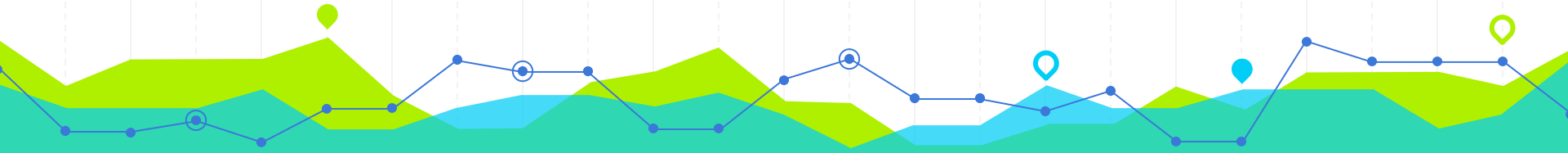

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AWS Workshop

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HELLO!

I am Maddy !

I am here because I love to give Knowledge.

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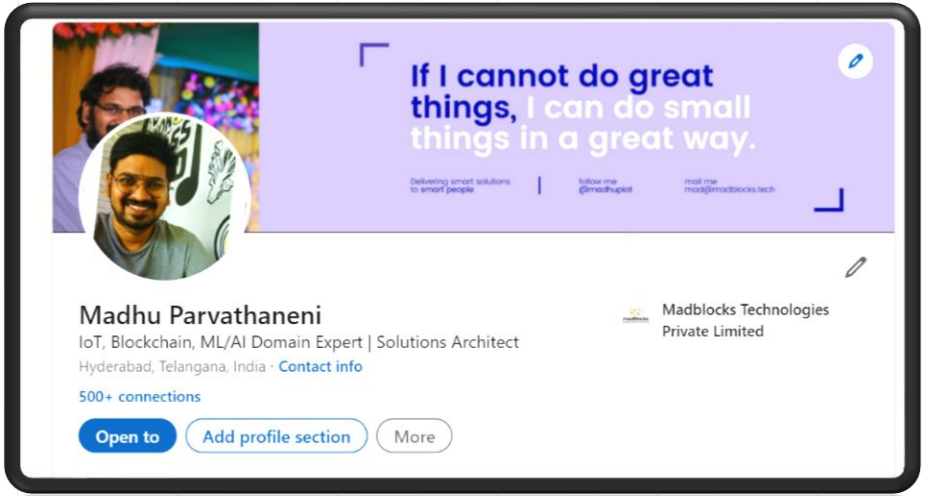

Today's Agenda !

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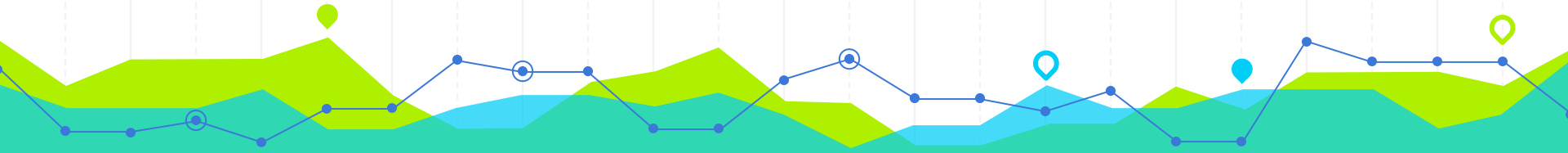
1. Introduction to AWS, Creating an Account, Configuring System using IAM Service
2. AWS Rekognition Service for face matching, and face recognition
3. Launch a Website on AWS EC2
4. AWS IoT Core, AWS SNS Demo to make devices act based on sensory data
5. Train AWS Alexa to respond our own skill using AWS Lambda and Alexa Skills Kit



Introduction to AWS

What is aws

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- AWS (Amazon Web Services) is a Cloud Provider
- They provide you with servers and services that you can use on demand and scale easily
- AWS has revolutionized IT over time
- AWS powers some of the biggest websites in the world
  - Amazon.com
  - Netflix

