Cloud Computing Exercise #6

Linux Networking

A. Preparation

1. Sign in to your AWS account as the non-root admin user.
2. Go to the EC2 dashboard, and launch a new EC2 instance using the t2.micro instance type and the “Amazon Linux AMI” image from the AWS marketplace. Start PuTTY on your local machine and start an SSH session with your running EC2 instance.

B. Linux commands

1. Install the bind-utils package (sudo yum install bind-utils) , which contains the “host” command for DNS query resolution on your EC2 instance.
2. Resolve the “google.com” domain to IPv4 and IPv6 addresses. What are the corresponding IP addresses for this domain?
3. Issue a DNS query only for the NS records (domain names for the authoritative name servers for the domain). What are the name server domain names? (Review the slides if you are unsure about the command)
4. Check the DNS server’s IP address. Maybe the easiest way is to peek into the DNS configuration file by typing: cat /etc/resolv.conf. You can verify this by issuing a DNS query (using the “host” command with verbose output) and looking for the lines that say “Received XX bytes from …” and finding the DNS server’s IP address right there.
5. Display the IP addresses and prefix lengths for all network interfaces on your EC2 instance. Make a note of the available interfaces (devices) and their assigned IP addresses.
6. Display the link-layer network traffic statistics for only the eth0 (or enX0) interface on your EC2 instance. Do you think that the interface is working correctly? What is the number of sent/received packets? Are there any transmission errors (e.g. dropped packets)?
7. Show the OS’s routing table on your EC2 instance and check which routes are there. What is the default route for the system? What is the next-hop IP address for the default route? This is the configured default gateway (router) IP address for the system.
8. Verify that the default gateway (router) is reachable (hint: use the ping command).
9. Given the information obtained above, fill out the following table summarizing your instance’s networking configuration:

|  |  |
| --- | --- |
| eth0 network interface’s IPv4 address and network prefix length |  |
| eth0 network interface’s IPv6 address and network prefix length |  |
| Default gateway’s (next-hop router’s) IPv4 address |  |
| DNS server’s IPv4 address |  |

C. Clean up after yourself

1. Terminate the EC2 instance and verify that your instance has been terminated successfully.
2. Log out of AWS.