Google Cloud Computing Foundation Course
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Lecture-54
Public and Private IP Address Basics

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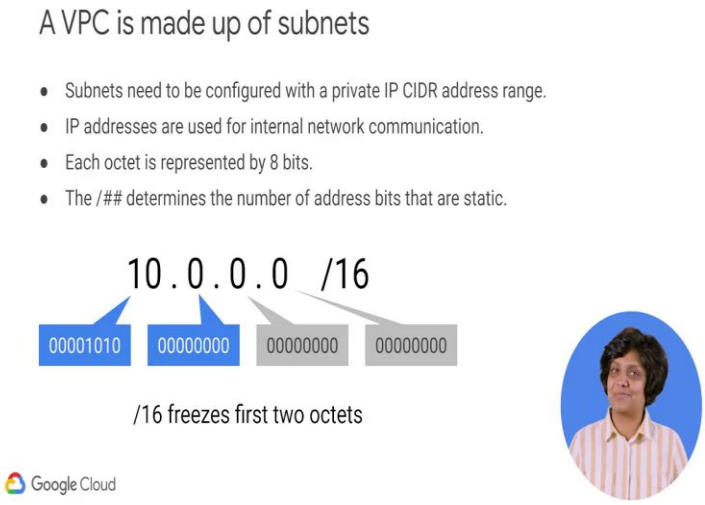

Next you will learn the basics of public and private IP addresses in the cloud. A VPC is made up of subnets each sub networks or subnets must be configured with a private IP CIDR address. The CIDR range will determine what private IP address will be used by watching machines in the subnet. Private IP addresses are only used for communication within the VPC and cannot be routed to the Internet.

Each opted in an IP address is represented by 8 binary bits. So, a typical ipv4 address is 32 bits long. The number at the end of the range determines how many bits will be static or frozen. This number determines how many IP addresses are available with a CIDR address.

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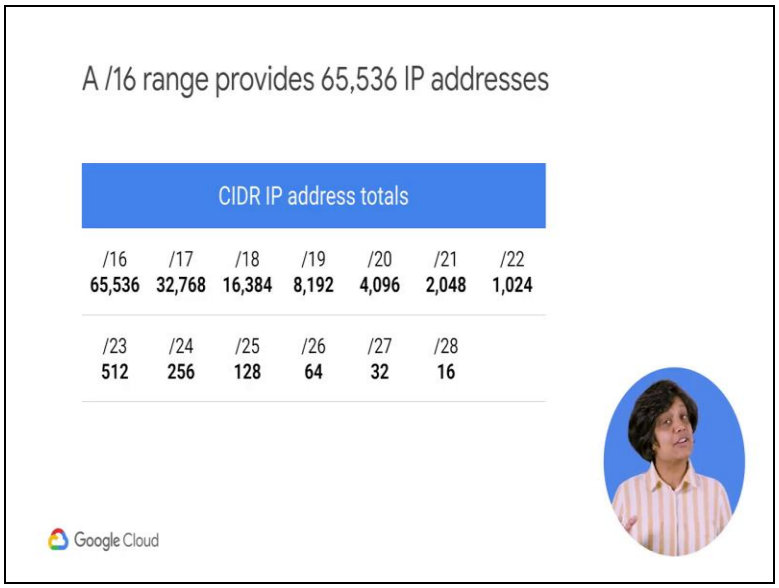

A slash 16 range will provide 65,536 available IP addresses. Every time you add one to the last number the number of available IP addresses is cut in half as shown here by the time 28 is reached only 16 IP addresses are available.

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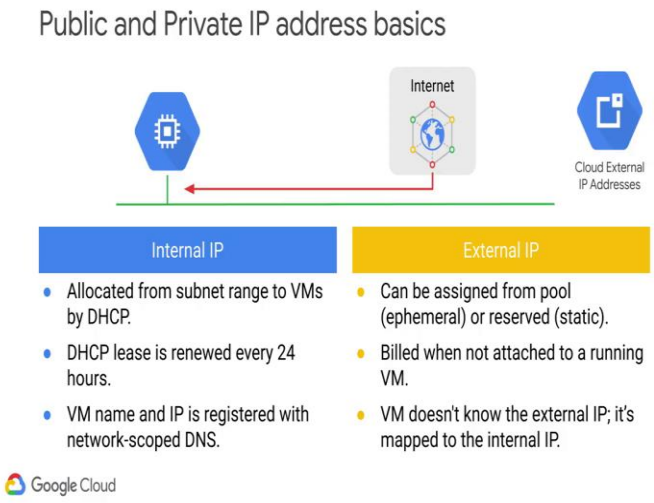

let us look at some of the differences between public and private IP addresses. Internal IP addresses are allocated to VM's by a dynamic host configuration protocol service or DHCP. The leaves for the IPS is renewed every 24 hours and the name of the virtual machine is the host name. The host name will be associated with the internal IP address through a network scoped DNS service. External IP addresses can be ephemeral or reserved and are assigned from a pool of IP addresses associated with the region.

If you are locate a reserved IP address but do not attach it to a virtual machine you will be billed for that IP address. Virtual machines are unaware of their public IP addresses. If you look at the operating system network configuration the virtual machine will only show the private IP addresses.