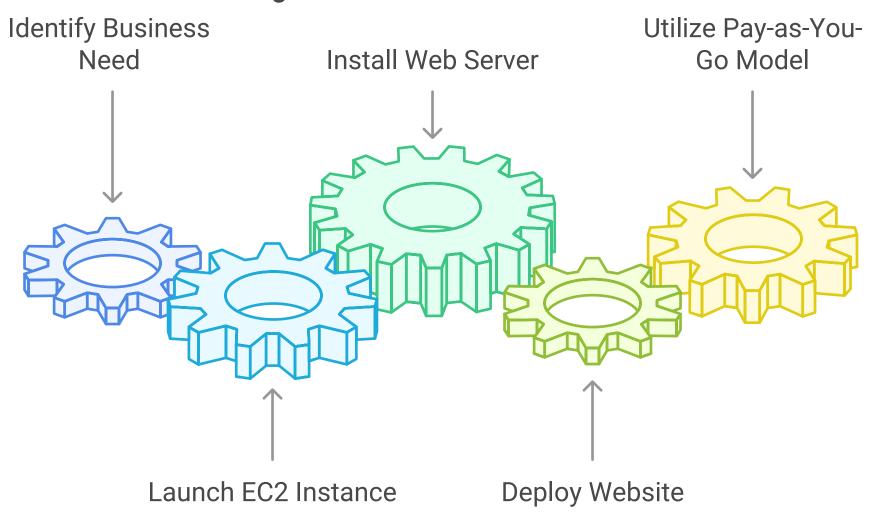
Compute – Amazon EC2 (Virtual Machines)

Example: Hosting a Website

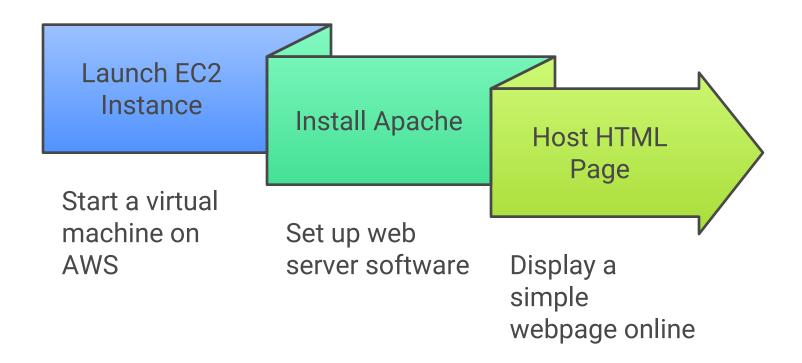
- Imagine you have a small business and want to host a website.
- You can launch an **EC2 instance (a virtual server)**, install a web server (Apache/Nginx), and deploy your website.
- Instead of buying physical servers, AWS lets you pay-as-you-go for computing power.

Hosting a Website on Amazon EC2



Hands-on Idea: Launch an EC2 instance, install Apache, and host a simple HTML page.

Launching and Hosting on EC2



Example: Storing & Sharing Files

Importance of File Storage and Sharing

Why is storing and sharing files essential in digital communication?

It facilitates collaboration and access to important information.

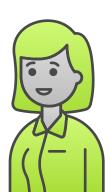
How do cloud storage solutions help users?

They allow secure storage and effortless sharing across platforms.

What benefits does this capability provide?

