



# Understanding the Cloud and AWS

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An illustration at the top of the slide shows a laptop with a light blue screen and a dark orange border. To the right of the laptop is a stylized tree with a brown trunk and two green leaves. The background is a light orange color with some faint, dashed orange lines.

# What is Cloud Computing?

## On-Demand Resources

Access computing resources over the internet as needed.

## Seamless Scalability

Easily adjust resources up or down.

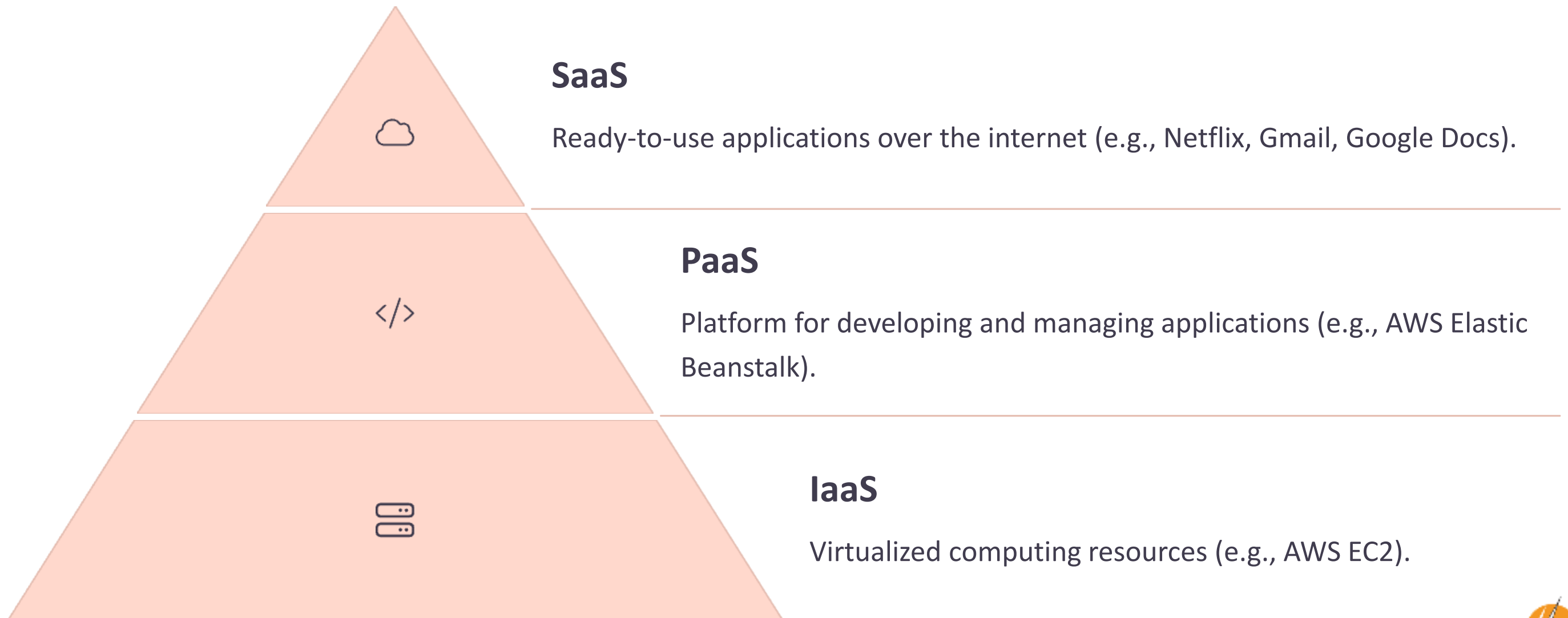
## Pay-As-You-Go

Only pay for the resources you consume.

## Shared Pool Access

Ubiquitous, convenient access to configurable resources.

# Key Cloud Computing Models



# Benefits of Cloud Computing



## Cost Savings

Reduce capital and operational expenses significantly.



## Increased Agility

Quickly deploy and scale applications with ease.



## Enhanced Security

Benefit from advanced cloud security services.



## Global Reach

Deploy applications worldwide in multiple regions.





# What is AWS?



## On-Demand Platform

AWS provides a comprehensive, on-demand cloud computing platform, offering a wide array of services including computing power, storage, and databases, accessible instantly over the internet without physical hardware.



## Pay-As-You-Go

With AWS, you only pay for the specific services you consume, typically by the hour or by the second for compute, and by the gigabyte for storage, eliminating the need for large upfront capital expenditures.



## Secure & Scalable

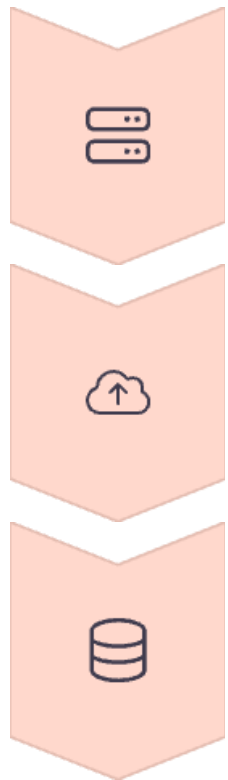
It offers a highly secure and scalable infrastructure, designed for global enterprises. AWS provides robust security features, compliance certifications, and the ability to easily scale resources up or down based on demand.



