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Architecting on AWS

Overview of AWS Services

Overview of AWS Services | What we'

1

**Seven major
categories of
AWS
services**

2

**How to find
info quickly
on any given
AWS service**

3

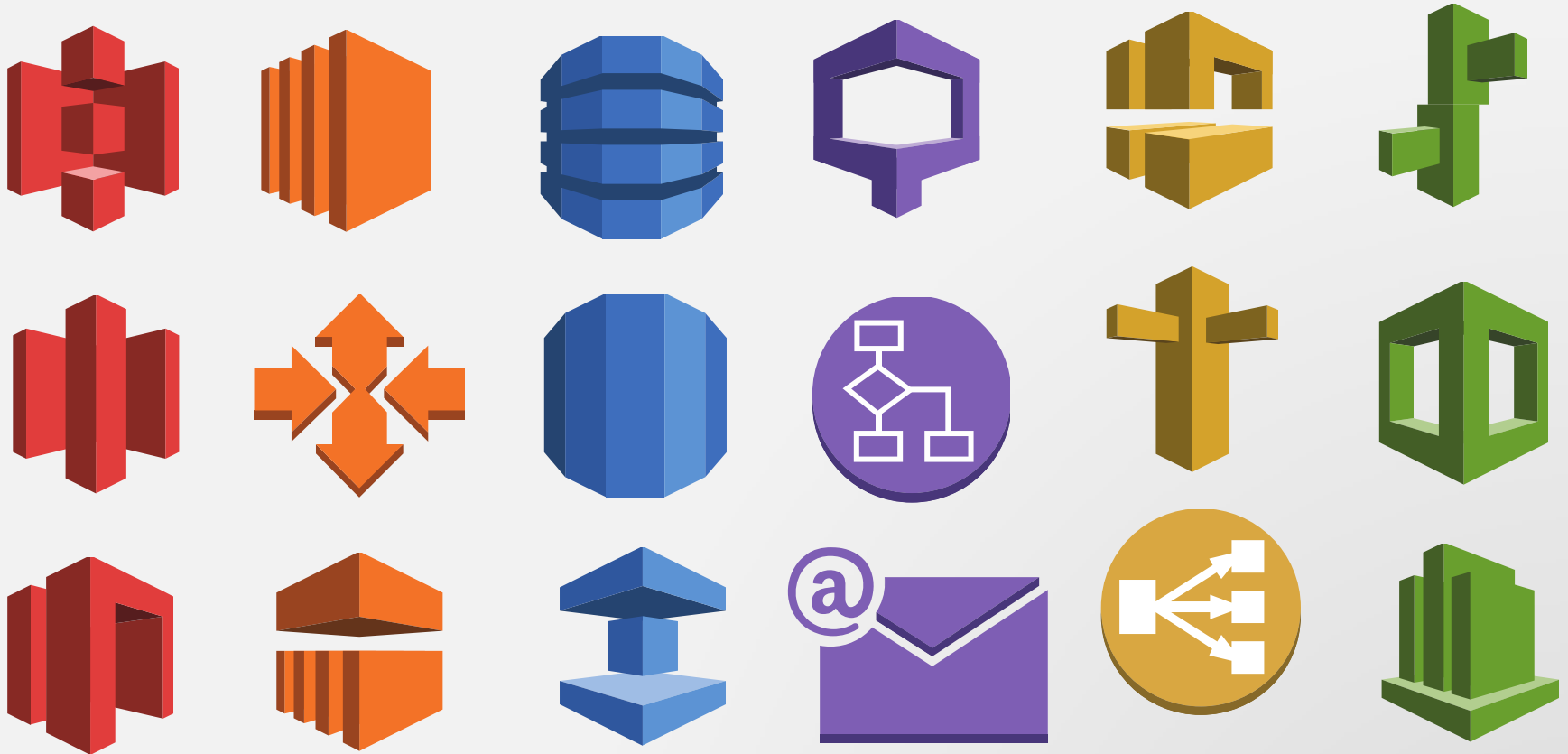
**Where to
learn more
about
architecting
systems on
AWS**

Overview of AWS Services | Seven major categories of AWS Services

1

**Seven major
categories of
AWS
services**

Overview of AWS Services | Seven major categories of AWS Services



And more launching all the time...

