

Cloud Architectures

Q: What are cloud architectures?

Three Primary Design Patterns for Cloud Architectures:

[1]:

[2]:

[3]:

Monolithic Software Architecture:

Characteristics:

A (Small) Monolithic Example: Illinois Open Source Queue

Endpoint: <https://queue.illinois.edu/>

Source Code: <https://github.com/illinois/queue>

Microservice Software Architecture:

Characteristics:

Microservice Example:

PiggyMetrics by Alexander Lukyanchikov

GitHub: <https://github.com/sqshq/PiggyMetrics>

via: https://github.com/davidetaibi/Microservices_Project_List

Serverless Software Architecture:

Characteristics:

Serverless Examples:

```
adoptable-pet-bot/serverless.yml
https://github.com/lynnaloo/adoptable-pet-bot/blob/master/serverless.yml
6 provider:
7   name: aws
8   runtime: nodejs4.3
9   region: us-east-1
...
22 functions:
23   tweetPet:
24     handler: handlers/tweetPet.tweetPet
25     description: Tweets Adoptable Pets on a Schedule
26     memorySize: 512
27     timeout: 10
28     events:
29       - schedule: rate(6 hours)
```

emojibot/serverless.yaml
<https://github.com/markhobson/emojibot/blob/master/serverless.yml>

```

14 provider:
15   name: aws
16   region: eu-west-1
17   stage: dev
18   runtime: nodejs14.x
19   memorySize: 128
20   lambdaHashingVersion: 20201221
21   environment:
22     BOT_ACCESS_TOKEN: ${env:BOT_ACCESS_TOKEN}
23
24 functions:
25   event:
26     handler: src/handler.event
27     events:
28       - http: POST /event
29   explain:
30     handler: src/handler.explain
31     events:
32       - http: POST /explain

```

serverless-image-labeller/serverless.yml
<https://github.com/nileshprasad137/serverless-image-labeller/blob/master/serverless.yml>

```

7 provider:
8   name: aws
9   logs:
10     restApi: true
11   runtime: python3.7
12   stage: dev
13   region: us-east-1
14   ...
48 functions:
49   labelOnS3Upload:
50     handler: handlers/S3UploadHandler.labelOnS3Upload
51     events:
52       - s3:
53         bucket: ${self:provider.environment.SERVERLESS_IMAGE LABELLING_BUCKET}
54         event: s3:ObjectCreated:*
55         existing: true
56   getImagesByLabel:
57     handler: handlers/getImagesByLabelHandler.getImagesByLabel
58     events:
59       - http:
60         path: getImagesByLabel
61         method: post
62         cors: true

```

Advantages	Disadvantages
Monolithic Software Architectures	
Microservice Software Architecture	
Serverless Software Architecture	

Remember: These architectures are **design patterns** and software projects may have influences from multiple design patterns:

- A microservice architecture may evolve into pieces of software that take on a monolithic architecture.
- A microservice architecture may make some calls to serverless components.
- ...etc...