



Mercedes-Benz

Mercedes-Benz Research and Development India Connected Cars Platform Hackathon

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Brief Summary of Solution

- Created an HTTP API using AWS API Gateway
- The API gateway receives requests and passes it to the integrated lambda function
- The lambda function written using python parses the query, makes requests to restmock.techgig api to get the response, processes the response from restmock API and responds with required output

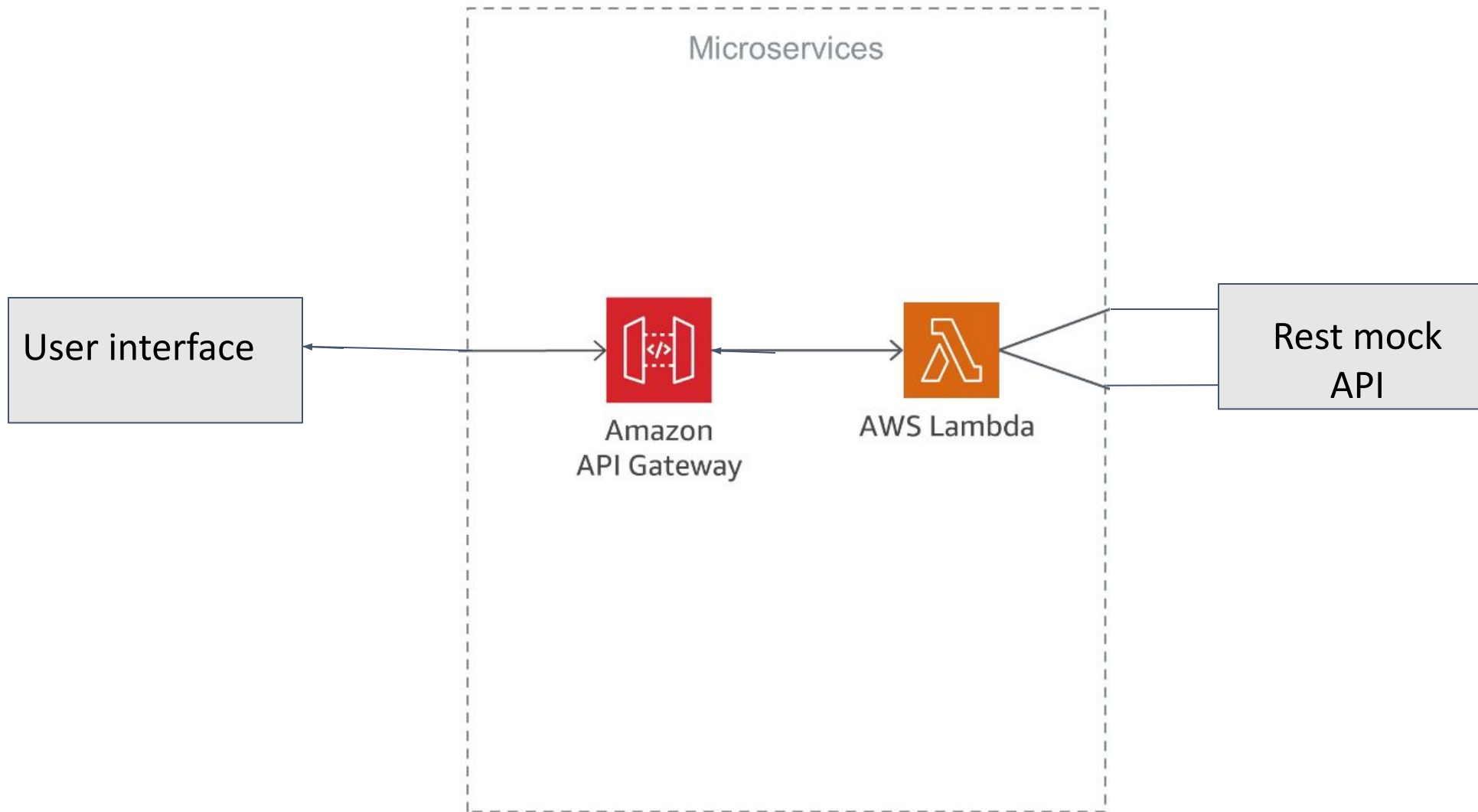
Example request

<https://ov5yrmbm1g.execute-api.ap-south-1.amazonaws.com/myfunction?vin=W1K2062161F0046&source=Home&destination=Movie%20Theatre>