What is aws

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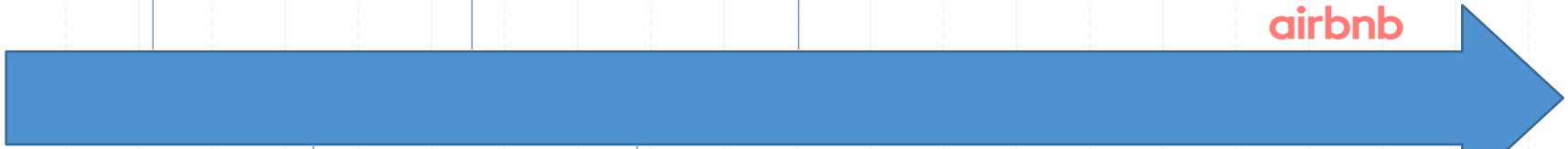
AWS Cloud History



2002: Internally launched

2003: Amazon infrastructure is one of their core strength. Idea to market

2004: Launched publicly with SQS

2006: Re-launched publicly with SQS, S3 & EC2

2007: Launched in Europe

Dropbox

airbnb

NETFLIX

NASA

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- In 2019, AWS had $35.02 billion in annual revenue
- AWS accounts for 47% of the market in 2019 (Microsoft is 2nd with 22%)
- Pioneer and Leader of the AWS Cloud Market for the 9th consecutive year
- Over 1,000,000 active users

Figure 1. Magic Quadrant for Cloud Infrastructure as a Service, Worldwide

Source: Gartner (July 2019)

AWS Cloud Use Cases

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- AWS enables you to build sophisticated, scalable applications
- Applicable to a diverse set of industries
- Use cases include
  - Enterprise IT, Backup & Storage, Big Data analytics
  - Website hosting, Mobile & Social Apps
  - Gaming

AWS Global Infrastructure

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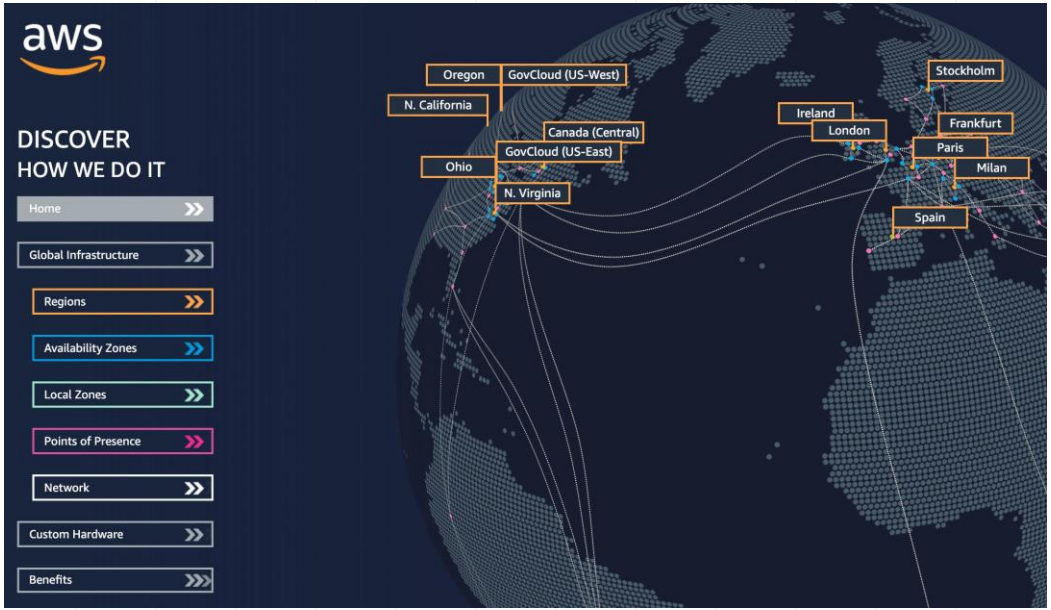
- AWS Regions
- AWS Availability Zones
- AWS Data Centers
- AWS Edge Locations / Points of Presence