Storage

- Amazon Simple Storage Service (S3)
 - Storage for the Internet. Natively online, HTTP access
 - Store and retrieve any amount of data, any time, from anywhere on the web
 - Highly scalable, reliable, fast and durable (default = 99.99999999% durability)

<http://aws.amazon.com/s3>

<http://aws.amazon.com/documentation/s3>



Storage

- Amazon Glacier
 - Extremely low-cost storage
 - Secure, durable storage for data archiving and backup
 - Optimized for data that is infrequently accessed

<http://aws.amazon.com/glacier>

<http://aws.amazon.com/documentation/glacier>



Storage

- Amazon Elastic Block Store (EBS)
 - Block storage volumes for use with Amazon EC2 instances
 - Attach to running instance and expose as a block device
 - Snapshots stored durably in S3
 - Provision a specific level of I/O performance if desired

<http://aws.amazon.com/ebs>

<http://aws.amazon.com/documentation/ebs>



Storage

- Amazon Storage Gateway
 - Connect an on-premises software appliance with cloud-based storage
 - Securely upload data to the AWS cloud for cost effective backup and rapid disaster recovery
 - Back up point-in-time snapshots of your on-premises application data to Amazon S3 for future recovery
 - Mirror your on-premises data to Amazon EC2 instances

<http://aws.amazon.com/storagegateway>

<http://aws.amazon.com/documentation/storagegateway>



Storage

- Amazon Import/Export
 - Accelerates moving large amounts of data into and out of S3, EBS, or Glacier
 - Transfers your data directly onto and off of storage devices
 - Uses Amazon high-speed internal network

<http://aws.amazon.com/importexport>

<http://aws.amazon.com/documentation/importexport>



Content Delivery

- Amazon CloudFront
 - Web service for content delivery
 - Distribute content to end users with low latency, high data transfer speeds, and no commitments
 - Delivers your content using a global network of edge locations
 - Supports download, streaming and live streaming with Adobe FMS

<http://aws.amazon.com/cloudfront>

<http://aws.amazon.com/documentation/cloudfront>



Overview of AWS Services | Seven major categories of AWS Services

Compute

Compute

- Amazon Elastic Compute Cloud (EC2)
 - Resizable compute capacity
 - Complete control of your computing resources
 - Reduces the time required to obtain and boot new server instances to minutes
 - Scale capacity as your computing requirements change
 - Pay only for capacity that you actually use

<http://aws.amazon.com/ec2>

<http://aws.amazon.com/documentation/ec2>



Overview of AWS Services | Seven major categories of AWS Services

Compute

- Auto Scaling
 - Scale your Amazon EC2 capacity automatically
 - Well suited for applications that experience variability in usage
 - Available at no additional charge

<http://aws.amazon.com/autoscaling>

<http://aws.amazon.com/documentation/autoscaling>



Compute

- Amazon Elastic MapReduce (EMR)
 - Easily and cost-effectively process vast amounts of data
 - Utilizes a hosted Hadoop framework

<http://aws.amazon.com/elasticmapreduce>

<http://aws.amazon.com/documentation/elasticmapreduce>



Database

Database

- Amazon DynamoDB
 - Fully-managed NoSQL database service
 - Store any amount of data – no limits
 - Easily provision and change the request capacity needed for each table
 - Fast, predictable performance using SSDs
 - Elastic MapReduce integration

<http://aws.amazon.com/dynamodb>

<http://aws.amazon.com/documentation/dynamodb>



Database

- Amazon Relational Database Service (RDS)
 - Cost-efficient and resizable capacity
 - Manages time-consuming database administration tasks
 - Access to the full capabilities of a familiar MySQL database
 - Code, applications, and tools you already use today work seamlessly
 - Automatically patches the database software and backs up your database