Response:

```
{"vin": "W1K2062161F0046", "source": "Home", "destination": "Movie Theatre", "distance": "50", "currentChargeLevel": "17", "isChargingRequired": true, "chargingStations": [{"name": "S1", "distance": 10, "limit": 20}, {"name": "S2", "distance": 25, "limit": 15}], "transactionId": 3}
```

Architecture Diagram of the Application



Challenges in Application

Handling exceptions:

Exceptions such as invalid input would cause the microservice to break. Handled with the response received from restmockAPI. If not NULL return proper response

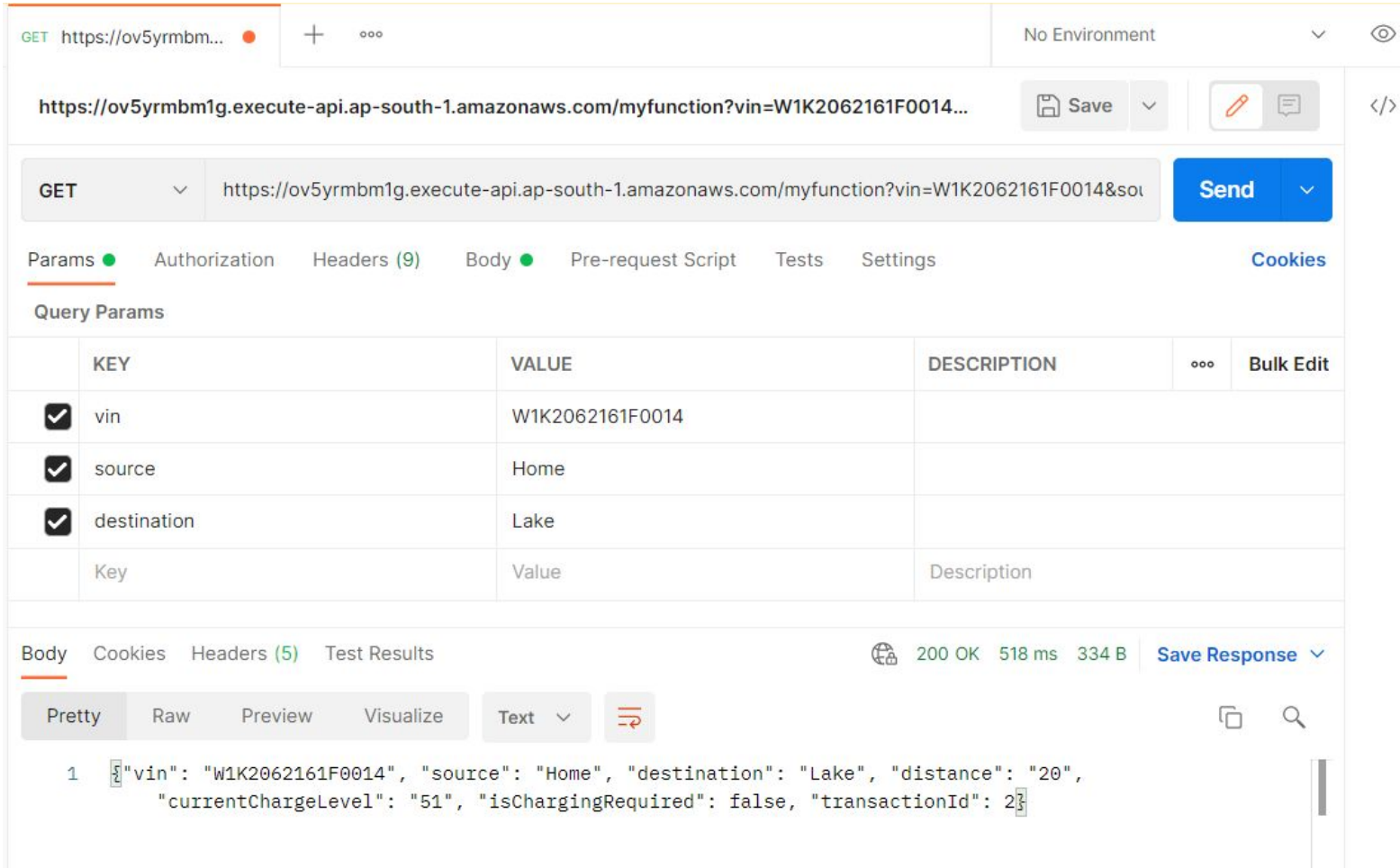
Calculating reachability and fuel and fuel availability:

Solved this challenge using Algorithmic problem solving

Understanding and implementing restmock API

Parsing JSON content properly

Solution demonstration (Video/Screenshots)



The screenshot displays a REST client interface with the following details:

- Request Method:** GET
- Request URL:** `https://ov5yrmbm1g.execute-api.ap-south-1.amazonaws.com/myfunction?vin=W1K2062161F0014...`
- Response Status:** 200 OK
- Response Time:** 518 ms
- Response Size:** 334 B

The **Query Params** section contains the following data:

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> vin	W1K2062161F0014	
<input checked="" type="checkbox"/> source	Home	
<input checked="" type="checkbox"/> destination	Lake	
Key	Value	Description

The **Body** section shows the response in JSON format:

```
1 {"vin": "W1K2062161F0014", "source": "Home", "destination": "Lake", "distance": "20",  
  "currentChargeLevel": "51", "isChargingRequired": false, "transactionId": 2}
```

Working Video:
[Google Drive Link](#)

Why your solution should be considered for the next round?

- Built on AWS, and built using serverless services, this solution doesn't require server maintenance.
- Scaling can be easily achieved .
- Load balancing can be easily achieved which makes server response time minimal
- Pay-as-you-go policy by AWS makes it cost efficient.
- Easy integration and deployment.
- Easy to understand architecture and code structure

Technology/Tool Stack Used:

Programming language: Python

Microservices: AWS API Gateway
 AWS Lambda functions

Testing: Postman
 Chrome browser
 Lambda functions tester

Code editor/IDE: Pycharm

Misc: OBS studio, google docs, Git

Source code in zip file/Github link:

Code and Documentation available at this [Github Repo](#)

Working:

API url: <https://ov5yrmbm1g.execute-api.ap-south-1.amazonaws.com/myfunction>

Params:

```
{  
  "vin": "vehicle identification number eg: W1K2062161F0014",  
  "source": "source name",  
  "destination": "destination name"  
}
```

Method = GET

Example:

[https://ov5yrmbm1g.execute-api.ap-south-1.amazonaws.com/myfunction?vin=W1K2062161F0046
&source=Home&destination=Movie%20Theatre](https://ov5yrmbm1g.execute-api.ap-south-1.amazonaws.com/myfunction?vin=W1K2062161F0046&source=Home&destination=Movie%20Theatre)

Output:

```
{"vin": "W1K2062161F0046", "source": "Home", "destination": "Movie Theatre", "distance": "50", "currentChargeLevel": "17", "isChargingRequired": true, "chargingStations": [{"name": "S1", "distance": 10, "limit": 20}, {"name": "S2", "distance": 25, "limit": 15}], "transactionId": 3}
```


Thank You!