Amazon White Papers: <https://d1.awsstatic.com/whitepapers/aws-overview.pdf?did=wp_card&trk=wp_card>

* Compute
  + Amazon EC2
    - Elastic Compute Cloud
    - Provides secure, resizable compute capacity in the cloud
    - Full control, flexible configuration, its integration with most AWS services, and is very reliable (99.95%) secure and inexpensive
      * On-Demand
      * Reserved
        + Up to 75% discount
      * Spot
        + Up to 90% discount
  + Amazon EC2 Elastic Container Service (Amazon ECS)
    - Highly scalable, high-performance **container orchestration** service that supports Docker containers and allows you to easily run and scale containerized applications on AWS
    - ECS is the service that helps running and scaling applications in Docker containers
  + Amazon EC2 Elastic Container Registry (Amazon ECR)
    - Fully managed to Docker container registry that makes it easy for developers to **store** manage and deploy Docker container images
    - Hosts your images in a highly available and scalable architecture, allowing you to reliably deploy containers for your applications
  + Amazon Elastic Container Service for Kubernetes (Amazon EKS)
    - Amazon Elastic Container Service for Kubernetes (Amazon EKS) makes it easy to deploy, manage, and scale containerized applications using Kubernetes on AWS.
    - Amazon EKS runs the Kubernetes management infrastructure for you across multiple AWS availability zones to eliminate a single point of failure. Amazon EKS is a certified Kubernetes conformant so you can use existing tooling and plugins from partners and the Kubernetes community. Applications running on any standard Kubernetes environment are fully compatible and can be easily migrated to Amazon EKS.
  + AWS Fargate
    - AWS Fargate is a compute engine for Amazon ECS that allows you to run containers without having to manage servers or clusters. With AWS Fargate, you no longer have to provision, configure, and scale clusters of virtual machines to run containers.
    - This removes the need to choose server types, decide when to scale your clusters, or optimize cluster packing. AWS Fargate removes the need for you to interact with or think about servers or clusters. Fargate lets you focus on designing and building your applications instead of managing the infrastructure that runs them.
  + Amazon Lightsail
    - The easiest way to get started with AWS for developers who just need virtual private servers
    - Includes everything you need to launch your project quickly; VM, SSD, data transfers, DNS management, and a static IP for a low predictable price
  + Amazon Batch
    - Jobs can run without user interaction. Batch processing is for frequently used programs that can be run with minimal human interaction
    - Enables to you to run hundreds of thousands of batch computing jobs on AWS
    - Dynamically provisions the optimal quantity and type of compute resources based on the volume and specific resource requirements of the jobs submitted
  + Amazon Elastic Beanstalk
    - Deploy, Monitor and scale an application quickly and easily
    - Upload wrote code and run it on servers
    - Automatically handles the deployment, from capacity provisioning, load balancing and auto-scaling to app health monitoring
  + Amazon Lambda
    - Run code without provisioning or managing servers
    - Pay only for the compute time you consume
      * There is no charge when your code is not running
    - Just upload your code and Lambda takes care of everything to run and scale your code
  + Amazon Auto Scaling
    - Used to increase the number of instances during traffic demand spikes to maintain performance and decrease capacity during traffic silence time for cost reduction
    - Ensure you are running the desired number of instances
    - Scale up or down automatically based on your configurations
* Storage Service
  + Amazon Simple Storage Service (S3)
    - Object storage service, that stores and retrieves any amount of data
    - Designed for durability 99.999999999% (11 9s)
    - Simple to use, scalable, secure, available, low costs, easily migrations, large integration with other AWS services and easy to manage
  + Amazon Elastic Block Store (EBS)
    - Provides persistent block storage volumes for use with instances in the cloud
    - High performance volumes, 99.999% availability for each EBS volume, encryption for data, access management, and snapshots
  + Amazon Elastic File System (EFS)
    - Simple scalable file storage for use with instances in the cloud
    - Storage capacity is elastic as you add or removes files from the system and you only pay for the space your files nad directories use
    - Mounted on single or multiple instances allowing for it to provide a common data source for workloads and applications running on more than one instance
  + Amazon glacier
    - Longer-term cloud storage classes including infrequent access (IA) and glacier for archiving
    - Secure, durable, and extremely cost-effective storage service for data archiving and long-term backup
    - Three options for data retrieval that range from a few minutes to several hours
  + AWS Storage Gateway
    - Hybrid storage service that enables your on-premise applications to seamlessly use cloud storage
    - application connect to the service through a VM or hardware appliance
    - The gateway connects to other storage services.
