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NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

FWM304

Improving the quality of your data with Amazon Location Service

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Agenda

- Quality address data is fit for purpose
- What causes poor quality?
- Amazon Location Service overview
- Deep dive into the Amazon Location Places API
- Use the 6 dimensions of data quality framework

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Quality address data is fit for purpose

- Deliver physical mail/packages
- Locate an asset (IOT device, leaking underground tank)
- Statistical analysis (What happened?)
- Forward planning (What should happen?)
- “Where is my nearest . . .”
- Taxation and revenue
- Visualization (mapping)

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What causes poor data quality?

- Temporal nature of addresses
- Attributes of addresses vary across the globe
- Multi-purpose use of single-purpose data
- Inconsistency of capture and storage across systems
- Incorrect scale
- No mechanism to identify and fix errors

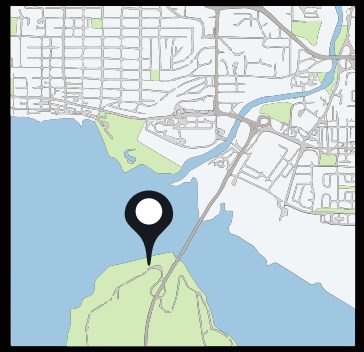
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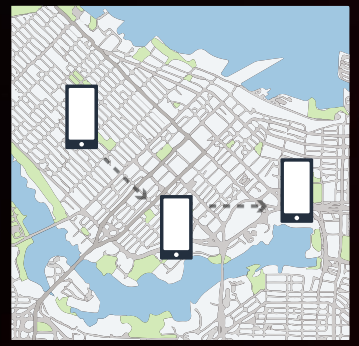
Amazon Location Service features



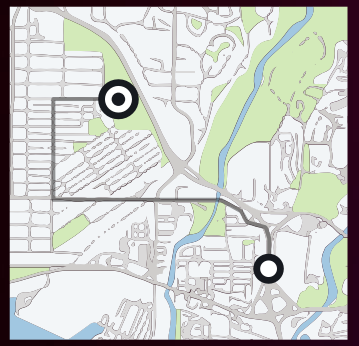
Maps



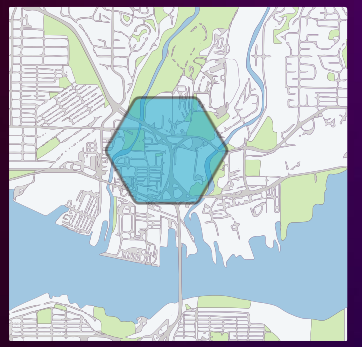
Places



Trackers



Routes



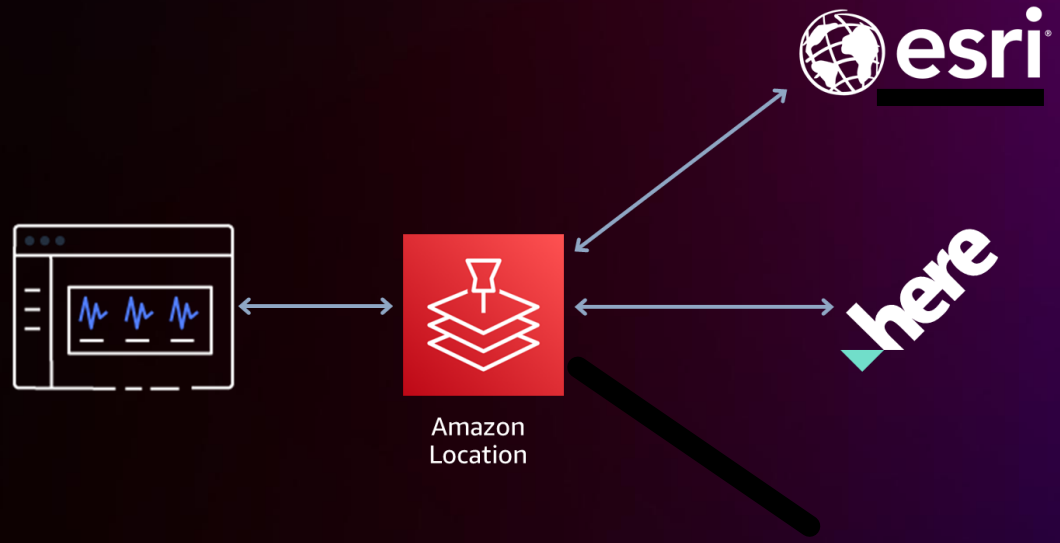
Geofences

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Amazon Location Service data providers

- Avoid implementing new credentials and onboarding vendors
- Simplified global coverage
- A single consistent API
- Only pay for what you use, no up-front commitment



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Amazon Location Service integrations

Mobile, web backend, and IoT integration	 AWS Amplify  AWS Tools and SDKs  AWS IoT Core
Monitoring, security, and compliance	 Amazon CloudWatch  AWS IAM  AWS CloudTrail
Service integration via Amazon EventBridge	 Amazon EventBridge  AWS Lambda  Amazon Kinesis  Amazon Simple Notification Service  Amazon Pinpoint ...  AWS Step Functions

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Amazon Location: Places API – request

Step 1: Data stored in the customer database

Street	City	Region	Postal code	Country	Country code
181 Chemical Road	Swansea	West Glamorgan	SA6 6JQ	Wales	GBR

Step 2: Concatenate the separate fields into a single text field to send to the API

```
POST /places/v0/indexes/ExamplePlaceIndex/search/text Content-type:
application/json

{
"Text": "181 Chemical Road, Swansea, West Glamorgan, Wales, SA6 6JQ, GBR",
"MaxResults": 10
}
```

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Amazon Location: Places API – response


```
{ "Results":
      [{"Place": {"AddressNumber": "181",
            "Country": "GBR",
            "Geometry":{ "Point": [-3.92676, 51.67373]},
            "Interpolated": true,
            "Label": "181 Chemical Road, Swansea, SA6 6JQ, United Kingdom",
            "Municipality": "Swansea",
            "Neighborhood": "Swansea",
            "PostalCode": "SA6 6JQ",
            "Region": "Wales",
            "Street": "Chemical Road",
            "SubRegion": "West Glamorgan",
            "TimeZone":{ "Name": "Europe/London", "Offset": 3600}
                  }
      }]
}
```


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Data provided by HERE

Amazon Location: Places API – filters

Additional Optional Search Criteria

Refine search by closest results

```
"BiasPosition": [-123.4567,45.6789]
```

Create a box to search within (south west corner, north east corner)

```
"FilterBBox": [ -124.1450,41.7045,
                -124.1387,41.7096 ]
```

Search by County using up to 100 ISO 3166 country codes

```
"FilterCountries": ["DEU","FRA"]
```

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6 dimensions of data quality

- Completeness
- Accuracy
- Consistency
- Validity
- Uniqueness
- Integrity

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Best practices

- Don’t mutate data to fit multiple purposes – store original and changes separately
- Test the combination of data elements you send to the Amazon Location Places API
- Amazon Location data providers have varying data sources – test both, choose one and stick with it (we recommend between 1,200 and 1,500 addresses)
- Coordinates should be the identifier for long-lived physical assets
- Consistent data entry throughout systems can reduce the quantity of “clean up”

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Thank you!

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