## 200+ Services

Over 200 fully featured services are available to users, covering everything from fundamental computing and storage to advanced machine learning, artificial intelligence, data analytics, and Internet of Things (IoT).

# How Does AWS Work?



## Virtualization Core

Virtualization technology forms the heart of AWS operations.

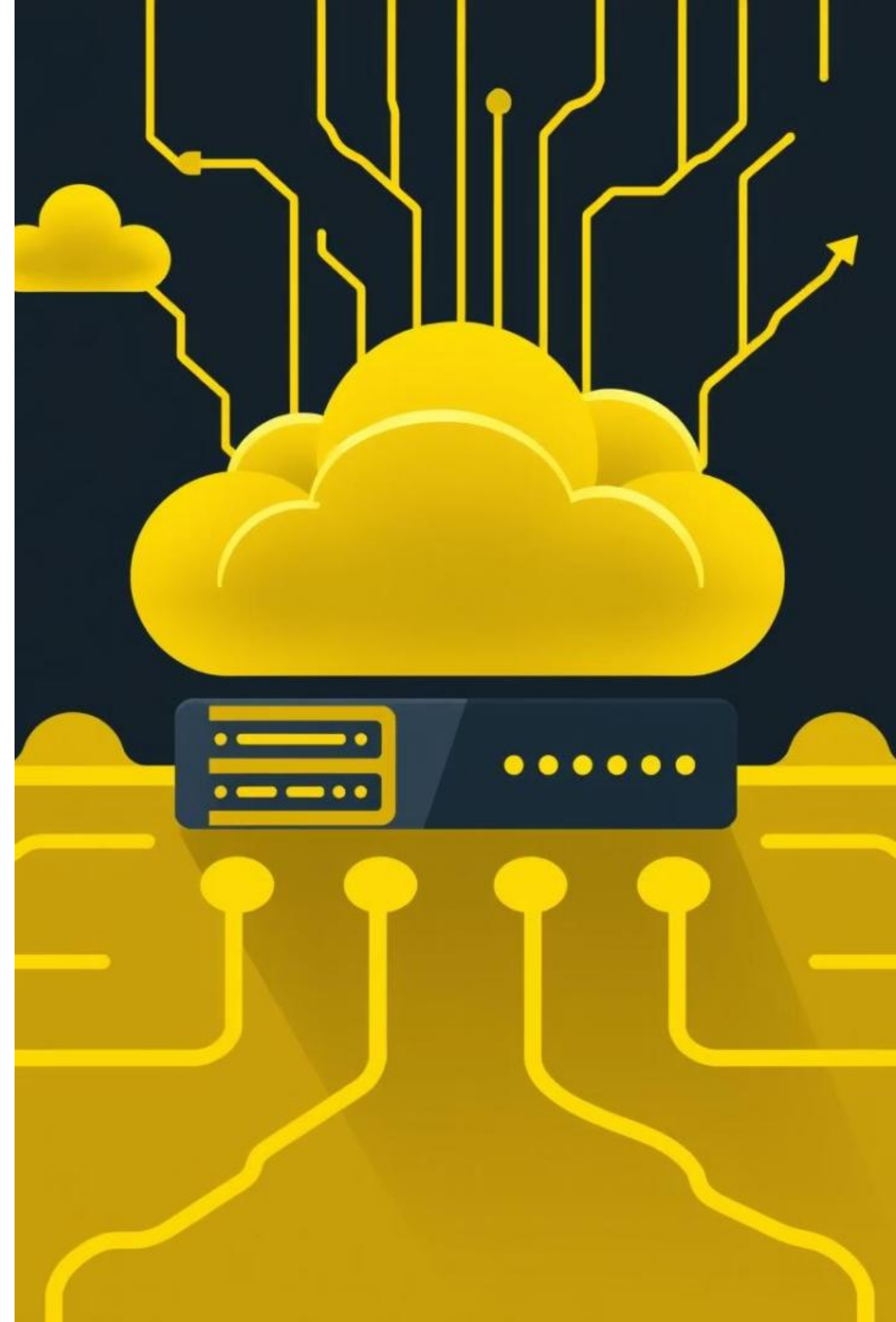
## Service Access

Access services via web console, CLI, SDKs, and APIs.

## Core Services

Key services include EC2, S3, and RDS for various needs.

AWS leverages virtualization for its operations. Users interact with services through various interfaces, making it flexible for diverse workloads.





# What is the Use of AWS?

1

## Application Hosting

Scalable and reliable platform for web, mobile, and enterprise apps. Netflix streams content globally using AWS.

2

## Data Management

Secure, scalable databases, data warehouses, and data lakes. Airbnb uses AWS for data analytics and processing.

