

The background features a dark blue gradient with abstract geometric shapes. On the left, a large triangle is outlined in orange. On the right, a curved shape transitions from orange to blue. A thin blue line forms a rectangular frame in the lower right quadrant.

AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

MDS301

Build an interactive live streaming platform

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M&E Solutions Architect
Amazon Web Services

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M&E Solutions Architect
Amazon Web Services



Introducing UnicornSports

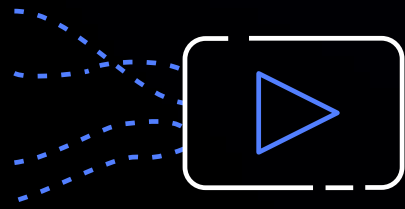
Growing alternative sports
through interactive live
streaming communities

UnicornSports Design Objectives

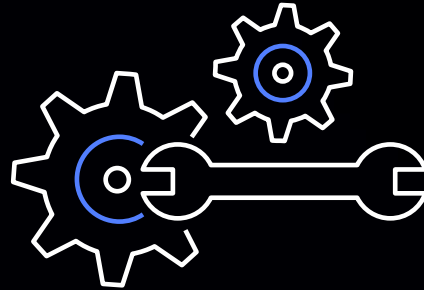


- > Speed to Launch
- > Cost Efficient
- > Operational Ease
- > Reliable
- > Secure

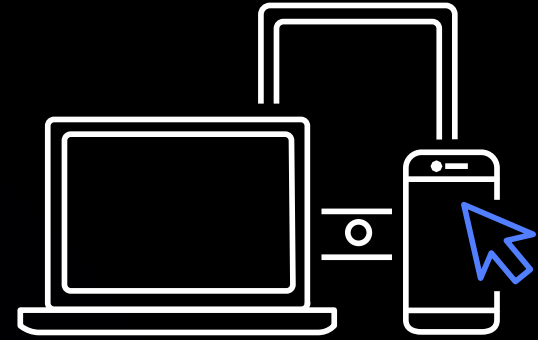
Interactive Live Streaming Platform



Video Streaming



Channel Management

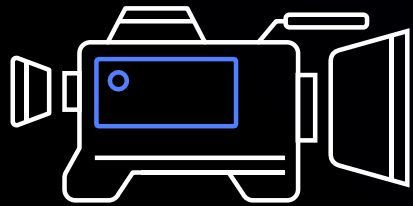


Client

Video Streaming

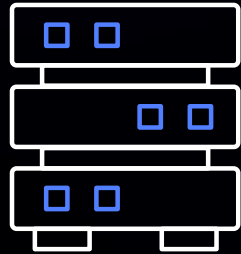
Challenge: Video Streaming Service

Create



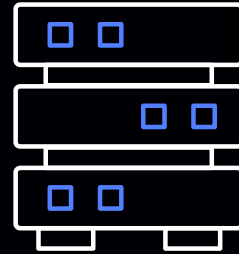
Produce and upload original content

Encode



Process content into Adaptive Bitrate (ABR)

Originate



Host ABR Content

Deliver



Deliver ABR content via Content Delivery Network (CDN)

Play



Delight viewers with captivating content

Challenge: Video Streaming Service

Cost

High costs and domain knowledge required to get started with live video streaming

Audiences

It can be challenging to engage and retain audiences within their own platform

Platforms and Devices

Even harder to achieve low latency across devices to enable interactive experiences

Scalability

Live video services are very hard to scale, even harder without compromising QoS or latency

