure, reliable, & scalable way to run containers. ECS

Compute (cont)		
	Elastic Container Registry (ECR)	Easily store, manage, & deploy container images. ECR
	Elastic Kubernetes Service (EKS)	Fully managed Kubernetes service. EKS
	Fargate	Serverless compute for containers. Fargate
<b>Serverless</b>	Lambda	Run code without thinking about servers. Pay only for the compute time you consume. Lamda
<b>Edge and hybrid</b>	Outposts	Run AWS infrastructure & services on premises for a truly consistent hybrid experience. Outposts
	Snow Family	Collect and process data in rugged or disconnected edge environments. SnowFamily



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### Compute (cont)

**Wavelength** Deliver ultra-low latency application for 5G devices. Wavelength

**VMware Cloud on AWS** Innovate faster, rapidly transition to the cloud, & work securely from any location. VMware\_On\_AWS

**Local Zones** Run latency sensitive applications closer to end-users. LocalZones

### Storage

Service	Description
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AWS S3	S3 is the storehouse for the internet i.e. object storage built to store & retrieve any amount of data from anywhere S3
--------	---

AWS Backup	AWS Backup is an externally-accessible backup provider that makes it easier to align & optimize the backup of data across AWS services in the cloud. AWS_Backup
------------	---

### Storage (cont)

**Amazon EBS** Amazon Elastic Block Store is a web service that provides block-level storage volumes. EBS

**Amazon EFS Storage** EFS offers file storage for the user's Amazon EC2 instances. It's kind of blob Storage. EFS

**Amazon FSx** FSx supply fully managed 3rd-party file systems with the native compatibility & characteristic sets for workloads. It's available as FSx for Windows server (Fully managed file storage built on Windows Server) & Lustre (Fully managed high-performance file system integrated with S3). FSx\_Windows FSx\_Lustre

**AWS Storage Gateway** Storage Gateway is a service which connects an on-premises software appliance with cloud-based storage. Storage\_Gateway

### Storage (cont)

**AWS DataSync** DataSync makes it simple & fast to move large amounts of data online between on-premises storage & S3, EFS, or FSx for Windows File Server. DataSync

**AWS Transfer Family** The Transfer Family provides fully managed support for file transfers directly into & out of S3. Transfer\_Family

**AWS Snow Family** Highly-secure, portable devices to collect & process data at the edge, and migrate data into and out of AWS. Snow\_Family

#### Classification:

**Object storage:** S3

**File storage services:** Elastic File System, FSx for Windows Servers & FSx for Lustre

**Block storage:** EBS

**Backup:** AWS Backup

**Data transfer:**

*Storage gateway* --> 3 types: Tape, File, Volume.

*Transfer Family* --> SFTP, FTPS, FTP.

*Edge computing and storage and Snow Family* --> Snowcone, Snowball,

Snowmobile

### Databases

Database type	Use cases	Service	Description
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Databases (cont)		Databases (cont)		Databases (cont)					
<b>Relational</b>	Traditional applications, ERP, CRM, e-commerce	Aurora, RDS, Redshift	RDS is a In-memory web service that makes it easier to set up, control, and scale a relational database in the cloud. Aurora RDS Redshift	Caching, session management, gaming leaderboards, geospatial applications	ElastiCache for Memcached & Redis	ElastiCache helps with setting up and scaling in-memory cache conditions. Memcached Redis	Wide column storage helps manage large amounts of data for industrial equipment maintenance, fleet management, and route optimization.	Keyspaces (for Apache Cassandra)	Keyspaces is a scalable highly available and managed Apache Cassandra-compatible database service. Keyspaces
<b>Key-value</b>	High-traffic web apps, e-commerce systems, gaming applications	DynamoDB	DynamoDB is a fully administered NoSQL database service that offers quick and reliable performance with integrated scalability. DynamoDB	<b>Document</b> Content management, catalogs, user profiles	DocumentDB	DocumentDB (with MongoDB compatibility) is a quick, dependable, and fully-managed database. DocumentDB makes it easy for you to set up, operate, and scale MongoDB-compatible databases. DocumentDB	Graph database. That's what you need for social networking, content recommendation engines	Neptune	Neptune a fast, reliable, fully managed graph database service that makes it easy to build and run applications that work with highly connected datasets. Neptune



