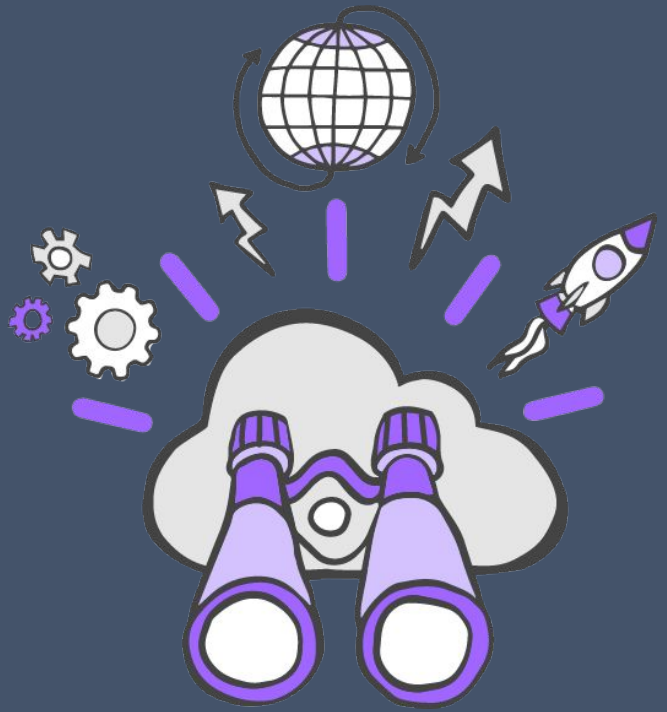
Understanding AWS Serverless

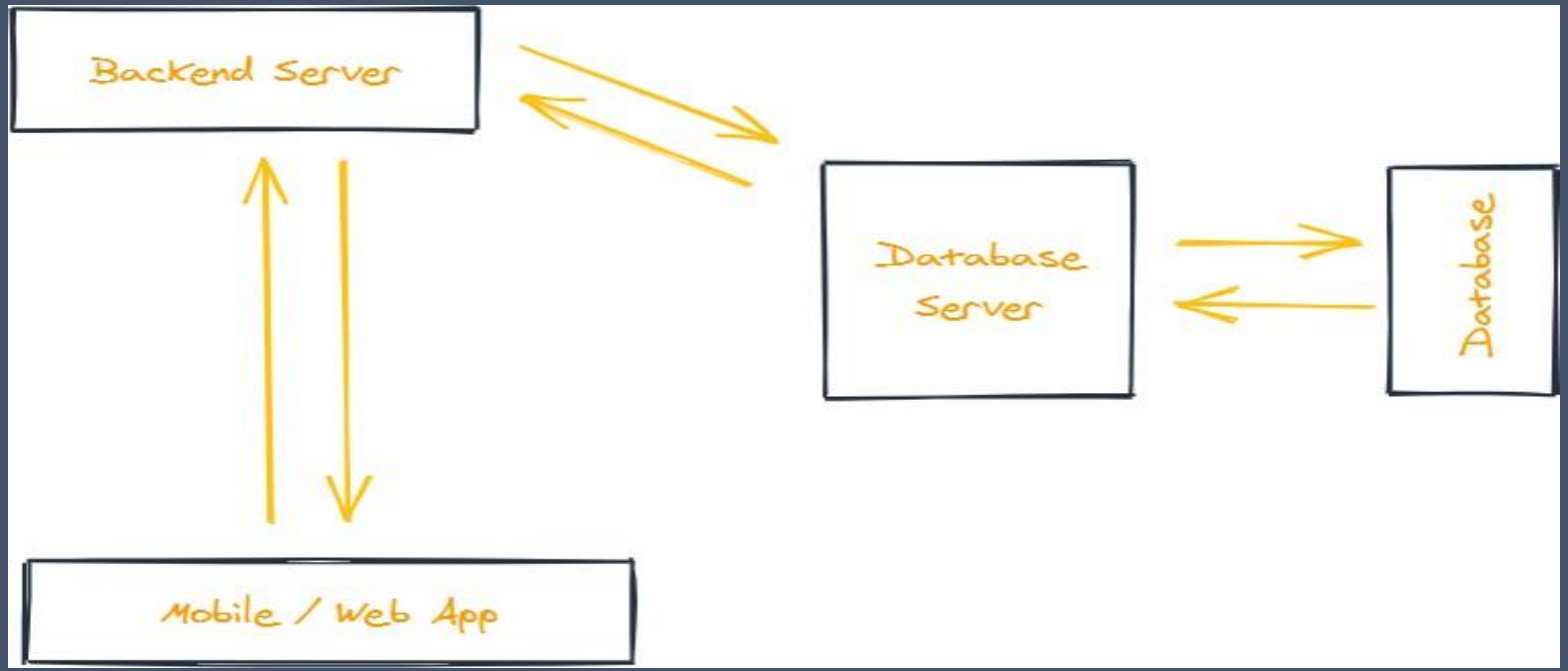
MLH Fellowship Pod 2.1.1 Show and Tell



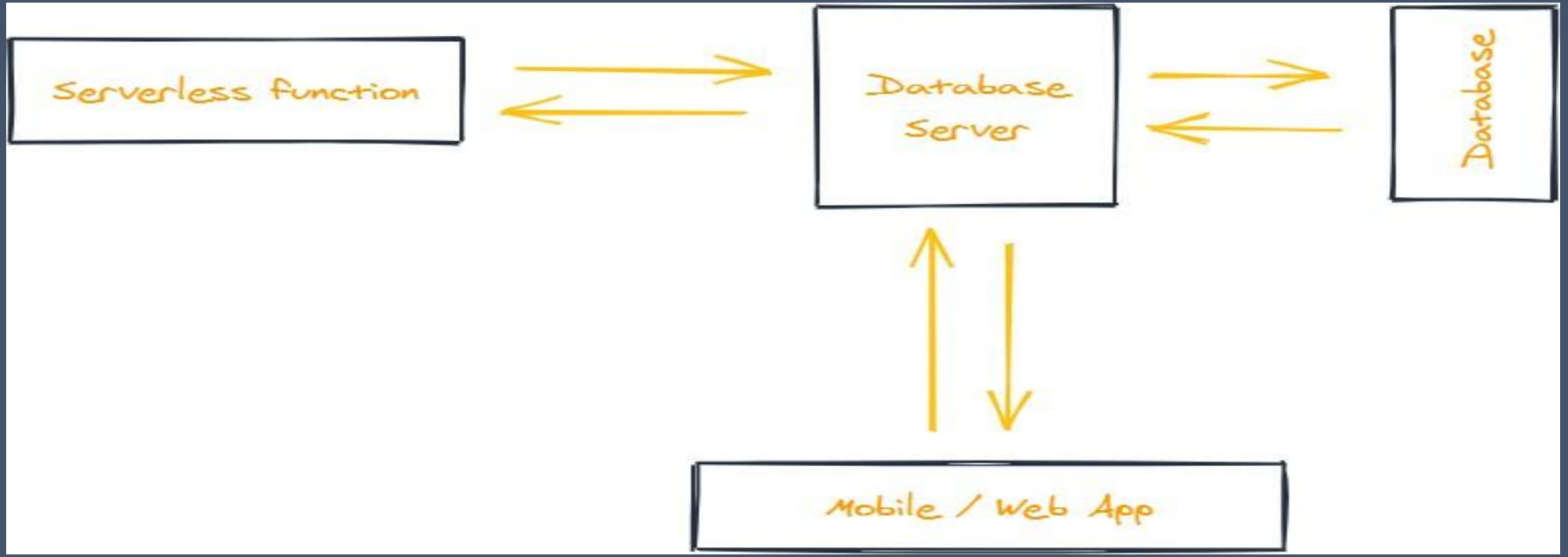
The ‘serverless’ way of doing things

- Fragment your code in form of functions
- Run each function independently on the cloud
- It still technically runs on a server
- Major pro is that you do not need to worry about the server environment!
- All you need to take care of is your function

A Typical Client Server Architecture



Look at things at Serverless



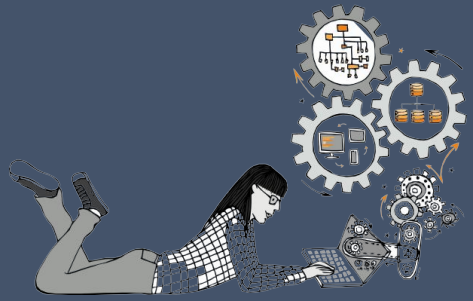
Advantages of Serverless

- No Server Management is Required
- Pay only for how much you use
- Scale as high you need without any physical dependencies
- Configure Triggers to the services so that your code can run in response to those events.

Popular use-cases

Now that you know how it works, where should you use it?

Database maintenance



- You can configure your functions to trigger on database activities.
- This allows you to do things like –
  - Filtering out profanity
  - Cleaning old records
  - Removing duplicate records and much more!

Media Manipulation

- You can use serverless functions to manipulate audio, video, image or other media files.
- This includes but is not limited to-
  - Compressing images
  - Generating thumbnails from PDFs, videos etc
  - Trimming video clips

  and much more!