- https://infrastructure.aws/



AWS Regions

- AWS has Regions all around the world
- Names can be us-east-1, eu-west-3…
- A region is a cluster of data centers
- Most AWS services are region-scoped

US East (N. Virginia)	us-east-1
US East (Ohio)	us-east-2
US West (N. California)	us-west-1
US West (Oregon)	us-west-2
Africa (Cape Town)	af-south-1
Asia Pacific (Hong Kong)	ap-east-1
Asia Pacific (Mumbai)	ap-south-1
Asia Pacific (Seoul)	ap-northeast-2
Asia Pacific (Singapore)	ap-southeast-1
Asia Pacific (Sydney)	ap-southeast-2
Asia Pacific (Tokyo)	ap-northeast-1
Canada (Central)	ca-central-1
Europe (Frankfurt)	eu-central-1
Europe (Ireland)	eu-west-1
Europe (London)	eu-west-2
Europe (Paris)	eu-west-3
Europe (Stockholm)	eu-north-1
Middle East (Bahrain)	me-south-1
South America (São Paulo)	sa-east-1

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How to choose an AWS Region?

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If you need to launch a new application, where should you do it?

- Compliance with data governance and legal requirements: data never leaves a region without your explicit permission
- Proximity to customers: reduced latency
- Available services within a Region: new services and new features aren't available in every Region
- Pricing: pricing varies region to region and is transparent in the service pricing page

AWS Availability Zones

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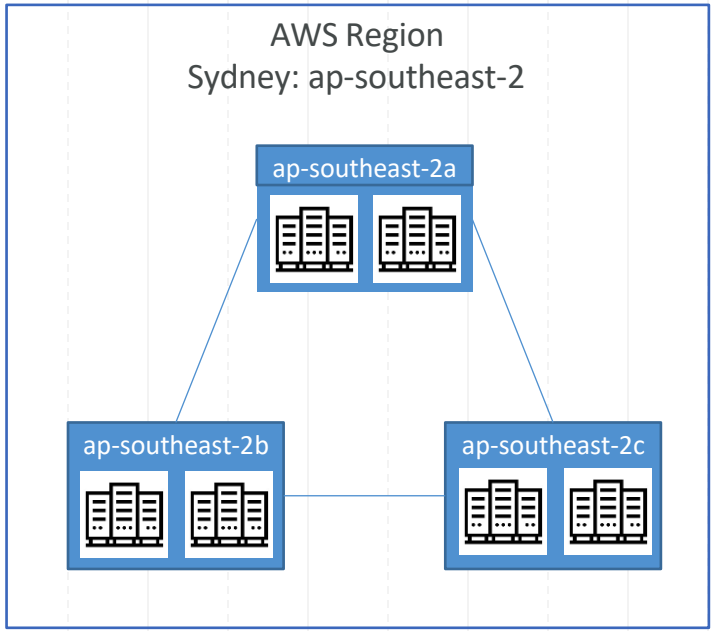
- Each region has many availability zones (usually 3, min is 2, max is 6). Example:
  - ap-southeast-2a
  - ap-southeast-2b
  - ap-southeast-2c
- Each availability zone (AZ) is one or more discrete data centers with redundant power, networking, and connectivity
- They're separate from each other, so that they're isolated from disasters
- They're connected with high bandwidth, ultra-low latency networking



AWS Points of Presence (Edge Locations)

