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6.033 Computer System Engineering

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Distributed Naming & DNS

Net Layer → e.g. IP addresses

1) Convenience
2) Modularity

DNS → Host names → Records

Goals

1) Scalability
   - "Tel. book model"
   - Central server
   - Distrib. database

2) Reliability

Lookups

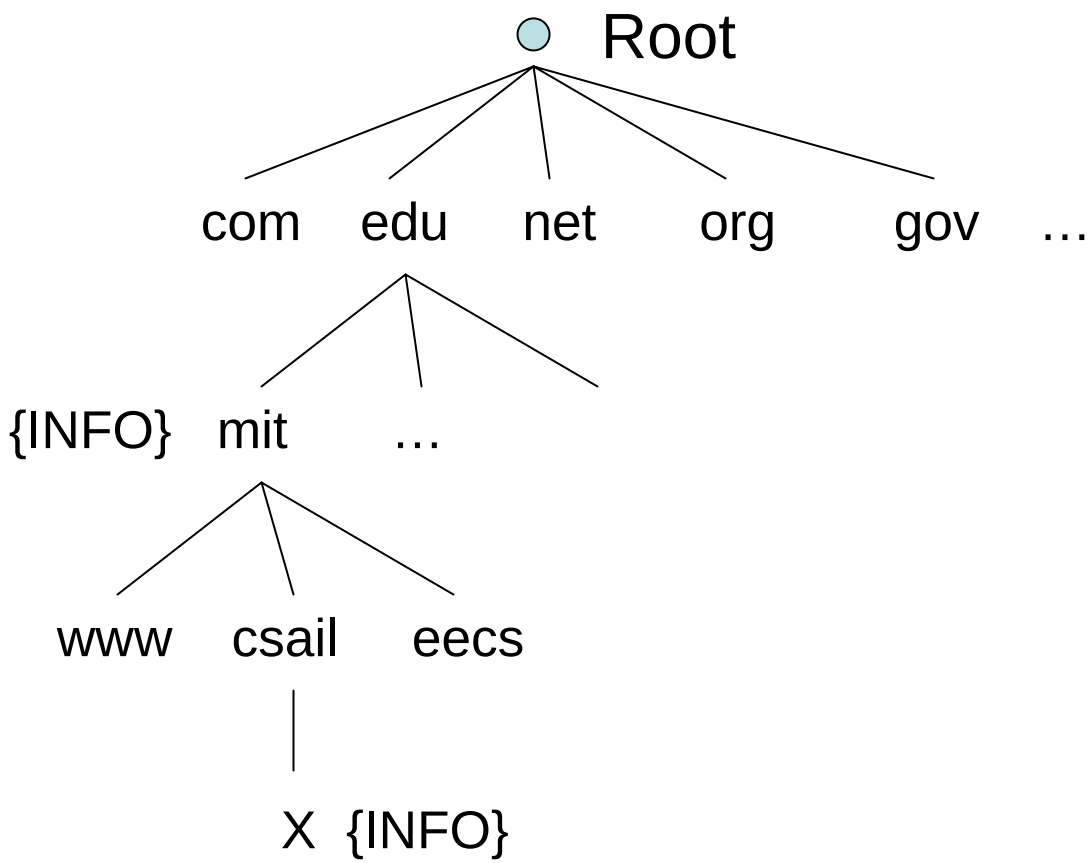
Name → Record : **`dns_resolve(dnsname)`**