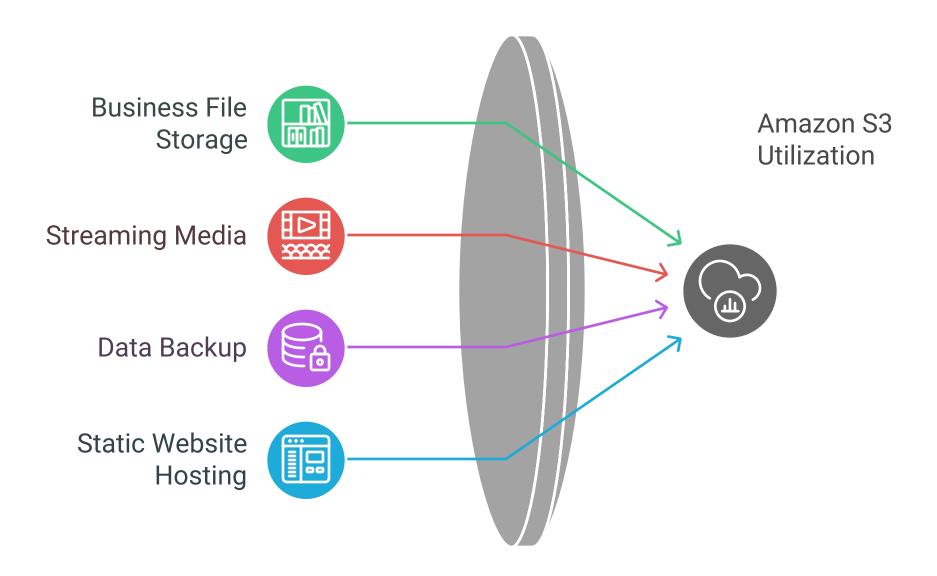


It enhances productivity and ensures access to necessary resources.



- Think of S3 like Google Drive, but for businesses.
- A company like Netflix stores **movies and thumbnails** in S3 so that when you stream, it loads from the closest data center.
- Businesses use S3 for backup, storing logs, and hosting static websites.

Diverse Business Applications of Amazon S3



Hands-on Idea: Upload a file to S3, make it public, and access it via a browser URL.

Uploading Files to S3

What is a hands-on idea for using S3?



Upload a file to S3, make it public, and access it via a browser URL.



3. Database – Amazon RDS (Managed Databases)

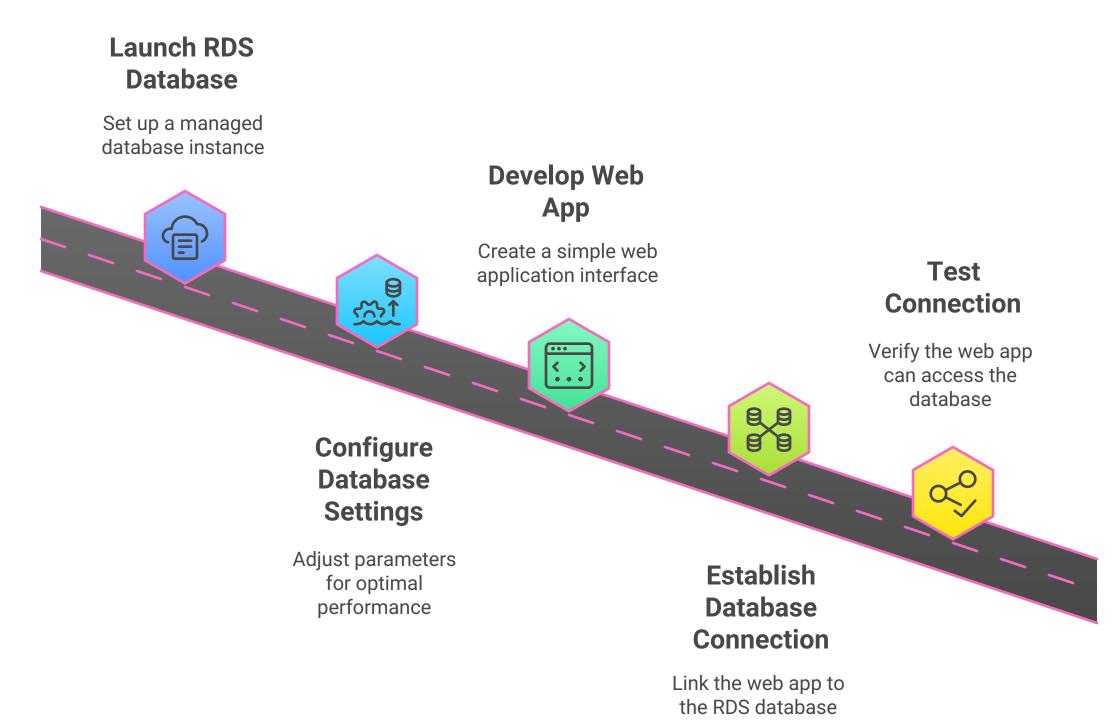
Example: Online Shopping App

- Suppose you're building an **e-commerce store** like Amazon.
- You need a database to store **products, customers, and orders**.
- Instead of managing a MySQL/PostgreSQL database yourself, you use **RDS**, which is fully managed by AWS.

