

AWS Lab 1

Spring 2023 – Due 1/16/24 at 11:59pm submitted on Canvas.

In this lab assignment, you will complete the **first 3 modules** in the AWS Cloud Practitioner Essentials Course, ID:E-N0539V

<https://explore.skillbuilder.aws/learn/course/external/view/elearning/134/aws-cloudpractitioner-essentials>

In order to complete the lab, you need to have and sign in using your amazon account. You do not need to purchase anything.

The lab is free. If you don't have an amazon account, use this link to register and get one

https://www.amazon.com/ap/register?_encoding=UTF8&openid.assoc_handle=usflex&openid.claimed_id=http://specs.openid.net/auth/2.0/identifier_select&openid.identity=http://specs.openid.net/auth/2.0/identifier_select&openid.mode=checkid_setup&openid.ns=http://specs.openid.net/auth/2.0&openid.ns.pape=http://specs.openid.net/extensions/pape/1.0&openid.pape.max_auth_age=0&openid.return_to=https://www.amazon.com/gp/yourstore/home?ie%3DUTF8%26ref_%3Dnav_newcust

Remember: the goal of IST615 is for you to learn. Don't get hung up on getting 100% of everything exactly correct if you are struggling.

Complete the first 3 modules shown below. **You do NOT need to take the quizzes associated with each module unless you would like to. If you do, you do not need to submit them in your lab submission.**

Complete the 3 modules titled:

- **Module 1: Introduction to Amazon Web Services**
- **Module 2: Compute in the Cloud**
- **Module 3: Global Infrastructure and Reliability**

This should take 2-3 hours to complete.

Lab Submission and Grading:

Submit Lab #1 under the assignments tab.

Follow the instructions you'll find in the AWS lab modules and take notes and capture screen shots as you go through the lab.

Your lab reports should include a half page overview for each of the 3 modules listed above (a total of 1.5 pages in your summary). Include screen captures of important events throughout each lab in your lab writeup to illustrate you have completed various steps.

To submit the lab, use this word document and append your screen captures and ½ page write-up at the end. Submit the lab using the following name

<your first name>space<your last name> space AWS Lab#1

If you have any questions, please let me know

Thank you,

Professor Rieks

Zane Alderfer

Professor Rieks

IST 615

Jan 16, 2023

AWS Lab #1

Module 1

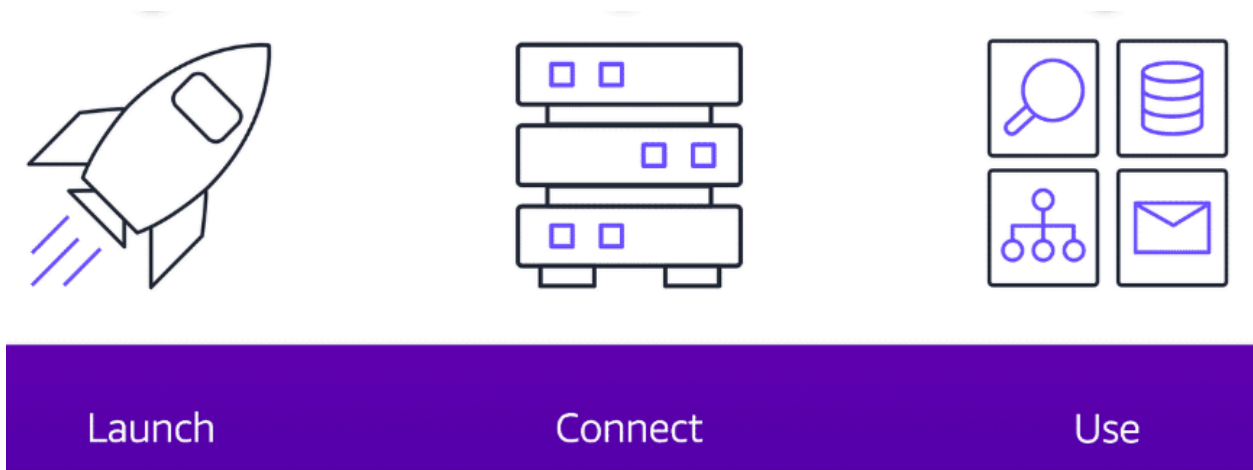
There are three kinds of cloud computing deployments as seen below.



