
AWS
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SVS201-R

Thinking serverless: From business problem to serverless solutions

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About me



- James Beswick
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  - Twitter: @jbesw
- Manager of AWS Serverless Developer Advocacy
- Serverless geek
- Previously:
  - Software Engineer and Product Manager
  - Multiple start-up tech guy and Fortune 500s
  - AWS customer since 2012

Agenda

Where we have come from – servers

Where to start with serverless

Good practices of serverless design

Whiteboarding

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Servers

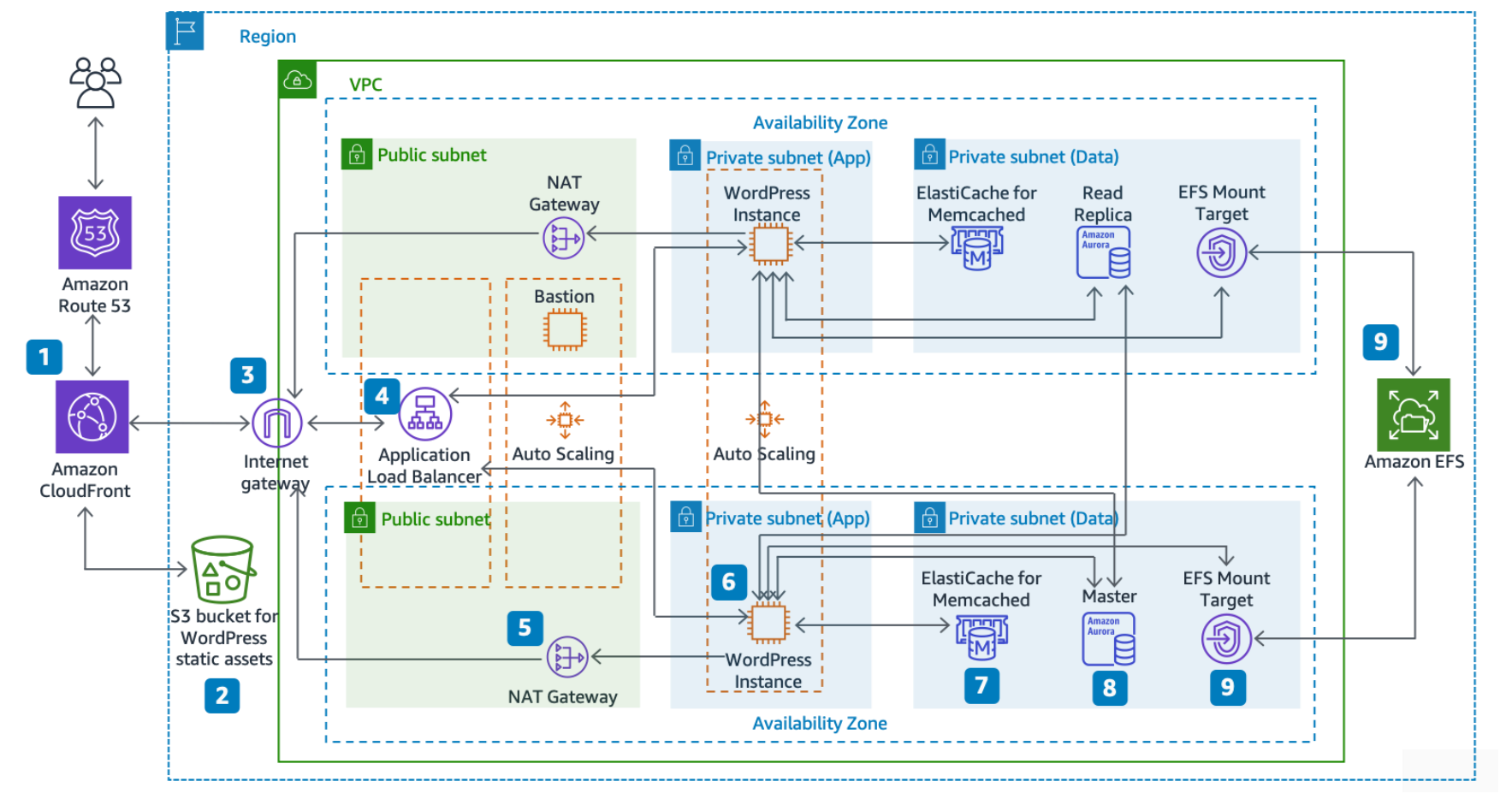
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How do we use servers?