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### Databases (cont)

<b>Time series</b>	IoT applications, DevOps, industrial telemetry	Timestream	Timestream is a fast, scalable, and serverless time series database service for IoT and operational applications that makes it easy to store and analyze trillions of events per day. Timestream
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### Databases (cont)

<b>Ledger</b>	Systems of record, supply chain, registrations, banking transactions	Quantum Ledger Database (QLDB)	QLDB is a fully managed ledger database that provides a transparent, immutable, and cryptographically verifiable transaction log owned by a central trusted authority. QLDB
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### Developer Tools (cont)

<b>CodeArtifact</b>	CodeArtifact is a fully managed artifact repository service that makes it easy for organizations of any size to securely store, publish, & share software packages used in their software development process. CodeArtifact
<b>CodeBuild</b>	CodeBuild is a fully managed service that assembles source code, runs unit tests, & also generates artefacts ready to deploy. CodeBuild
<b>CodeGuru</b>	CodeGuru is a developer tool powered by machine learning that provides intelligent recommendations for improving code quality & identifying an application's most expensive lines of code. CodeGuru

### Developer Tools

Service	Description
Cloud9	Cloud9 is a cloud-based IDE that enables the user to write, run, and debug code. Cloud9



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### Developer Tools (cont)

**Cloud Development Kit**  
Cloud Development Kit (AWS CDK) is an open source software development framework to define cloud application resources using familiar programming languages. CDK

**CodeCommit**  
CodeCommit is a version control service that enables the user to personally store & manage Git archives in the AWS cloud. CodeCommit

**CodeDeploy**  
CodeDeploy is a fully managed deployment service that automates software deployments to a variety of compute services such as EC2, Fargate, Lambda, & on-premises servers. CodeDeploy

**CodePipeline**  
CodePipeline is a fully managed continuous delivery service that helps automate release pipelines for fast & reliable app & infra updates. CodePipeline

### Developer Tools (cont)

**CodeStar**  
CodeStar enables to quickly develop, build, & deploy applications on AWS. CodeStar

**CLI**  
AWS CLI is a unified tool to manage AWS services & control multiple services from the command line & automate them through scripts. CLI

**X-Ray**  
X-Ray helps developers analyze & debug production, distributed applications, such as those built using a microservices architecture. X-Ray

### Migration & Transfer services

Service	Description
Migration Evaluator	Build a data-driven business case for AWS. ME
Migration Hub	Migration Hub provides a single location to track the progress of app migrations across multiple AWS & partner solutions. MigrationHub

### Migration & Transfer services (cont)

**Application Discovery Service**  
Application Discovery Service helps enterprise customers plan migration projects by gathering information about their on-premises data centers. ADS

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

**Database Migration Service (DMS)**  
DMS helps migrate databases to AWS quickly & securely. DMS

**CloudEndure Migration**  
CloudEndure Migration simplifies, expedites, & reduces the cost of cloud migration by offering a highly automated lift-&-shift solution. CloudEndure