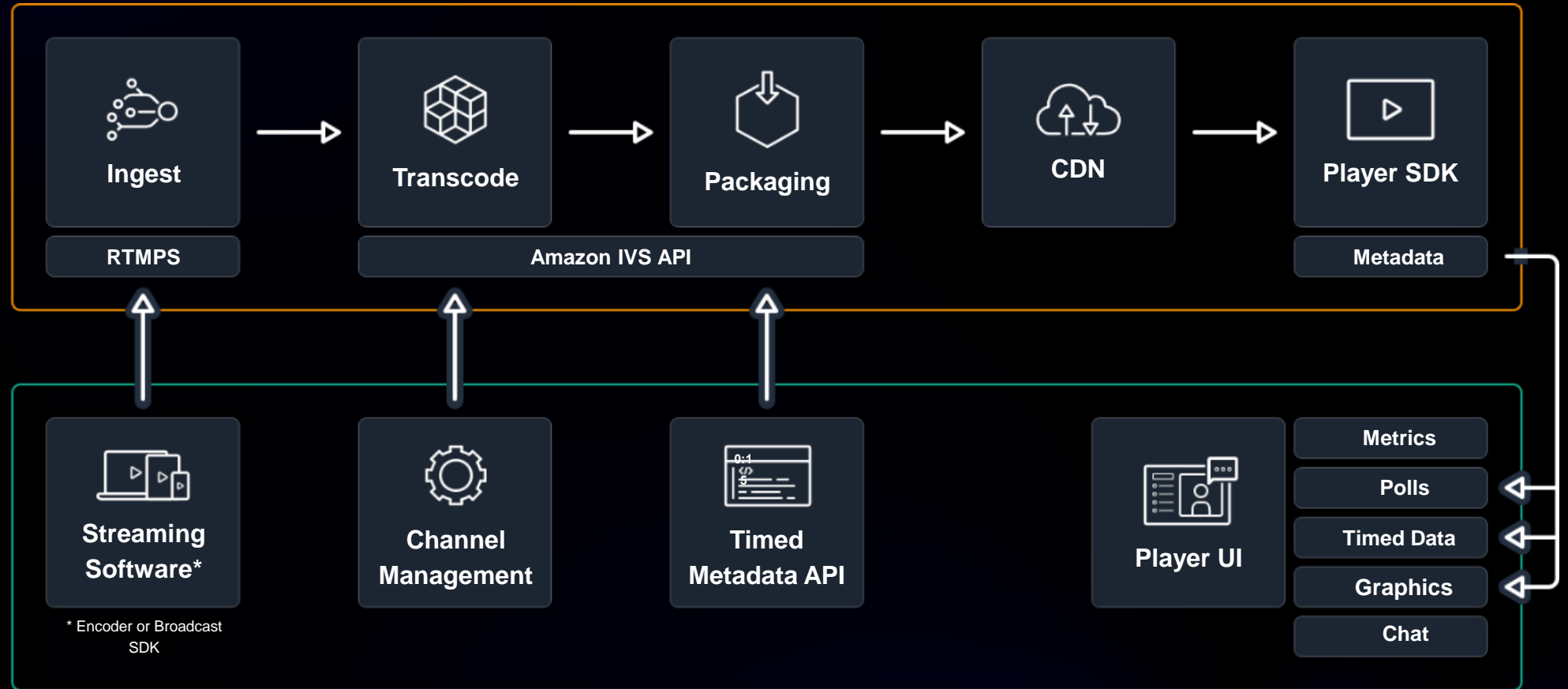
twitch

3M+ Streamers per month

505B+ Minutes watched

15M+ Viewers per day

How IVS Works

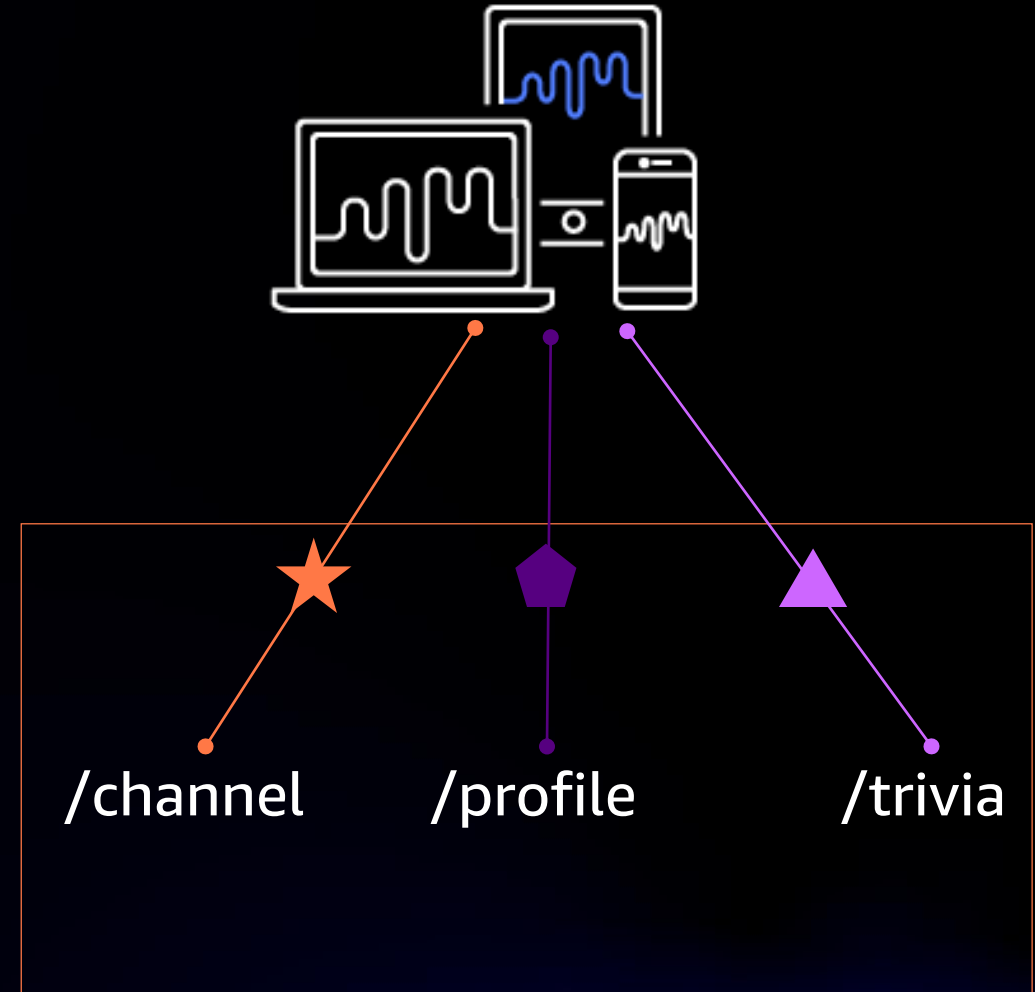


Channel Management