* Database Services
  + Amazon RDS
    - Relational Database Service makes it easy to set up, operate and scale a relational database in the cloud
    - Provides cost-efficient and resizable capacity while managing time-consuming database administration tasks, freeing you up to focus on applications and the business
    - Fast and easy to administer highly scalable, available and durable, inexpensive and secure
  + Amazon Aurora
    - A MySQL and PostgreSQL compatible relational database engine that combines the speed and availability of high-end commercial databases with the simplicity and cost-effectiveness of open source DBs
    - Highly scalable (32vCPU, 244Gb RAM), highly available (99.99%), highly secure (encryption at rest and in transit-SSL), fully managed by AWS
  + Amazon DynamoDB
    - Fast and flexible NoSQL database service for all applications that need consistent, single-digit millisecond latency at any scale
    - Fast (single-digit latency), highly scalable, fully managed by AWS, flexible ( supports multiple NoSQL database types), event-driven programming (AWS Lambda) and flexible user access control (IAM)
  + Amazon ElastiCache
    - Easy to deploy, operate and scale in-memory cache in the cloud
    - Improves the performance of web applications by allowing you to retrieve information from fast, manage, in-memory caches, instead of relying entirely on slower disk-based DBs
    - Supports two open-source in-memory caching engines Redis and Memcached
* Migration Services
  + AWS Application Discovery Service
    - Help you plan application migration projects by automatically identifying applications running in on-prem DCs, their dependencies and performance profiles
    - Collects configuration and usage data from servers, storage, and networking equipment to develop a list of application, and how they perform, and how they are interdependent
  + AWS Database Migration Service
    - Migrates databases to the AWS cloud easily and securely
    - The source database remains fully operational during the migration, minimizing downtime to applications that rely on the database
    - Used for continuous data replication with high-availability
  + AWS Server Migration Service
    - Agentless service which makes it easier and faster for you to migrate thousands of on-premises workloads to AWS
    - Automate, schedule, and track incremental relocations of live server volumes, making it easier for you to coordinate large-scale server migrations
  + AWS Snowball
    - Data Transport solutioons that use secure appliances to transfers large amounts of data into and out of AWS
    - USe case is when the time it takes to transfer data between on-prem DC and AWS is insanely big and the goal is to minimize the data migration time.
    - A petabyte-scale data transport solution that uses secure appliances to transfer large amounts of data into and out of AWS
    - Addresses common challenges with large scale data transfers including high network costs, long transfer times, and security concerns
    - Data transfers are simple, fast, secure and can be as little as one-fifth the cost of high-speed internet
  + AWS Snowball Edge
    - 100TB data transfer device with on-board storage and compute capabilities
    - Used to move large amounts of data into and out of AWS
  + AWS Snowmobile
    - Exabyte-scale data transfer service used to move extremely large amounts of data to AWS you can transfer up to 100PB per snowmobile, secure, fast and cost-effective
* Networking and Content Delivery
  + Amazon VPC
    - Provision a logically isolated section of the cloud where you can launch resources in a virtual network that you define
    - Complete control over the virtual networking environment; Select your IP address range, create subnets, configure route tables, etc.
  + Amazon CloudFront
    - Global CDN service that accelerates delivery of your websites, APIs, video content or other web assets
    - USed to deliver your entire website, including dynamic, static, streaming, and interactive content using a global network of edge locations and regional edge caches
    - Pay only for content you actually deliver through the CDN
  + Amazon Route 53\
    - Highly available and scalable cloud Domain Name System (DNS web service)
  + AWS Direct Connect
    - Establish a dedicated network connection from your premises DC to AWS
    - Reduce your network costs and increase bandwidth throughput between on-prem locations and the cloud (hybrid model)
  + Elastic Load Balancing
    - Automatically distribute incoming app traffic across multiple instances
    - Handle the varying load of your application traffic in a single AZ or across multiple AZs
    - Enable you to achieve greater levels of fault tolerance in your applications, seamlessly providing the required amount of load balancing capacity needed to distribute application traffic.