**VMware Cloud on AWS**  
Refer compute section.

**DataSync**  
Refer storage section.

**Transfer Family**  
Refer storage section.

**Snow Family**  
Refer storage section.

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Cost Management				Cost Management (cont)				Cost Management (cont)			
<b>Use cases</b>	<b>Capabilities</b>	<b>Service</b>	<b>Description</b>	<b>Report</b>	<b>Raise</b>	<b>1) Cost</b>	<b>Cost &amp; Usage</b>	<b>Control</b>	<b>Establish</b>	<b>1) IAM</b>	<b>Organi-</b>
Organize	Construct cost allocation & governance foundation with your own tagging strategy	1) Cost Allocation Tags 2) Cost Categories	Cost Categories is a feature within AWS Cost Management product suite that enables group cost & usage information into meaningful categories based on needs. CostAllocationTags CostCategories		awareness & accountability of your cloud spend with the detailed, allocable cost data	Explorer & Usage Report	Report contains the most comprehensive set of AWS cost & usage data available, including additional metadata about AWS services, pricing, & reservations. CostExplorer CUR		effective governance with the right guardrails in place	2) Organizations 3) Control Tower 4) Service Catalog	zations helps centrally govern environment as you grow & scale workloads on AWS. Control tower is the easiest way to set up & govern a new, secure multi-account AWS environment. Control Tower
				<b>Access</b>	<b>Track</b>	<b>1) Consolidated Billing Credits</b>	credits are applied to bills to help cover costs that are associated with eligible services. ConsolidatedBilling Credits				



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### Cost Management (cont)

Forecast Estimate 1) Cost A  
 resource Explorer forecast  
 utiliz- (Self- is a  
 ation & Service) prediction  
 spend 2) of how  
 with Budgets much you  
 forecast (Event- will use  
 dashbo- Driven) AWS  
 ards. services  
 over the  
 forecast  
 time  
 period  
 that you  
 selected,  
 based on  
 your past  
 usage.  
 Foreca-  
 sting  
 EventD-  
 rivenB-  
 udgets

Budget Keep 1) Budgets  
 spend in Budgets allows to  
 check 2) set  
 with Budget custom  
 custom Alerts budgets  
 budget via to track  
 threshold Chime cost &  
 & auto & Slack usage  
 alert 3) from the  
 notifi- Service simplest  
 cation Catalog to the  
 most  
 complex  
 use  
 cases.  
 Budgets  
 Budget-  
 Alerts  
 Servic-  
 eCatalog

### Cost Management (cont)

Purchase Leverage 1) Free RI provide Rightsize Align 1) Cost Compu  
 free trials Tier 2) significant service Explorer Optimi:  
 & progra- Reserved discount (up to allocation Right recomr  
 matic Instances 75%) size to Sizing optima  
 discounts 3) Savings compared to actual Recomm Compu  
 based on Plans 4) On-Demand workload endations resourc  
 workload Spot pricing. RI demand 2) your  
 pattern & Instances FreeTier Compute worklo:  
 needs 5) SavingsPlan Optimizer reduce  
 DynamoDB SpotEC2 3) & impr  
 On- DynamoDBOD Redshift perform  
 demand

Elasticity Scale & 1) Instance Trusted  
 schedule Scheduler Advisor is an  
 services 2) Redshift online tool that  
 based on pause & provides real  
 expected resume 3) time guidan respect  
 utilization EC2 Auto to help  
 pattern & Scaling 4) provision  
 needs Trusted resources  
 Advisor following AWS  
 best practices.  
 InstanceSche-  
 duler Redshi-  
 ftP&R  
 EC2ASG  
 TrustedAd-  
 visor

Stay up-to- Cost Cost  
 date with Explorer Explore  
 resource an eas  
 deployment use int  
 & cost that let  
 optimi- visualiz  
 zation unders  
 opport- & man  
 unities AWS c  
 usage  
 time.  
 CostEx



### SDKs & Toolkits

Service	Description
CDK	CDK uses the familiarity & expressive power of programming languages for modeling apps. CDK
Corretto	Corretto is a no-cost, multi-platform, production-ready distribution of the OpenJDK. Corretto
Crypto Tools	Cryptography is hard to do safely & correctly. The AWS Crypto Tools libraries are designed to help everyone do cryptography right, even without special expertise. Crypto Tools
Serverless Application Model (SAM)	SAM is an open-source framework for building serverless applications. It provides shorthand syntax to express functions, APIs, databases, & event source mappings. SAM

