aws
INNOVATE
MODERN APPLICATIONS EDITION
27&28 October 2021

Building a web application with geolocation functionalities

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Life of a developer

We need a web application that allows our customers to search in a map for our branches and notifies them when the package is ready for pick-up.

PM of a delivery company

Developer

aws

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Life of a developer

It needs to scale, as we expect a lot of customers and packages.
And we need it by the end of the week!

PM of a delivery company

Developer

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Onboarding
Data privacy
Integration with our systems

Amazon Location Service

- Easy access to high-quality data
- Cost-effective
- Privacy and security
- Shorter time to production

Amazon Location Service data providers

esri

here

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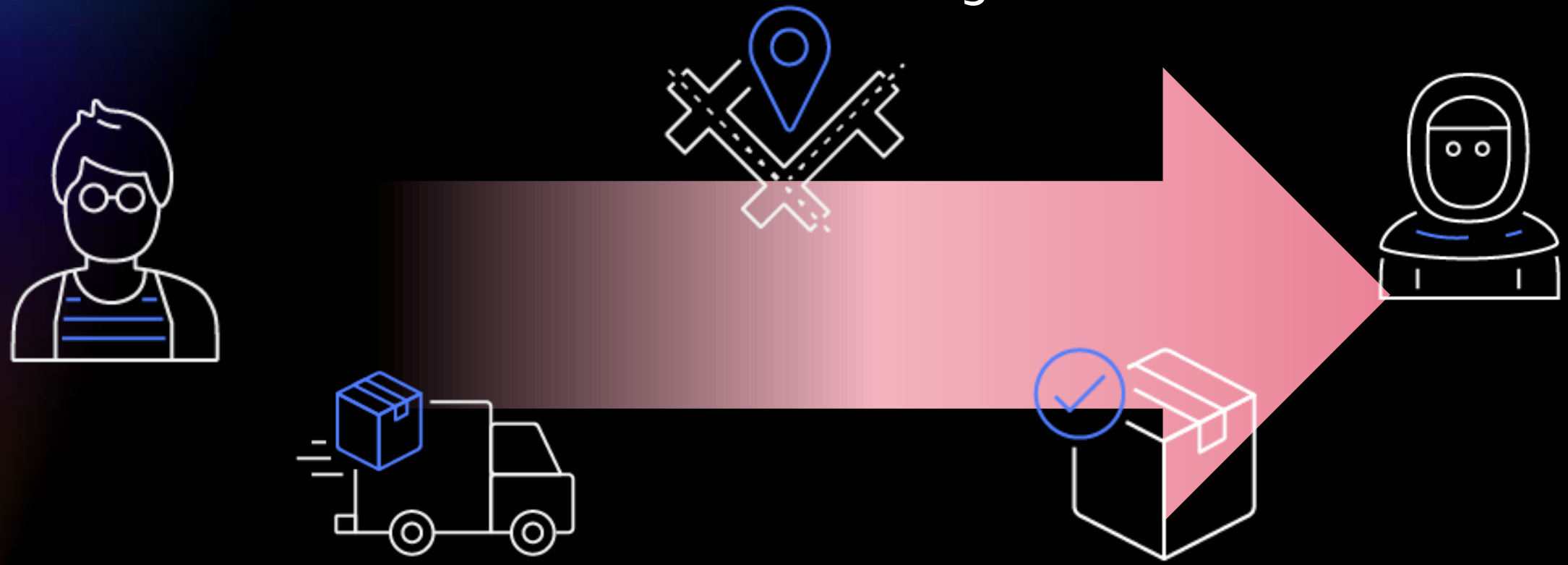
What we are going to build?