* Management Tools
  + Amazon CloudWatch
    - Monitoring service for AWS Cloud resources and the applications you run on the cloud
    - Collect and track metrics collect and monitor log files, set alarms and automatically react to changes in your resources
    - Gain system-wide visibility into resource utilization, application performance, and operational health
  + Amazon EC2 Systems Manager
    - Automatically collect software inventory, apply operating system patches, create system images, and configure Windows and Linux
  + AWS CloudFormation
    - Create and manage a collection of related resources, provisioning and updating them in an orderly and predictable fashion
    - Provisions and manages stacks of resources based on templates you create and model your infrastructure architecture
    - Script and automate your work, future, and recurrent deployments
    - Monitoring
  + AWS CloudTrail
    - Log, continuously monitor, and retain account activity related to actions across your infrastructure
    - Provides event history, including actions taken through the management console, SDKs, CLI and other services
    - Logging
  + AWS Config
    - Service that enables you to assess, audit, and evaluate the configurations of your resources
    - Monitor and record resource configurations and review changes in configurations and relationships between resources
    - Simplifies compliance auditing, security analysis, change management, and operational tshoot
  + AWS OpsWorks
    - Use Chef to automate how servers are configured, deployed, and managed across instances
  + AWS Service Catalog
    - Allows organizations to create and manage catalogs of IT services that are approved for use on AWS
  + AWS Trusted Advisor
    - Provides real-time guidance to help you provision your resources following AWS best practices
  + AWS Personal Health Dashboard
    - Provides alerts and remediation guidance when AWS is experiencing events that might affect you
  + AWS Managed Services
    - Automates common activities such as change requests, monitoring, patch management, security, and backup services, and provides full-lifecycle services to provision, run, and support your infrastructure
* Security, Identity, and Compliance
  + AWS Identity and Access Management
    - Enables users to securely control access to AWS services and resources for your clients
    - Create and manage AWS users and groups, and use permissions to allow and deny their access to AWS resources
    - Using IAM you can control WHO can access WHAT, WHEN, and HOW
  + AWS Key Management Service
    - Managed service that makes it easy for you to create and control the encryption keys used to encrypt your data
    - Integrated I with different services to help you protect data used or stored by these services.
    - Integrated with CloudTrail, in order to provide logs of what encryption keys are being used
  + AWS Shield
    - Managed DDoS protection service that safeguards web applications running on AWS
  + AWS WAF (Web Application Firewall
    - Application firewall that helps you protect your web applications from common web exploits or attacks
    - Create custom rules that block attack patterns such as SQL injection, cross-site scripting, and others
    - Define which traffic to allow or block to your web application
  + Amazon Cloud Directory
    - Build flexible cloud-native directories for organizing hierarchies of data along multiple dimensions
    - Directories store information about users, groups, and devices. Administrators can this to manage access to information and resources
    - Used for cloud-scale deployment
  + AWS Directory Service
    - USed for Microsoft Active Directory if you need an actual MAD in the cloud
    - Microsoft AD
  + Amazon Inspector
    - Automated security assessment that helps improve the security and compliance of apps deployed on AWS
  + AWS Organizations
    - Create groups of AWS accounts for centralized management
  + AWS Certificate Manager
    - Provision, manage and deploy (SSL/TLS) certificates for use with AWES services
  + AWS CloudHSM
    - Hardware security module that enables you to easily generate and use your own encryption keys on AWS cloud
* Developer Tools Services
  + AWS CodeCommit
    - Fully-managed source control service that makes it easy for companies to host private git repositories
  + AWS CodeBuild
    - Fully managed build service that compiles source code, runs, tests, and produces software packages that are ready to deploy
  + AWS CodeDeploy
    - Automates code deployments to any instances
  + AWS CodePipeline
    - Continuous integration and continuous delivery service for fast reliable application and infrastructure updates; Builds, tests, and deploys your code every time there is a code change (hot reload)
  + AWS X-Ray
    - Helps developers analyze and debug distributed applications in production or under development. Understand how the app is performing so you can identify and tshoot the root cause of performance issues and errors
* Messaging
  + Amazon Simple Queue Service (SQS)
    - Fast, reliable, scalable, fully managed message queuing service.
