

AWS Services & features

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- * Amazon Elasticsearch :- Free and opensource search engine for data like text, numerical, structured & unstructured.
- * Amazon Kinesis :- Realtime data streaming service captures GB's of data from websites.
CP
- * Amazon QuickSight :- Cloud native, serverless, BI tool. Used to build visualisations, perform ad-hoc ~~apps~~ analysis, business insights etc.

Application Integration

- * Amazon SNS :- Serverless notification service that offers message delivery from publishers to subscribers.
- * Amazon SQS :- Used to de-couple serverless apps and components.
 - + Messages gets deleted automatically after read by customers. (Size 256 kb)

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Compute & Serverless

* AWS batch :- plans, schedules and executes batch computing workloads across full range of AWS compute services & features.

* Amazon EC2 :- A service that provides secure & scalable (IaaS) (Server) compute capacity in AWS cloud.

* AWS Elastic Beanstalk :- service used to quickly deploy, scale and manage applications in AWS cloud. (PaaS)

* AWS Lambda :- Serverless computing service allows users to run code as functions without managing any servers. (function)

* Amazon Lightsail :- Lightweight VPS server that can run integrated server offered by AWS. No need to configure as EC2. (PaaS)

* Amazon Workspaces :- Fully managed desktop virtualization service for windows & Linux. (Cloud desktop service) (IaaS)

Containers

* Amazon Elastic Container Service :- Regional & multi-region service that allows users to manage and scale containers. (container scaling service)

* Amazon Elastic K8s (EKS) :- Enables users to manage Kubernetes apps in AWS cloud/on-premise (K8s service)

* AWS Fargate :- "Serverless compute service" used for containers by AWS EKS & ECS.

Databases

* Amazon Aurora :- SQL & PostgreSQL (Relational database) Reads MySQL (5x faster than SQL) - 1 - PostgreSQL (3x faster than actual PostgreSQL) Performance oriented service

* Amazon DynamoDB :- Serverless NoSQL database service. Key: value parameters. Multi region cloud service

* Amazon Elastic Cache :- web service used to manage and run ~~mem~~ in memory data stores. Redis and Memcached in the cloud. (memcached)

* Used for reading ~~heavy~~ read-heavy applications/workloads

* Gaming apps.

Amazon RDS:- Database service used to build and operate relational databases in AWS cloud. [SQL, PostgreSQL]

Amazon Redshift:- Fast & petabyte scale, SQL based data warehouse service used to analyse data easily.
used to solve complex analysis

[Developer tools]

AWS Codebuild:- Continuous integration service used to compile source code, run tests, and build packages for deployment.
(CI service)

AWS Codecommit:- Version control service of private repositories in AWS cloud. (Git cloud)

AWS CodeDeploy:- Helps to automate app deployment to a variety of compute services (EC2, ECS, Fargate)

AWS CodePipeline:- Continuous delivery service. helps to automate release pipelines for fast and reliable application software

AWS CloudWatch:- Dashboard helps to quickly develop, build & ~~develop~~ deploy apps on AWS.
(CT/CD tool)

[Progress tracking tool]

[Customer Engagement, 1-]

Amazon Connect:- Customer support services helps customers with AWS

[Management / Monitoring & Governance]

AWS Auto Scaling:- Monitors apps & automatically adjusts capacity to maintain performance at lowest cost & maintain availability.

AWS Budgets:- Monitor AWS spend and be alerted when we exceeded / forecasted to exceed your desired spending limit.
(create alerts when spending limit exceeds)

AWS CloudFormation:- Convert 3rd party apps to AWS & also easily models, provision & manage AWS.
[3rd party resources. (using stacks)]
Template used to create all data related ~~app~~ stack building a resource

AWS CloudTrail:- Monitoring tool, which monitors & records account activity across all AWS Infra. Gives control and transparency.

Simply a monitoring service for AWS resources and applications.

AWS CloudWatch:- Service that monitors based on multiple metrics of AWS & on-premises resources
Reads API activity on our AWS account
Read time logs, metrics & event data in dashboard

- * AWS Config - Service that allows users to determine the quality of a resource's configuration in AWS account.
 - * Resource inventory
 - * Config history
 - * Helps to assess, audit & evaluate the configs. an relationships of resources.

- * AWS Cost & Usage Report - tracks AWS usage and provides estimated charges of our account.
 - * Sends report to our S3 bucket
 - * Metadata about AWS resources, pricing, reserved instances, and savings plans.