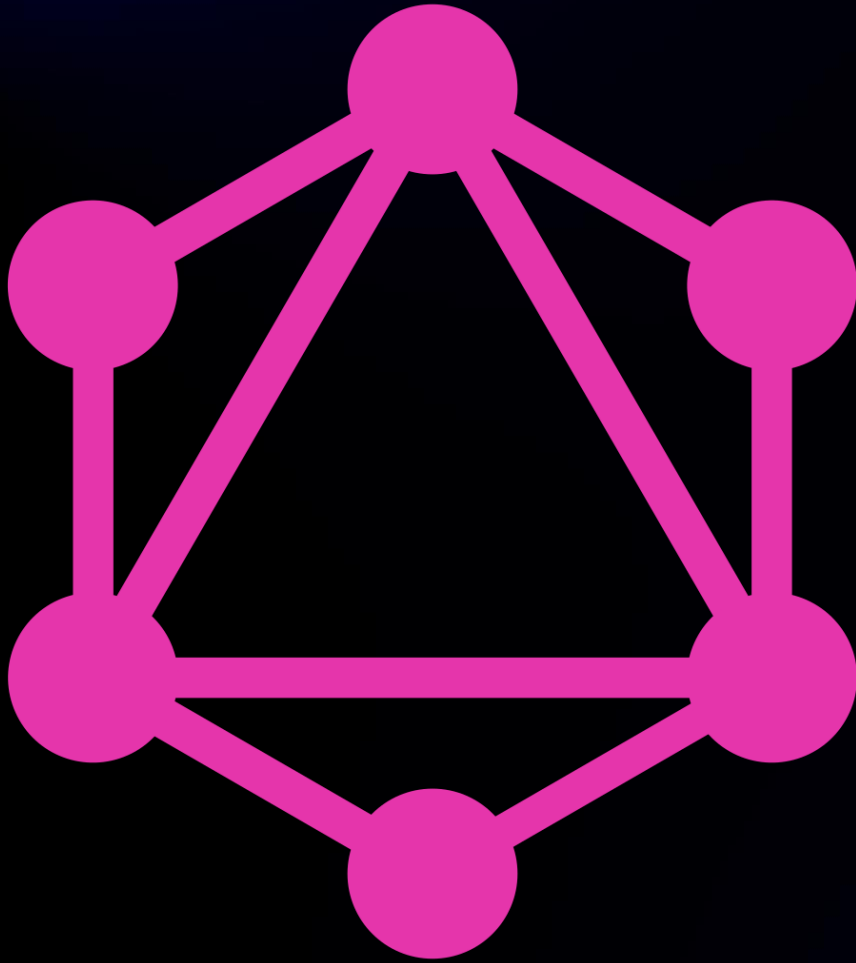
Challenge: Channel Management Service

- > Rapidly changing API
- > Real-time needs for interactivity
- > Simple auth scheme

Traditional REST API?

