
AWS
re:Invent

FWM202

Empower front-end web and mobile app development with AWS Amplify

Mohit Srivastava

Senior Manager, Product Management

AWS

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Users are accomplishing more virtually; how will your application stand out?



5B (+1.2B)

Mobile internet users by 2025

Source: GSMA



3.6 hours

Daily time on mobile per user

Source: Mary Meeker's Internet Trends 2019



24 GB (+17 GB)

Monthly mobile data usage per subscriber by 2024

Source: GSMA



25%

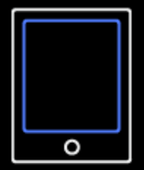
Apps abandoned after first use



4M+

Apps published to global app stores you need to compete with for mindshare

To meet and exceed user expectations, the front-end developer has broad responsibility



Platform(s)

Native mobile and web app?



Security

AuthN and AuthZ by default



Differentiation

Innovative and new ways to interact

How can your app stand out?



Data layer

Instantaneous, with real-time feedback

Network friendly (fewer calls / more data / just right)



Screen and mobility

Responsive and progressive

Available even when offline



Time to market

Iterative, full-stack development

Developer productivity and team workflows

Ability for non-developers to manage the app

AWS Amplify provides tools for front-end developers across the app lifecycle

Develop



Configure AWS backends fast



Seamlessly connect front ends

Deliver

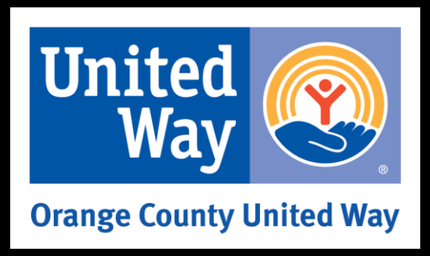


Deploy your app front end and backend

Manage



Easily manage users and content





“Our new AssistOC application is built with AWS Amplify and was put into production in just 3 weeks – the speed was critical in helping us assist those in need.”

Chris Ticknor

Chief Transformation Officer
Orange County United Way

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Develop



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Amplify provides a full-stack developer experience across 10 feature categories

Develop



Configure AWS backends fast



Seamlessly connect front ends



CLI



Admin UI



Libraries and UI components

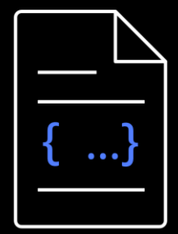
Feature categories

- Authentication
- DataStore
- Storage
- API (GraphQL & REST)
- Functions
- Analytics
- PubSub
- Predictions
- Interactions
- Notifications

Powered by AWS services such as AWS AppSync (GraphQL API) and Amazon Cognito (Authentication)

Create backend with the admin UI (new!) and CLI

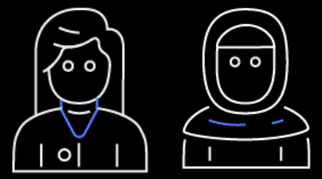
NEW visual interface



Model data and relationships



Set up authentication and authorization



Team collaboration with or without AWS account

```
> curl -sL https://install.amplify.aws/cli
  | bash && $SHELL
> amplify add function
```