- State management
- Monolithic container for functionality
- One version, one server
- Server is an atomic unit of thinking
- The challenges of this model

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For example: WordPress hosting on AWS



Source: https://docs.aws.amazon.com/whitepapers/latest/best-practices-wordpress/reference-architecture.html

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Where to start with serverless

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How AWS Lambda fits in

Attributes

- Runs on demand
- Supports many runtimes
- Responds to events
- Stateless
- Automatically scales

Best practices

- Avoid lifting and shifting
- 1 Lambda function per purpose
- Keep functions small
- Choose the right runtime
- Use functions for business logic and plumbing between services
- Include security

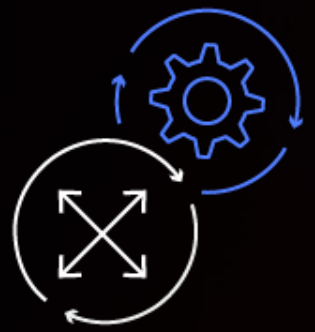
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General approach to thinking serverlessly



Features first



Focus on events



Statelessness



Data flow



Use the services

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What are serverless services?



Amazon EventBridge



Amazon SNS



Amazon SQS



Amazon API Gateway



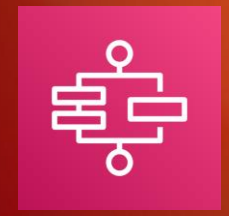
Amazon DynamoDB



AWS Lambda



Amazon S3



AWS Step Functions



Amazon Kinesis



AWS IoT Core



Amazon Elastic Transcoder

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Integrating with other AWS services



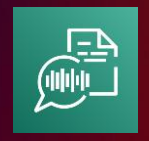
Amazon Rekognition



Amazon Comprehend



Amazon Textract



Amazon Transcribe



Amazon Translate

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Introducing AWS SAM



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AWS Serverless Application Model (AWS SAM)

- AWS CloudFormation extension optimized for serverless
- Serverless resource types: Functions, APIs, tables
- Supports anything CloudFormation supports
- Open specification (Apache 2.0)



To learn more, visit:
https://github.com/awslabs/serverless-application-model

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Example AWS SAM template

```
AWSTemplateFormatVersion: '2010-09-09'
Transform: AWS::Serverless-2016-10-31
Description: patterns-translation

Parameters:
  TargetLanguage:
    Type: String
    Default: 'fr es it'

Resources:
  TranslationBucket:
    Type: AWS::S3::Bucket

  TranslatorFunction:
    Type: AWS::Serverless::Function
    Properties:
      CodeUri: translatorFunction/
      Handler: app.handler
      Runtime: nodejs16.x
      MemorySize: 128
      Environment:
        Variables:
          TargetLanguage: !Ref TargetLanguage
      Policies:
        - S3CrudPolicy:
            BucketName: !Ref ResultsBucketName
      Events:
        OriginalTextUpload:
          Type: S3
          Properties:
            Bucket: !Ref TranslationBucket
            Events: s3:ObjectCreated:*
            Filter:
              S3Key:
                Rules:
                  - Name: suffix
                    Value: '.txt'
```

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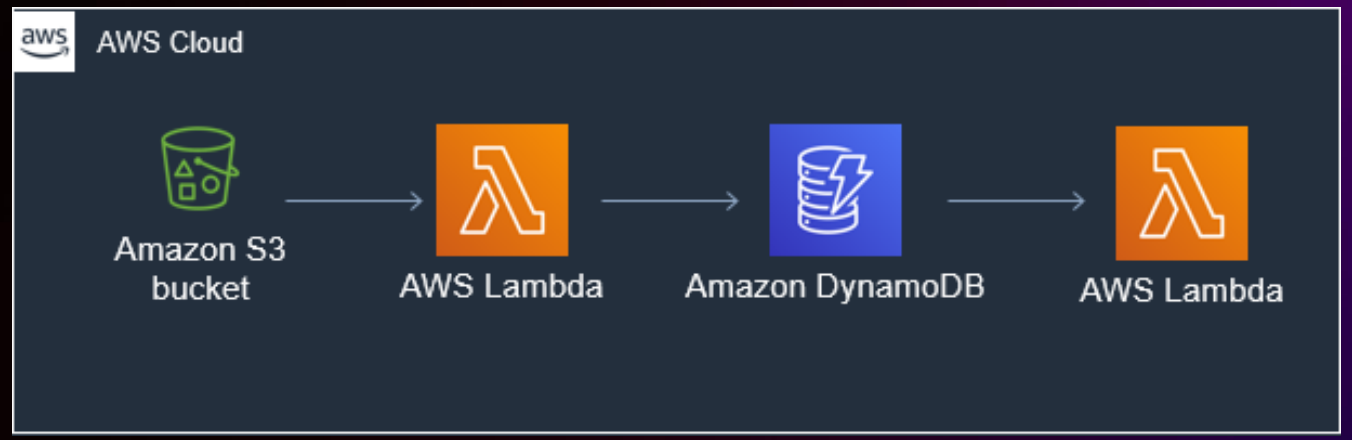
Transforms YAML into infrastructure

```
AWSTemplateFormatVersion: '2010-09-09'
Transform: AWS::Serverless-2016-10-31
Description: patterns-translation

Parameters:
  TargetLanguage:
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Resources:
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  TranslatorFunction:
    Type: AWS::Serverless::Function
    Properties:
      CodeUri: translatorFunction/
      Handler: app.handler
      Runtime: nodejs16.x
      MemorySize: 128
      ...
```