### SDKs & Toolkits (cont)

Tools for developing and managing applications on AWS

Complete list of tools can be found here: [Tools](#)

### Networking & Content Delivery

Use cases	Functionality	Service	Description
Build a cloud network	Define and provision a logically isolated network for your AWS resources	VPC	VPC lets you provision a logically isolated section of the AWS Cloud where you can launch AWS resources in a virtual network that you define. VPC

### Networking & Content Delivery (cont)

Connect VPCs and on-premises networks through a central hub	Transit Gateway	Transit Gateway connects VPCs & on-premises networks through a central hub. This simplifies network & puts an end to complex peering relationships. TransitGateway
Provide private connectivity between VPCs, services, and on-premises applications	PrivateLink	PrivateLink provides private connectivity between VPCs & services hosted on AWS or on-premises, securely on the Amazon network. PrivateLink



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Networking & Content Delivery (cont)				Networking & Content Delivery (cont)				Networking & Content Delivery (cont)				
	Route users to Internet applications with a managed DNS service	Route 53	Route 53 is a highly available & scalable cloud DNS web service. Route53	Direct traffic through the AWS Global network to improve global application performance	Global Accelerator	Global Accelerator is a networking service that sends user's traffic through AWS's global network infrastructure, improving internet user performance by up to 60%. GlobalAccelerator	Protect your web applications from common web exploits	WAF	WAF is a web application firewall that helps protect your web applications or APIs against common web exploits that may affect availability, compromise security, or consume excessive resources. WAF			
<b>Scale your network design</b>	Automatically distribute traffic across a pool of resources, such as instances, containers, IP addresses, and Lambda functions	Elastic Load Balancing	Elastic Load Balancing automatically distributes incoming application traffic across multiple targets, such as EC2's, containers, IP addresses, & Lambda functions. ElasticLoadBalancing	<b>Secure your network traffic</b>	Safeguard applications running on AWS against DDoS attacks	Shield	Shield is a managed Distributed Denial of Service (DDoS) protection service that safeguards applications running on AWS. Shield					



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### Networking & Content Delivery (cont)

Centrally configure and manage firewall rules

Firewall Manager is a security management service which allows to centrally configure & manage firewall rules across accounts & apps in AWS Organization. link text

### Build a hybrid IT network

Connect your users to AWS or on-premises resources using a Virtual Private Network

(VPN) - Client VPN solutions establish secure connections between on-premises networks, remote offices, client devices, & the AWS global network. VPN

### Networking & Content Delivery (cont)

Create an encrypted connection between your network and your Amazon VPCs or AWS Transit Gateways

Establish a private, dedicated connection between AWS and your datacenter, office, or colocation environment

(VPN) - Site to Site VPN creates a secure connection between data center or branch office & AWS cloud resources. site\_to\_site

Direct Connect is a cloud service solution that makes it easy to establish a dedicated network connection from your premises to AWS. Direct-Connect

### Networking & Content Delivery (cont)

**Content delivery networks** Securely deliver data, videos, applications, and APIs to customers globally with low latency, and high transfer speeds

### Build a network for microservices architectures

Provide application-level networking for containers and microservices

App Mesh makes access to guided control microservices operat AWS. AppMe

Create, maintain, and secure APIs at any scale

API Gateway allows user to design expand own R and WebS APIs a scale. APIGa



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### Networking & Content Delivery (cont)

Discover AWS services connected to your applications

Cloud Map

Cloud Map permits the name & handles the cloud resources. CloudMap

### Security, Identity, & Compliance (cont)

Identity management for apps

Cognito

Cognito lets you add user sign-up, sign-in, & access control to web & mobile apps quickly and easily. Cognito

### Security, Identity, & Compliance (cont)

Simple, secure service to share AWS resources

Resource Access Manager

Resource Access Manager (RAM) is a service that enables you to easily & securely share AWS resources with any AWS account or within AWS Organization. RAM