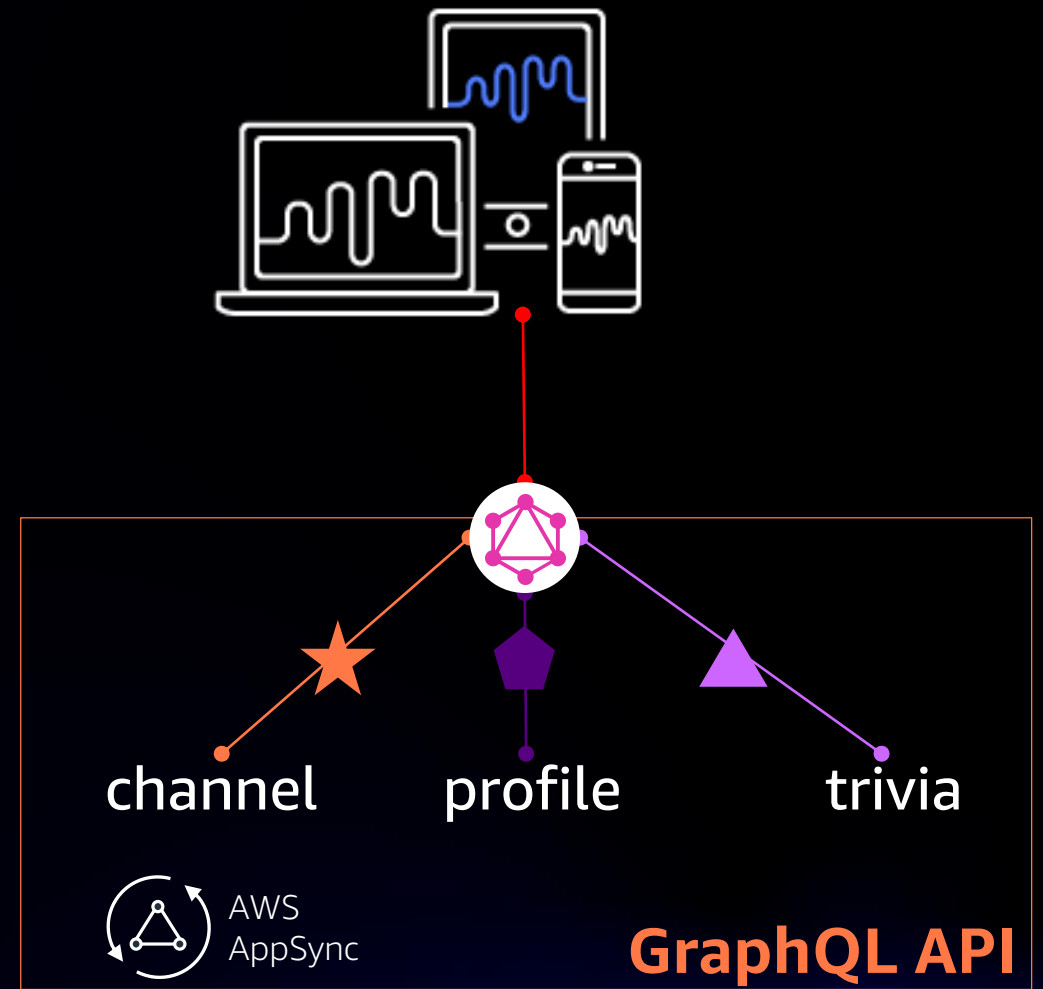
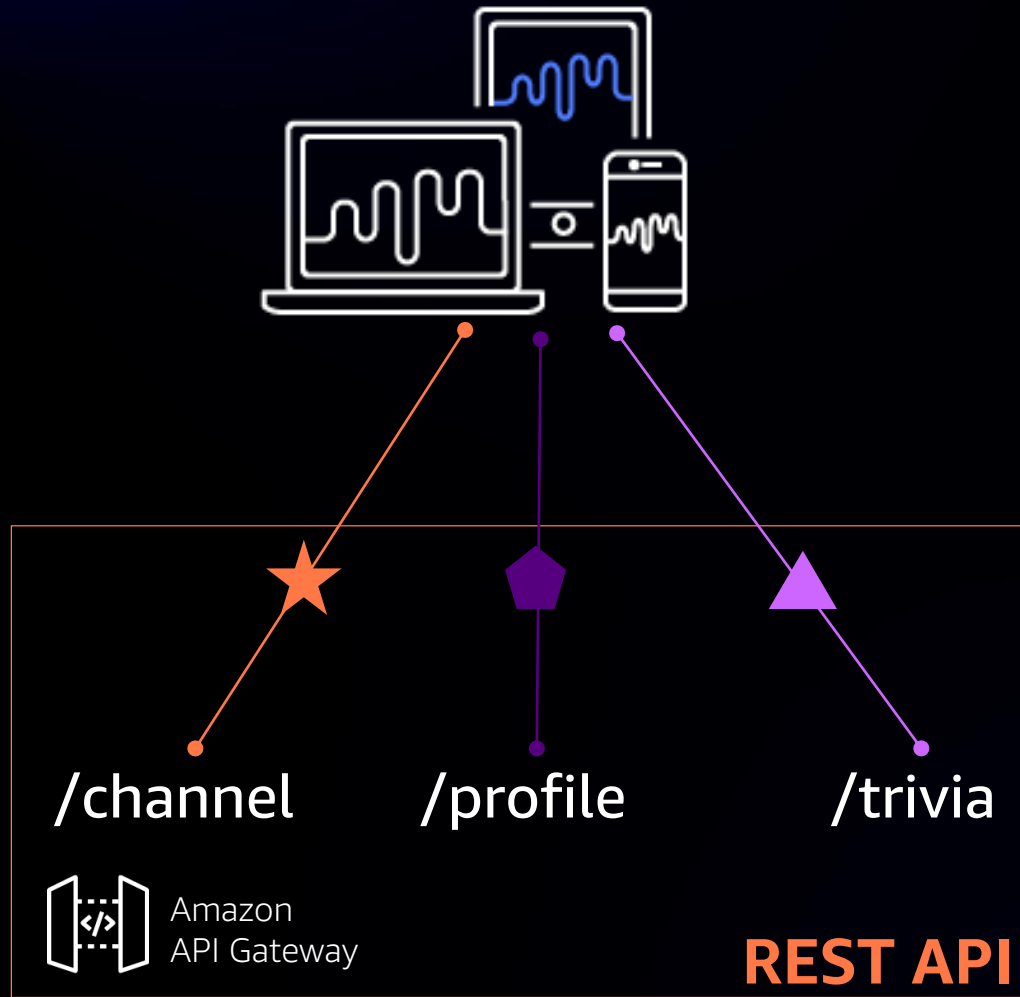