<http://aws.amazon.com/rds>

<http://aws.amazon.com/documentation/rds>



Database

- Amazon ElastiCache
 - Memcached-compliant cache cluster on-demand
 - Manages patching, cache node failure detection and recovery
 - Simple API calls to grow and shrink the cache cluster
 - Seamlessly caches in front of SimpleDB or RDS instances
 - Integrated with CloudWatch and SNS for monitoring and alerts

<http://aws.amazon.com/elasticache>

<http://aws.amazon.com/documentation/elasticache>



Database

- Amazon Redshift
 - Optimized for data warehousing
 - Scale from one 2TB XL to a hundred 16TB 8XL nodes and back again
 - Pay only for what you provision
 - Fully managed
 - Compatible with SQL and AWS services

<http://aws.amazon.com/redshift>

<http://aws.amazon.com/documentation/redshift>

Applications Services

Applications Services

- Amazon Simple Workflow Service (SWF)
 - Easily manage workflows, including state, decisions, executions, tasks and logging
 - Coordinate processing steps across distributed systems
 - Ensure tasks are executed reliably, in order, and without duplication
 - Simple API calls that can be executed from code written in any language and run on your EC2 instances, or any of your machines located anywhere in the world that can access the Internet

<http://aws.amazon.com/swf>

<http://aws.amazon.com/documentation/swf>



Applications Services

- Amazon CloudSearch (beta)
 - Fully-managed search service
 - Integrate fast and highly scalable search functionality into applications
 - Scales automatically: with increases in searchable data or as query rate changes
 - AWS manages hardware provisioning, data partitioning, and software patches

<http://aws.amazon.com/cloudsearch>

<http://aws.amazon.com/documentation/cloudsearch>



Applications Services

- Amazon Simple Notification Service (SNS)
 - Set up, operate, and send notifications
 - Publish messages from an application and immediately deliver them to subscribers or other applications

<http://aws.amazon.com/sns>

<http://aws.amazon.com/documentation/sns>



Applications Services

- Amazon Simple Queue Service (SQS)
 - Hosted queue for storing messages as they travel between computers
 - Move data between distributed components of their applications

<http://aws.amazon.com/sqs>

<http://aws.amazon.com/documentation/sqs>



Applications Services

- Amazon Simple Email Service (SES)
 - Bulk and transactional email-sending service
 - Eliminates the hassle of email server management, network configuration, and meeting rigorous Internet Service Provider (ISP) standards
 - Provides a built-in feedback loop, which includes notifications of bounce backs, failed and successful delivery attempts, and spam complaints

<http://aws.amazon.com/ses>

<http://aws.amazon.com/documentation/ses>



Applications Services

- Amazon Elastic Transcoder
 - Manages all aspects of the transcoding process
 - Scales seamlessly as workloads increase or decrease
 - Uses existing AWS services (EC2, S3, and so on)

<http://aws.amazon.com/elastictranscoder>

<http://aws.amazon.com/documentation/elastictranscoder>



Networking

Networking

- Amazon Virtual Private Cloud (Amazon VPC)
 - Provision a private, isolated section of the Amazon Web Services (AWS) Cloud where you can launch AWS resources in a virtual network that you define
 - Define a virtual network topology that closely resembles a traditional network that you might operate in your own datacenter
 - You have complete control over your virtual networking environment: selection of IP address range, creation of subnets, configuration of route tables, and network gateways

<http://aws.amazon.com/vpc>

[\(http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-vpc.html\)](http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-vpc.html)



Networking

- Amazon Route 53
 - Route end users to internet applications
 - Answers DNS queries with low latency by using a global network of DNS servers