    - Send, store, and receive, messages between software components
    - Amazon Simple Queue Service (Amazon SQS) is a fully managed message queuing service that enables you to decouple and scale microservices, distributed systems, and serverless applications. SQS eliminates the complexity and overhead associated with managing and operating message oriented middleware, and empowers developers to focus on differentiating work.
  + Amazon Simple Notification Service (SNS)
    - Fast, flexible, fully managed push notification service that lets you send individuals or groups messages
    - Amazon Simple Notification Service (Amazon SNS) is a highly available, durable, secure, fully managed pub/sub messaging service that enables you to decouple microservices, distributed systems, and serverless applications. Amazon SNS provides topics for high-throughput, push-based, many-to-many messaging.
  + Amazon Simple Email Service (SES)
    - Cost-effective email service.
    - Send a transactional email, marketing messages, or any other type of high-quality content to your customers
    - Receive messages, call your custom code via Lambda or publish notifications SNS
* Analytics
  + Amazon Athena
    - Interactive query service that makes it easy to analyze data in Amazon S3 using standard SQL; you point to your data in S3, define the schema and start querying using standard SQL
    - Athena is serverless so there is not the infrastructure to manage.
    - Pay only for the queries that you run
    - Out of the box, it integrates AWS Glue Extract, Transform, and Load (ETL) service
  + Amazon EMR (Elastic Map Reduce)
    - Provides a managed Hadoop framework (Big Data Framework) that makes it easy, fast, and cost-effective to process vast amounts of data across dynamically scalable instances
    - You can also run other popular distributed frameworks such as apache-spark, HBase, presto, and flink. While still being to interact with data in other AWS data stores such as S3, DynamoDB
  + Amazon CloudSearch
    - Managed service in the Cloud that makes it simple and cost-effective to set up, manage, and scale a search solution for your website or applications. It supports 34 different languages and has popular features such as highlighting, autocomplete, and geospatial search.
  + Amazon Elastisearch Service
    - Deploy, operate and scale Elastic search for log analytics, full tet search, app monitoring and more
    - Easy to deploy, secure, operate, and scale Elasticsearch to search, analyze and visualize data in real-time. With Amazon Elasticsearch Service, you get easy-to-use APIs and real-time analytics capabilities to power use-cases such as log analytics, full-text search, application monitoring, and clickstream analytics with enterprise-grade source tools like kibana and logstash for data ingestion and visualization.
    - Integrates with VPC, AWS KMS, Kinesis Data Firehose, Lambda, IAM, Cognito, and Cloud Watch
  + Amazon Kinesis
    - A platform for streaming data on AWS, offering powerful services to make it easy to load and analyze streaming data; with Kinesis you simply collect, process and store data continuously
    - With Amazon Kinesis, you can ingest real-time data such as video, audio, application logs, website clickstreams, and IoT telemetry data for machine learning, analytics, and other applications.
  + Amazon Kinesis Firehose (Load realtime media data into AWS)
    - The easiest way to load streaming data into AWS; you can capture, transform, and load streaming data into Kinesis Analytics, S3, Redshift, Splunk and Elastic search service enabling near real-time analytics with existing business
    - Fully Managed Service
  + Amazon Kinesis Data Analytics
    - Process streaming data with standard SQL without having to learn new programming languages or processing frameworks
    - Takes care of everything required to run your queries continuously and scales automatically to match the volume and throughput rate of your incoming data
  + Amazon Kinesis Data Streams
    - Continuously capture and store terabytes of data per hour from hundreds of thousands of sources
    - Massively Scalable and durable real time data streaming service.
    - Capture Gb worth of data per second. With real-analytics as well.