Extend with CLI toolchain to add functions, storage, and more

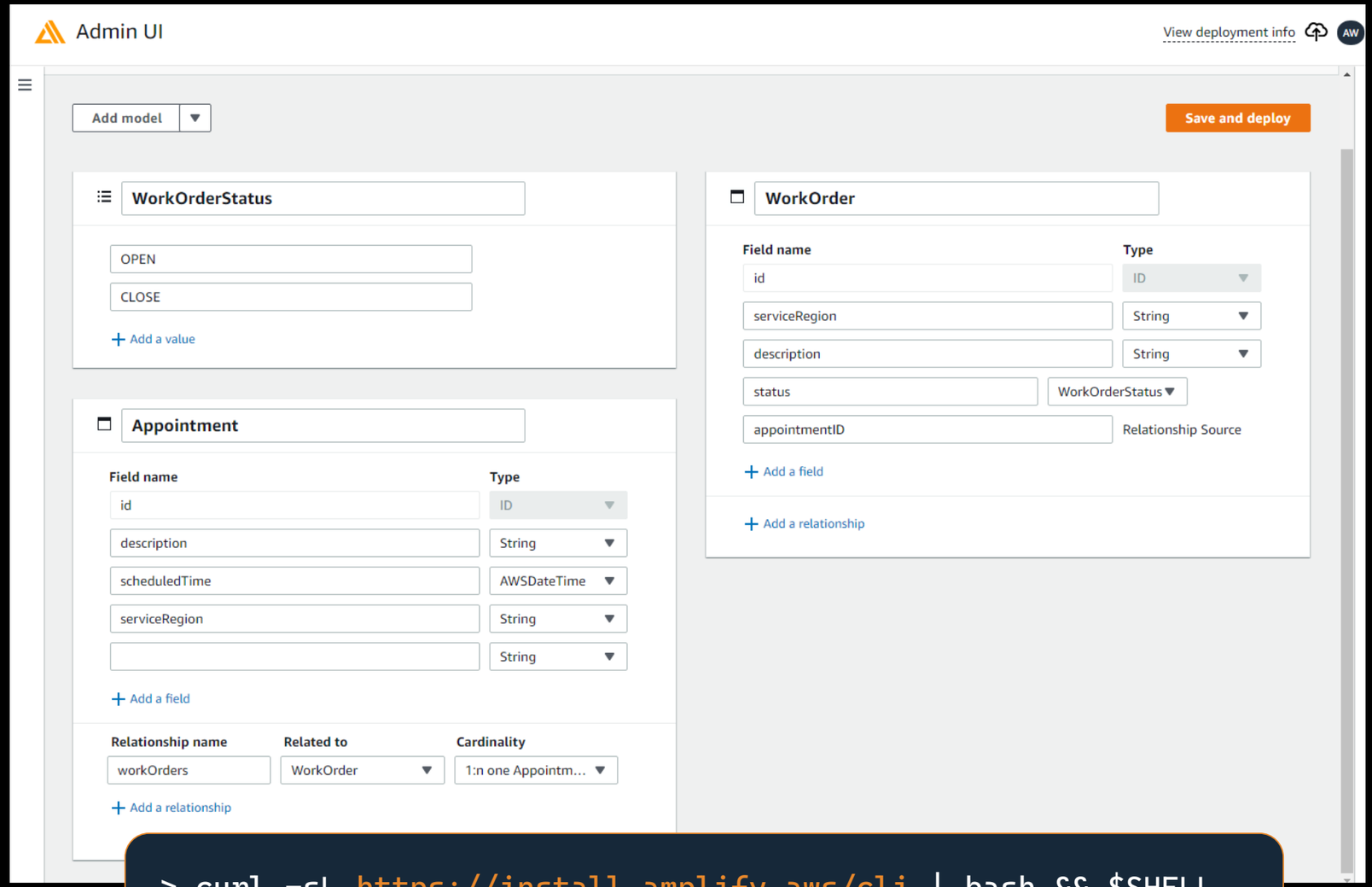
Example: Create backend for a field service app in the admin UI

Dispatcher

- Create appointments with many associated tasks
- Create and update data across all appointments

Agent

- Only see *my* appointments and tasks




```
> curl -sL https://install.amplify.aws/cli | bash && $SHELL
> amplify pull
```

Example: Create backend for a field service app in the CLI

Dispatcher

- Create appointments with many associated tasks
- Create and update data across all appointments

