

# **BOOTSTRAPPING APPLICATIONS USING AWS AMPLIFY WITH AWS APPSYNC**

Fullstack development

# WHO AM I

- Peter
- Twenty years working in software
- Majority for small software companies
- Majority as a technical product manager
- Current focus is fullstack development

# BACKEND-AS-A-SERVICE / SERVERLESS

- Interactive software ASAP
- Leverage the work of others
- Humans are expensive
- (At scale, things are different)

# MY VIEW OF SERVERLESS

- Authentication
- Database
- Storage
- Functions
- Hosting
- APIs
- AI / ML
- Etc, etc

# AWS APPSYNC

AWS GraphQL Service

**AWS AppSync is a serverless back-end for mobile, web and enterprise applications**

# AWS AMPLIFY FRAMEWORK

- Evolution of AWS Mobile Hub
- Amazon's answer to Google Firebase
- Make it easy for application (front-end) developers to use (consume) back-end resources

**The foundation for your cloud-powered mobile & web apps**

# AMPLIFY CATEGORIES

- Analytics
- API (GraphQL via **AppSync** and REST)
- Authentication
- Functions
- Hosting
- Storage
- Notifications

# USING AMPLIFY

1. AWS Account
2. Amplify CLI
3. Docs and libs



# AMPLIFY DOCS AND LIBS

- iOS - Swift
- Android - Java
- Web - JavaScript - **React**, Angular, Ionic, Vue
- React Native

# DEMO

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## Prereq's

- Amplify CLI installed and configured
- React project created, libraries installed and amplify init

## CURRENT STATE - LOCAL

- amplify/backend folder - current local config
- amplify/#current-cloud-backend folder - last push'ed config
- amplify/.config folder - project settings
- .amplifyrc file - amplify project specific config

## **CURRENT STATE - REMOTE**

- 2 new roles (auth and unauth)
- S3 bucket
- Cloudformation Stack

# APPSYNC INTEGRATION

1. Setup API endpoint with authentication and schema in client
2. Generate JavaScript (TypeScript) code from schema
3. Write app code to run queries, mutations and subscriptions

# DEMO

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```
amplify add api  
amplify push
```

# DEMO

---

after amplify push completes

## RESULT - LOCAL

- aws-export.js - AWS config (GraphQL endpoint, API key, etc)
- graphql folder - schema and codegen for queries, mutations and subscriptions
- types for Flow or TypeScript



## RESULT - REMOTE

- AppSync project created
- Lots of other stuff

# DEMO

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write some code

## CLIENT OPTIONS

- Amplify GraphQL client
- AWS AppSync (SDK) / Apollo client

## **A WORD ABOUT AUTH**

- amplify add auth
- Creates Cognito User and Identity Pools
- can be integrated with API

# DIRECTIVES

- Part of schema (@)
- @model
- @auth
- @connection
- @searchable
- @versioned

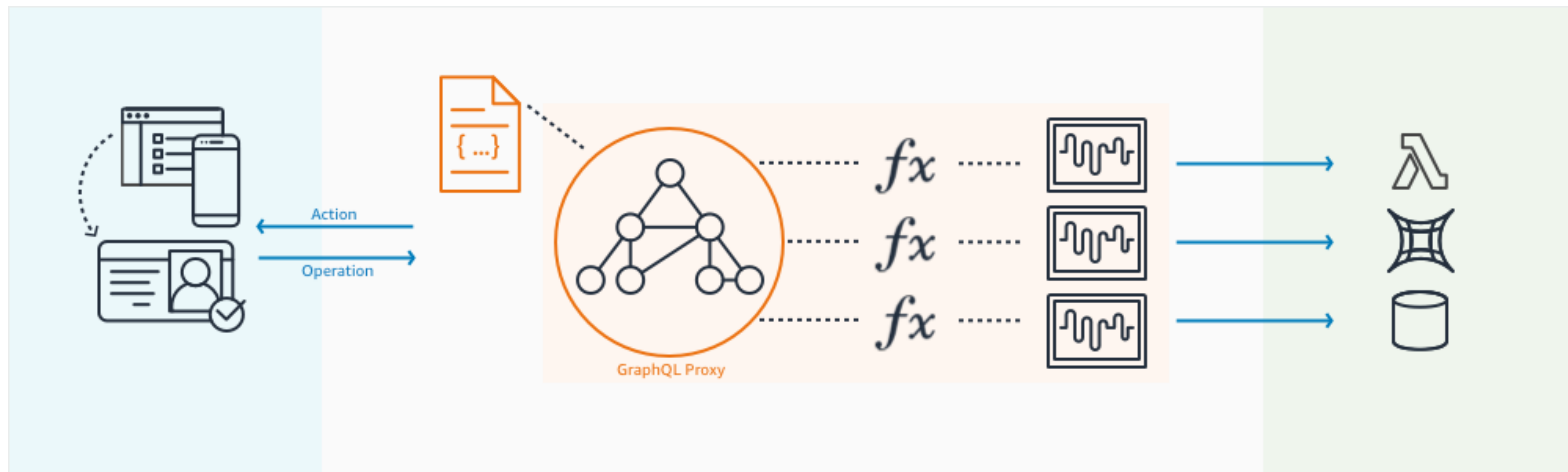
```
type Blog @model {
  id: ID!
  name: String!
  posts: [Post] @connection(name: "BlogPosts")
}
type Post @model {
  id: ID!
  title: String!
  blog: Blog @connection(name: "BlogPosts")
  comments: [Comment] @connection(name: "PostComments")
}
type Comment @model {
  id: ID!
  content: String
  post: Post @connection(name: "PostComments")
}
```

```
type PrivateNote
  @model
  @auth(rules: [{allow: owner}])
{
  id: ID!
  content: String!
}
```

```
type Task
  @model
  @auth(rules: [
    {allow: groups, groups: ["Managers"], queries: null,
mutations: [create, update, delete]},
    {allow: groups, groups: ["Employees"], queries: [get,
list], mutations: null}
  ])
{
  id: ID!
  title: String!
  description: String
  status: String
}
```



# APPSYNC ARCHITECTURE



Source: <https://docs.aws.amazon.com/appsync/latest/devguide/system-overview-and-architecture.html>

# HOW IT WORKS

- Resolvers "translate" GraphQL to do something with a "Data Source"
- Data Sources = DynamoDB, Lambda, ElasticSearch, Aurora, HTTP
- Translation via VTL (Apache Velocity Template Language)

# DEMO

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## AWS Console - AppSync

## TAKEAWAYS

- Teams may struggle with Amplify
- Be ready to edit .gitignore
- Client side codegen is probably not that valuable
- Amplify/Appsync - ownership matters
- If you just want GraphQL API - don't start with Amplify

# TRADE-OFF

- Serverless - Quick to Production
- VS
- Traditional - Control
- Prototyping?

Thank you!  
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