<http://aws.amazon.com/route53>

<http://aws.amazon.com/documentation/route53>

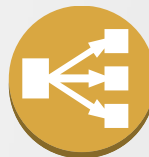


Networking

- Amazon Elastic Load Balancing
 - Supports the routing and load balancing of HTTP, HTTPS and TCP traffic to EC2 instances
 - Supports health checks to ensure detect and remove failing instances
 - Dynamically grows and shrinks required resources based on traffic
 - Seamlessly integrates with Auto-scaling to add and remove instances based on scaling activities
 - Single CNAME provides stable entry point for DNS configuration

<http://aws.amazon.com/elasticloadbalancing>

<http://aws.amazon.com/documentation/elasticloadbalancing>



Networking

- AWS Direct Connect
 - Establish a dedicated network connection from your premise to AWS
 - Choose the data that uses the connection and how it's routed
 - Create a virtual private interface to your Amazon VPC

<http://aws.amazon.com/directconnect>

<http://aws.amazon.com/documentation/directconnect>



Deployment and Management

Deployment and Management

- AWS Elastic Beanstalk (beta)
 - Simply upload your application
 - Automatically handles the deployment details of capacity provisioning, load balancing, auto-scaling, and application health monitoring
 - Retain full control over the AWS resources powering your application

<http://aws.amazon.com/elasticbeanstalk>

<http://aws.amazon.com/documentation/elasticbeanstalk>



Deployment and Management

- AWS CloudFormation
 - Create templates of stack of resources
 - Deploy stack from template with runtime parameters
 - CloudFormer supports generating templates from running environments

<http://aws.amazon.com/cloudformation>

<http://aws.amazon.com/documentation/cloudformation>



Deployment and Management

- AWS CloudWatch
 - Visibility into resource utilization, operational performance, and overall demand patterns
 - Metrics including CPU utilization, disk reads and writes, and network traffic
 - Custom application-specific metrics of your own
 - Accessible via AWS Management Console, APIs, SDK, or CLI

<http://aws.amazon.com/cloudwatch>

<http://aws.amazon.com/documentation/cloudwatch>



Deployment and Management

- AWS Identity and Access Management (IAM)
 - Create Users and Groups with specific, restricted access to specific AWS resources and API calls
 - User-specific credentials for accessing management console and making API calls
 - Provision identity federation between corporate directory and AWS services

<http://aws.amazon.com/iam>

<http://aws.amazon.com/documentation/iam>



Deployment and Management

- AWS Data Pipeline
 - Process and move data between different AWS compute and storage services as well as on-premises data sources
 - Create complex data processing workloads that are fault tolerant, repeatable, and highly available

<http://aws.amazon.com/datapipeline>

<http://aws.amazon.com/documentation/datapipeline>

Deployment and Management

- AWS CloudHSM
 - Protect and store your cryptographic keys with industry standard, tamper-resistant HSM appliances.
 - Use your most sensitive and regulated data on Amazon EC2 without giving applications direct access to your data's encryption keys
 - Store and access data reliably from your applications that demand highly available and durable key storage and cryptographic operations

<http://aws.amazon.com/cloudhsm>

<http://aws.amazon.com/documentation/cloudhsm>

Overview of AWS Services | How to find info quickly on any given AWS service

2

**How to find
info quickly
on any given
AWS service**

List of services:

<http://aws.amazon.com/products>

Detailed info on any AWS service:

<http://aws.amazon.com/<productname>>

Docs:

<http://aws.amazon.com/documentation/<productname>>

Overview of AWS Services | Where to learn more about architecting systems on AWS

3

**Where to
learn more
about
architecting
systems on
AWS**

Overview of AWS Services | Where to learn more about architecting systems on AWS

- AWS architecture center
 - <http://aws.amazon.com/architecture>
- Whitepapers
 - <http://aws.amazon.com/whitepapers>

Let's review:

- Seven major categories of AWS Services?
- URL of the main AWS product page?
- Where can you find details on any given AWS service?
- Where can you get resources specific to AWS architecture?