Building HTTP REST APIs

Serverless back-ends allow you to create HTTP REST APIs easily & quickly.

With the additional benefit of running only when invoked, the API does not need to stay online all the time, it can easily be started when needed, thereby reducing backend uptime & cost drastically!

AWS Serverless Services

Compute	Messaging	Integration	Security	Monitoring	Database	Analytics
						
AWS Lambda	Amazon SQS	Amazon API Gateway	Amazon Cognito	Amazon Cloudwatch	Amazon DynamoDB	Amazon Kinesis
						
AWS Fargate	Amazon SNS	AWS Step Functions	AWS Key Management Service	Amazon Quicksight	Amazon Aurora	Amazon Athena

AWS Serverless Compute

AWS Lambda is the FaaS solution from AWS where you can run code for any type of application or backend service. It runs the code on a fully-managed, high-available infrastructure and performs all administration tasks of the compute resources, including server and system maintenance, capacity provisioning and automatic scaling, code monitoring and logging.

With AWS Fargate, you can run docker containers without any management of servers or clusters. It is a container orchestration solution that makes it easy to deploy, manage, and scale containerized applications.

Why Lambda?

- Extremely cost-effective
- Comes with automatic scalability
- Swift iterative development
- Plethora of integrations with other AWS services

AWS API Gateway

Amazon API Gateway is a fully-managed service for creating, publishing, maintaining, monitoring, and securing REST and WebSocket APIs at any scale. It handles the processing of up to hundreds of thousands concurrent API calls, including traffic management, authorization, access control, and API version management. You can create your API within the management console UI and access data, business logic, or functionality from your backend services, such as workloads running on EC2 or code running in a Lambda function. You pay only for the API calls you receive and for the amount of outgoing data, transmitted by AWS.

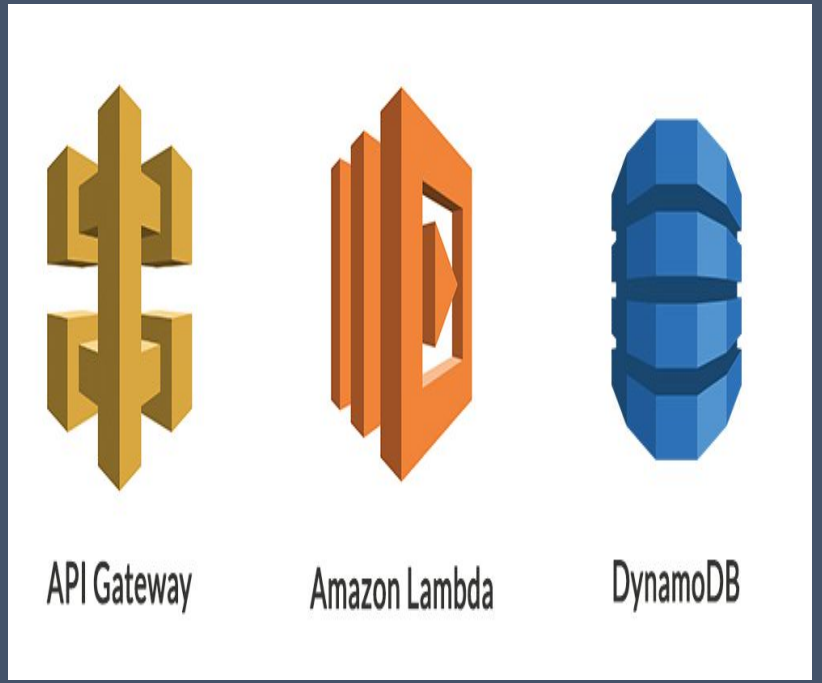
AWS DynamoDB

Amazon DynamoDB is a NoSQL database service which supports key-value pairs and document data structures. As it is a fully-managed service, you don’t have to worry about hardware provisioning, setup and configuration, replication, backups, software patching, or cluster scaling. It provides features like high availability and durability, automatic and infinite read-write I/O scaling, on demand backup with point-in-time recovery, encryption at rest, and single-digit millisecond latency. With its pay-per-use pricing model and integration with many other AWS services, DynamoDB is a great database service for many serverless application on AWS.

Let’s Do Hands On

Today we will be doing hands on lab session by which you can be able to learn how to :-

1. Create a AWS Free Account
2. Create a Basic Lambda Function
3. Integrating the Lambda Function with API Gateway.
4. Securing the Access to the your API
5. Creating a DynamoDB Table and Tweaking it using AWS Lambda



Audience Questions

Thank you