### Security, Identity, & Compliance

Category	Use cases	Service	Description
Identity & access management	Securely manage access to services and resources	Identity & Access Management (IAM)	IAM is a web service for safely controlling access to AWS services. IAM
	Securely manage access to services and resources	Single Sign-On	SSO helps in simplifying, managing SSO access to AWS accounts & business applications. SSO
		Microsoft Active Directory	Microsoft Active Directory (AD) enables your directory-aware workloads & AWS resources to use managed Active Directory (AD) in AWS.
		AWS Managed Microsoft Active Directory (AD)	AWS Managed Microsoft Active Directory (AD) in AWS. Directory-Service

Central governance and management across AWS accounts

Organizations

Organizations helps you centrally govern your environment as you grow and scale your workloads on AWS. Orgs



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### Security, Identity, & Compliance (cont)

**Detection** Unified security and compliance center

Security Hub

Security Hub gives a comprehensive view of security alerts & security posture across AWS accounts.

Record and evaluate configurations

Config

Inspector is a security vulnerability assessment service that improves the security & compliance of the AWS resources.

Config is a service that enables to assess, audit, & evaluate the configurations of AWS resources.

Managed threat detection service

GuardDuty

GuardDuty is a threat detection service that continuously monitors for malicious activity & unauthorized behavior to protect AWS accounts, workloads, & data stored in S3.

GuardDuty

### Security, Identity, & Compliance (cont)

### Security, Identity, & Compliance (cont)

Track user activity and API usage

CloudTrail

CloudTrail is a service that enables governance, compliance, operational auditing, & risk auditing of AWS account.

Security management for IoT devices

IoT Device Defender

IoT Device Defender is a fully managed service that helps secure fleet of IoT devices.



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### Security, Identity, & Compliance (cont)

<b>Infra- structure protection</b>	DDoS protection	Shield	Shield is a managed DDoS protection service that safeguards apps running. It provides always-on detection & automatic inline mitigations that minimize application downtime & latency. Shield
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### Security, Identity, & Compliance (cont)

Filter malicious web traffic	Web Application Firewall (WAF)	WAF is a web application firewall that helps protect web apps or APIs against common web exploits that may affect availability, compromise security, or consume excessive resources. WAF
Central management of firewall rules	Firewall Manager	Firewall Manager eases the user AWS WAF administration & maintenance activities over multiple accounts & resources. FirewallM-anager

### Security, Identity, & Compliance (cont)

<b>Data protection</b>	Discover and protect your sensitive data at scale	Macie	M a n d (s & p s th M p n tc d & s d M
	Key storage and management	Key Management Service (KMS)	K n e tc & n ci g ki c th a w re A s & a a K



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### Security, Identity, & Compliance (cont)

Hardware based key storage for regulatory compliance	CloudHSM	CloudHSM is a cloud-based hardware security module (HSM) that enables you to easily generate & use your own encryption keys. CloudHSM
Provision, manage, and deploy public and private SSL/TLS certificates	Certificate Manager	Certificate Manager is a service that easily provision, manage, & deploy public and private SSL/TLS certs for use with AWS services & internal connected resources. ACM

### Security, Identity, & Compliance (cont)

	Rotate, manage, and retrieve secrets	Secrets Manager	Secrets Manager assist the user to safely encode, store, & recover credentials for any user's database & other services. SecretsManager
<b>Incident response</b>	Investigate potential security issues	Detective	Detective makes it easy to analyze, investigate, & quickly identify the root cause of potential security issues or suspicious activities. Detective

### Security, Identity, & Compliance (cont)

	Fast, automated, cost-effective disaster recovery	CloudE-ndure Disaster Recovery	Provision, scale, cost-effective business continuity for physical virtual cloud services. CloudEndure
<b>Compliance</b>	No cost, self-service portal for on-demand access to AWS' compliance reports	Artifact	Artifact web services enable user download AWS security compliance records. Artifact