  + Amazon Kinesis Video Streams
    - Amazon Kinesis Video Streams makes it easy to securely stream video from connected devices to AWS for analytics, machine learning (ML), playback, and other processing.
    - Automatically provisions and elastically scales all the infrastructure needed to ingest streaming video data from millions of devices. It also durably stores, encrypts, and indexes video data in your streams, and allows you to access your data through easy-to-use APIs. Enable you to playback video for live and on-demand viewing.
  + Amazon Redshift
    - Fast, fully managed, a petabyte-scale data warehouse that makes it simple and cost-effective to analyze all your data using your existing business intelligence tools (data warehousing service)
    - Pricing .25 cents/hr to 250$/TB
  + Amazon QuickSight
    - Fast, cloud-powered business analytics service that makes it easy to build visualizations, perform ad-hoc analysis and quickly get business insights from your data (create stunning visualizations and rich dashboards)
  + AWS Data Pipeline
    - Helps reliably process and move data between different AWS compute and storage services, as well as on-premises data sources, at specified intervals
    - AWS Data Pipeline helps you easily create complex data processing workloads that are fault-tolerant, repeatable, and highly available.
  + AWS Glue
    - Fully managed ETL service that makes it easy to move data between your data stores
  + AWS Lake Formation
    - 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. A data lake enables you to break down data silos and combine different types of analytics to gain insights and guide better business decisions.
  + Amazon Managed Streaming for Kafka
    - Amazon Managed Streaming for Kafka (Amazon MSK) is a fully managed service that makes it easy for you to build and run applications that use Apache Amazon Web Services – Overview of Amazon Web Services Page 14 Kafka to process streaming data. Apache Kafka is an open-source platform for building real-time streaming data pipelines and applications. With Amazon MSK, you can use Apache Kafka APIs to populate data lakes, stream changes to and from databases, and power machine learning and analytics applications.
* AWS Artificial Intelligence
  + Amazon Lex
    - A service for building conversational interfaces into any application using voice and text; Lex brings automatic speech recognition (ASR) for converting speech to text and natural language understanding (NLU) to recognize the intent of the text
  + Amazon Polly
    - A service that turns text into lifelike speech; Polly is an Amazon artificial intelligence service that uses advanced deep learning technologies to synthesize speech that sounds like a human voice
  + Amazon Rekognition
    - A service that makes it easy to add image analysis to your applications; With Rekognition, you can delete objects, scenes, and faces in images.
  + Amazon Machine Learning
    - A service that makes it easy for developers of all skill levels to use machine learning technology. It provides visualization tools and wizards that guide you through the process of creating ML models without having to learn complex ML algorithms and technology.
* AWS Mobile Services
  + AWS Mobile Hub
    - Provides an integrated console experience that you can use to quickly create and configure powerful mobile app backed features and integrate them into your mobile app
  + Amazon Cognito
    - Easily add user sign-up and sign-in to your mobile and web apps; with Cognito, you also have the options to authenticate users through social identity providers such as Facebook, Twitter or Amazon
  + Amazon Pinpoint
    - Run target campaigns to drive user engagement in mobile Apps; Pinpoint helps you understand user behavior, define which users to target, determine which messages to send, schedule the time to deliver messages and then track the campaign results
  + Amazon Device Farm
    - An app testing service that lets you test and interacts with your apps on many devices at once or reproduce issues on a device in real-time.
* Application Services
  + AWS Step Functions
    - Building applications from individual components that each performa discrete function lets you scale and change applications very quickly;
    - Step functions provide a graphical console to arrange and visualize the components of your application as a series of steps
  + Amazon API Gateway
    - Handles all the tasks involved in accepting and processing concurrent API calls, including traffic management, authorization, and access control monitoring and API version management
  + Amazon Elastic Transcoder
    - Media transcoding in the cloud; you can convert media files from their source format into versions that will playback on device like smartphone, tablets, and PCs
  + Amazon Simple Workflow Service (SWF)
    - Easy to build applications that use the cloud to coordinate work across distributed components; SWF tracks the state and coordinates tasks of background jobs of your apps.