2. Find the best route to get to the branch



1. Search for a branch in a map

3. Notify when the package is ready for pick-up

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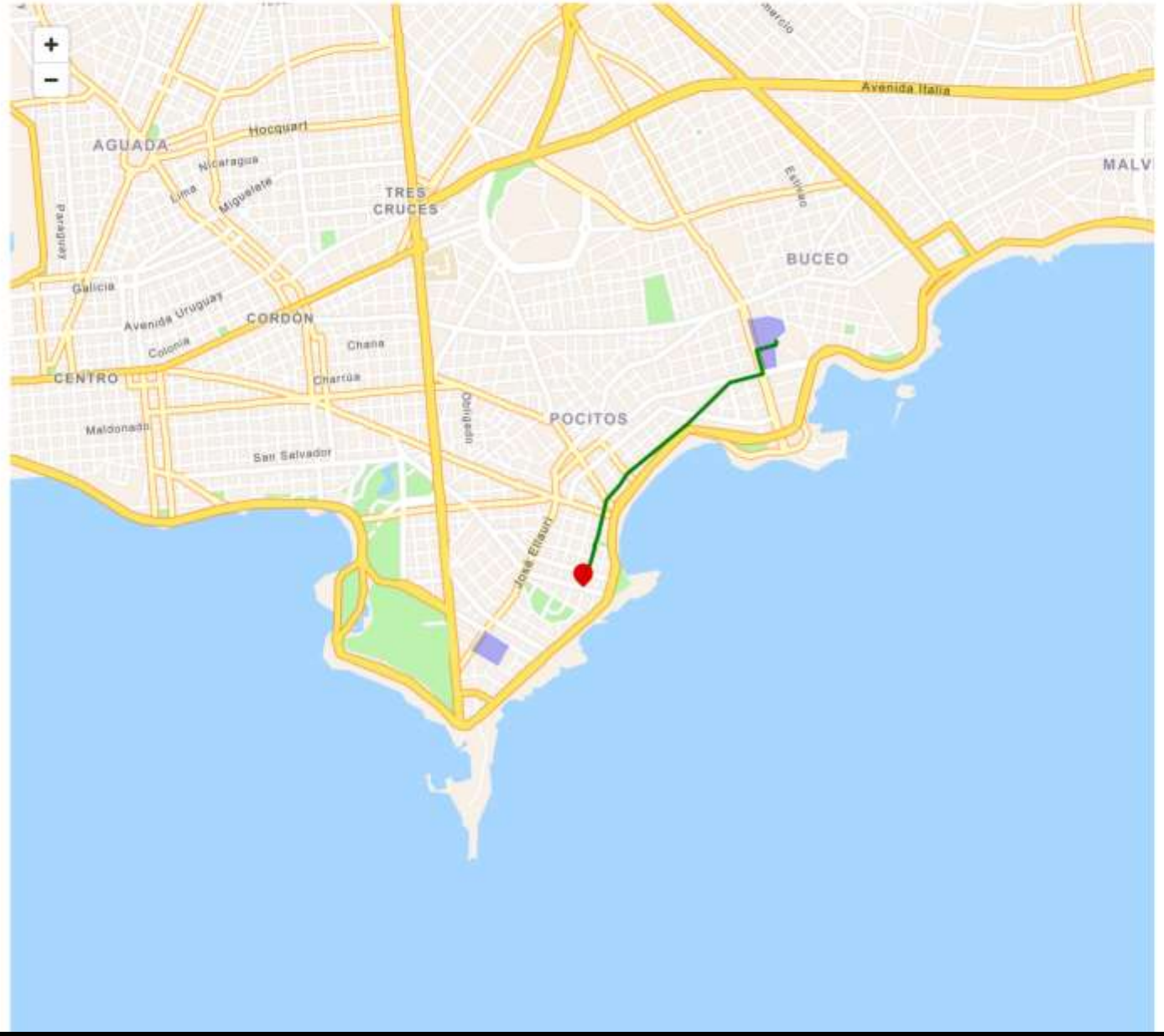
📦 Drop the Box 📦

A delivery company

SIGN OUT



How to get to your closest branch?

From:

Juan Benito Blanco 661, Montevid

To:

Store Montevideo Shopping

Find the way

Store Costa Urbana Shopping

Store Montevideo Shopping

Store Punta Carretas Shopping

Store Portones Shopping

Store Nuevo Centro Shopping

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Setting up the demo

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Set up your demo

```
$ npx create-react-app drop-the-box-demo

$ npm install bootstrap @aws-amplify/ui-react aws-sdk
$ npm install react-map-gl maplibre-gl amazon-location-helpers
$ npm install @craco/craco --save

$ amplify init
$ amplify add auth
$ amplify push –yes
```