AWS RDS in E-commerce Architecture



Connecting RDS with a Web App

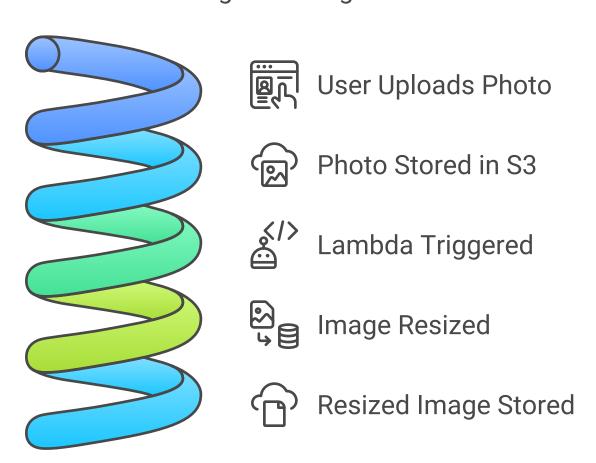


4. Serverless – AWS Lambda (Auto-scaling Functions)

Example: Auto-Resizing Images

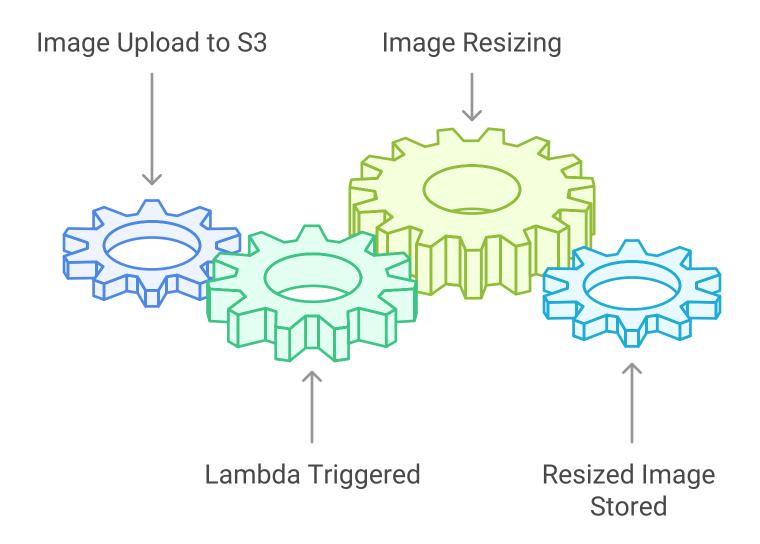
- A travel website lets users upload photos.
- You want to automatically resize images before storing them.
- AWS Lambda can **trigger when a new image is uploaded** to S3 and resize it without needing a server.

Image Resizing Process with AWS Lambda



Hands-on Idea: Write a Lambda function that resizes images when uploaded to an S3 bucket.