Agent

- Only see *my* appointments and tasks

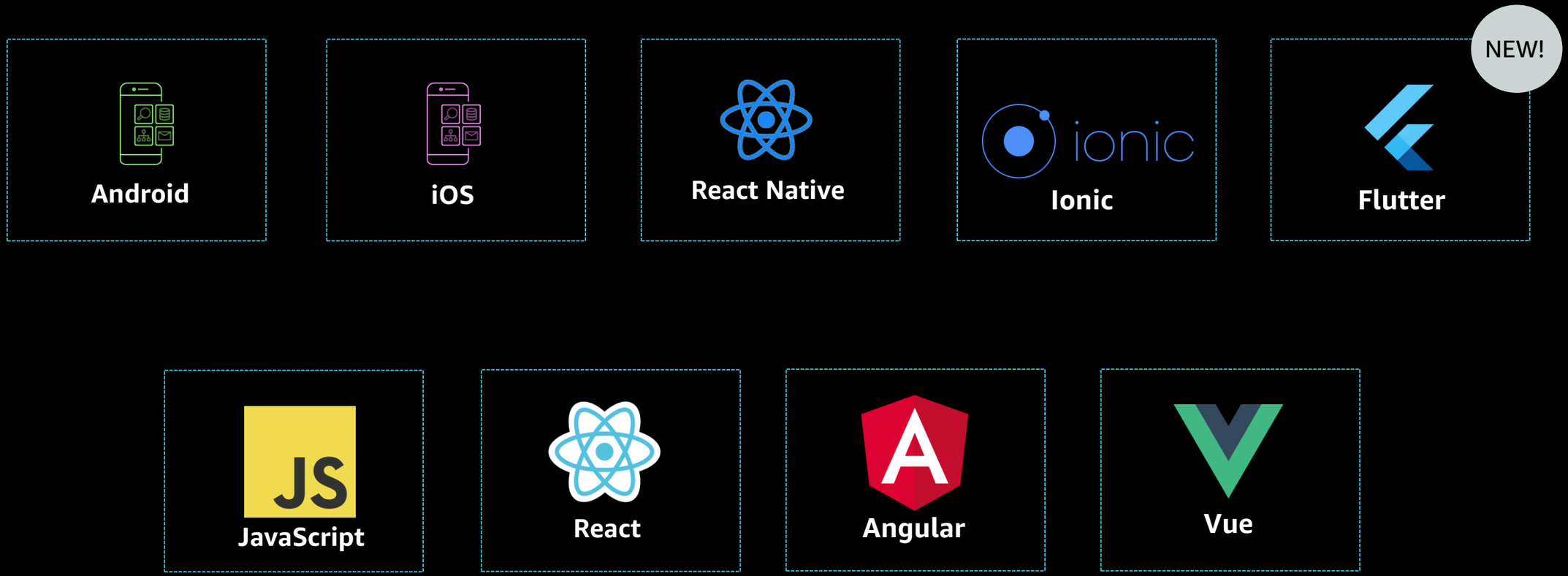
```
enum WorkOrderStatus {
  OPEN
  CLOSE
}

type WorkOrder
  @model
  @auth(rules: [{allow: public}])
  @key(name: "byAppointment", fields: ["appointmentID"]) {
  id: ID!
  serviceRegion: String!
  description: String!
  status: WorkOrderStatus!
  appointmentID: ID!
}

type Appointment @model @auth(rules: [{allow: public}]) {
  id: ID!
  description: String!
  scheduledTime: AWSDateTime
  serviceRegion: String!
  workOrders: [WorkOrder] @connection(keyName: "byAppointment", fields: ["id"])
}
```

```
> amplify add <functions | api | notifications | …>
```

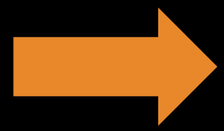
Connect to your backend with UI components & libraries for popular mobile / web frameworks

