Sean Blanchard

3/3/2021

COMP429

L05: IP Addresses and Routing

Task 1: Enumeration

1. What is your computers IP address?

**192.168.0.23**

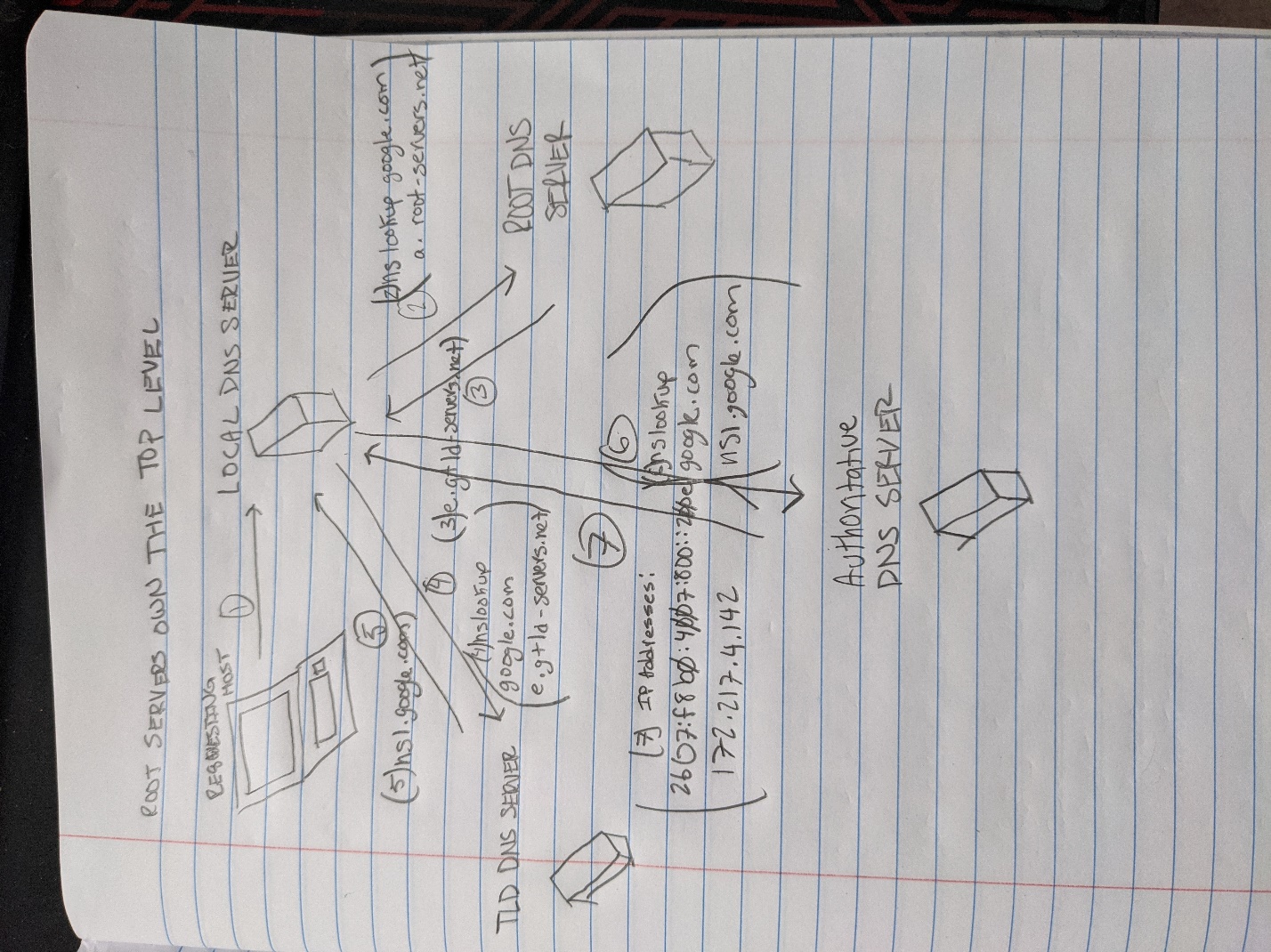
1. What is your address on the global Internet?

**107.185.56.212**

Task 2: DNS is Hierarchical

* Use nslookup [host] [dns server] on Windows
* Use nslookup -type=any [host] [dns server] on macOS
* Use you can figure it out yourself on \*nix.

1. Draw a diagram of a DNS request to resolve google.com.
   * It should look like the diagram in Figure 2.19 from the textbook.
   * Query a.root-servers.net as the root DNS server.
   * The a.root-servers.net response will contain a list of TLD DNS servers (Top Level Domain), pick one of them and query that server.
   * The TLD DNS server will return a DNS server related to google at this point. Pick one and query that server.
   * Google's DNS server will return an IP address similar to the result from nslookup google.com.
   * Use the information from the queries above to fill in your diagram with real data.