In a cloud-based deployment model, all parts of an application can be run on the cloud, existing applications can be migrated to the cloud or new applications can be built on the cloud. In an on-premises deployment model or a private cloud model, resources are deployed on premises using virtualization and resource management tools. Finally, hybrid deployment models use both cloud-based and on-premises deployment and have resources from both deployments connected to each other. Some benefits of cloud computing are trading upfront expense for variable expense i.e. computing resources you actually consume, cloud computing also allows you to focus more customers and less time focusing on infrastructure. Some other benefits are no need to guess capacity, benefit of massive economies of scale, increase in speed and agility (flexibility of cloud), and going global quickly (AWS cloud allows you to deploy applications globally quickly).

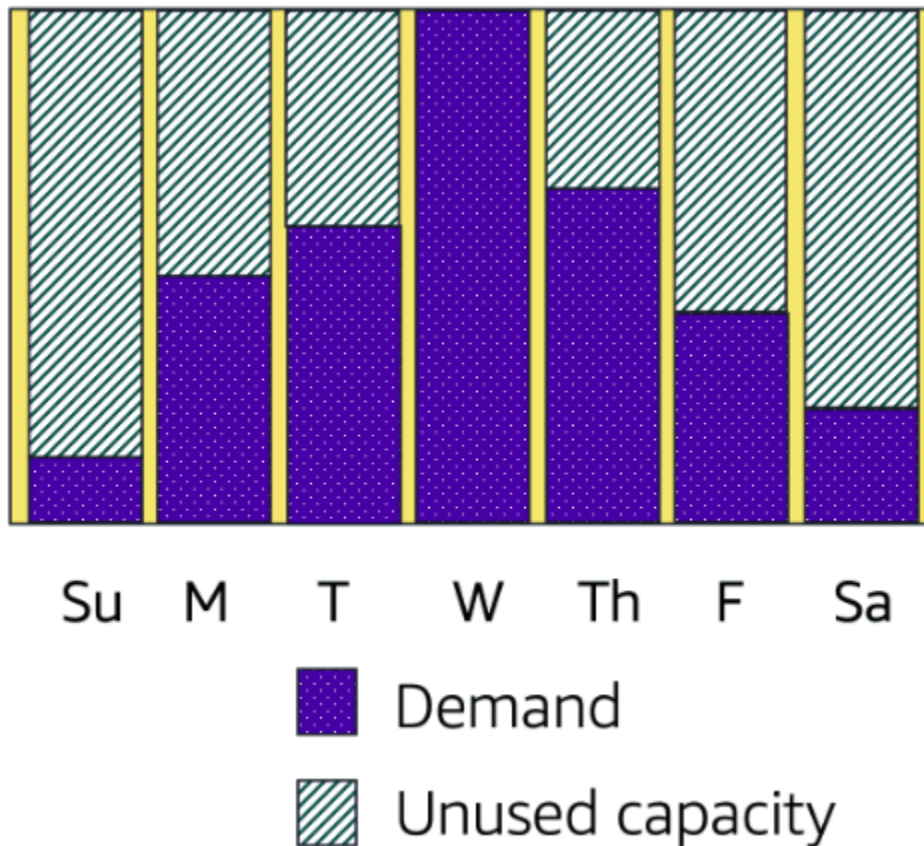
Module 2

The basics of how Amazon EC2 involve launching an EC2 instance which involves basic configurations, instance type and security settings then a connection to the instance is established and finally the EC2 is put into use such as installing software, adding storage and copying and organizing files.



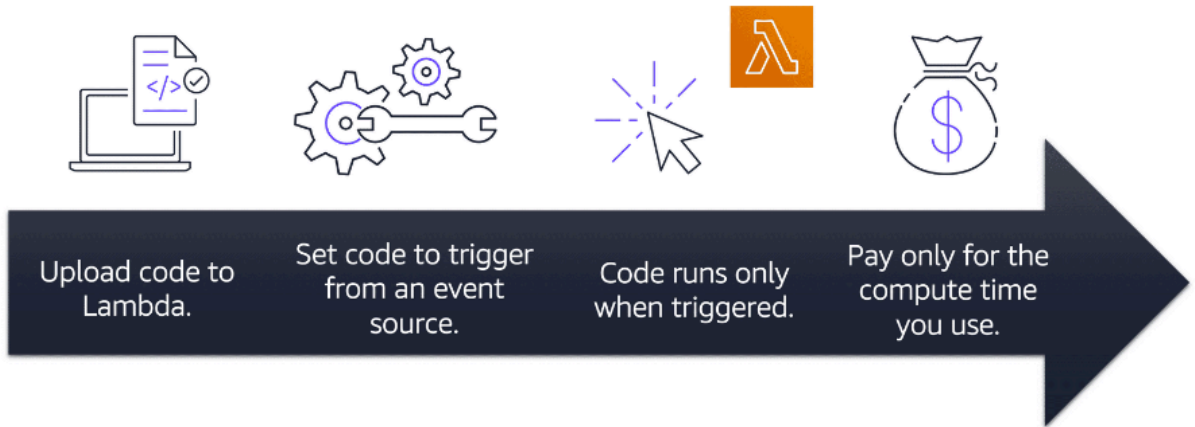
Choosing a type of instance is important as each type is ideal for different task optimization. General purpose has an overall balance of compute, memory and networking resources, ideal for application and gaming servers. Compute optimized instances are similar to general purpose but are better for high-performance web servers. Memory optimized instances are designed to deliver fast performance for large workloads with high memory needs. The last two instances are accelerated computing and storage optimized instances. Accelerated computing is for graphics processing and data pattern processing while storage optimized is used for records analytics in a database.

