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# Getting Started With Serverless

AWS Lambda in Action Using NodeJs

By Sandip Das

# What is Serverless Computing?

**“Serverless** computing is a cloud-computing execution model in which the cloud provider runs the server, and dynamically manages the allocation of machine resources. Pricing is based on the actual amount of resources consumed by an application, rather than on pre-purchased units of capacity.” - Wikipedia

“**Serverless** is about streamlining the complexity of traditional systems by abolishing the need to run servers and manage infrastructure, and it's' about helping developers focus on their core problem by reducing the amount of code they need to write. By taking a serverless compute service and making use of various powerful single-purpose APIs and web services, developers can build loosely coupled, scalable, and efficient architectures quickly. In this way, developers can move away from servers and infrastructure concerns, and focus primarily on code” - techbeacon

“**Serverless** computing is a method of providing backend services on an as-used basis. A Serverless provider allows users to write and deploy code without the hassle of worrying about the underlying infrastructure. A company that gets backend services from a serverless vendor is charged based on their computation and do not have to reserve and pay for a fixed amount of bandwidth or number of servers, as the service is auto-scaling. Note that although called serverless, physical servers are still used but developers do not need to be aware of them.” - cloudflare

If you still didn’t understand all above, in more simple words: **Serverless Computing** , where you don’t have handle or worry about underlying hardware infrastructure of server(s), instead focus on actual business logic and code as function and execute it based in different events , when event triggers resources will be allocated dynamically and you don’t have to worry about scaling or maintenance. .

# What Serverless Computing Solutions Currently Available

There are quite a few Serverless solutions available in market, out of which famous based on Cloud Service Provider are:

**Amazon Web Services (AWS)**: AWS Lambda , Lambda@Edge , AWS Fargate

**Google Cloud Platform (GCP)**: Cloud Functions, App Engine, Cloud Run

**Microsoft Azure**: Azure Functions

Before choosing any of above services, make sure what is your requirements and budget.

You will also have to consider for each execution how much memory and execution time it might took or taking, because the final cost will determined combining such factors.

All major service providers offer huge free quota, feel free to try, and check their pricing section, but don't forget to set budget alerts so in case while even doing testing something goes out of hand and there is possibility of huge cost then you will get alerts.

# What is AWS Lambda? What is the Cost & Benefits?

## AWS Lambda:

AWS Lambda lets you run code without provisioning or managing servers. You pay only for the compute time you consume - there is no charge when your code is not running.

**Benefits**: With Lambda, you can run code for virtually any type of application or backend service - all with zero administration. Just upload your code and Lambda takes care of everything required to run and scale your code with high availability. You can set up your code to automatically trigger from other AWS services or call it directly from any web or mobile app. In simple words it's **Function as a Service (FaaS)**

Amazon Web Services – **Serverless Architectures with AWS Lambda**

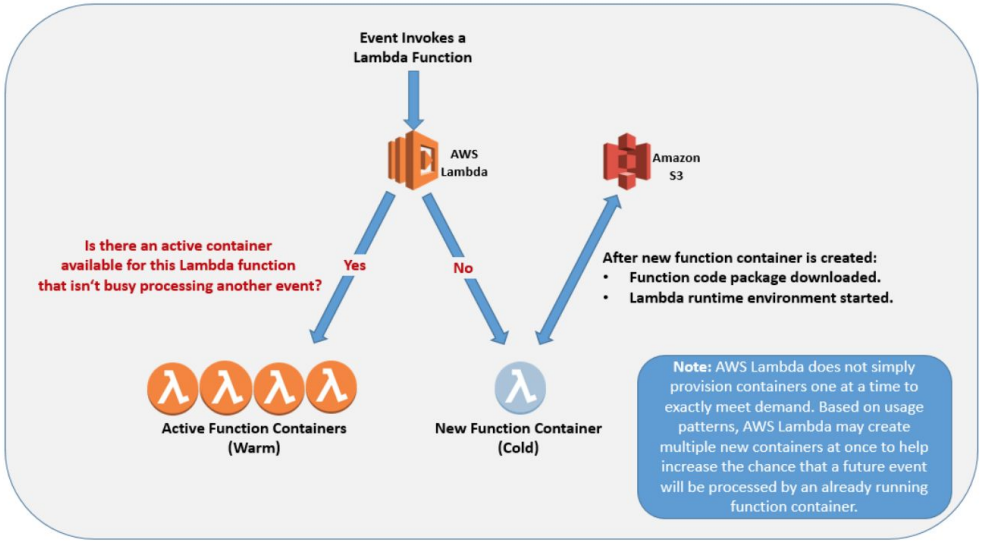


Figure 3: Invocations of warm function containers and cold function containers

**Cost:** The Lambda free tier includes 1M free requests per month and 400,000 GB-seconds of compute time per month.

$0.20 PER 1M REQUESTS THEREAFTER i.e *$0.0000002 per requests*

# Practical Lambda Project using NodeJs and Serverless Framework: “Giveaway Winner Selection” project

Project Open Source Git Link: https://github.com/sd031/giveaway-winner-selection

Clone the repository.

Then Install Node.js v8.10 or up, use NVM: https://github.com/nvm-sh/nvm

E.g. curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.35.1/install.sh | bash

```
export NVM_DIR="$([ -z "${XDG_CONFIG_HOME-}" ] && printf %s "${HOME}/.nvm" || printf %s "${XDG_CONFIG_HOME}/nvm")"
  [ -s "$NVM_DIR/nvm.sh" ] && \. "$NVM_DIR/nvm.sh" # This loads nvm
```

nvm install v8.10

nvm use v8.10 , install serverless cli: **npm install -g serverless ,** then install dependencies by running: **npm install**

To test code locally mongoDb must be installed , so install latest community version and set environment variable **MongoDbUrl**

To Run the application run: node index.js (The goodness of this architecture is you can test your lambda code locally just like any other node.js application and use same code in AWS Lambda)

Main logic is in handler.js file, and there you have to define function names but since we are using serverless framework, you have to follow their guideline and documentations, you would be using serverless.yml file, there you will have to define provider (e.g. aws, gcp etc) related specific configuration parameters , check this example for reference (don't scare, it’s just a example ): https://serverless.com/framework/docs/providers/aws/guide/serverless.yml/

To deploy run : serverless deploy (more about deployment documentation: https://serverless.com/framework/docs/providers/aws/guide/deploying/)

More about api gateway authorization and security : https://serverless.com/framework/docs/providers/aws/events/apigateway/

More about api gateway api key integrations: https://dev.to/3sanket3/api-key-authentication-for-accessing-serverless-api-at-aws-api-gateway-lfd

An excellent article on AWS Lambda (I will say it’s Amazing & must read article): https://dev.to/sosnowski/anatomy-of-aws-lambda-1i1e and for Sample Serverless Projects Must check this **Link**

A YouTube video soon will be uploaded in my Youtube channel, Subscribe The Channel Now!

# Good luck!

I hope you'll use this knowledge and build awesome solutions.

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