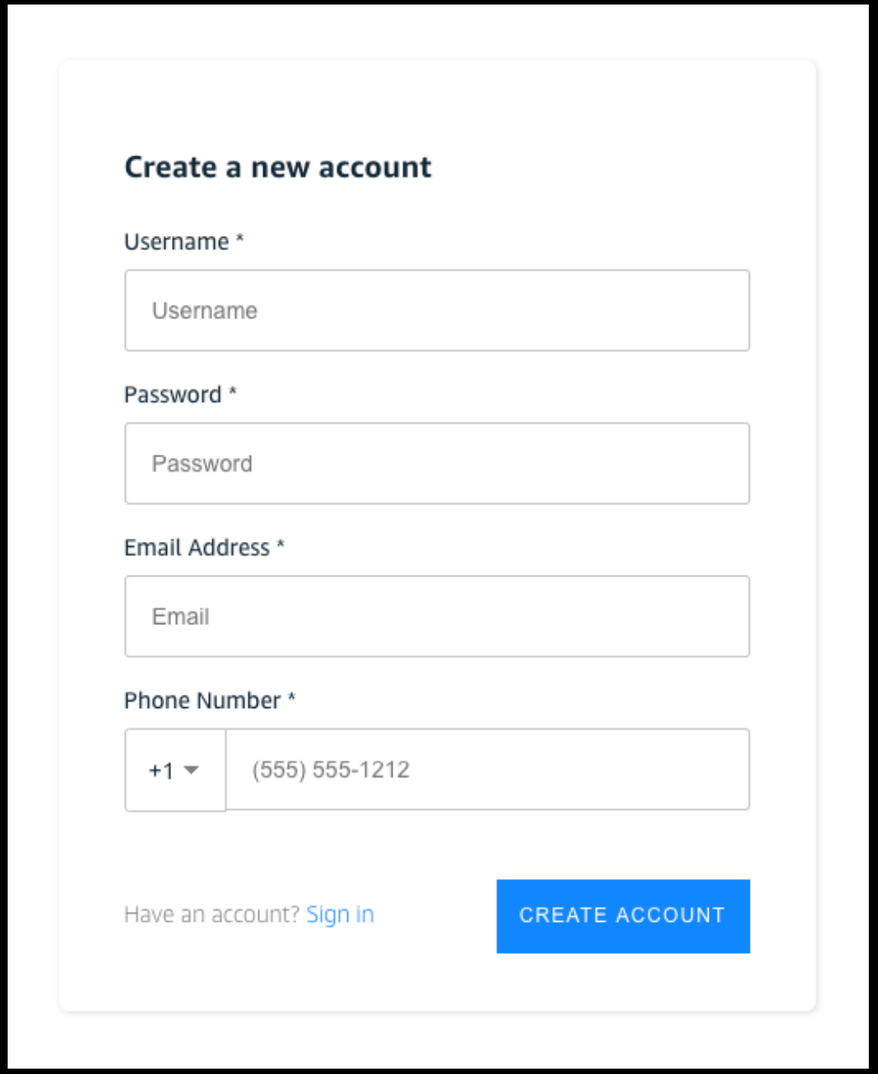


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Example: Add signup / sign-in flows using the React UI component

```
const App = () => (
  <AmplifyAuthenticator>
    <div>
      My App
      <AmplifySignOut />
    </div>
  </AmplifyAuthenticator>
);
```





Example: Synchronize app data with DataStore

New! Use **Selective Sync** to apply predicates to the base and delta sync queries as well as to incoming subscriptions

```
const subscription = DataStore.observe(Appointment).subscribe(msg => {
  console.log(msg.model, msg.opType, msg.element);
  if (msg.opType === "INSERT") {
    …
  } else if (msg.opType === "DELETE") {
    …
 }
});
```

Subscribe to changes

```
await DataStore.save(new Appointment(
  {
    description: formState.description,
    serviceRegion: formState.serviceRegion,
    scheduledTime: formState.startDate
  }
));
```

```
await DataStore.query(
  WorkOrder,
  item => item.appointmentID("eq", appointment.id));
```

Save and retrieve

```
DataStore.configure({
  syncExpressions: [
    syncExpression(Appointment, () => {
      return (c) => c.serviceRegion('contains', ', WA');
    }),
    syncExpression(WorkOrder, () => {
      return (c) => c.serviceRegion('contains', ', WA');
    }),
  ]
});
```