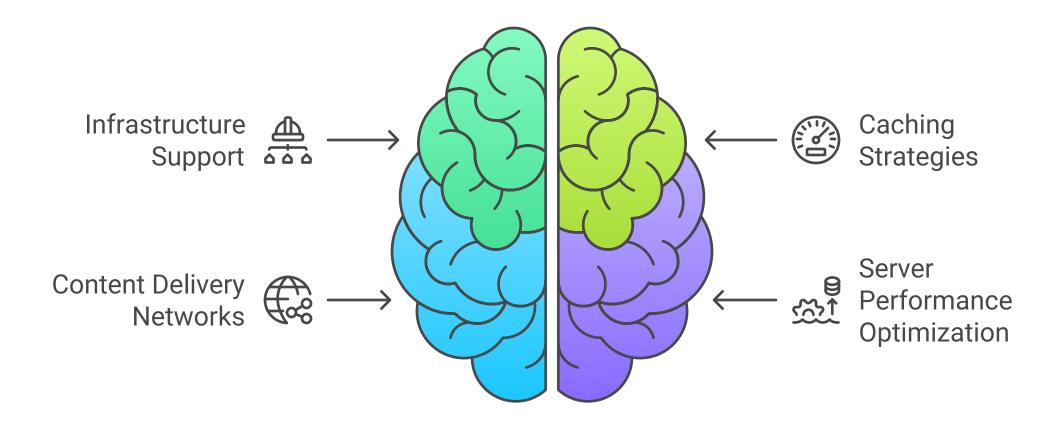
Image Resizing Process with AWS Lambda



5. Networking – AWS VPC + Load Balancer

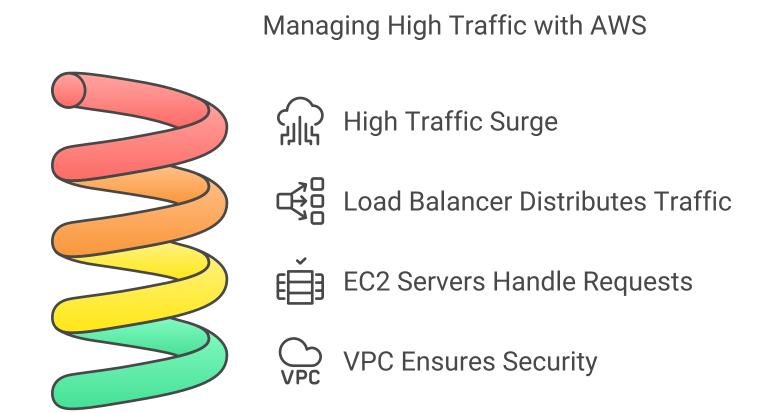
Example: Handling High Traffic Websites

Strategies for Managing High Traffic Websites



- Imagine you run an online ticket booking system.
- On **Black Friday**, millions of users visit at once.

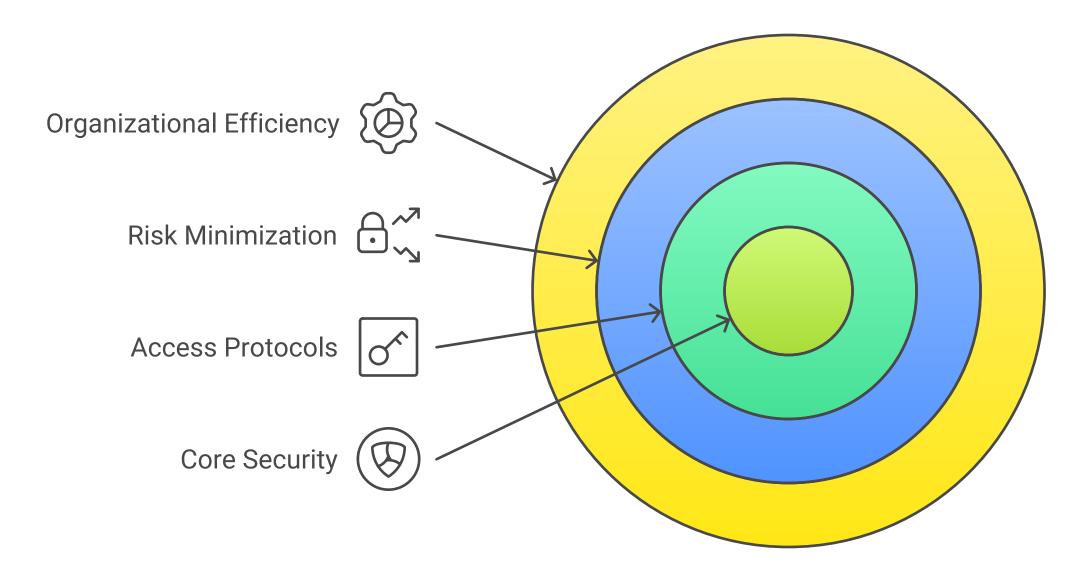
- AWS Load Balancer distributes traffic between multiple EC2 servers, preventing crashes.
- AWS **VPC (Virtual Private Cloud)** ensures security by isolating your database from the internet.



Hands-on Idea: Set up a Load Balancer to distribute traffic across two EC2 instances.