3

## Infrastructure

On-demand compute, storage, and networking resources. Epic Games scales game servers using AWS compute services.

4

## IoT

Connect, manage, and analyze IoT device data. Philips Healthcare uses AWS IoT to monitor medical devices.





# Understanding AWS Regions and Availability Zones

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# AWS Regions

## Geographic Areas

Regions are distinct geographic areas with multiple, isolated Availability Zones. For example, the **us-east-1 (N. Virginia)** Region is located in the eastern United States.

## Independent Operations

Each region operates completely independently for enhanced resilience.

## Reduced Latency

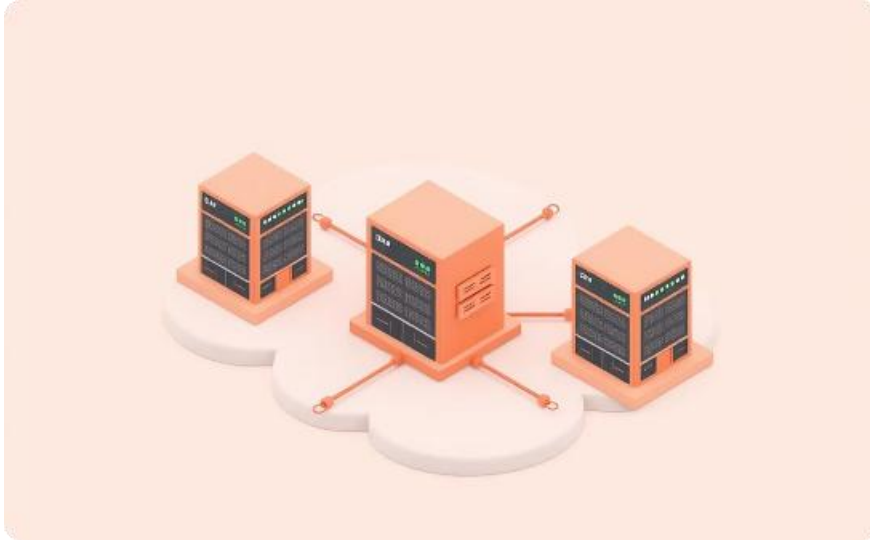
Deploy applications closer to users, significantly reducing latency.

## Compliance & Cost

Choose regions based on data residency and varying pricing models.



# AWS Availability Zones



## Isolated Data Centers

Availability Zones are isolated data centers within a specific region, connected by low-latency networks.

Example: **us-east-1a**, **us-east-1b**, **us-east-1c**.



## Fault Isolation

A failure in one AZ will not impact other zones, ensuring continuous operation and achieving 99.99% uptime.



## High Availability

Distribute applications across multiple AZs for robust high availability and resilience.

- Web servers in **us-east-1a**.
- Database in **us-east-1b**.
- Data replicated in **us-east-1c**.

# aws



## Core AWS Services

### Compute

- EC2 (Virtual Servers)
- Lambda (Serverless Functions)
- Elastic Beanstalk (Application Deployment)

### Storage

- S3 (Object Storage)
- EBS (Block Storage)
- Glacier (Archival Storage)

### Database

- RDS (Relational Database)
- DynamoDB (NoSQL Database)
- Aurora (Cloud-Native Database)

### Networking

- VPC (Private Network)
- Route 53 (DNS Service)
- CloudFront (Content Delivery)





# Core AWS Services: EC2

1

## Elastic Compute Capacity

EC2 (Elastic Compute Cloud) provides secure, resizable compute capacity in the cloud, allowing you to run applications without upfront hardware investment.

2

## Extensive Instance Types

Offers a wide array of instance types (e.g., General Purpose, Compute Optimized, Memory Optimized, Storage Optimized) tailored for diverse workloads like web servers, databases, and scientific computing.