New! Only sync a subset of data

Amplify DataStore: Developer experience

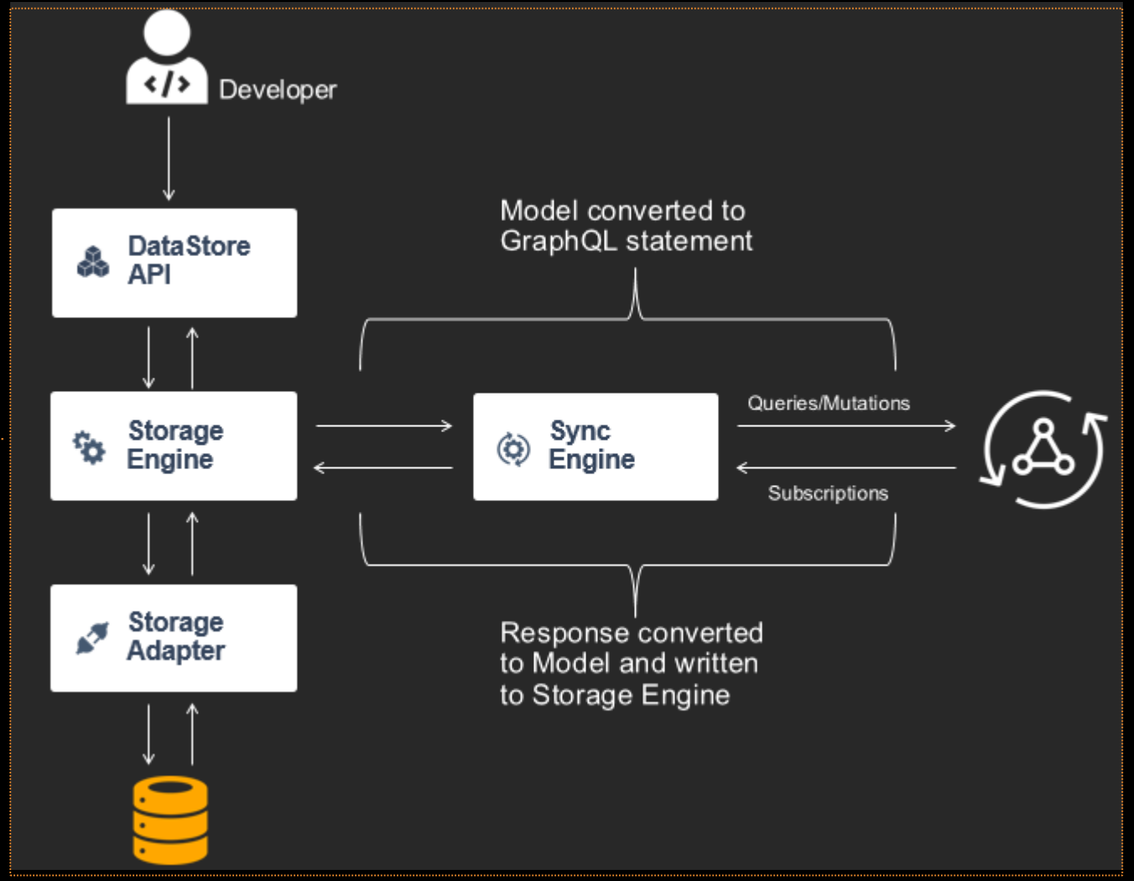


Model app data and relationships

(locally or in admin UI)