GraphQL



- > Query language for your Uniform API across data stores and APIs
- > API and a runtime for fulfilling queries with existing data
- > Network-optimized requests and responses
- > Integrated documentation and introspection

REST and GraphQL



GraphQL Operation Examples

Queries

Read Data

```
query {  
  getChan(id: 1){  
    id  
    title  
    streamUrl  
  }  
}
```

Mutations

Write Data

```
mutation {  
  createChan(name: "title"){  
    id  
    title  
    streamUrl  
  }  
}
```

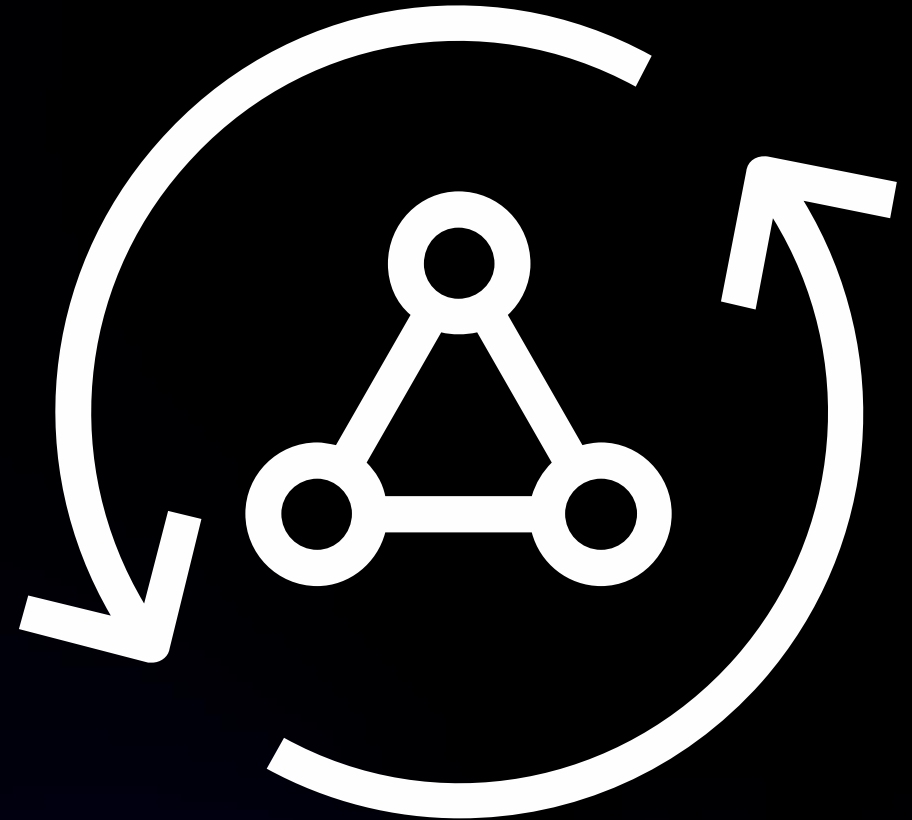
Subscriptions

Receive Data in Real Time

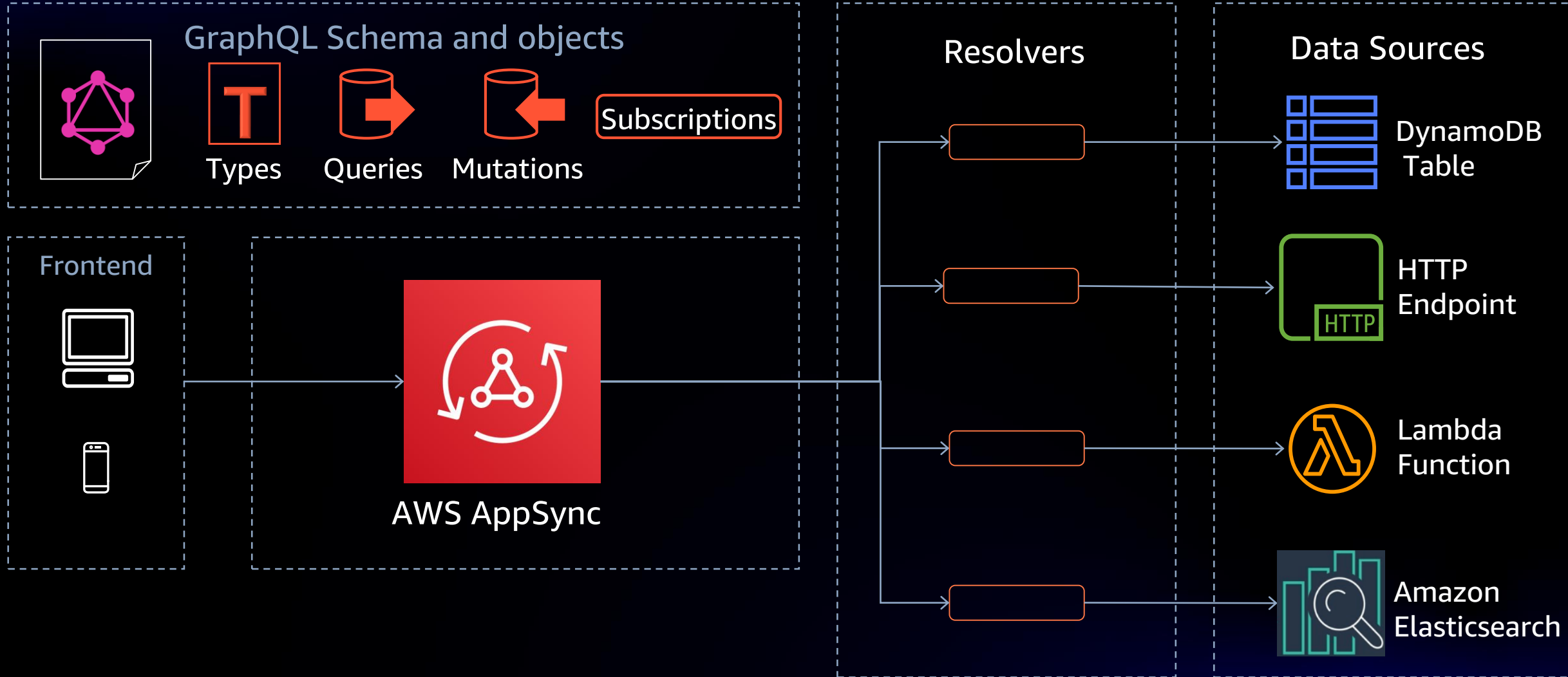
```
subscription {  
  onUpdate{  
    id  
    type  
    content  
  }  
}
```

