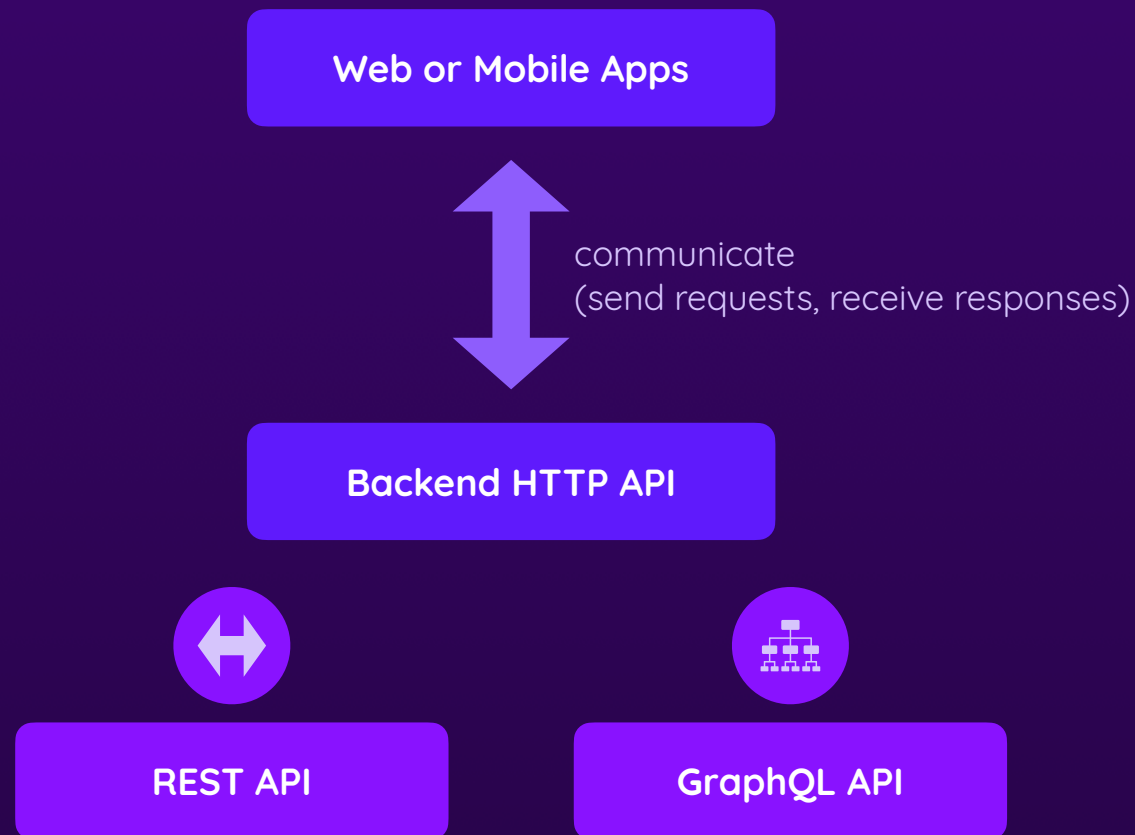


# Serverless APIs & Web Applications

Building complex serverless web applications with ease

- ▶ Building Serverless REST & GraphQL APIs
- ▶ Letting AWS Handle User Authentication
- ▶ Using AWS Services In (Frontend) Code

# Web & Mobile Apps & AWS



# Building Web (HTTP) APIs



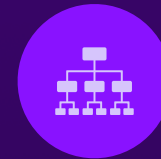
## REST

Request targets resource paths (e.g., /books/1)

Request entire data for a selected resource

Utilize HTTP verbs (GET, POST, ...)

Extremely common



## GraphQL

Request contains GraphQL query statement

Request partial data (only the data needed)

POST requests only

Popular because of reduced redundancy

# REST APIs with API Gateway



## Managed REST API Service

### Define API Structure

Define resources (paths & HTTP methods)

Enforce query parameters or authentication

Define response codes & schema

### Handle Requests

Define rules for handling & parsing requests

Configure response creation & forwarding logic

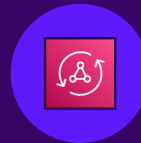
Handle real-time connections (websockets)

### Test & Deploy

Test during development

Deploy with stages

# GraphQL APIs with AppSync



## Managed GraphQL API Service

### Define API Structure

Define schemas, queries & mutations

Connect schema to data sources & resolvers

Add authentication

### Handle Requests

Supports real-time and on-demand connections

Built-in query optimization & caching

# User Authentication With Cognito



## Managed App User Authentication Service

### Manage User Pools

Configure user credentials requirements

Configure user authentication experience

Integrate with your applications

Assigns temporary IAM permissions to users

### Allow Social Sign In

Create federated identity pool

Add Google, Facebook, Apple etc. authentication

Assigns temporary IAM permissions to users



## Application Development Platform & Framework

### Focus on the Product

Don't focus on the underlying services

Creates infrastructure on your behalf (other services)

Integrate with client-side code via SDK

### Build a Backend or Host an Application

Let Amplify manage services & app data

Use Amplify Studio to configure the backend

Manage data via Amplify Studio

# Summary



## Connecting Cloud Services to Frontend Apps

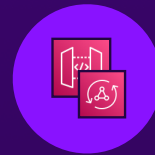
Many cloud services should be used by frontend apps

Typical frontend $\leftrightarrow$ backend communication uses HTTP APIs

REST & GraphQL APIs are common HTTP API solutions

**API Gateway:** Build serverless REST APIs

**AppSync:** Build serverless GraphQL APIs



## Building APIs

Define resources & request handling with API Gateway

Create query definitions & schemas with AppSync

Define Lambda functions that should be executed

Handle requests without running your own API server

Implement user authentication with Cognito



## Simplifying the Cloud

Amplify is a platform that simplifies cloud app development

You can let Amplify create and manage AWS resources for your

Amplify also provides a complete CMS (if needed)

Use the Amplify client-side SDK for frontend cloud integration