3

## Broad OS Support

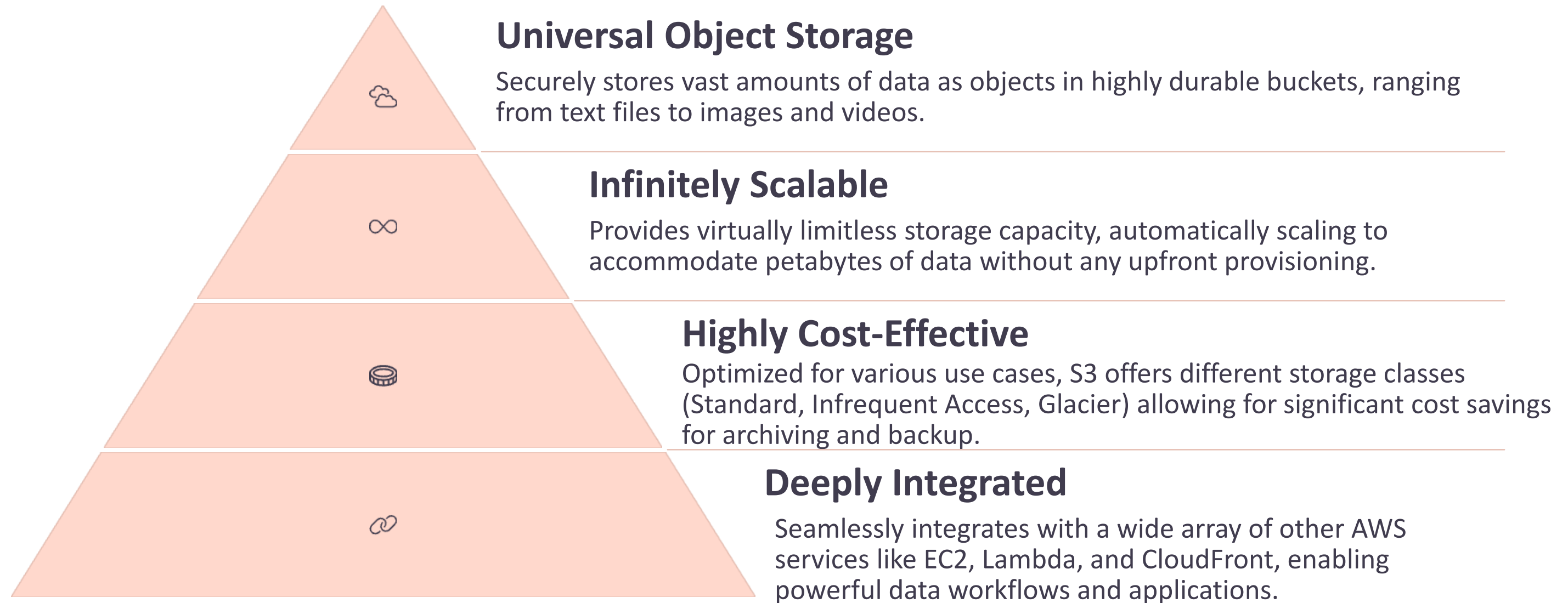
Supports a variety of operating systems, including Amazon Linux 2, Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, and Ubuntu, ensuring compatibility with your existing applications.

4

## Dynamic Auto Scaling

Leverages Auto Scaling to automatically adjust compute capacity based on demand, ensuring consistent performance and cost optimization by adding or removing instances as needed.

# Core AWS Services: S3 (Simple Storage Service)



Amazon S3 is a cornerstone of the AWS ecosystem, currently storing trillions of objects for millions of applications. Its unparalleled durability (99.999999999% over a given year) and availability make it a reliable choice for diverse data storage needs, from critical application data to static website hosting.

# Core AWS Services: RDS (Relational Database Service)



## Fully Managed

Automates database setup, operations, and scaling, reducing administrative overhead.



## Broad Engine Support

Supports popular database engines including MySQL, PostgreSQL, and SQL Server.



## Automated Operations

Ensures data safety with automatic backups, patching, and software updates.



## High Availability

Multi-AZ deployment ensures robust high availability and efficient disaster recovery.

RDS streamlines relational database management, allowing users to focus on developing applications instead of managing complex infrastructure.



# AWS Services by Sector: A Comprehensive Overview

Amazon Web Services offers over 200 fully featured cloud services. They provide scalable solutions for all organizations. This presentation categorizes services by key functional areas.





# Compute Services

1

## Amazon EC2

Virtual servers with 750+ instance types.

2

## AWS Lambda

Serverless execution for various languages.

3

## Amazon ECS

Manages Docker containers effectively.

4

## Amazon EKS

Managed Kubernetes for orchestration.



# Storage Services



## Amazon S3

Object storage for vast data.



## Amazon EBS

Block storage for EC2 instances.



## Amazon EFS

Scalable file storage for Linux.



## Amazon Glacier

Low-cost archive storage solution.







# Database Services

## Amazon RDS

Managed relational databases, various engines.

## Amazon Aurora

High-performance MySQL/PostgreSQL compatible.

## Amazon DynamoDB

NoSQL database for high scale.

## Amazon Redshift

Data warehouse for big analytics.

# Networking Services



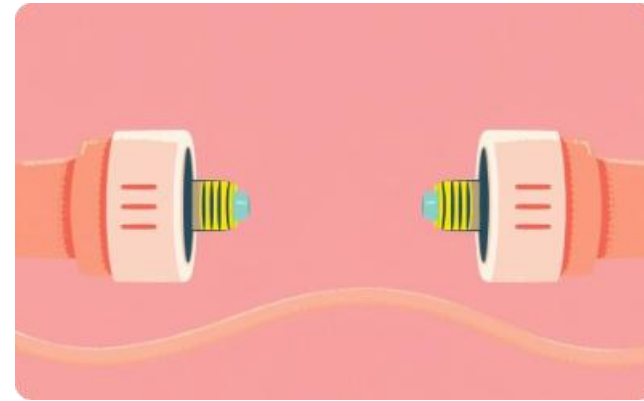
## Amazon VPC

Isolated virtual private cloud for your resources.