- * Amazon Eventbridge / Cloudwatch events - Serverless service that uses events to connect application components together.

- * AWS License Manager - Manages software licenses from vendors. (MS, SAP, Oracle)

- * AWS Managed Services - Set of services and tools that automate infrastructure management tasks for AWS deployments.

- * AWS Organizations - Service that allows users to manage multiple AWS accounts grouped in to a single organization.

- * AWS Secrets Manager - Helps to manage, retrieve & rotate database credentials, API keys, and other secrets.

- * Changes keys periodically.

- * AWS Systems Manager - Service allows users to group operational data using multiple services and automate operations in AWS.
 - * Helps to automate repeated tasks.
 - * Automate common & repetitive operations & tasks

- * AWS Systems Manager Parameter Store -
 - * Provides secure storage & mgmt of secrets.
 - * Passwords, keys, strings you can store here.
- * AWS Trusted Advisor - Gives recommendations to follow AWS best practices.
 - * Helps to do AWS best practices.

[Networking & Content delivery]

- * Amazon API Gateway - Maintains & secures APIs at any scale.
 - * Used to create, publish, monitor, & secure APIs.

- * Amazon CloudFront - Content delivery network that securely delivers any data to customers with low latency, low network egress (charges)
 - * Uses edge locations.

- * AWS Direct Connect - Helps to connect from on-premise to one or more VPC's in AWS within same region.

* Amazon Route 53 - Domain name system where DNS is a collection of rules & records [helps users to connect any server by DNS]

* Amazon VPC :- Allows users to create virtual dedicated network for resources.
• Public x Private x VPN only

[Security, Identity & Compliance]

* AWS Artifact :- Our go-to, central resource for compliance related information that matters to us.
[Provides security report of an user]
[Last login, pass changed etc.]

* AWS Certificate Manager - Allows user to protect AWS apps by storing, renewing public & private SSL/TLS x 509 certificates.

* AWS Cloud HSM :- Cryptographic service for creating & maintaining hardware security modules.
• Generate keys via hardware devices.

* Amazon Cognito :- Service used for authentication, authorisation & user mgmt for web & mobile applications.

* Amazon Detective :- helps to analyze, investigate, and quickly identify the root cause of suspicious activities.
• Automatically collects logs from resources

* Amazon GuardDuty :- Threat detection service that continuously monitors for malicious activity and unauthorised behaviour to protect AWS accounts, EC2, S3, DBs

* IAM :- Used to define permissions and manage users to access multi account AWS services.
[• Policies x groups, x users x roles]

* Amazon Inspector - Continuously scans AWS workloads for software vulnerabilities & unintended network.

* AWS License Manager :- Manages software licenses from 3rd vendors

* Amazon Macie :- Data security service that uses ML to protect the data / sensitive data [helps pattern matching & ML]

* AWS Shield :- DDoS protection service safeguard apps on AWS.

* AWS Web App Firewall :- Protects from bot attacks/exploits.
(WAF)

Storage

↳ AWS Backup - Automates & governs data backup in AWS cloud.

↳ Amazon EBS - provides block level storage drive to store persistent data.
Elastic block storage.

↳ SSD x HDD

↳ Amazon EFS - scales the storage automatically.
[elastic file sys] ↳ Linux based workloads/apps

↳ Petabyte storage
↳ Designed for low latency workloads

↳ S3 - Object storage (Global service)

↳ S3 Glacier - long term archive data, cheap data retrieval

↳ AWS Snowball edge - Device with on-board storage and compute power.
SOTB - SOTB.

↳ AWS Storage gateway - Virtual device installed as a hypervisor ~~or VM~~ to integrate with AWS storage services.

↳ AWS Lex - AI bot can manage deploy, build etc

↳ FSx - shared file storage service.

Key tools, techs, and concepts

API - ~~Secure~~ any app programming interface

Cost explorer - lets us visualize, understand, and manage AWS costs & usage over time

Cost & usage report - provides estimated charges and tracks usage of AWS.

CLI - Command line Interface.

Elastic load balancers - automatically distribute the work load on multiple instances.

EC2 types

On-demand - ~~no~~ short-term, unknown workloads.
↳ No advance/prior commitment/persistent.

Spot - Useful for cost sensitive compute workloads.

Reserved - long running workloads, predictable usage
↳ chosen from no upfront (NOUP)
↳ Partial (PARTIAL)
↳ All upfront (AUP)

Dedicated - hardware dedicated to a single user.
↳ Other customer can't share hardware.

Dedicated hosts - A whole physical server allotted for an organization