****

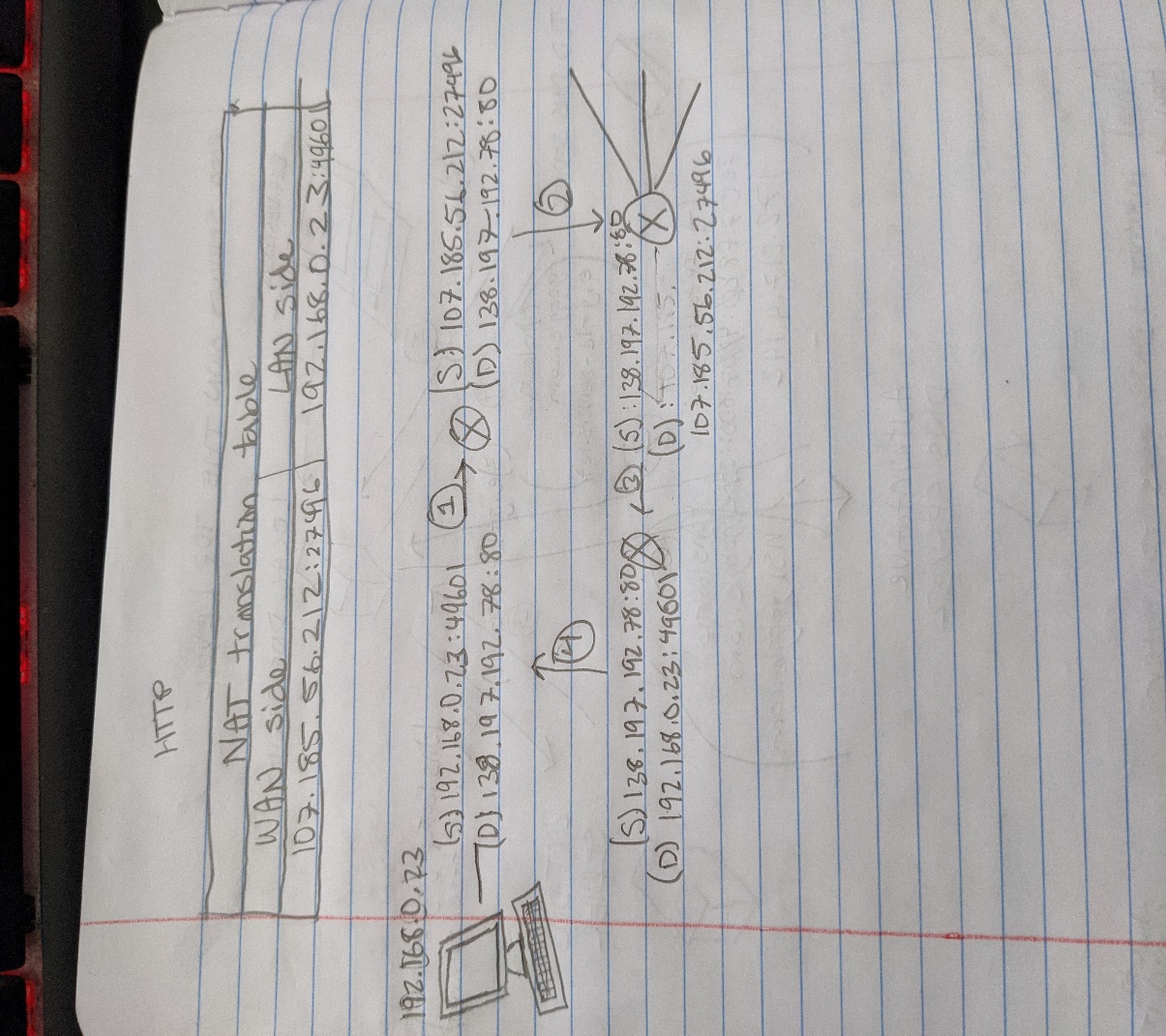
1. What is the TLD (Top Level Domain) DNS server for csuci.edu?

**l.edu-servers.net**

**Internet Address = 192.41.162.30**

**Has AAAA address 2001:500:d937::30**

Task 3: NATty Lite

* You need Wireshark for this question.
* Using www.ipchicken.com draw a diagram like Figure 4.25 in the textbook. ****

Task 4: Linux Networking

1. Remote into your Linux Virtual Machine (IT, use 421 VM):
   * ssh -p 2222 student@localhost
   * Using ss on the Linux VM, list the unique socket tuples for all connections.
     + Submit the ss command and the socket tuples.
   * Using netstat on your host OS (windows or macOS), find the sockets associated with port 2222:
     + macOS: netstat -nf inet -p tcp | egrep 2222
     + Windows: netstat -na | Select-String "2222"
     + Submit the unique socket tuples.
   * VirtualBox is actually NAT'ing the traffic into your VM's network interface.
     + Draw a diagram like Figure 4.25 in the textbook with information.