## Amazon Route 53

Scalable DNS and intelligent traffic routing.



## AWS Direct Connect

Dedicated, private network connections to AWS.



## Amazon CloudFront

Global CDN for accelerated content delivery.



# Security Services



## **AWS IAM**

Identity and access control.



## **AWS KMS**

Manages encryption keys.



## **AWS Shield**

DDoS protection service.

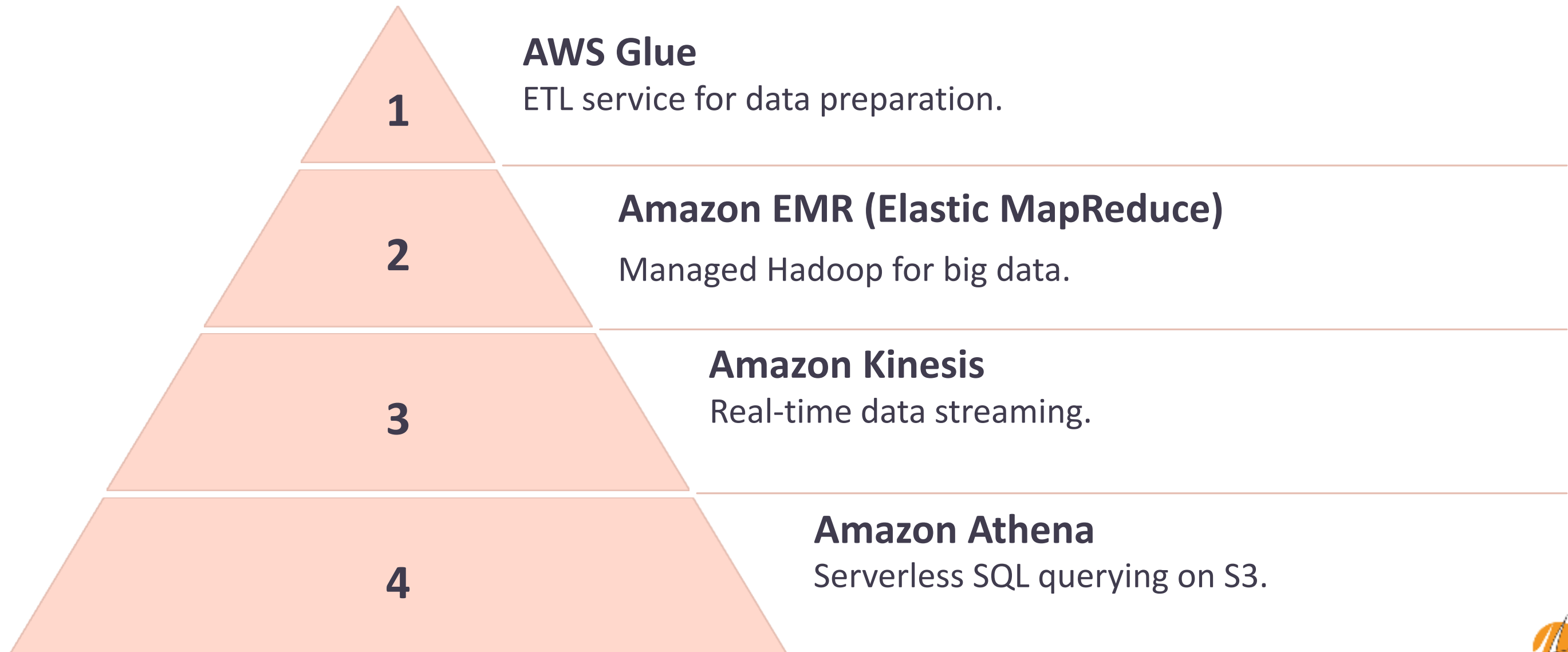


## **Amazon GuardDuty**

Threat detection system.