- App-specified
- DNS config

Search

Namespace

- Hierarchical
- Structured



Delegation

- Root
- Top-Level Domain (TLD)
- Domains anywhere in tree

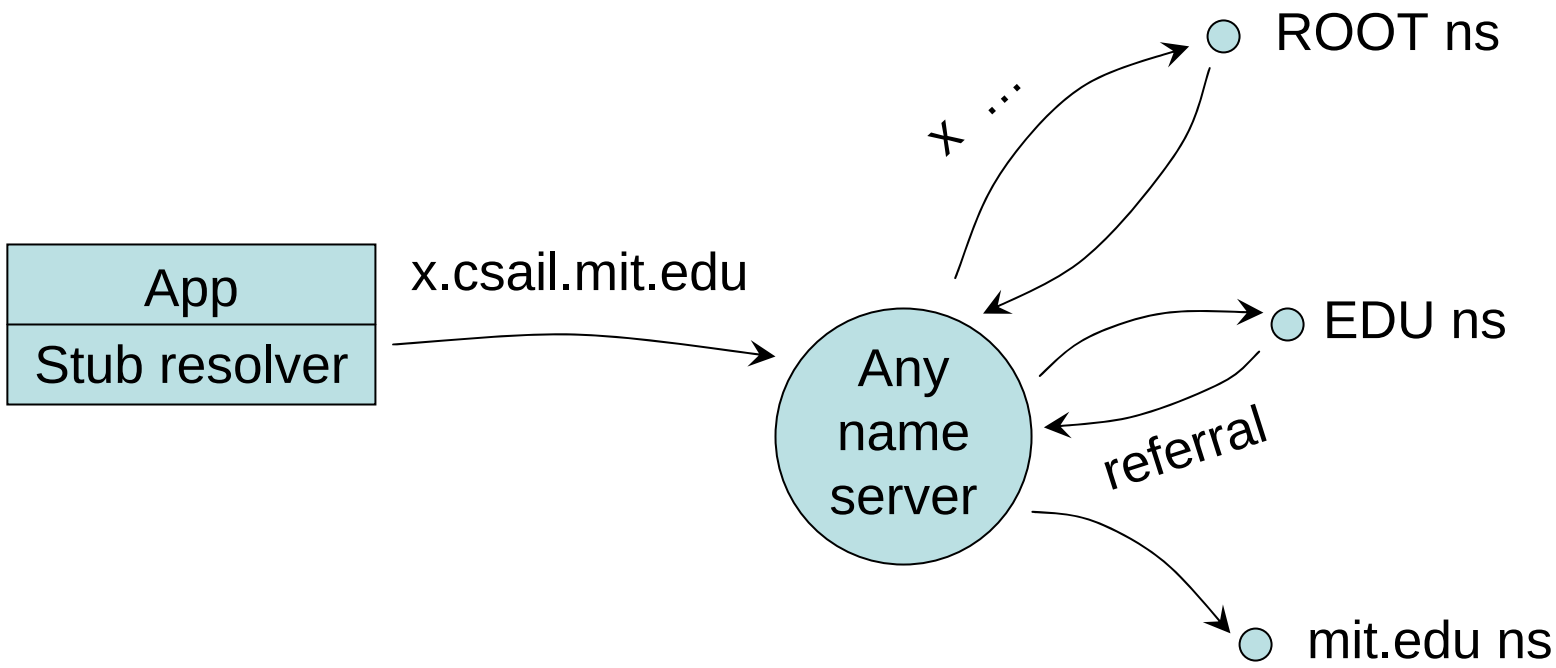
Records

A : Address

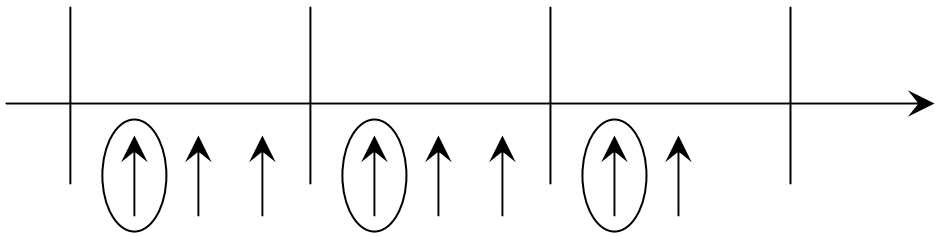
MX :

CNAME : “Synonym”

NS : Name server record


App
Stub resolver
x.csail.mit.edu
Any name server
x ...
ROOT ns
EDU ns
referral
mit.edu ns

1) Bootstrap
    - Root identity
    - Stub?
        - DHCP
        - Manual
2) Performance

Caching

- Recursive resolution
- Expiration times