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Whiteboarding

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1. Form upload

Create a serverless application to support a customer review form submitted from a webpage

- Incoming responses must be translated into English
- Allow user to upload image with a response
- Email any negative comments immediately
- Only allow signed-in users to post reviews

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2. Restaurant reservations

Create a serverless application to allow restaurant customers to reserve a table by SMS text message

- Add a display showing upcoming reservations in real time
- Speak the name of a guest when ready to seat table
- Send a daily reservation email report
- Alert a legacy application when reservations are made

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3. Mobile ordering app for retail

Create a serverless web application to support mobile ordering at a coffee cart

- Automate the hosting for the frontend application
- Assign order ID in strict order of receipt
- Timeout orders if not accepted in 150 seconds
- Don't accept orders if store is closed

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Wrap up

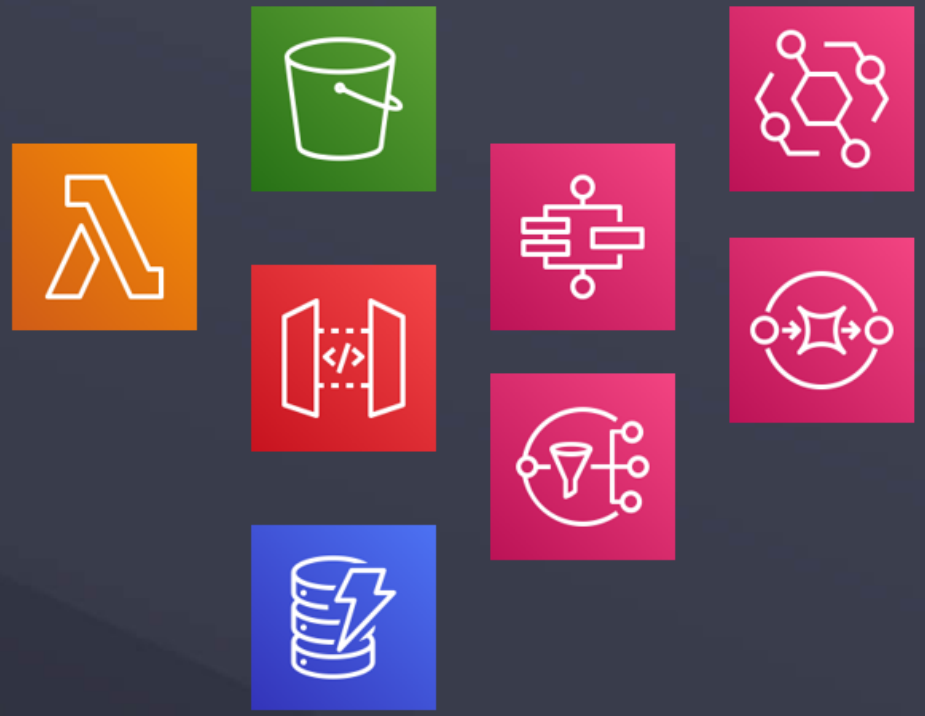
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Welcome to **Serverless** Land

This site brings together all the latest blogs, videos, and training for AWS Serverless. Learn to use and build apps that scale automatically on low-cost, fully-managed serverless architecture.

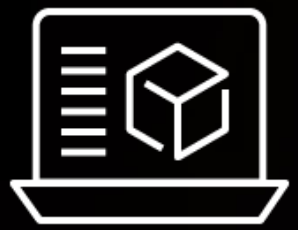
Learn More



For more serverless learning resources, visit:
https://serverlessland.com

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Increase your knowledge



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https://s12d.com/serverless-learning

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Thank you!

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