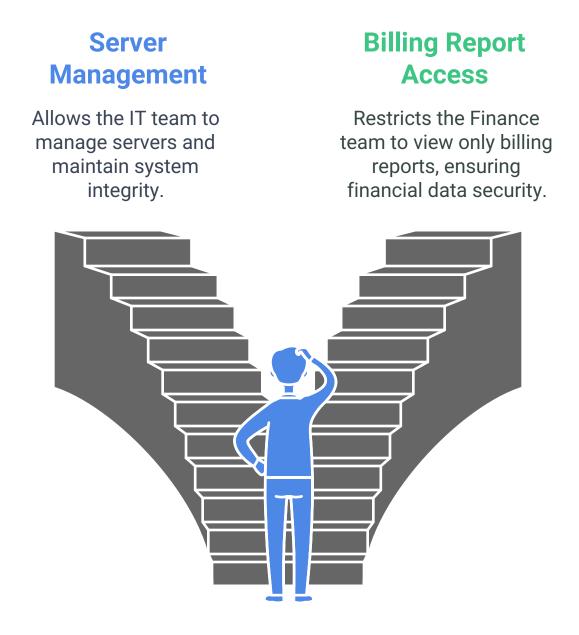
Load Balancer Setup for EC2 Instances Identify Traffic Needs **Configure Load** Set Up EC2 Balancer Set Up EC2 Instance 1 Distribute Determine the Instance 2 volume and Set up the load Traffic distribution of balancer to Deploy and configure the incoming traffic manage traffic Deploy and distribution first EC2 configure the Direct incoming traffic across second EC2 instance the two EC2 instance instances

Employee Access Management



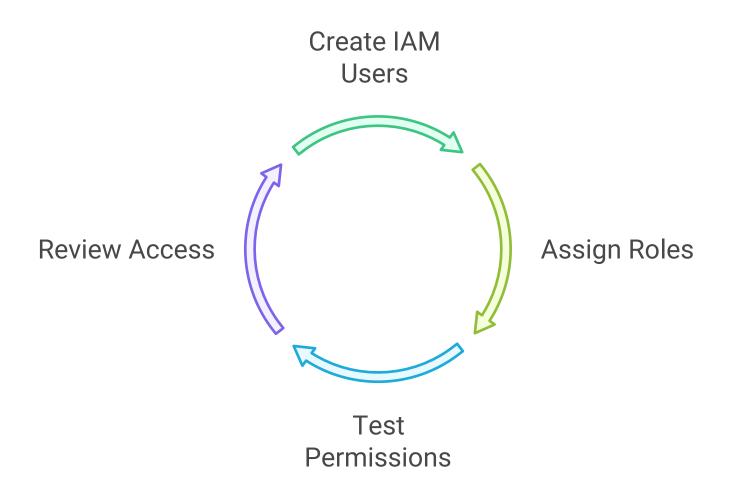
- A bank uses AWS for cloud hosting.
- The **IT team** should manage servers, but the **Finance team** should only access billing reports.
- AWS IAM (Identity and Access Management) lets you create users and assign permissions.

How should AWS IAM permissions be assigned?



Hands-on Idea: Create IAM users with different roles and test access permissions.

