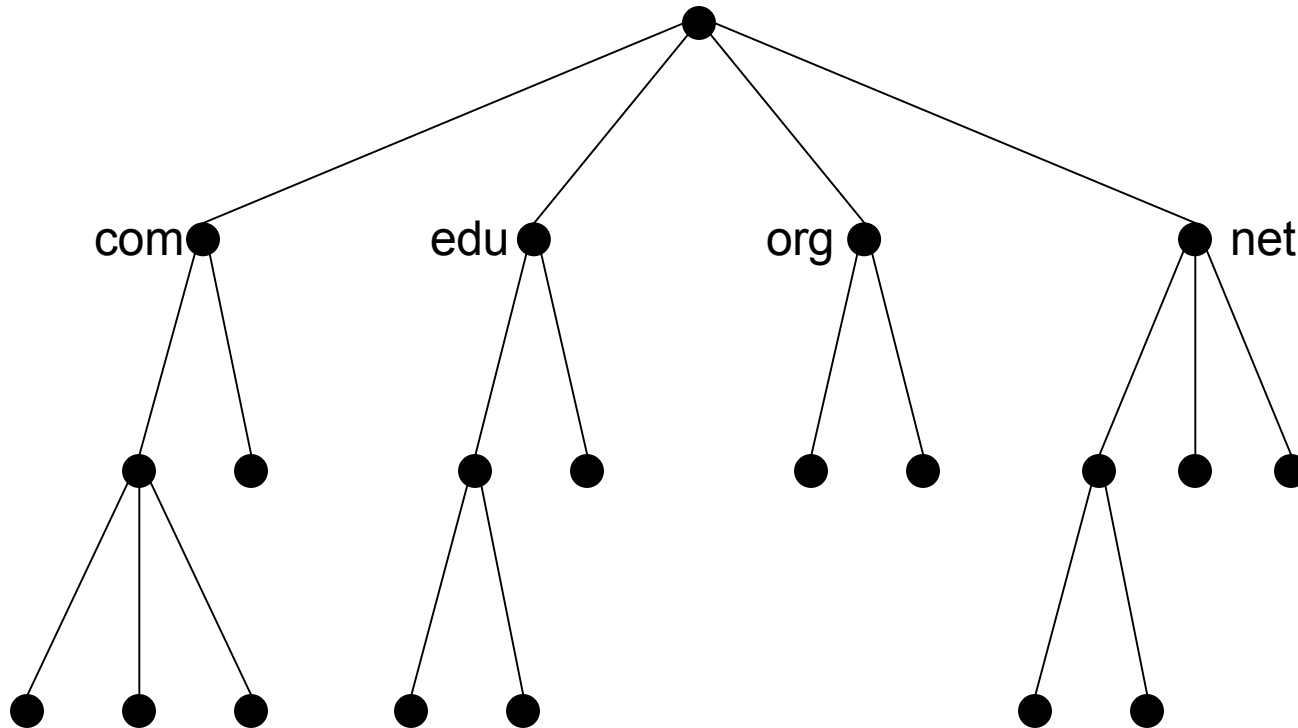