Exercise 3

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描述已自动生成

Question 1. What is the IP address of [www.cecs.anu.edu.au](http://www.cecs.anu.edu.au/). What type of DNS query is sent to get this answer?

The IP address of  [www.cecs.anu.edu.au](http://www.cecs.anu.edu.au/) is 150.203.161.98.

From the QUESTION SECTION we can see that type A DNS query is sent to get this answer

Question 2. What is the canonical name for the CECS ANU web server? Suggest a reason for having an alias for this server.

The canonical name for the CECS ANU web server is rproxy.cecs.anu.edu.au

Reason:

When multiple domain names point to the same server IP, you can point a domain name as an A record to the server IP and alias other domain names to the domain name previously made as an A record, so you don't need to trouble when the server IP address changes. The change of one domain name to one that only needs to change the domain name of the A record and the other domain names of aliases will also be automatically changed to the new IP address.

Question 3. What can you make of the rest of the response (i.e. the details available in the Authority and Additional sections)?

The AUTHORITY SECTION contains NS resource records for cecs.anu.edu.au domain name, and there are 3 three authoritative name servers:

ns2.cecs.anu.edu.au

ns4.cecs.anu.edu.au

ns3.cecs.anu.edu.au

The additional section contains IPv4(type A) and IPv6(type AAAA) addresses of the nameservers in the authority section.

Question 4. What is the IP address of the local nameserver for your machine?

The IP address of the local nameserver for my machine is 129.94.242.2.

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描述已自动生成Question 5. What are the DNS nameservers for the “cecs.anu.edu.au” domain (note: the d domain is cecs.anu.edu.au and not [www.cecs.anu.edu.au](http://www.cecs.anu.edu.au/))? Find out their IP addresses? What type of DNS query is sent to obtain this information?

|  |  |  |  |
| --- | --- | --- | --- |
| domain | ns2.cecs.anu.edu.au. | ns3.cecs.anu.edu.au | ns4.cecs.anu.edu.au |
| IPv4 addresses | 150.203.161.36 | 150.203.161.50 | 150.203.161.38 |
| IPv6 addresses | 2001:388:1034:2905::24 | 2001:388:1034:2905::32 | 2001:388:1034:2905::26 |

The type of DNS query sent is nameserver: NS.

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描述已自动生成Question 6. What is the DNS name associated with the IP address 111.68.101.54? What type of DNS query is sent to obtain this information?

The DNS name associated with the IP address 111.68.101.54 is webserver.seecs.nust.edu.pk

The type of DNS query is sent to obtain this information is PTR

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描述已自动生成Question 7. Run dig and query the CSE nameserver (129.94.242.33) for the mail servers for Yahoo! Mail (again the domain name is yahoo.com, not [www.yahoo.com](http://www.yahoo.com/)). Did you get an authoritative answer? Why? (HINT: Just because a response contains information in the authoritative part of the DNS response message does not mean it came from an authoritative name server. You should examine the flags in the response to determine the answer)

No, I didn’t get an authoritative answer because there is no AA in flags of the header.

Because the dig command is sent from CSE nameserver and the CSE nameserver is not the authoritative DNS server of yahoo so the server of yahoo would not give the authoritative answer to CSE nameserver.

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描述已自动生成Question 8. Repeat the above (i.e. Question 7) but use one of the nameservers obtained in Question 5. What is the result?

I used 150.203.161.50(ns3.cecs.anu.edu.au) and there is no response.

The result statues is REFUSED.

Because the ANU nameserver do not reply to DNS queries which is not sent from ANU network.

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描述已自动生成Question 9. Obtain the authoritative answer for the mail servers for Yahoo! mail. What type of DNS query is sent to obtain this information?

We can get authoritative answer by using yahoo nameserver(ns2.yahoo.com).

The type of DNS query is sent to obtain this information MX.

Question 10. In this exercise you simulate the iterative DNS query process to find the IP address of your machine (e.g. lyre00.cse.unsw.edu.au). First, find the name server (query type NS) of the "." domain (root domain). Query this nameserver to find the authoritative name server for the "au." domain. Query this second server to find the authoritative nameserver for the "edu.au." domain. Now query this nameserver to find the authoritative nameserver for "unsw.edu.au". Next query the nameserver of unsw.edu.au to find the authoritative name server of cse.unsw.edu.au. Now query the nameserver of cse.unsw.edu.au to find the IP address of your host. How many DNS servers do you have to query to get the authoritative answer?

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描述已自动生成First, we can query for the IP address of the root nameservers.

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描述已自动生成Secondly, we can choose the first nameserver (198.41.0.4) to ﬁnd the authoritative nameserver of the au. domain:

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描述已自动生成Then, we can choose the first nameserver (156.154.100.24) to ﬁnd the authoritative nameserver of the edu.au. domain:

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描述已自动生成After that, we can choose the first nameserver (65.22.196.1) to ﬁnd the authoritative nameserver of the unsw.edu.au domain:

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描述已自动生成After that, we can choose the first nameserver (129.94.0.192) to ﬁnd the authoritative nameserver of the unsw.edu.au domain:

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描述已自动生成At last, we can choose the first nameserver (129.94.208.3) to ﬁnd the IP address of my machine.

I queried 6 servers to get the authoritative answer.

Question 11. Can one physical machine have several names and/or IP addresses associated with it?

Yes, one physical machine can have several names and/or IP addresses associated with it

Because a physical machine can have several network interfaces, and one network interface can have several IP addresses associated with it at any given time.

Exercise 4

The code is included in the .tar file.