# Analytics Services



# Machine Learning Services

1

## Amazon SageMaker

Fully managed service for developers/data scientists to build ML models

2

## Amazon Rekognition

Find object, people, text, scenes in images and videos using ML

3

## Amazon Comprehend

NLP – extracts meaning, sentiment from texts

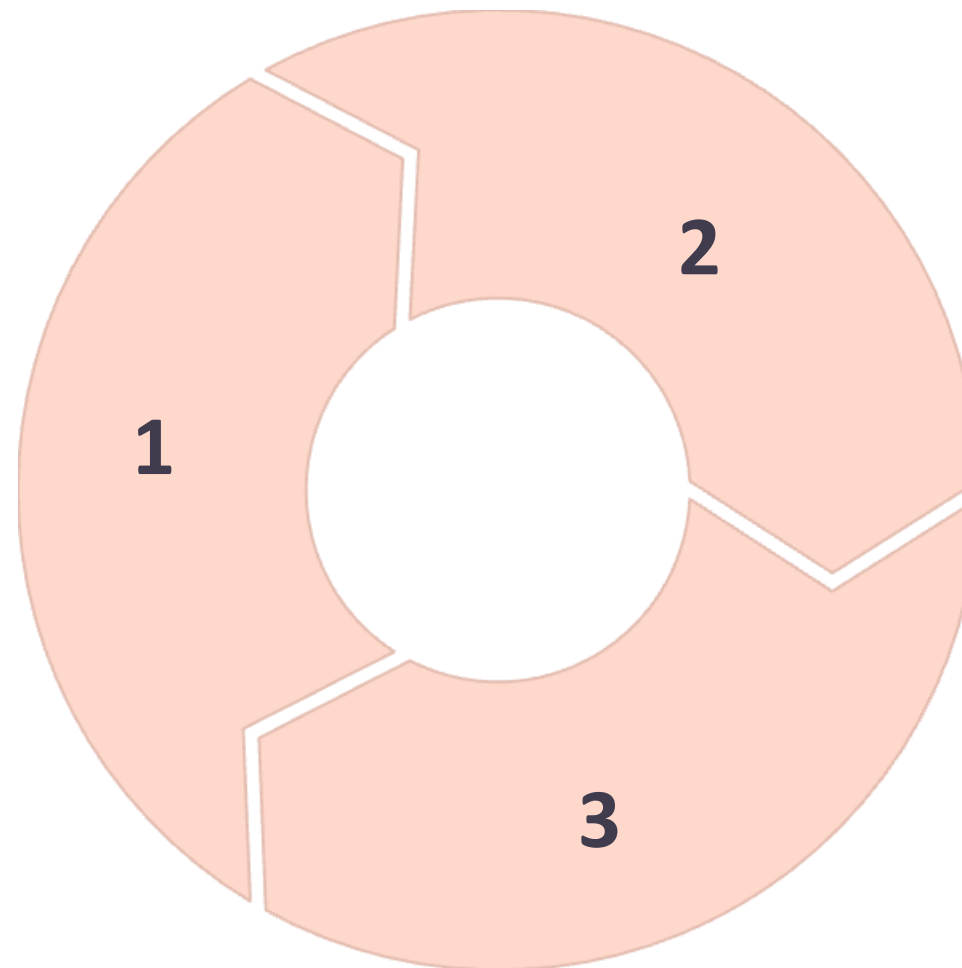
4

## Amazon Lex

Powers conversational interfaces

# Developer Tools

**AWS CodeBuild**  
Compiles and tests code.



**AWS CodeDeploy**

Automates code deployments.

**AWS CodePipeline**

CI/CD automation.

# AWS Services

## Compute



Amazon EC2



AWS Lambda



Auto Scaling



AWS Elastic Beanstalk



Amazon Elastic Container Registry



Amazon Elastic Container Service



Amazon Lightsail



AWS Batch

## Networking



Amazon VPC



Amazon Route 53



AWS Direct Connect



Elastic Load Balancing

## Storage



Amazon S3



Amazon EBS



Amazon CloudFront



Amazon Glacier



Amazon Elastic File System



AWS Snowball



Storage Gateway



AWS Snowmobile

## Database



Amazon RDS



Amazon DynamoDB



Amazon Redshift



AWS Database Migration Service



Amazon ElastiCache





# Hosting a Website on AWS S3: A Comprehensive Guide

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Welcome to a comprehensive guide on hosting your website on Amazon Web Services (AWS) S3. Discover how this powerful platform offers a scalable, cost-effective, and secure solution for your web presence.

# Step-by-Step: Setting up S3 for Website Hosting



## Create an S3 bucket

Choose a globally unique name for your bucket.



## Enable static website hosting

Configure index and error documents.



## Upload website files

Add your HTML, CSS, JavaScript, and images.



## Set bucket policy

Allow public read access for your content.

# Configuring Bucket Policy

## JSON-based control

Use a JSON document to define access rules.

## Example Policy

Allow `s3:GetObject` for all users.

## Limit Access

Restrict access to specific resources or IPs.

## Be Careful

Broad access can pose security risks.







example.com

The diagram illustrates the process of custom domain configuration. It starts with a domain 'example.com' in a white box. A yellow arrow points down to an 'amazon S3' logo in a white box. Another yellow arrow points down from the S3 box to a 'Static Website' circle. The background is dark blue with a network of red and grey nodes connected by lines.

**amazon S3**

Static  
Website

# Custom Domain Configuration

## Register a Domain

Use AWS Route 53 or other registrars.

## Create CNAME Record

Point your domain to the S3 endpoint.

## Example Mapping

www.example.com CNAME example.com.s3-  
website-us-east-1.amazonaws.com.