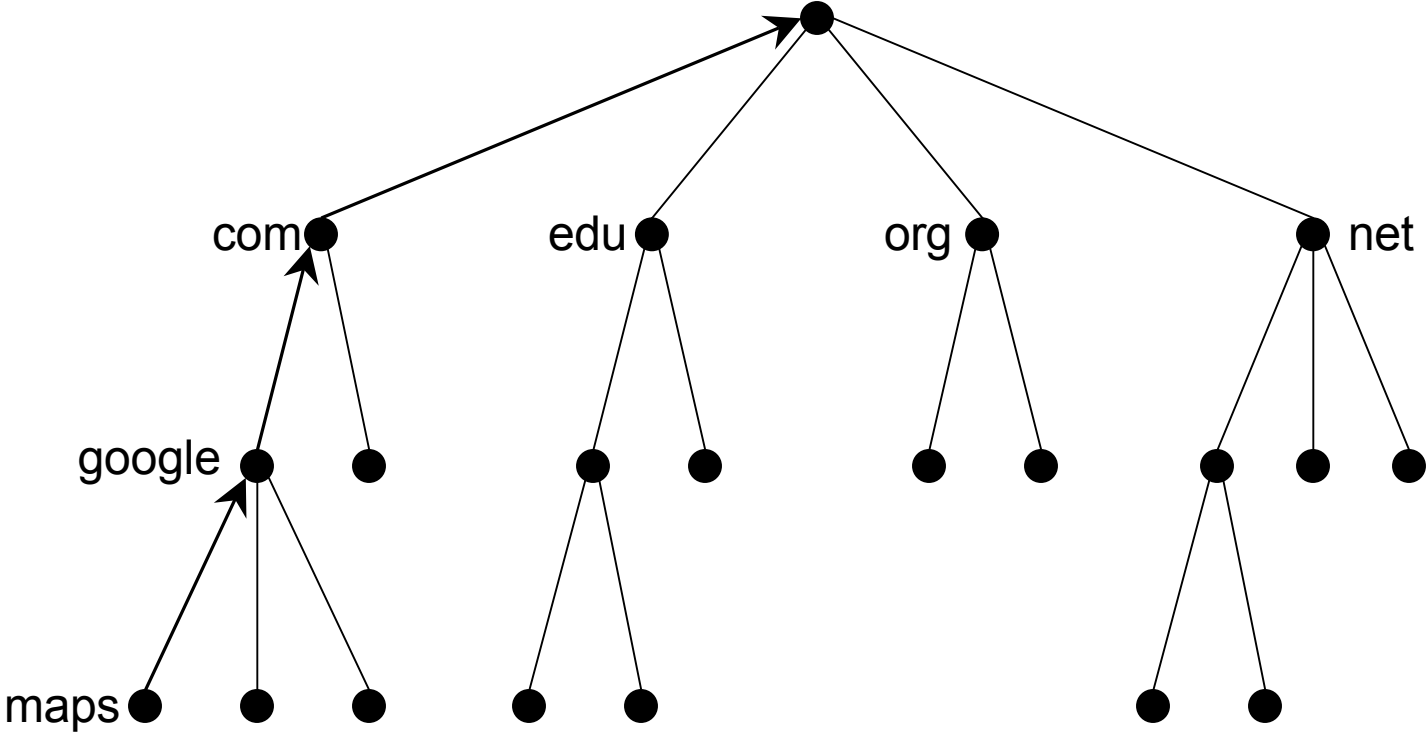# Hit The Ground Running: DNS

