Cloud Computing Assignment

Muhammad Waleed Usman

19I-2140 MSDS

Task-2

Network-Namespace

Network namespace is the new network stack for your process. Linux has one network stack, but with network namespaces it can spawn many instances of the same network code. It is multiple isolated networking environments running on a single physical host or VM. Each network namespace has its own interface, routing tables and forwarding tables. Processes can be dedicated to one network namespace. Used in openstack, mininet. Docker, more

Veth-Pair

The veth devices are virtual Ethernet devices. They act as tunnels between network namespaces to create a bridge to a physical network device in another namespace, but can also be used as standalone network devices. Veth devices are always created in interconnected pairs. Veth device pairs are useful for combining the network facilities of the kernel together in interesting ways. A particularly interesting use case is to place one end of a Veth pair in one network namespace and the other end in another network namespace, thus allowing communication between network namespaces.

Linux Bridge

Communications between multiple namespaces can be handed over using bridges, otherwise every two namespaces will be matched veth-pair. It's going to be a hassle. Now let's see how to use bridge to transfer. A bridge works like a virtual switch; it has the ability to connect multiple Ethernet segments together in a protocol independent way.

Route Table and Default Route

A **Routing Table** is a set of rules, often viewed in table format, that is used to determine where data packets traveling over an Internet Protocol (IP) network will be directed. All IP-enabled devices, including routers and switches, use routing tables.

In **Default Route** all routers are configured to send all packets towards a single router. This is a very useful method for small networks or for networks with a single entry and exit point. It is usually used in addition to Static and/or Dynamic routing.

iptables

iptables is a firewall program for Linux. It will monitor traffic from and to your server using **tables**. These tables contain **sets of rules**, called **chains**, that will filter incoming and outgoing data packets.

When a **packet** matches a **rule**, it is given a **target**, which can be another chain or one of these special values:

ACCEPT – will allow the packet to pass through.

DROP – will not let the packet pass through.

RETURN – stops the packet from traversing through a chain and tell it to go back to the previous chain.

resolv.conf

The resolver is a set of routines in the C library that provide access to the Internet Domain Name System (DNS). The resolver configuration file contains information that is read by the resolver routines the first time they are invoked by a process. The file is designed to be human readable and contains a list of keywords with values that provide various types of resolver information