And configure craco

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1. Add a map to a react app

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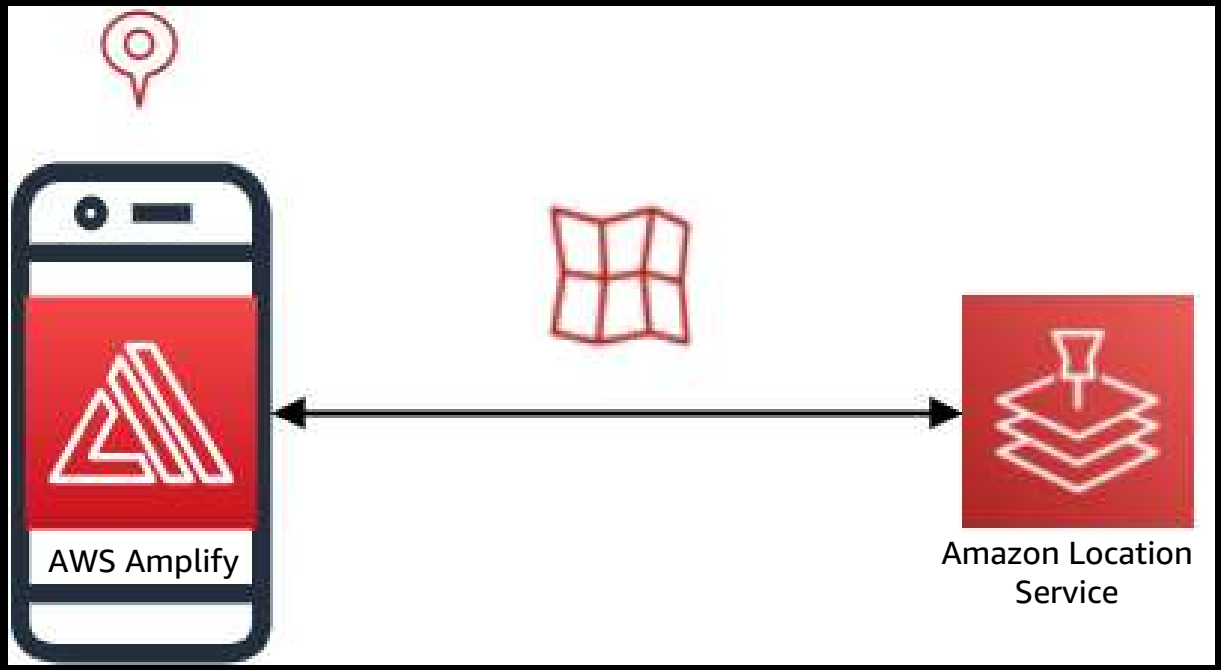
Add a map to a react app

1. Create a map using Amazon Location Services
2. Add permissions to your Amazon Cognito Identity Pool role
3. Show the map in your app



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Add this policy to your Amplify Auth Role

```
{
        "Version": "2012-10-17",
        "Statement": [
                {
                        "Effect": "Allow",
                        "Action": "geo:GetMap*",
                        "Resource": "arn:aws:geo:<REGION>:
                        <ACCOUNTNUMBER>:map/<NAMEOFMAP>"
                }
        ]
}
```

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2. Find the best route to a branch

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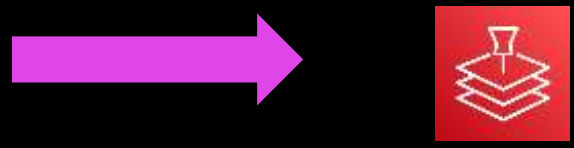
Find the best route to a branch



Amazon Location Service

searchPlaceIndexForText

Returns GPS coordinate

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Find the best route to a branch

Amazon Location Service

searchPlaceIndexForText

Returns GPS coordinate

With to and from GPS coordinates

Amazon Location Service

calculateRoute

Returns a route

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Add this policy to your Amplify Auth Role

```
{
        "Version": "2012-10-17",
        "Statement": [
                {
                        "Effect": "Allow",
                        "Action": "geo:CalculateRoute",
                        "Resource": "arn:aws:geo:<REGION>:
                        <ACCOUNTNUMBER>:route-calculator/<ROUTECALCULATORNAME>"
                }
        ]
}
```

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Add this policy to your Amplify Auth Role

```
{
        "Version": "2012-10-17",
        "Statement": [
                {
                        "Effect": "Allow",
                        "Action": "geo:SearchPlaceIndexForText",
                        "Resource": "arn:aws:geo:<REGION>:
                        <ACCOUNTNUMBER>:place-index/<INDEXNAME>"
                }
        ]
}
```