    - If you need to recover or retry if a task fails, Amazon SWF can help you.
* AWS Business Productivity Services / Business Applications
  + Amazon WorkDocs (Google Docs Basically)
    - Users can comment on files, send them to others for feedback and upload new versions; Users can take advantage of these capabilities using the device of their choice
  + Amazon WorkMail (Basically Google Mail)
    - Secure, managed business email and calendar service with support for existing desktop and mobile email client apps
  + Amazon Chime (Basically Zoom)
    - Communications service for online meetings; you can use Amazon Chime for online meetings, video conferencing, calls, chat and to share content inside and outside your organization
* AWS Desktop and App Streaming Service
  + Amazon WorkSpaces
    - Fully managed, secure desktop computing service that runs on the AWS Cloud; provide your users access to the documents applications, and resources they need from any supported device AWS VDI service
  + Amazon AppStream 2.0
    - Fully managed, streaming service that allows you to stream desktop applications from AWS to any device running a web browser.
* AWS Internet of Things Services
  + AWS IoT Platform
    - Managed cloud platform that lets connected devices easily and securely interact with cloud applications and other devices
  + AWS Greengrass
    - Run local compute, messaging, and data caching for connected devices in a secure way; Connected devices can run lambda functions, keep device data in sync and communicate with other devices securely.
  + AWS IoT Button
    - Is a programmable button
    - Simple Wi-Fi device is easy to congigure, and it’s designed for developers to get started with AWS IoT, Lambda, Dynamo DB, SNS, and many other devices without having to write device-specific code.
    - Configure the buttons to do a LOT of cool things
* Game Development
  + Amazon GameLift
    - Managed service for deploying, operating, and scaling dedicated game servers for session-based multiplayer games
    - Makes it easy to manage server infrastructure, scale capacity to lower latency and cost, match players into available game sessions and defend against DDoS attacks.
* AWS Cost Management
  + AWS Cost Explorer
    - AWS Cost Explorer has an easy-to-use interface that lets you visualize, understand, and manage your AWS costs and usage over time. Get started quickly by creating custom reports (including charts and tabular data) that analyze cost and usage data, both at a high level (e.g., total costs and usage across all accounts) and for highly-specific requests (e.g., m2.2xlarge costs within account Y that are tagged “project: secretProject”).
  + AWS Budgets
    - AWS Budgets gives you the ability to set custom budgets that alert you when your costs or usage exceed (or are forecasted to exceed) your budgeted amount. You can also use AWS Budgets to set RI utilization or coverage targets and receive alerts when your utilization drops below the threshold you define. RI alerts support Amazon EC2, Amazon RDS, Amazon Redshift, and Amazon ElastiCache reservations.
  + AWS Cost & Usage Report
    - The AWS Cost & Usage Report is a single location for accessing comprehensive information about your AWS costs and usage.
    - The AWS Cost & Usage Report lists AWS usage for each service category used by an account and its IAM users in hourly or daily line items, as well as any tags that you have activated for cost allocation purposes. You can also customize the AWS Cost & Usage Report to aggregate your usage data to the daily or monthly level.
  + Reserved Instance (RI) Reporting
    - AWS provides a number of RI-specific cost management solutions out-of-thebox to help you better understand and manage your RIs. Using the RI Utilization and Coverage reports available in AWS Cost Explorer, you can visualize your RI data at an aggregate level or inspect a particular RI subscription. To access the most detailed RI information available, you can leverage the AWS Cost & Usage Report. You can also set a custom RI utilization target via AWS Budgets and receive alerts when your utilization drops below the threshold you define.
* Blockchain
  + Amazon Managed Blockchain
    - 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.
    - Blockchain makes it possible to build applications where multiple parties can execute transactions without the need for a trusted, central authority. Today, building a scalable blockchain network with existing technologies is complex to set up and hard to manage.
    - To create a blockchain network, each network member needs to manually provision hardware, install software, create and manage certificates for access control, and configure networking components.
    - Once the blockchain network is running, you need to continuously monitor the infrastructure and adapt to changes, such as an increase in transaction requests, or new members joining or leaving the network.