$ ss

Netid State Recv-Q Send-Q Local Address:Port Peer Address:Port

u\_str ESTAB 0 0 /var/run/dbus/system\_bus\_socket 13402 \* 12744

u\_str ESTAB 0 0 \* 548140 \* 548141

u\_str ESTAB 0 0 \* 12806 \* 12807

u\_str ESTAB 0 0 \* 12350 \* 12351

u\_str ESTAB 0 0 \* 548141 \* 548140

u\_str ESTAB 0 0 \* 13056 \* 13057

u\_str ESTAB 0 0 \* 10994 \* 11226

u\_str ESTAB 0 0 /var/run/dbus/system\_bus\_socket 13403 \* 12745

u\_str ESTAB 0 0 \* 13221 \* 13222

u\_str ESTAB 0 0 \* 12745 \* 13403

u\_str ESTAB 0 0 \* 12744 \* 13402

u\_str ESTAB 0 0 \* 12869 \* 12870

u\_str ESTAB 0 0 \* 447408 \* 447409

u\_str ESTAB 0 0 \* 447412 \* 447413

u\_str ESTAB 0 0 \* 447406 \* 447407

u\_str ESTAB 0 0 \* 447413 \* 447412

u\_str ESTAB 0 0 \* 538098 \* 538097

u\_str ESTAB 0 0 \* 447410 \* 447411

u\_str ESTAB 0 0 \* 447407 \* 447406

u\_str ESTAB 0 0 \* 447409 \* 447408

u\_str ESTAB 0 0 /run/systemd/journal/stdout 11226 \* 10994

u\_str ESTAB 0 0 \* 538097 \* 538098

u\_str ESTAB 0 0 \* 447411 \* 447410

u\_str ESTAB 0 0 \* 468653 \* 468654

u\_str ESTAB 0 0 \* 468658 \* 468657

u\_str ESTAB 0 0 /run/systemd/journal/stdout 12351 \* 12350

u\_str ESTAB 0 0 \* 468656 \* 468655

u\_str ESTAB 0 0 \* 468654 \* 468653

u\_str ESTAB 0 0 \* 468659 \* 468660

u\_str ESTAB 0 0 \* 468655 \* 468656

u\_str ESTAB 0 0 /run/systemd/journal/stdout 12807 \* 12806

u\_str ESTAB 0 0 \* 468660 \* 468659

u\_str ESTAB 0 0 \* 468657 \* 468658

u\_str ESTAB 0 0 \* 538087 \* 538088

u\_str ESTAB 0 0 /run/systemd/journal/stdout 13894 \* 13893

u\_str ESTAB 0 0 \* 538085 \* 538086

u\_str ESTAB 0 0 \* 448246 \* 448245

u\_str ESTAB 0 0 /run/systemd/journal/stdout 13057 \* 13056

u\_str ESTAB 0 0 \* 538084 \* 538083

u\_str ESTAB 0 0 \* 448243 \* 448244

u\_str ESTAB 0 0 \* 538083 \* 538084

u\_str ESTAB 0 0 \* 448245 \* 448246

u\_str ESTAB 0 0 \* 13401 \* 13400

u\_str ESTAB 0 0 \* 547217 \* 0

u\_str ESTAB 0 0 \* 538082 \* 538081

u\_str ESTAB 0 0 \* 447423 \* 447422

u\_str ESTAB 0 0 \* 538086 \* 538085

u\_str ESTAB 0 0 \* 448244 \* 448243

u\_str ESTAB 0 0 \* 538088 \* 538087

u\_str ESTAB 0 0 \* 448247 \* 448248

u\_str ESTAB 0 0 \* 538081 \* 538082

u\_str ESTAB 0 0 \* 447422 \* 447423

u\_str ESTAB 0 0 \* 13400 \* 13401

u\_str ESTAB 0 0 \* 13893 \* 13894

u\_str ESTAB 0 0 /var/run/dbus/system\_bus\_socket 15181 \* 15180

u\_str ESTAB 0 0 \* 13449 \* 13450

u\_str ESTAB 0 0 \* 13427 \* 13428

u\_str ESTAB 0 0 \* 15143 \* 15144

u\_str ESTAB 0 0 /run/systemd/journal/stdout 12870 \* 12869

u\_str ESTAB 0 0 /run/systemd/journal/stdout 13222 \* 13221

u\_str ESTAB 0 0 /var/run/dbus/system\_bus\_socket 13428 \* 13427

u\_str ESTAB 0 0 /var/run/dbus/system\_bus\_socket 13450 \* 13449

u\_str ESTAB 0 0 \* 15180 \* 15181

u\_str ESTAB 0 0 /run/systemd/journal/stdout 15144 \* 15143

u\_str ESTAB 0 0 \* 448248 \* 448247

u\_str ESTAB 0 0 \* 538614 \* 538615

u\_str ESTAB 0 0 \* 538618 \* 538619

u\_str ESTAB 0 0 \* 538615 \* 538614

u\_str ESTAB 0 0 \* 538617 \* 538616

u\_str ESTAB 0 0 \* 538619 \* 538618

u\_str ESTAB 0 0 \* 538616 \* 538617

tcp ESTAB 0 0 10.0.2.15:ssh 10.0.2.2:50776

C:\Users\sean1>netstat -na | findstr "2222"

TCP 0.0.0.0:2222 0.0.0.0:0 LISTENING

TCP 127.0.0.1:2222 127.0.0.1:50776 ESTABLISHED

TCP 127.0.0.1:50776 127.0.0.1:2222 ESTABLISHED