William LeFebvre

Domain Name System

- Translates hostnames to IP addresses
- Translates IP addresses to hostnames
- Hierarchical distributed database
- Local administration of your portion
- Structure similar to UNIX file system

DNS Structure

Domain Names are bottom-up

maps.google.com.

Relative and Absolute

- Domain names can be relative or absolute: *maps* or *maps.google.com*.

- Trailing dot always marks absolute name

- Also called Fully Qualified Domain Name, or FQDN

- Relative names may have default domain appended

Domain Name Data

- Domain name is "key" to DNS data
- Name points to host information: address, mail server, etc.
- Name can also be alias for another name.

Resource Records

Each node contains resource records

|	
A	addresses
MX	mail exchanger
NS	name server
CNAME	symbolic link
PTR	hostname
SRV	service information

Resource Records

```
host.domain.com.  A      10.2.4.8
ftp.domain.com.   CNAME host
domain.com.       MX 0   host
www.domain.com.   A      10.2.5.1
www.domain.com.   A      10.2.5.2
```
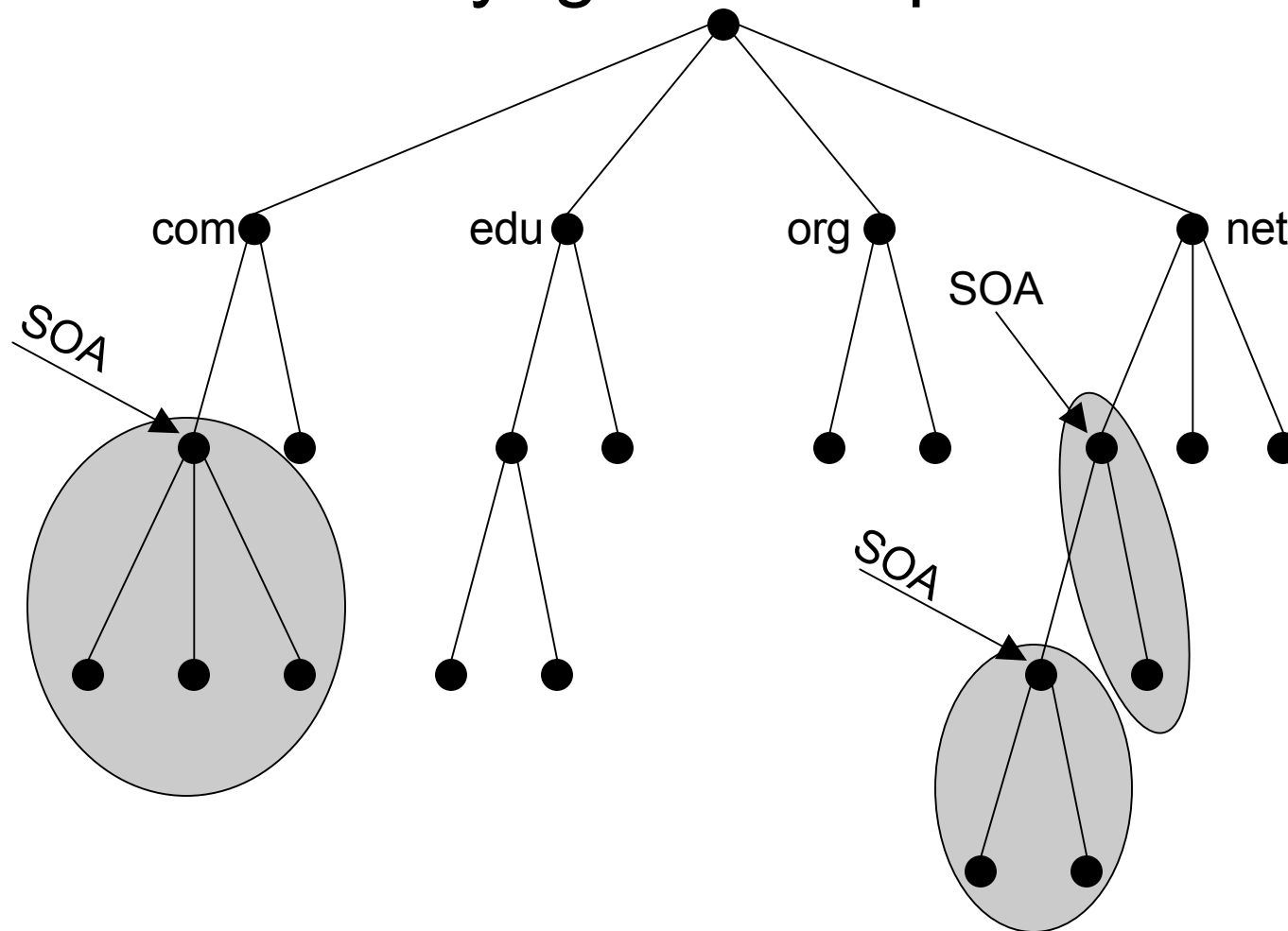
Zones

- Name space split in to zones
- Consists of adjacent nodes
- Zones administered separately
- All information for zone kept together