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3. Send event when the package is ready

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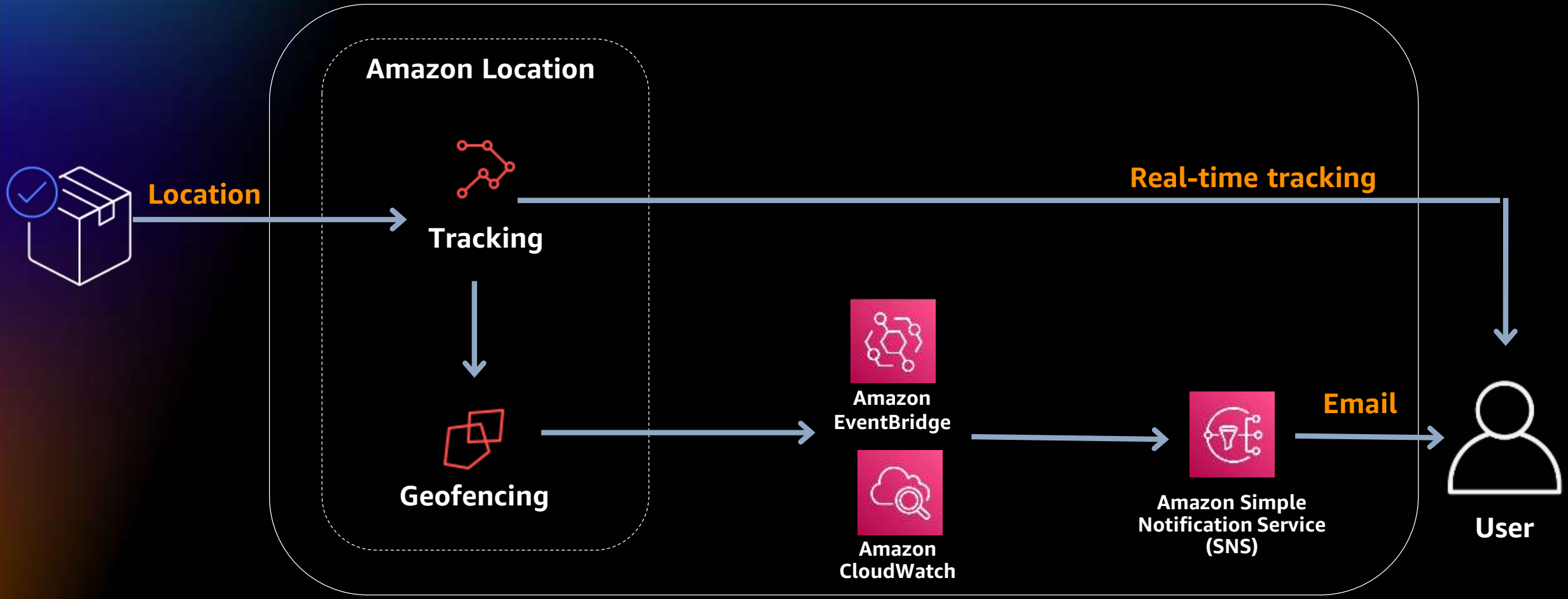
How geofencing and tracking works?



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Update position of tracker to ENTER geofence

```
$ aws location batch-update-device-position
        --tracker-name myTracker
        --updates DeviceId=ABCD1234,
                        Position=-56.136789321899414,-34.90353061963231,
                        SampleTime=$(date +%s)
```

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Update position of tracker to EXIT geofence

```
$ aws location batch-update-device-position
                --tracker-name myTracker
                --updates DeviceId=ABCD1234,
                                Position=-56.139492988586426,-34.906064662796354,
                SampleTime=$(date +%s)
```

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Life of a developer

The first prototype is ready !
It’s scalable, it integrates with our systems and it’s all built with no servers to maintain.

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Developer

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Code and step-by-step instructions

https://blog.marcia.dev/building-location-aware-applications

SCAN ME

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- Modernize today with containers on AWS e-book
- Adopting a modern Dev+Ops model e-book
- Modern apps need modern ops e-book
- Determining the total cost of ownership: Comparing Serverless and Server-based technologies paper
- Continuous learning, continuous modernization e-book
- … and more!

https://bit.ly/3yfOvbK

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Thank you!

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