Lab No. 05 - Cloud

Objective

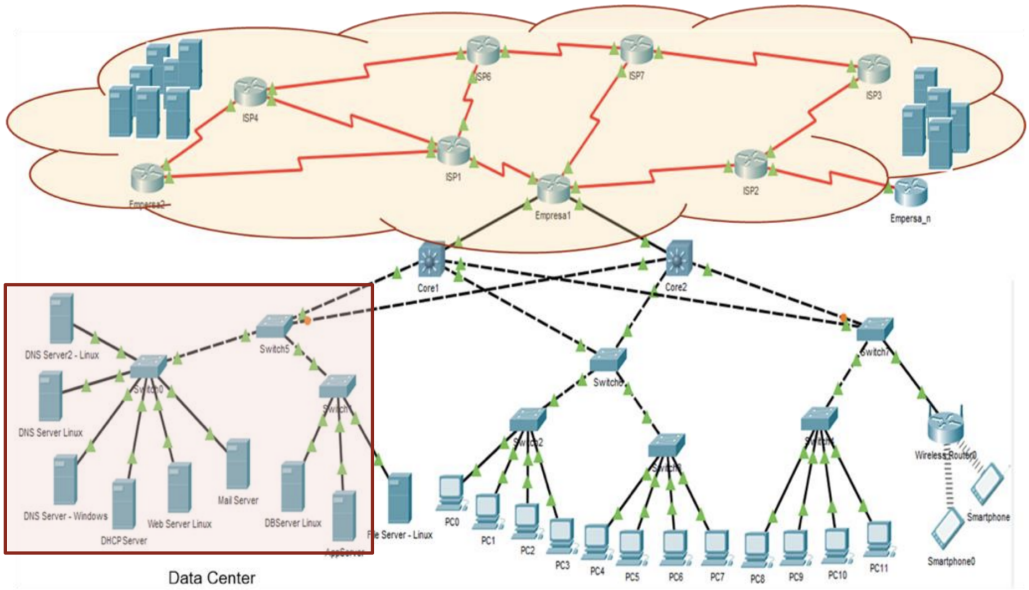
Install and configure base software - Web Servers.

Tools to be used

- Computers
- Internet access

Introduction

We are continuing to work within a company's infrastructure, which typically includes various IT services. This infrastructure features both wired and wireless user workstations and servers (both physical and virtualized), all connected through switches (Layer 2 and Layer 3), wireless equipment, and routers connecting them to the Internet. Cloud infrastructures are also common, provisioning resources as needed by the organization. The servers may host services such as web, DNS, email, databases, storage, and applications, among others.



In this part of the lab, we will focus on continuing to set up our servers.

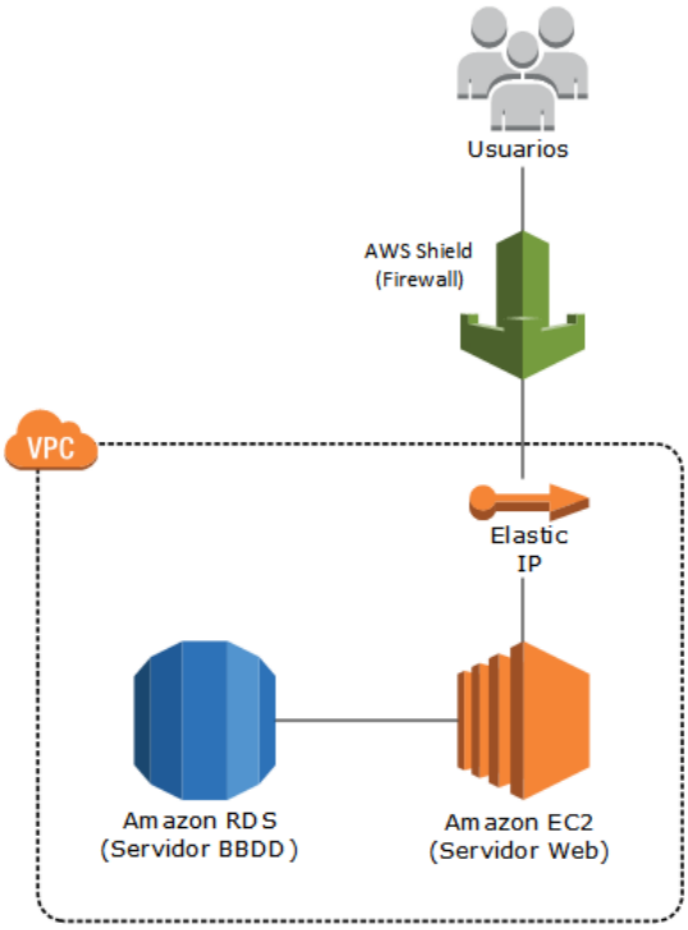
Base Software Installation

Part of the core platform of an organization's computational infrastructure involves web services, which can be hosted either within the company's data center or on a cloud server. These services store the organization's web pages and are accessed by various clients. In this lab, we will implement this service.