### Data Lakes & Analytics

Category	Use cases	Service	Description
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### Data Lakes & Analytics (cont)

**Analytics** Interactive analytics Athena Athena is an interactive query service that makes it easy to analyze data in S3 using standard SQL. Athena

Big data processing EMR EMR is the industry--leading cloud big data platform for processing vast amounts of data using open source tools such as Apache Spark, Hive, HBase,- Flink, Hudi, & Presto. EMR

### Data Lakes & Analytics (cont)

Data warehouse using Redshift The most popular & fastest cloud data warehouse. Redshift

Real-time analytics Kinesis Kinesis makes it easy to collect, process, & analyze real-time, streaming data so one can get timely insights. Kinesis

### Data Lakes & Analytics (cont)

Operational analytics Elasti-csearch Service Elasticsearch Service is a fully managed service that makes it easy to deploy, secure, & run Elasticsearch cost effectively at scale. ES

Dashboards & visualiza-tions Quicksight QuickSight is a fast, cloud--powered business intell-igence service that makes it easy to deliver insights to everyone in organization. QuickSight



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### Data Lakes & Analytics (cont)

<b>Data movement</b>	Real-time data movement	1) Amazon Managed Streaming for Apache Kafka (MSK) 2) Kinesis Data Streams 3) Kinesis Data Firehose 4) Kinesis Data Analytics 5) Kinesis Video Streams 6) Glue	MSK is a fully managed service that makes it easy to build & run applications that use Apache Kafka to process streaming data. MSK KDS KDF KDA KVS Glue
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### Data Lakes & Analytics (cont)

<b>Data lake</b>	Object storage	1) S3 2) Lake Formation	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, & secured repository that stores all data, both in its original form & prepared for analysis. S3 LakeFormation
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### Data Lakes & Analytics (cont)

<b>Backup &amp; archive</b>	1) S3 Glacier 2) Glacier Backup	S3 Glacier & S3 Glacier Deep Archive are a secure, durable, & extremely low-cost S3 cloud storage classes for data archiving & long-term backup. S3Glacier
<b>Data catalog</b>	1) Glue 2) Lake Formation	Refer as above.
<b>Third-party data</b>	Data Exchange	Data Exchange makes it easy to find, subscribe to, & use third-party data in the cloud. DataExchange



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Data Lakes & Analytics (cont)				Data Lakes & Analytics (cont)			Containers (cont)														
Predictive analytics && machine learning	Frameworks & interfaces	Deep Learning AMIs	Deep Learning AMIs provide machine learning practitioners & researchers with the infrastructure & tools to accelerate deep learning in the cloud, at any scale. DeepLearningAMIs	Platform services	SageMaker	SageMaker is a fully managed service that provides every developer & data scientist with the ability to build, train, & deploy machine learning (ML) models quickly. SageMaker	Manage containers with Kubernetes	EKS	Refer compute section												
							Run containers without managing servers	Fargate	Fargate is a serverless compute engine for containers that works with both ECS & EKS. Fargate												
				<table border="1"> <thead> <tr> <th colspan="3">Containers</th> </tr> <tr> <th>Use cases</th> <th>Service</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Store, encrypt, and manage container images</td> <td>ECR</td> <td>Refer compute section</td> </tr> <tr> <td>Run containerized applications or build microservices</td> <td>ECS</td> <td>Refer compute section</td> </tr> </tbody> </table>			Containers			Use cases	Service	Description	Store, encrypt, and manage container images	ECR	Refer compute section	Run containerized applications or build microservices	ECS	Refer compute section	Run containers with server-level control	EC2	Refer compute section
Containers																					
Use cases	Service	Description																			
Store, encrypt, and manage container images	ECR	Refer compute section																			
Run containerized applications or build microservices	ECS	Refer compute section																			
				Containerize and migrate existing applications	App2Container	App2Container (A2C) is a command-line tool for modernizing .NET & Java applications into containerized applications. App2Container															
				Quickly launch and manage containerized applications	Copilot	Copilot is a command line interface (CLI) that enables customers to quickly launch & easily manage containerized applications on AWS. Copilot															