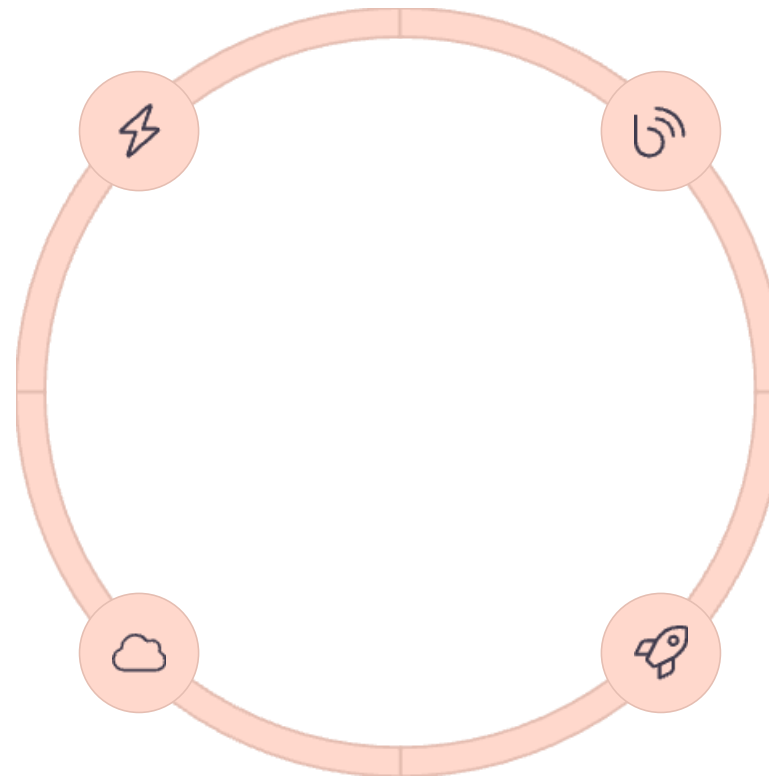
# S3 for Modern Web Hosting

## Powerful Solution

S3 is powerful solution for static website

## Embrace the Cloud

Simplify your web hosting journey.




## Ideal For

Static websites, blogs, documentation.

## Easy & Scalable

Simple setup, robust scalability.



# Let's start with Website hosting

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# Setup Project



## Clone repository from GitHub

[https://gitlab.anasource.com/Vijay\\_Kansagara/ci\\_platfrom\\_app](https://gitlab.anasource.com/Vijay_Kansagara/ci_platfrom_app)



## Install Required Dependency

Run command : **npm install** - It will install required dependency



## Build Project

Run command : **npm run build** – that will compile project and create a build that we can deploy on server

# Create S3 bucket

- 1 — Select Bucket Type**  
Please select General purpose bucket type
- 2 — Select Bucket Name**  
Please enter bucket name "ciplatformbucket"
- 3 — Update Object ownership**

## Object Ownership [Info](#)

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

### ☒ ACLs disabled (recommended)

All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

### ☐ ACLs enabled

Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

## Object Ownership

Bucket owner enforced

## General configuration

### AWS Region

Europe (Stockholm) eu-north-1

### Bucket type [Info](#)

#### ☒ General purpose

Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

#### ☐ Directory

Recommended for low-latency use cases. These buckets use only the S3 Express One Zone storage class, which provides faster processing of data within a single Availability Zone.

### Bucket name [Info](#)

ciplatformbucket

Bucket names must be 3 to 63 characters and unique within the global namespace. Bucket names must also begin and end with a letter or number. Valid characters are a-z, 0-9, periods (.), and hyphens (-).

[Learn More](#) [↗](#)

### Copy settings from existing bucket - optional

Only the bucket settings in the following configuration are copied.

[Choose bucket](#)

Format: s3://bucket/prefix

# Enable Public Access

## 1 — Allow public access

Uncheck "Block all public access" (*check screenshot*) ->

## 2 — Set encryptions as follow

### Default encryption [Info](#)

Server-side encryption is automatically applied to new objects stored in this bucket.

#### Encryption type [Info](#)

- ☒ Server-side encryption with Amazon S3 managed keys (SSE-S3)
- ☐ Server-side encryption with AWS Key Management Service keys (SSE-KMS)
- ☐ Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)

Secure your objects with two separate layers of encryption. For details on pricing, see [DSSE-KMS pricing](#) on the **Storage** tab of the [Amazon S3 pricing page](#). [↗](#)

#### Bucket Key

Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. [Learn more](#) [↗](#)

- ☐ Disable
- ☒ Enable

## Block Public Access settings for this bucket

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#) [↗](#)

### ☐ Block *all* public access

Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

#### ☐ Block public access to buckets and objects granted through *new* access control lists (ACLs)

S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.

#### ☐ Block public access to buckets and objects granted through *any* access control lists (ACLs)

S3 will ignore all ACLs that grant public access to buckets and objects.

#### ☐ Block public access to buckets and objects granted through *new* public bucket or access point policies

S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.

#### ☐ Block public and cross-account access to buckets and objects through *any* public bucket or access point policies

S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.