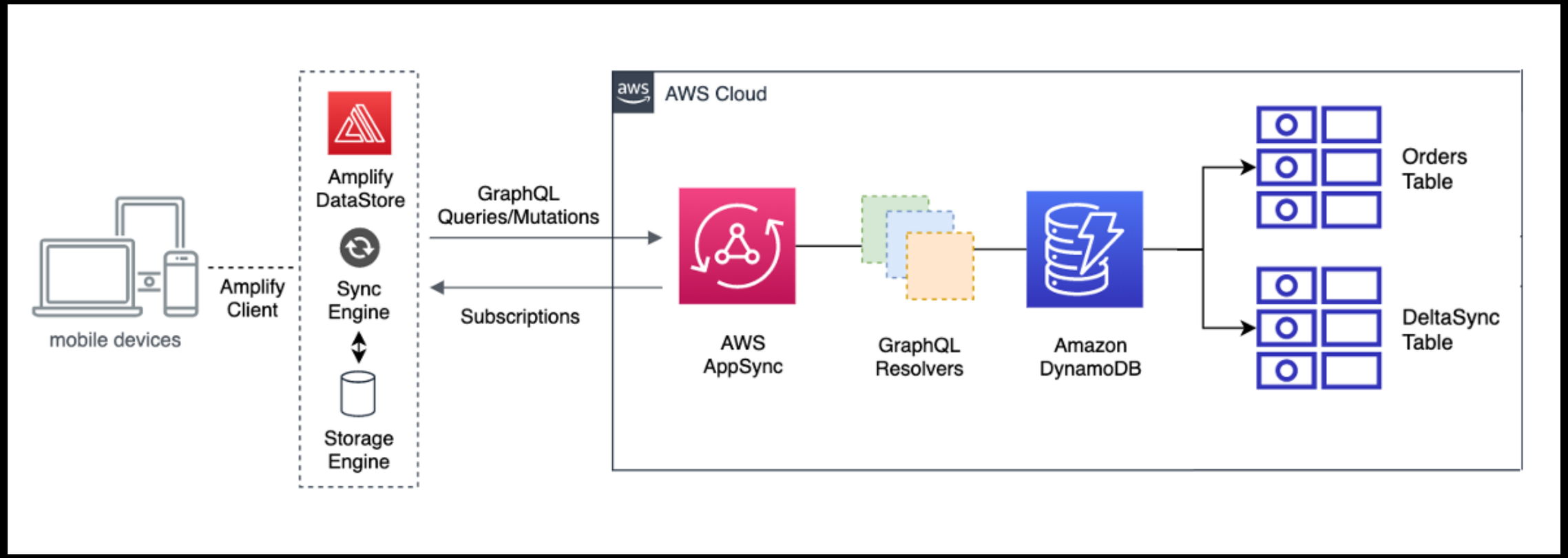


Set up authentication and authorization



Work with app data using an “offline-first” programming model; receive updates to shared data in real time

Amplify DataStore: How it works



Demo: Developing an app using the admin UI and DataStore



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More new Amplify functionality

- Amplify Flutter: Support for DataStore

```
// get all comments
(await Amplify.DataStore.query(Comment.classType)).forEach((element) {
  if (element != null) {
    allComments += encoder.convert(element.toJson());
  }
});
```

- Amplify CLI: Import existing resources
  - Use existing Amazon Cognito user pools and identity pools, S3 bucket, or Amazon DynamoDB table for your Amplify project

```
> amplify import auth
> amplify import storage
```

- Amplify CLI: Container-based deployments (early support)
  - Escape hatch for deploying websites or APIs using AWS Fargate
  - Integrate with other Amplify categories, such as Auth

```
› amplify add function

? Select which capability you want
Lambda function (serverless function)
Lambda layer (shared code & resource
used across functions)
› Fargate task (container-based)
```

Deliver



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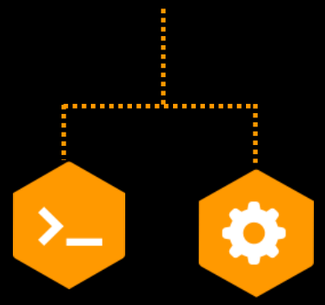
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Deliver your app: Managed hosting and full-stack deployment with CI/CD