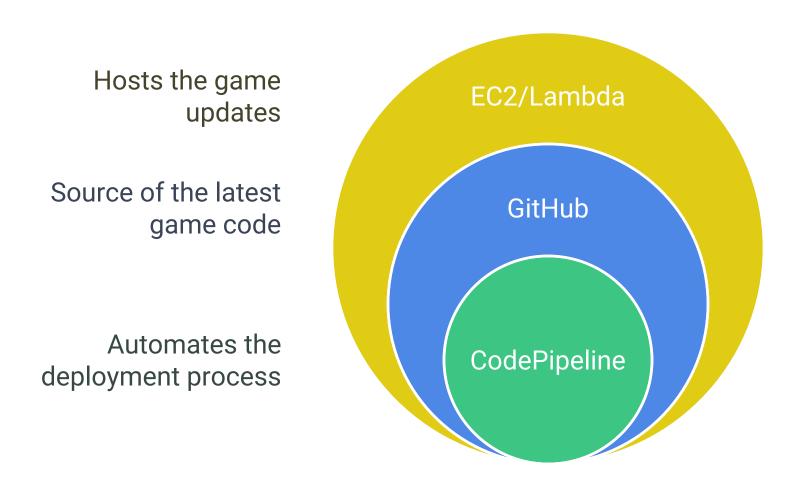
IAM User Role Testing Cycle



Example: Automating App Deployment

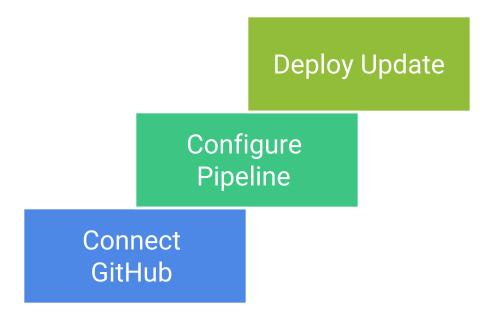
- A gaming company releases updates every week.
- Instead of manually deploying updates, AWS **CodePipeline** can automatically **fetch the latest code from GitHub** and deploy it to EC2 or Lambda.

Automated Game Update Deployment

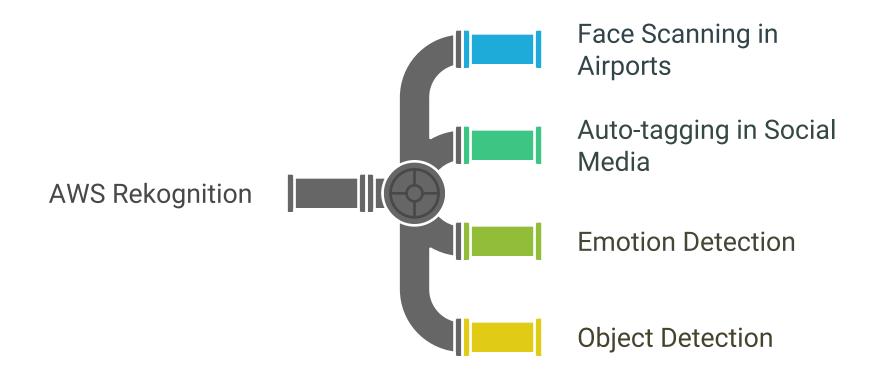


Hands-on Idea: Set up AWS CodePipeline to deploy a website update from GitHub automatically.

Automate Website Deployment



Example: Face Recognition in Airports



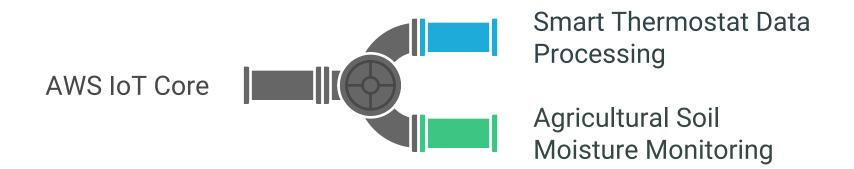
Hands-on Idea: Upload an image to AWS Rekognition and see if it detects faces.

Using AWS Rekognition to Detect Faces



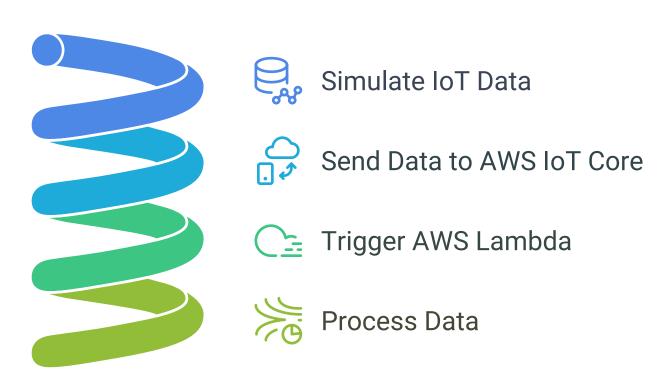
9. IoT – AWS IoT Core Example: Smart Home Devices

Diverse Applications of AWS IoT Core



Hands-on Idea: Simulate IoT data using AWS IoT Core and process it with Lambda.

IoT Data Simulation and Processing





kindness



support



generosity



impact