AWS AppSync

- > Managed service that uses GraphQL to get exactly the data your apps need
- > Securely access, manipulate, and combine data from one or more data sources
- > Protect Data with Field-Level Authorization



AWS AppSync Fundamentals



Building and Hosting with AWS Amplify

AWS Amplify

- > Deploy and manage backend resource categories using the **Command Line Interface**
- > Integrate your frontend application with those resources using **Client Libraries**
- > Expedite development with **UI Components**
- > Manage your application hosting and CI/CD with the **Amplify Console**



Amplify Categories

Authentication – Add user signup, signin, and access control

API – Make HTTP requests using REST and GraphQL, easily and securely

Analytics – Drop-in analytics to track user sessions, attributes, and in-app metrics

Storage – Manage user content securely in the cloud or on the device

DataStore – Shared data for offline and online scenarios

PubSub – Connectivity with cloud-based, message-oriented middleware

Push Notifications – Push notifications with analytics and targeting

Interactions – Enable AI-powered chatbots in your web or mobile apps

Predictions – Use AI and ML cloud services to enhance your application

Geo – APIs and map UI components for maps and location search

Extending Amplify with Amplify Video

Install


```
> npm i amplify-category-video
```

Repository
github.com/awslabs/amplify-video

Homepage
github.com/awslabs/amplify-video#rea...

Weekly Downloads

492



Version **License**
3.9.1 Apache 2.0

- > Live and Video-on-Demand
- > Content Management and Auth
- > Player generation
- > Video analytics

amplify-video.com

Amplify Command Line Interface



#Install the CLI

```
npm install -g @aws-amplify/cli
```

#Initialize your amplify project

```
amplify init
```

#Add an API to your project

```
amplify api add
```

#Use custom plugins to extend your projects scope

```
amplify video add
```

#Push your local project to the cloud to auto-deploy your resources

```
amplify push
```

Video at Scale with Amplify



"We identified Amplify and Amplify Video as the fastest path to integrate video into our application. We estimated that to build and troubleshoot the solution on their own would have taken a full week of dedicated engineering and developer time. In contrast, by using the Amplify CLI and the video plugin code repository, we transcoded the video, generated signed URLs, and deployed it to our **development environment and then into production – all within an hour.**

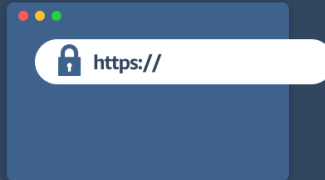
We didn't require any changes to our native iOS/Android code, we simply replaced the backend and Amplify did the work. Our team was able to solve for this complex challenge to keep our customers motivated and working out. We were very pleased to have found AWS Amplify and Amplify Video."