Scaling Amazon EC2 instances is important in order to accommodate demand. Dynamic scaling responds to changing demand and predictive scaling automatically schedules a number of instances based on predicted demand. A sample of this prediction can be seen below.



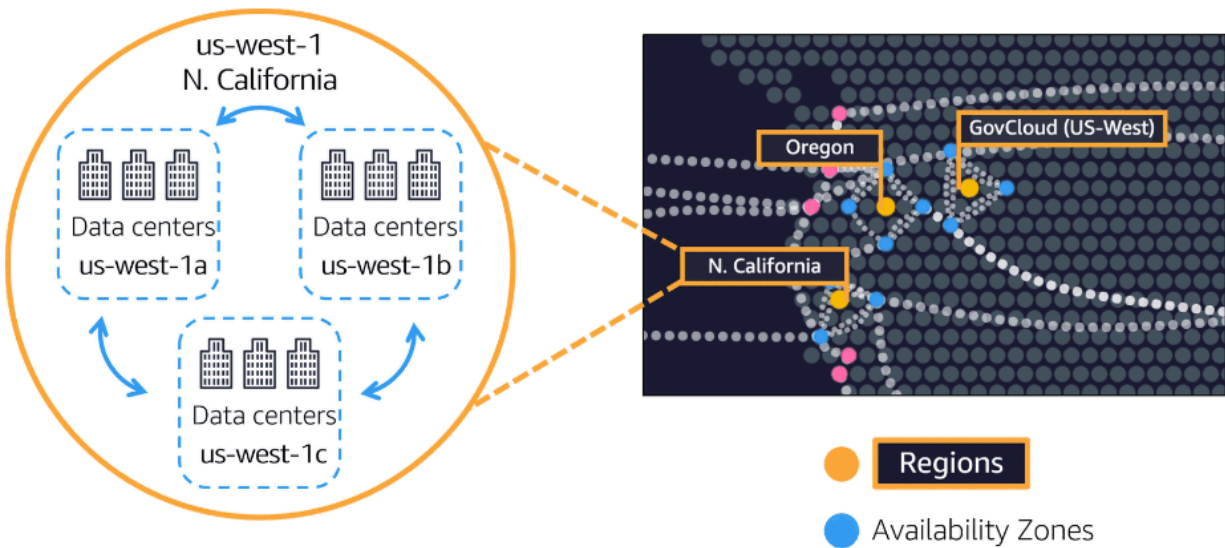
Another important aspect of deploying instances is the elasticity of load balancing. This goes hand in hand with the scaling for low demand and high demand.

There are other additional computing services outside of the ones mentioned such as serverless computing which involves code that doesn't need to be managed which opens the door to more innovation and creativity. A similar computing service is AWS lambda which also doesn't need code management due to event source triggers and then lambda runs the code for you. This can be seen below.



Module 3

The next important aspect to deploying computing instances would be determining regions and availability zones. The important characteristics of regions that impact instance deployment is compliance to legal requirements and legal governance, proximity to customers, available services within a region and pricing i.e. tax structures in different countries. Availability zones within regions are the data centers within the region which is significant as a disaster could wipe out one of the data centers in the region but not likely that both data centers are affected. An availability zone mapping can be seen below.



Edge locations are sites that allow Amazon to store copies of content closer to the customers for faster delivery.

Lastly, there are three ways to interact with AWS services: AWS management console, AWS command line interface, and software development kits. The management console essentially uses a search bar to identify services needed by the customer, the command line interface allows to launch a specific EC2 instance and Auto Scaling group and this saves a lot of time. The software development kits by supplying an API specific to your programming language or platform which allow you to create new applications on AWS.