

Task 3: MULTI-CLOUD ARCHITECTURE

- DESIGN A MULTI-CLOUD ARCHITECTURE WHERE SERVICES ARE DISTRIBUTED ACROSS TWO CLOUD PROVIDERS.
- DELIVERABLE: A DOCUMENTATION AND DEMO SHOWCASING INTEROPERABILITY BETWEEN THE PLATFORMS

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AWS EC2 Terminal:

The screenshot displays the AWS Management Console interface. At the top, a green banner indicates 'Success: Successfully initiated launch of instance (i-072ebb0c74362e8ed)'. Below this, the 'Launch log' section is visible. The 'Next Steps' section provides a search bar and several actionable cards: 'Create billing and free tier usage alerts', 'Connect to your instance', 'Connect an RDS database', 'Create EBS snapshot policy', 'Manage detailed monitoring', 'Create Load Balancer', 'Create AWS budget', and 'Manage CloudWatch alarms'. The bottom portion of the image shows a terminal window with the following output:

```
Installing : httpd-core-2.4.62-1.amzn2023.x86_64 8/12
Installing : mod_http2-2.0.27-1.amzn2023.0.3.x86_64 9/12
Installing : mod_lua-2.4.62-1.amzn2023.x86_64 10/12
Installing : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 11/12
Installing : httpd-2.4.62-1.amzn2023.x86_64 12/12
Running scriptlet: httpd-2.4.62-1.amzn2023.x86_64 12/12
Verifying : apr-1.7.5-1.amzn2023.0.4.x86_64 1/12
Verifying : apr-util-1.6.3-1.amzn2023.0.1.x86_64 2/12
Verifying : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 3/12
Verifying : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 4/12
Verifying : httpd-2.4.62-1.amzn2023.x86_64 5/12
Verifying : httpd-core-2.4.62-1.amzn2023.x86_64 6/12
Verifying : httpd-filesystem-2.4.62-1.amzn2023.noarch 7/12
Verifying : httpd-tools-2.4.62-1.amzn2023.x86_64 8/12
Verifying : libbrotli-1.0.9-4.amzn2023.0.2.x86_64 9/12
Verifying : mailcap-2.1.49-3.amzn2023.0.3.noarch 10/12
Verifying : mod_http2-2.0.27-1.amzn2023.0.3.x86_64 11/12
Verifying : mod_lua-2.4.62-1.amzn2023.x86_64 12/12

nstalled:
apr-1.7.5-1.amzn2023.0.4.x86_64 apr-util-1.6.3-1.amzn2023.0.1.x86_64 apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch
httpd-2.4.62-1.amzn2023.x86_64 httpd-core-2.4.62-1.amzn2023.x86_64 httpd-filesystem-2.4.62-1.amzn2023.noarch httpd-tools-2.4.62-1.amzn2023.x86_64
libbrotli-1.0.9-4.amzn2023.0.2.x86_64 mailcap-2.1.49-3.amzn2023.0.3.noarch mod_http2-2.0.27-1.amzn2023.0.3.x86_64 mod_lua-2.4.62-1.amzn2023.x86_64

omplete!
ec2-user@ip-172-31-34-242 ~]$ sudo systemctl start httpd
ec2-user@ip-172-31-34-242 ~]$ sudo systemctl enable httpd
reated symlink /etc/systemd/system/multi-user.target.wants/httpd.service - /usr/lib/systemd/system/httpd.service.
ec2-user@ip-172-31-34-242 ~]$
```

The terminal output shows the successful installation and configuration of the Apache HTTPD service on an Amazon Linux 2 instance. The instance ID is i-072ebb0c74362e8ed.



It works!

```
GNU nano 8.3 /var/www/html/index.html
!DOCTYPE html>
<html>
<head>
  <title>Multi-Cloud Frontend</title>
</head>
<body>
  <h1>Hello from AWS Frontend</h1>
  <p>Data from Azure API will be shown below:</p>
  <div id="api-data"></div>

  <script>
    fetch('https://your-azure-api-url/data')
      .then(response => response.json())
      .then(data => {
        document.getElementById("api-data").innerText = data.message;
      });
  </script>
</body>
</html>
```

Frontend from EC2:

Hello from AWS Frontend

Data from Azure API will be shown below:

Microsoft.Web-WebApp-Portal-a091e369-ab99 | Overview ...

Deployment

Search [] x <<

Delete Cancel Redeploy Download Refresh

- Overview**
- Inputs
- Outputs
- Template

Deployment is in progress

Deployment name : Microsoft.Web-WebApp-Portal... Start time : 6/20/2025, 12:58:47 PM
Subscription : [Azure subscription 1](#) Correlation ID : c47ff806-a1bb-425c-a5d0-a539...
Resource group : multicloud

▼ Deployment details

Resource	Type	Status	Operation
ASP-Freelan	Microsoft.Web/serverfarms	OK	Operation

Microsoft Defender for Cloud
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```
A P P S E R V I C E O N L I N U X
```

Documentation: http://aka.ms/webapp-linux
Python 3.9.22
Note: Any data outside '/home' is not persisted
-bash: antenv/bin/activate: No such file or directory
root@myazure503-840401d1:/home/site/wwwroot# nano app.py
root@myazure503-840401d1:/home/site/wwwroot#

```

GNU nano 3.2                                     app.py                                     Modified
from flask import Flask
app = Flask(__name__)

@app.route('/')
def home():
    return '''
        <h1>Welcome to Flask App</h1>
        <p>This app is hosted on Azure Web App using Gunicorn.</p>
        <p><a href="/data">Click here to see the API</a></p>
    '''

@app.route('/data')
def data():
    return {"message": "Hello from Azure API"}

# No need for app.run() when using Gunicorn

```

[Read 17 lines]
 Get Help Write Out Where Is Cut Text Justify Cur Pos Undo Mark Text To Brackets
 Exit Read File Replace Uncut Text To Spell Go To Line Redo Copy Text Where Was

Menu ssh:/root@169.254.129.4:2222 SSH CONNECTION ESTABLISHED

Link:

<https://codtech-flask-api-2025-badmdzhurfafgcj.centralindia-01.azurewebsites.net/>



Welcome to Flask App

This app is hosted on Azure Web App using Gunicorn.

[Click here to see the API](#)