Pedro González, Enterprise Solutions Architect, Orangetheory Fitness

Amplify Hosting



Globally available



Easy custom domain setup



Simplified continuous workflows



Feature branch deployments

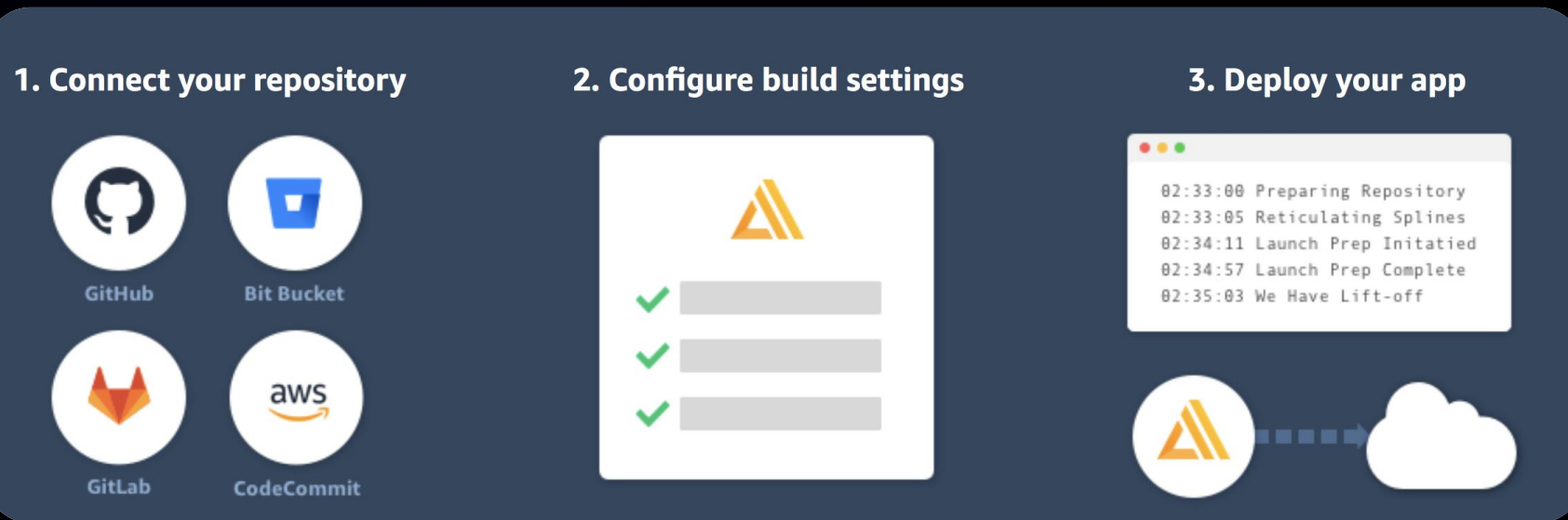


Atomic deployments



Password protection

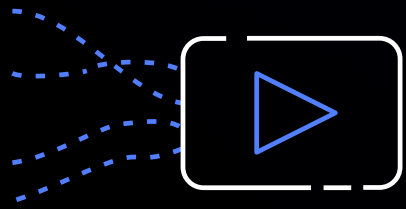
Amplify Hosting: How it Works



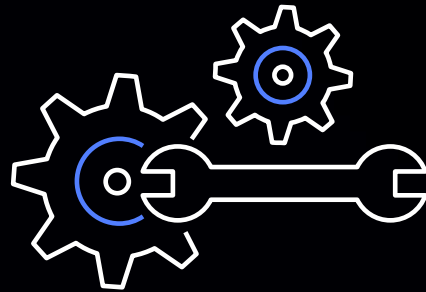
Workshop



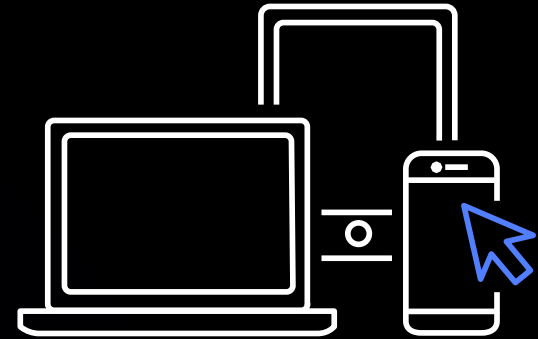
Interactive Live Streaming Platform



Video Streaming



Channel Management



Client

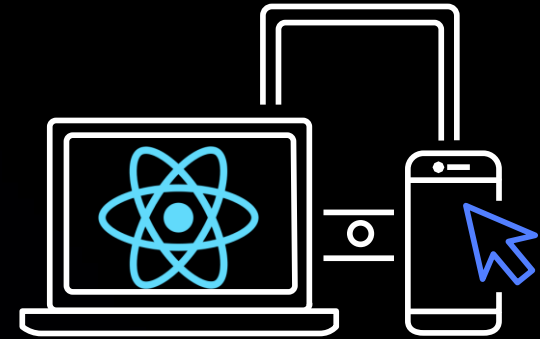
Interactive Live Streaming Platform



Video Streaming
with **Amazon IVS**



Channel Management
With **AWS AppSync**

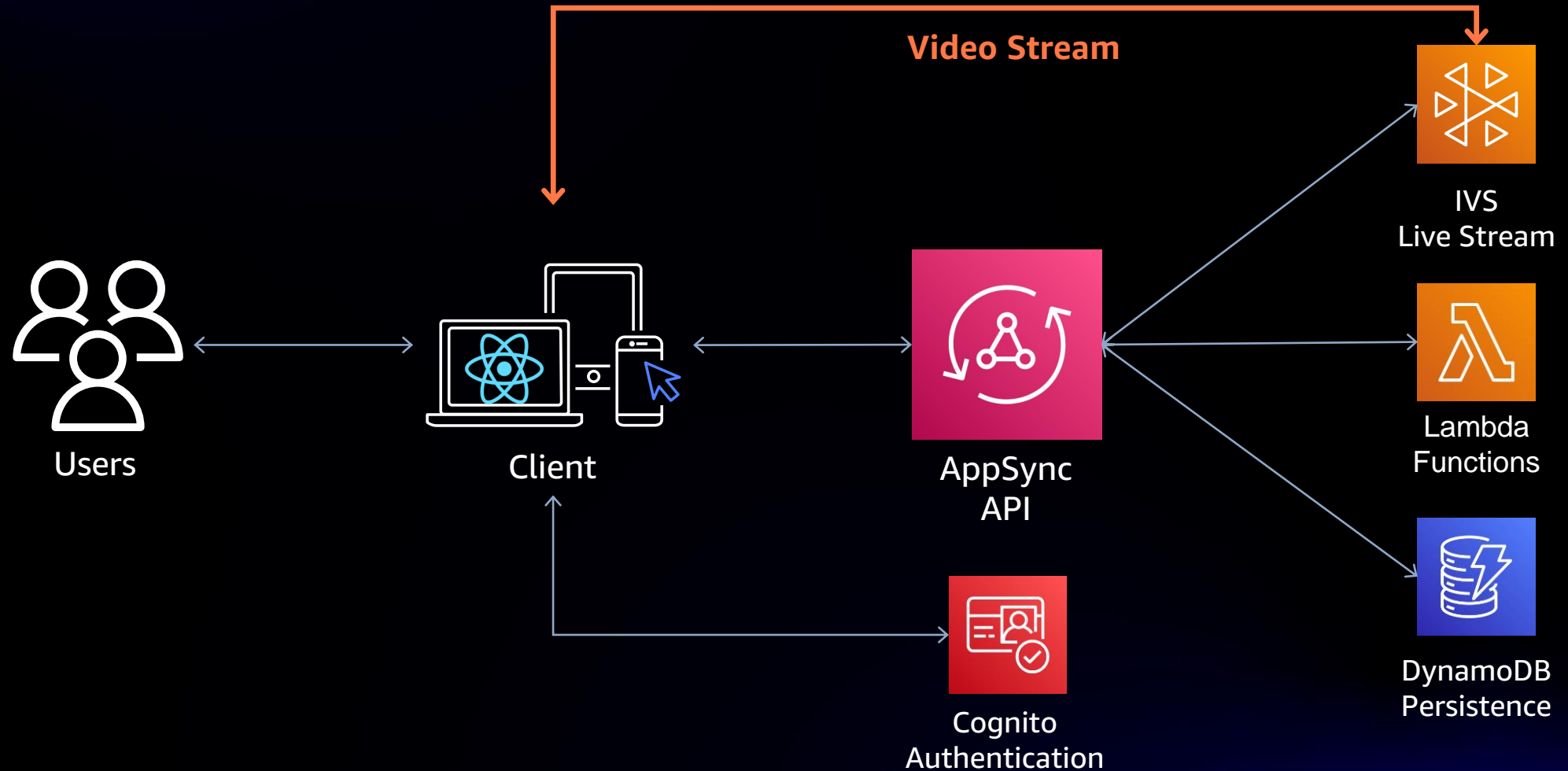


Client built
with **React** and **Amplify Libs**



AWS Amplify

High-Level Architecture



Let's Get Started!

dashboard.eventengine.run

Enter event hash: d7d7-1fd76c3024-f9

Terms & Conditions:

1. By using the Event Engine for the relevant event, you agree to the [AWS Event Terms and Conditions](#) and the [AWS Acceptable Use Policy](#). You acknowledge and agree that are using an AWS-owned account that you can only access for the duration of the relevant event. If you find residual resources or materials in the AWS-owned account, you will make us aware and cease use of the account. AWS reserves the right to terminate the account and delete the contents at any time.
2. You will not: (a) process or run any operation on any data other than test data sets or lab-approved materials by AWS, and (b) copy, import, export or otherwise create derivate works of materials provided by AWS, including but not limited to, data sets.
3. AWS is under no obligation to enable the transmission of your materials through Event Engine and may, in its discretion, edit, block, refuse to post, or remove your materials at any time.
4. Your use of the Event Engine will comply with these terms and all applicable laws, and your access to Event Engine will immediately and automatically terminate if you do not comply with any of these terms or conditions.

d7d7-1fd76c3024-f9

This is the 12 or 16 digit hash that was given to you for this event or for a specific team.

✓ Accept Terms & Login

Team Dashboard

Event

 AWS Console

 SSH Key

 View Content Guide

Event: tim test

Team Name: (Team Name Not Set Yet)

Event ID: 43353777103b4702bf9f0aaa9d492f73

Team ID: 6725955c4c43488e93536675385bd39f



Thank you!

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Sam Patzer

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amplify-video.com