Deliver



Deploy your app front end and backend



Services and features

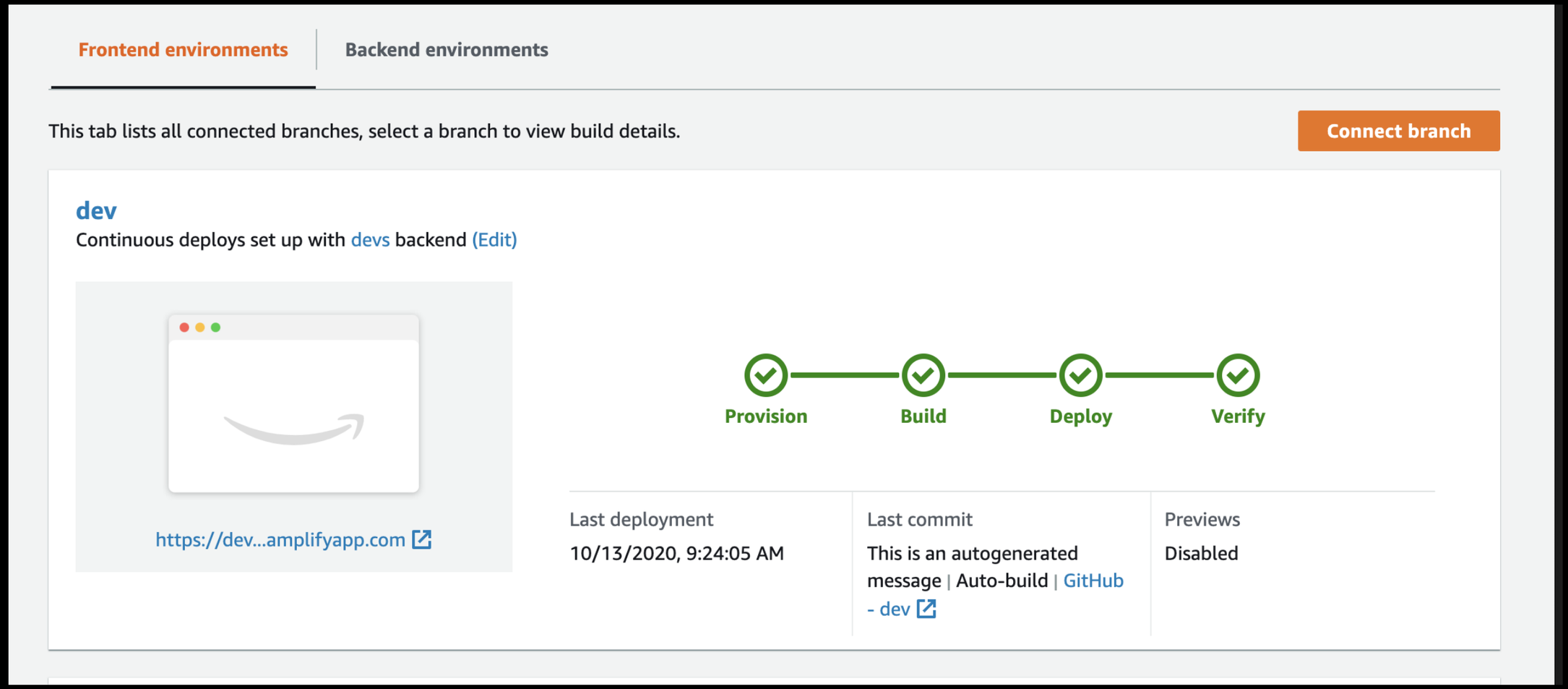
Static web hosting

- Fully managed hosting service for static web apps
- Easy custom domain setup

Full-stack continuous deployments

- Both Amplify CLI and admin UI generate infrastructure as code (IAC)
- Deploy via the CLI or console

Deliver your app: Managed hosting and full-stack deployment with CI/CD



Manage



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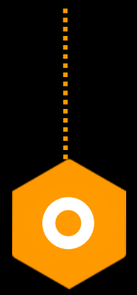
Manage app content and users with the admin UI

NEW!

