

CPSC 471 Lab 4

Problem 16:

Use the whois service at the American Registry for Internet Numbers (<http://www.arin.net/whois>) to determine the IP address blocks for three universities. Can the whois services be used to determine with certainty the geographical location of a specific IP address? Use www.maxmind.com to determine the locations of the Web servers at each of these universities.

Answer:

California State University Fullerton

IP address: 137.151.0.0 - 137.151.255.255

CIDR: 137.151.0.0/16

California State University Long Beach

IP address: 134.139.0.0 - 134.139.255.255

CIDR: 134.139.0.0/16

San Diego State University

IP address: 130.191.0.0 - 130.191.255.255

CIDR: 146.244.0.0/16

No, the whois services cannot be used to determine with certainty the geographical location of a specific IP address

Web Server Location of California State University Fullerton:

IP Address	Country Code	Location	Network	Postal Code	Approximate Coordinates*	Accuracy Radius (km)	ISP	Organization	Domain	Metro Cod
137.151.0.0	US	Fullerton, California, United States, North America	137.151.0.0/24	92831	33.884, -117.8941	5	California Research and Education Network	California Research and Education Network	fullerton.edu	803

California State University Long Beach:

134.139.0.0	US	Long Beach, California, United States, North America	134.139.0.0/23	90815	33.7903, -118.1215	5	California Research and Education Network	California Research and Education Network		803
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San Diego State University

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130.191.0.0	US	San Diego, California, United States, North America	130.191.0.0/22	92115	32.7638, -117.07	10	California Research and Education Network	California Research and Education Network		825
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P 17:

Suppose datagrams are limited to 1,500 bytes (including header) between source Host A and destination Host B. Assuming a 20-byte IP header, how many datagrams would be required to send an MP3 consisting of 5 million bytes? Explain how you computed your answer.

Answer:

1,500 bytes – 40 = 1460 (20 bytes in head and 20 TCP. assuming it is carried by TCP segments)

5000000/ 1460 = 3424.657534

Approx. 3425

The number of datagrams required is 3425

P 18:

Consider the network setup in Figure 4.25. Suppose that the ISP instead assigns the router the address 24.34.112.235 and that the network address of the home network is 192.168.1/24.

- Assign addresses to all interfaces in the home network.
- Suppose each host has two ongoing TCP connections, all to port 80 at host 128.119.40.86. Provide the six corresponding entries in the NAT translation table.

Answer:

- Home addresses: 192.168.1.1, 192.168.1.2, 192.168.1.3,
Router Interface: 192.168.1.4
- NAT translation table

WAN side	LAN side
24.34.112.235.4000	192.168.1.1.3345
24.34.112.235.4001	192.168.1.1, 3346
24.34.112.235.4002	192.168.1.2, 3445
24.34.112.235.4003	192.168.1.2, 3446
24.34.112.235.4004	192.168.1.3, 3445
24.34.112.235.4005	192.168.1.3, 3446

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P 14:

Consider a subnet with prefix 128.119.40.128/26. Give an example of one IP address (of form xxx.xxx.xxx.xxx) that can be assigned to this network. Suppose an ISP owns the block of addresses of the form 128.119.40.64/26.

Suppose it wants to create four subnets from this block, with each block having the same number of IP addresses. What are the prefixes (of form a.b.c.d/x) for the four subnets?

Answer:

IP range: 128.119.40.128 - 128.119.40.191

Four subnets:

128.119.40.64/28

128.119.40.80/28

128.119.40.96/28

128.119.40.112/28