1. Cloud Web Service Installation

[For groups of 1, 2, and 3 students]

Amazon Elastic Compute Cloud (Amazon EC2) provides the most extensive and versatile computing platform, offering more than 500 instance types and the flexibility to choose the latest processors, storage options, networking, operating systems, and purchasing models, so you can tailor it to perfectly meet your workload requirements. For this lab, we will gain hands-on experience with Amazon Cloud by deploying an EC2 instance and installing a web server.



2. Research

[For groups of 1, 2, and 3 students]

a. What is an EC2 instance and what is it used for?
b. What is a VPC, how should it be configured, and what best practices should be considered?
c. How can I run multiple systems within an Amazon EC2 environment?
d. How quickly can I scale the capacity (both up and down) of an EC2 instance?
e. How does this service differ from standard hosting services?

f. What is Amazon RDS?

3. Configuration

[For groups of 1, 2, and 3 students]

a. Log in to the AWS Management Console at `awsacademy.instructure.com` and locate Lab 5.

b. Navigate to the Modules section, click on "Learner Lab", accept the terms and conditions, and then click on "Start Lab."

c. Once the lab loads, click the "AWS" button in the upper left corner to be redirected to the AWS Console.

d. Click on EC2.

e. Select the EC2 Dashboard and then choose the "Launch Instance" option.

f. For this exercise, select the Amazon Linux 2 AMI.

g. Choose the instance type `t2.micro`. What are the different instance types available in Amazon EC2? Why do you think we chose `t2.micro`?

h. Consult the following documentation related to creating a VPC and create the VPC using the addresses provided by your instructor.

i. On the "Configure Instance Details" page, set the values as specified in the previous step.

j. Under "Auto-assign Public IP," select `Enable`.

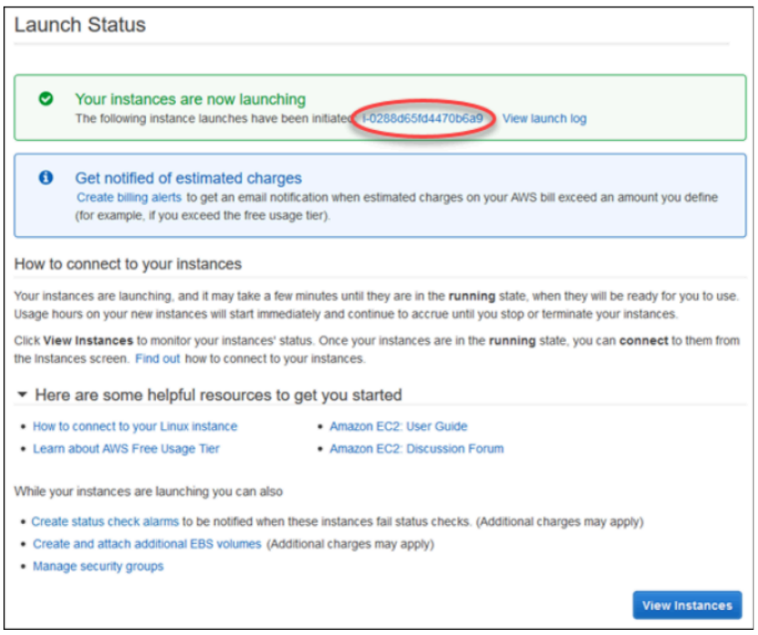
k. Click on "Next: Add Storage."

l. On the "Add Storage" page, leave the default values and click "Next: Add Tags."

m. On the "Add Tags" page, click "Add Tag," then enter `Name` for the Key and `tutorial-web-server` for the Value.

n. On the "Configure Security Group" page, choose "Select an existing security group." What are security groups, and what should be considered when creating a security group for a public web server?

o. On the "Review Instance Launch" page, verify your configuration and click "Launch."
Note: To launch an EC2 instance, click "Launch Instances." On the "Launch Status" page, note the identifier of the new EC2 instance (e.g., `i-0288d65fd4470b6a9`).



p. To locate the created instance, click on "View Instances."

q. Install a web server on the newly created instance. **Note:** Refer to the instructions on how to connect to the instance in order to install the web service.

r. Finally, add content to the web server that connects to your Amazon database instance.