# Review Bucket

1

Check list of buckets

Check list of all buckets and select bucket you have created

General purpose buckets (3) Info All AWS Regions

Refresh

Copy ARN

Empty

Delete

Create bucket

Find buckets by name

< 1 > ⚙

Name	AWS Region	IAM Access Analyzer	Created date
<input type="radio"/> <a href="#">ciplatformbucket</a>	Europe (Stockholm) eu-north-1	<a href="#">View analyzer for eu-north-1</a>	June 2025 16:1 (UTC)
<input type="radio"/> <a href="#">elasticbeanstalk-eu-north-1-904237</a>	Europe (Stockholm) eu-north-1	<a href="#">View analyzer for eu-north-1</a>	October 2024 16:2 (UTC)
<input type="radio"/> <a href="#">elasticbeanstalk-us-east-1-904237</a>	US East (N. Virginia) us-east-1	<a href="#">View analyzer for us-east-1</a>	April 2025 11:2 (UTC)

# Update Bucket Permission

## 1 — Update bucket permission

Update bucket permission and edit as follow

General purpose buckets (3) Info All AWS Regions

Refresh

Copy ARN

Empty

Delete

Create bucket

Find buckets by name

< 1 >

Settings

Name	AWS Region	IAM Access Analyzer	Created date
<div><div></div><div><a href="#">ciplatformbucket</a></div></div>	Europe (Stockholm) eu-north-1	<a href="#">View analyzer for eu-north-1</a>	June 2024 16:1 (UTC)
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# Edit S3 Bucket Policy

## 1 — Update bucket policy as follow

```
{
  "Version": "2008-10-17",
  "Id": "PolicyForPublicAccess",
  "Statement": [
    {
      "Sid": "PublicReadGetObject",
      "Effect": "Allow",
      "Principal": "*",
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::ciplatformbucket/*"
    }
  ]
}
```

Bucket ARN

arn:aws:s3:::ciplatformbucket

Policy

The screenshot displays the AWS IAM console interface for editing a policy statement. The main area shows the JSON policy document with the following structure:

```
1 {
2   "Version": "2008-10-17",
3   "Id": "PolicyForPublicAccess",
4   "Statement": [
5     {
6       "Sid": "PublicReadGetObject",
7       "Effect": "Allow",
8       "Principal": "*",
9       "Action": "s3:GetObject",
10      "Resource": "arn:aws:s3:::ciplatformbucket/*"
11    }
12  ]
13 }
```

The 'Resource' field on line 10 is highlighted with a red box. The right sidebar contains the following sections:

- Edit statement**: PublicReadGetObject (with a Remove button)
- Add actions**: Choose a service (with a search bar labeled 'Filter services')
- Included**: S3
- Available**: A list of services including AI Operations, AMP, API Gateway, API Gateway V2, ARC Zonal Shift, ASC, and Access Analyzer.



# Static Website Hosting

## 1 — Enable static website hosting

Select all configurations as per given screenshot

### Static website hosting

Use this bucket to host a website or redirect requests. [Learn more](#)

#### Static website hosting

☐ Disable

☒ Enable

#### Hosting type

☒ Host a static website

Use the bucket endpoint as the web address. [Learn more](#)

☐ Redirect requests for an object

Redirect requests to another bucket or domain. [Learn more](#)

**i** For your customers to access content at the website endpoint, you must make all your content publicly readable. To do so, you can edit the S3 Block Public Access settings for the bucket. For more information, see [Using Amazon S3 Block Public Access](#)

#### Index document

Specify the home or default page of the website.

index.html

#### Error document - optional

This is returned when an error occurs.

error.html

#### Redirection rules – optional

Redirection rules, written in JSON, automatically redirect webpage requests for specific content. [Learn more](#)

# Upload Build Files

## 1 Upload

Click on Upload button and will see screen same as screenshot

## 2 Add Files

Click on **Add Files** and upload all required files.

## Upload [Info](#)

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDKs or Amazon S3 REST API. [Learn more](#)

Drag and drop files and folders you want to upload here, or choose **Add files** or **Add folder**.

### Files and folders (0)

Remove

Add files

Add folder

All files and folders in this table will be uploaded.

Find by name

< 1 >

Name

Folder

No files or folders

You have not chosen any files or folders to upload.

## Destination [Info](#)

Destination

[s3://ciplatformbucket](#)

### ► Destination details

Bucket settings that impact new objects stored in the specified destination.

# Go Live

## 1 — Get URL

Go to bucket policy and scroll at the end to get URL

## 2 — Access Website

You will see link same as screenshot. Now access your website with that domain

## 3 — Live Done

### Static website hosting

[Edit](#)

Use this bucket to host a website or redirect requests. [Learn more](#)

**i We recommend using AWS Amplify Hosting for static website hosting**  
Deploy a fast, secure, and reliable website quickly with AWS Amplify Hosting.  
Learn more about [Amplify Hosting](#) or [View your existing Amplify apps](#)

[Create Amplify app](#)

### S3 static website hosting

Enabled

### Hosting type

Bucket hosting

### Bucket website endpoint

When you configure your bucket as a static website, the website is available at the AWS Region-specific website endpoint of the bucket. [Learn more](#)

<http://ciplatformbucket.s3-website.eu-north-1.amazonaws.com>

# Questions?



# Thank You