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Serverless			Serverless (cont)		Serverless (cont)		
Category	Service	Description			Applic ation integr ation		
Compute	Lambda	Lambda lets you run code without provisioning or managing servers. You pay only for the compute time you consume.	Aurora Serverless	Aurora Serverless is an on-demand, auto-scaling configuration for Amazon Aurora (MySQL & PostgreSQL-compatible editions), where the database will automatically start up, shut down, & scale capacity up or down based on your application's needs.	SNS	SQS	SNS is a fully managed messaging service for both system-to-system & app-to-person (A2P) communication.
	Lambda@Edge	Lambda@Edge is a feature of Amazon CloudFront that lets you run code closer to users of your application, which improves performance & reduces latency.	RDS Proxy	RDS Proxy is a fully managed, highly available database proxy for RDS that makes applications more scalable, resilient to database failures, & more secure.			SQS is a fully managed message queuing service that enables to decouple & scale microservices, distributed systems, & serverless applications.
	Fargate	Refer containers section	API Proxy	API Gateway is a fully managed service that makes it easy for developers to create, publish, maintain, monitor, & secure APIs at any scale.	AppSync	AppSync is a fully managed service that makes it easy to develop GraphQL APIs by handling the heavy lifting of securely connecting to data sources like AWS DynamoDB, Lambda.	
Storage	S3	Refer storage section					
	EFS	Refer storage section					
Data stores	DynamoDB	DynamoDB is a key-value & document database that delivers single-digit millisecond performance at any scale.					



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### Serverless (cont)

**EventB-ridge** EventBridge is a serverless event bus that makes it easy to connect applications together using data from apps, integrated SaaS apps, & AWS services.

### Orches-tration

**Step Functions** Step Functions is a serverless function orchestrator that makes it easy to sequence Lambda functions & multiple AWS services into business-critical applications.

### Analytics

**Kinesis** Kinesis makes it easy to collect, process, & analyze real-time, streaming data so one can get timely insights.

**Athena** Athena is an interactive query service that makes it easy to analyze data in Amazon S3 using standard SQL.

### Application Integration

Category	Service	Description
<b>Messaging</b>	SNS	Reliable high throughput pub/sub, SMS, email, and mobile push notifications

	SQS	Message queue that sends, stores, and receives messages between application components at any volume
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	MQ	Message broker for Apache ActiveMQ that makes migration easy and enables hybrid architectures
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<b>Workflows</b>	Step Functions	Coordinate multiple AWS services into serverless workflows so you can build and update apps quickly
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<b>API management</b>	API Gateway	Create, publish, maintain, monitor, & secure APIs at any scale for serverless workloads & web apps
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### Application Integration (cont)

	AppSync	Create a flexible API to securely access, manipulate, & combine data from one or more data sources
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<b>Event bus</b>	EventB-ridge	Build an event-driven architecture that connects application data from your own apps, SaaS, & AWS services
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	AppFlow	Automate the flow of data between SaaS applications & AWS services at nearly any scale, without code.
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### Management & Governance

Category	Service	Description
<b>Enable</b>	Control Tower	The easiest way to set up and govern a new, secure multi-account AWS environment. ControlTower

	Organi-zations	Organizations helps centrally govern environment as you grow & scale workloads on AWS Organizations
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### Management & Governance (cont)

**Well-Architected Tool** Well-Architected Tool helps review the state of workloads & compares them to the latest AWS architectural best practices. WATool

**Budgets** Budgets allows to set custom budgets to track cost & usage from the simplest to the most complex use cases. Budgets