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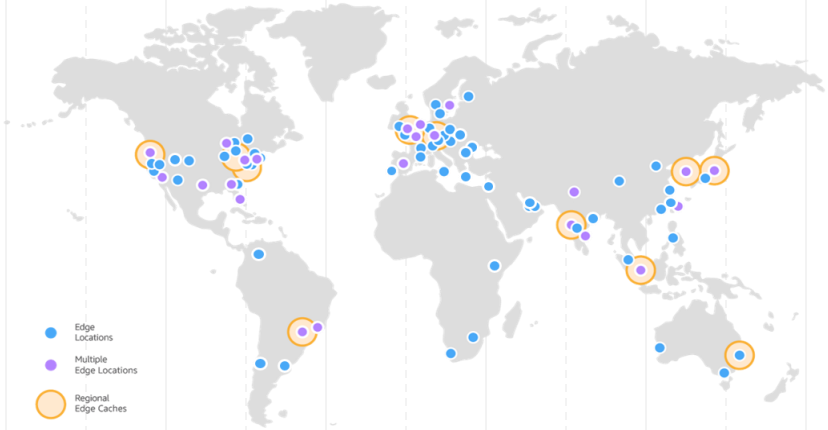
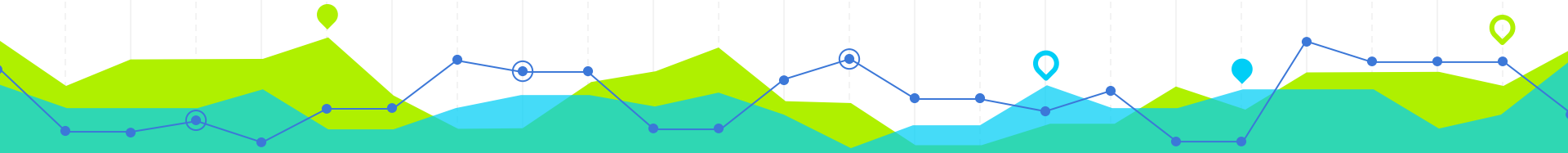
- Amazon has 216 Points of Presence (205 Edge Locations & 11 Regional Caches) in 84 cities across 42 countries
- Content is delivered to end users with lower latency





Creating an Account

Creating an Account

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- Login to https://aws.amazon.com/free
- Provide all your details like Email ID, Password, Username, Home Address, Mobile Number, Card Details
- Email Verification and Card Verification will happen immediately and call verification will take couple of days welcoming you to AWS
- One-Year Free Tier offer is available with AWS to demonstrate the apps

Tools Required

- Python 3.9
- VS Code / Code Editor (any)

Case Study1:
Face Matching Application

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- Step -1 : Create IAM User – Programmatic Access
- Step -2: Download Credentials
- Step -3: Create a New Folder with virtualenv
- Step -4: Configure AWS in Virtual Environment
- Step -5: Install Packages (streamlit, boto3, awscli)
- Step -6: Create Python Script for Face Matching Application

Case Study2:
Face Recognition Application

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- Step -1 : Create IAM User – Programmatic Access
- Step -2: Download Credentials
- Step -3: Create a New Folder with virtualenv
- Step -4: Configure AWS in Virtual Environment
- Step -5: Install Packages (opencv, boto3, awscli)
- Step -6: Create Python Script for Face Recognition Application – Smart Door

Case Study3: Launching Web Server on AWS

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- Step -1 : Create an Instance with Ubuntu Image
- Step -2: Edit Inbound Rule for 80 with Security Group
- Step -3: Install Packages on Instance
- Step -4: Create a basic HTML file
- Step -5: Store this HTML file in the root directory
- Step -6: Access the website through IP Address of Machine

Case Study4:
Streaming IoT Sensory Data

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- Step -1 : Create a thing with Policy and Certificate
- Step -2: Download Certificates
- Step -3: Create Random Sensory Feed
- Step -4: Create a Python Script to connect with AWS IoT Core
- Step -5: Test the Device
- Step -6: Create a Rule to send a notification on Emergency

Case Study5:
Control a Device through Alexa

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- Step -1 : Create a skill with Intent built from Scratch
- Step -2: Create a deviceOn and deviceOff Intent
- Step -3: Create a virtual bulb
- Step -4: Connect Alexa with Virtual Bulb
- Step -5: Create function handlers for handling these intents
- Step -6: Deploy and run

THANKS!

Any questions?

You can find me at

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