**Public IP vs Private IP vs Elastic IP**

**What is an IP address?**

IPaddress stands for internet protocol address. it is an identifying number that is associated with a specific computer or computer network.

We can think of it as a name of a person to identify him.

Mainly we have 2 types of IP address formats.

1. IPV4
2. IPV6

IPV4 format is 32-bit, 4 groups of up to 3 decimal digits.

Example: 192.168.0.1

IPV6 format is 128-bit, 8 groups of 4 hexadecimal digits.

Example:  2001:0db8:0a0b:12f0:0000:0000: 0000:0001

Mostly we will use IPV4 format IP addresses.

**Private IP:**

Let’s take we have a company with private network. Private network will have a private IP range based on the VPC and Subnet.

All the machines / computers within this private network can communicate with each other.

But If we try to communicate with computer using private IP from internet gateway / outside of private network that is not possible.

**Public IP:**

Public IP is nothing but an IP address that is exposed to public for connecting with the instance through internet gateway.

If we create a public IP for an instance then anyone in the world can access the instance through the internet by using this public IP.

**Note:** Public IP is not fixed. If we stop the running instance the public IP associated with this instance is released. If we start the instance again then a new Public IP is allocated. But the private IP won’t change, it will remain same and constant.

**Elastic IP:**

Elastic IP is nothing but a fixed Public IP, this won’t be changed.

**Note:** If we create a new Elastic IP and assigned it to the instance then the Public IP of the instance is replaced with the Elastic IP.

While assigning the Elastic IP we can Choose between 2 types of resource with which to associate the Elastic IP address.

1. Instance
2. Network interface

And, we can also choose the private IP address with which to associate the Elastic IP address.

**\*Note:** Elastic IP address is billable. But this will be charged differently. If you created Elastic IP and associated with an instance. AWS don’t charge for Elastic IP as long as it’s being used by an instance. However, Amazon will charge you $0.01/hr for each Elastic IP that you reserve and do not use.