**License Manager** License Manager makes it easier to manage software licenses from software vendors such as Microsoft, SAP, Oracle, & IBM across AWS & on-premises environments. LicenseManager

**Provision** **CloudFormation** CloudFormation enables the user to design & provision AWS infrastructure deployments predictably & repeatedly. CloudFormation

### Management & Governance (cont)

**Service Catalog** Service Catalog allows organizations to create & manage catalogs of IT services that are approved for use on AWS. ServiceCatalog

**OpsWorks** OpsWorks presents a simple and flexible way to create and maintain stacks and applications. OpsWorks

**Marketplace** Marketplace is a digital catalog with thousands of software listings from independent software vendors that make it easy to find, test, buy, & deploy software that runs on AWS. Marketplace

**Operate** **CloudWatch** CloudWatch offers a reliable, scalable, & flexible monitoring solution that can easily start. CloudWatch

### Management & Governance (cont)

**CloudTrail** CloudTrail is a service that enables governance, compliance, operational auditing, & risk auditing of AWS account. CloudTrail

**Config** Config

**Systems Manager** Systems Manager to plan, proctor, & automate administration tasks on the AWS resources. SystemsManager

**Cost & usage report** Refer cost management section

**Cost explorer** Refer cost management section

**Managed Services** Operate your AWS infrastructure on your behalf. ManagedServices

**X Ray** X-Ray

### Recommend security best practices

Turn on multifactor authentication for the "root" account

Turn on CloudTrail log file validation.

Enable CloudTrail multi-region logging.

Integrate CloudTrail with CloudWatch.

Enable access logging for CloudTrail S3 buckets.

Enable access logging for Elastic Load Balancer (ELB).



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### Recommend security best practices (cont)

Enable Redshift audit logging.

Enable Virtual Private Cloud (VPC) flow logging.

Require multifactor authentication (MFA) to delete CloudTrail buckets

Enable CloudTrail logging across all AWS.

Turn on multi-factor authentication for IAM users.

Enable IAM users for multi-mode access.

Attach IAM policies to groups or roles

Rotate IAM access keys regularly, and standardize on the selected number of days

Set up a strict password policy.

Set the password expiration period to 90 days and prevent reuseCustomer Visual-force pages with standard headers

Don't use expired SSL/TLS certificates

User HTTPS for CloudFront distributions

Restrict access to CloudTrail bucket.

Encrypt CloudTrail log files at rest

Encrypt Elastic Block Store (EBS) database.

Provision access to resources using IAM roles.

Ensure EC2 security groups don't have large ranges of ports open

Configure EC2 security groups to restrict inbound access to EC2.

Avoid using root user accounts.

Use secure SSL ciphers when connecting between the client and ELB.

Use secure SSL versions when connecting between client and ELB.

### Recommend security best practices (cont)

Use a standard naming (tagging) convention for EC2.

Encrypt RDS.

Ensure access keys are not being used with root accounts.

Use secure CloudFront SSL versions.

Enable the require\_ssl parameter in all Redshift clusters.

Rotate SSH keys periodically.

Minimize the number of discrete security groups.

Reduce number of IAM groups.

Terminate unused access keys

Disable access for inactive or unused IAM users

Remove unused IAM access keys

Delete unused SSH Public Keys

Restrict access to AMIs.

Restrict access to EC2 security groups.

Restrict access to RDS instances.

Restrict access to Redshift clusters.

Restrict outbound access.

Disallow unrestricted ingress access on uncommon ports.

Restrict access to well-known ports such as CIFS, FTP, ICMP, SMTP, SSH, Remote desktop

Inventory & categorize all existing custom apps by the types of data stored, compliance requirements & possible threats they face.

Involve IT security throughout the development process.

### Recommend security best practices (cont)

Grant the fewest privileges as possible for application users

Enforce a single set of data loss prevention policies across custom applications and all other cloud services.

Encrypt highly sensitive data such as protected health information (PHI) or personally identifiable information (PII).



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