Manage



Easily manage users and content



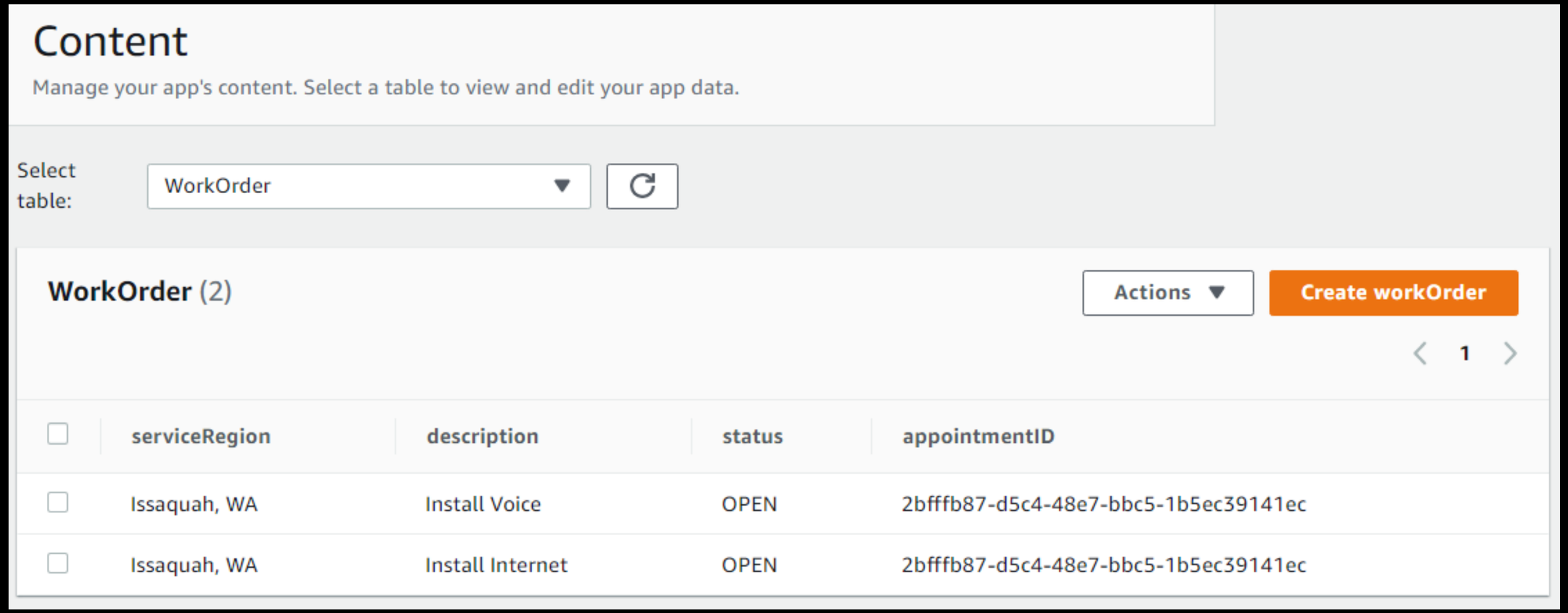
Admin UI

Features

- Accessible outside AWS console
- Share access with non-developers (QA testers, product managers)
- Content management functionality with rich text support
- User and group management

Manage app content and users with the admin UI

NEW!



AWS Amplify

NEW!

Develop

Authentication
DataStore
Storage
API
Functions
Analytics
PubSub
Predictions
Interactions
Notifications

Configure backends

NEW!

Connect front ends



CLI Admin UI Libraries

Deliver

Static web hosting
- Fully managed
- Full-stack deployments
- CI/CD built in
- Pull request previews

Tools



CLI Console

Manage

Authentication
- Manage users and groups

DataStore
- Manage data content



Admin UI

Amplify resources

Website: aws.amazon.com/amplify

Docs: docs.amplify.aws

Tutorials: docs.amplify.aws/start

Community: amplify.aws/community

GitHub: github.com/aws-amplify

Discord: www.discord.gg/amplify



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