DNS

Hosts are ID ed by IP Addresses

A directory service that translates hostnames to IP

To get the IP of a hostname

1. User runs client side
2. Browser extracts hostname, passes to DNS App
3. Sends query to DNS server
4. Recieves a reply for IP
5. Browser initiates IP TCP at Port 80 of IP

Also does
- Host Aliasing
- Mail Server aliasing
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- Load Distribution - Distributes traffic to
-                       appropriate hostname

Workings

Application asks client side of DNS to translate host name
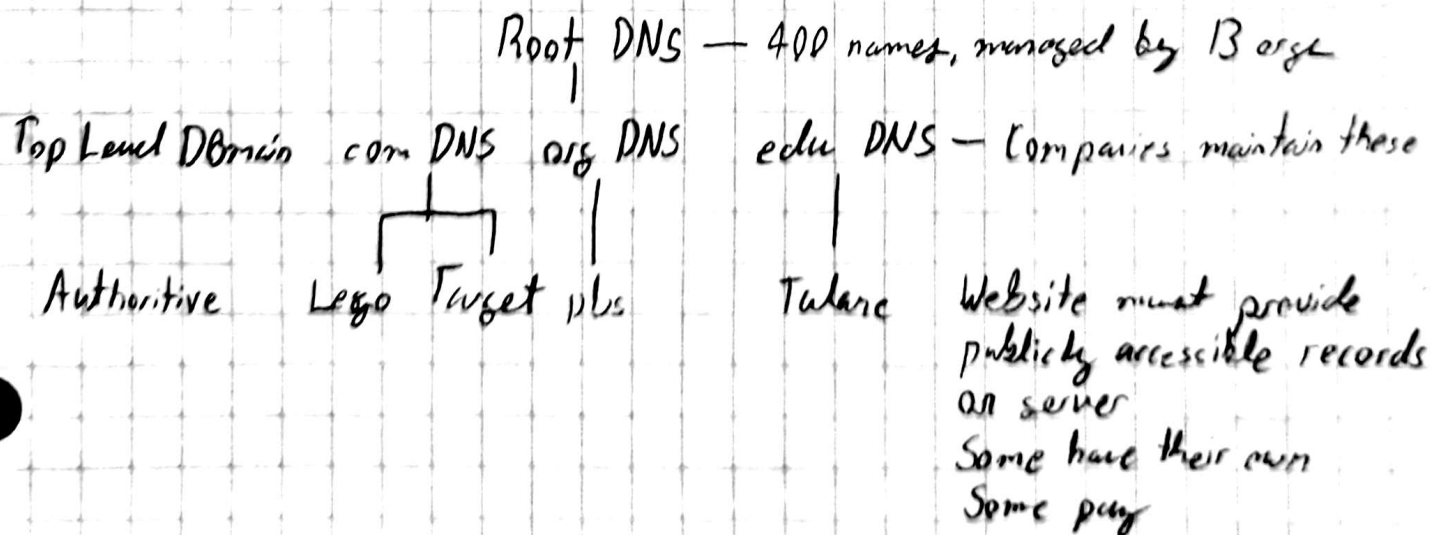
Users host sends a query using UDP Port 53

Delay

Host gets a reply message w/ the desired mapping

App gets info

We cant have a centralized DNS as
1. Only one shutdown will crash the internet
2. Too much traffic
3. Too far
4. Updated too often

DNS is instead heirarchical

Root DNS — 400 names, managed by 13 orgs

Top Level Domain   com DNS   org DNS   edu DNS — Companies maintain these

Authoritive   Lego Target pbs   Tulane   Website must provide
                                                  publicly accessible records
                                                  on server
                                                  Some have their own
                                                  Some pay

Each ISP may have their own server (local DNS)
close to the host, some on the LAN

Local DNS → Root → TLD → Authoritive → local server
              4 Query   authority
              4 Replies   May ask multiple
                                                authorities

Iterive query → Queries replying to the DNS

Recursive query → Referencing previous results
                Ask dns to get mapping on your behalf

Caching   Saving some parts of the map in local memory
           Bypass Root Server

DNS Records — DNS name record resources 4 tuple
                          ⌐ Time recorded
         (Name, Value, Type, TTL)
         Type A → Name and Value = Name IP
              NS → Domain Hostname of Authoritive
         CNAME → Value hold full host name
              MX → Value is full mail Server name

         NS Lookup function allows you to see a DNS query directly

         You ressgister new Domain names in a register
         Record Type and Resorce Record