DNS Records

The meaning of DNS responses

Richard Berger, 2021

Inspecting DNS queries with `host` and `dig`

```
[root@master ~]# host www.google.com
www.google.com has address 172.217.12.164
www.google.com has IPv6 address 2607:f8b0:4006:81a::2004

[root@master ~]# dig www.google.com
...
;; QUESTION SECTION:
;www.google.com.                        IN      A

;; ANSWER SECTION:
www.google.com.         300     IN      A       172.217.12.164
...
```

DNS records

Address (A): Returns a 32bit IP address for a given name

```
; this defines www.google.com
www.google.com.      IN  A      172.217.12.164
```

IPv6 Address (AAAA): Returns a 128bit IPv6 address for a given name

```
; this defines the IPv6 address of www.google.com
www.google.com.  IN  AAAA     2607:f8b0:4006:81a::2004
```

DNS records

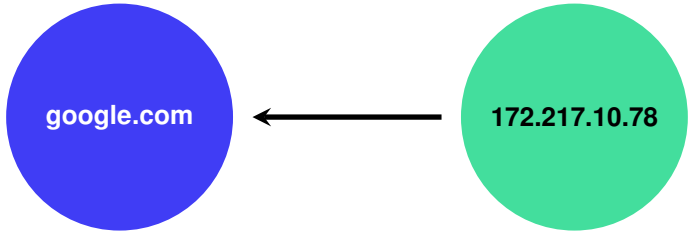
Name Server (NS): The authoritative nameserver for a given domain

```
google.com.   IN  NS  ns1.google.com.
google.com.   IN  NS  ns2.google.com.
google.com.   IN  NS  ns3.google.com.
google.com.   IN  NS  ns4.google.com.
```

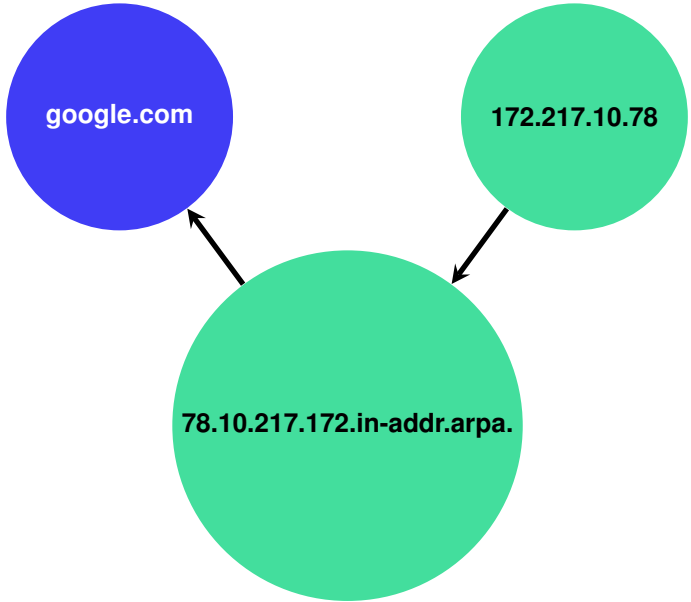
Canonical Name (CNAME): Alias one name to another

```
; ntp.example.com -> master.example.com
ntp.example.com.     IN  CNAME master.example.com.
```

Reverse Lookup



Reverse Lookup



DNS PTR records for reverse lookup

Pointer (PTR): Pointer records point an IP to a canonical name and are used in reverse DNS lookups.

```
; 192.168.16.1 -> master.hpc.
1.16.168.192.in-addr.arpa.  IN  PTR  master.hpc.
```

Inspecting reverse DNS queries with `host` and `dig`

```
[root@master ~]# host 192.168.17.1
1.17.168.192.in-addr.arpa domain name pointer c01.hpc.

[root@master ~]# dig -x 192.168.17.1
...
;; QUESTION SECTION:
;1.17.168.192.in-addr.arpa.     IN      PTR

;; ANSWER SECTION:
1.17.168.192.in-addr.arpa. 300  IN      PTR     c01.hpc.
...
```