Zones
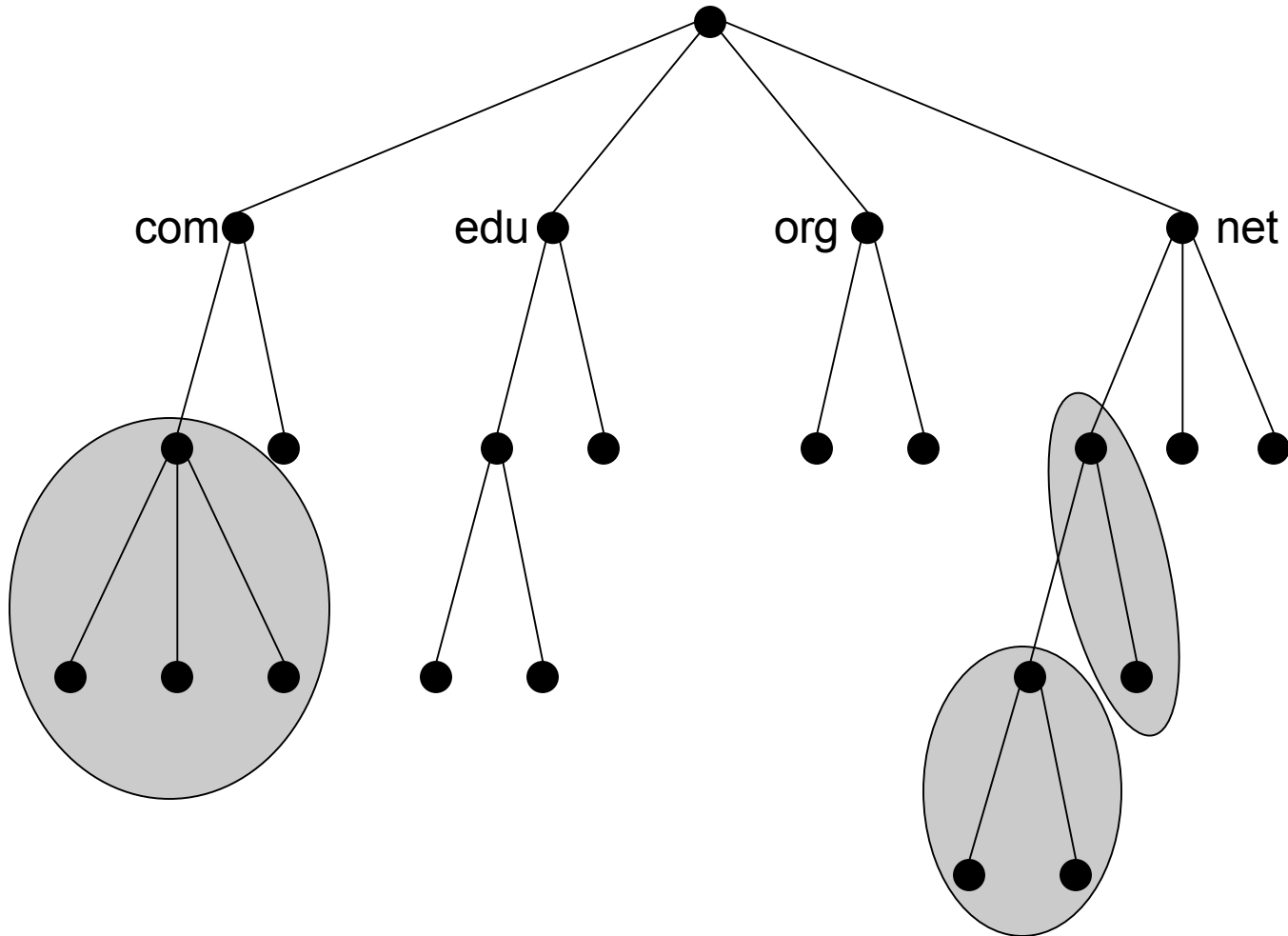
SOA Record

Start of Authority: goes at top of zone

Administering a Zone

- Must set up a server
- Must create resource records for zone
- Must give server addresses to parent
- Set up "reverse zone"

Reverse Zones

- Reverse zone maps IP addresses to names

- Domain in-addr.arpa reserved for names that encode addresses

- 10.2.4.8 encoded as 8.4.2.10.in-addr.arpa

- Data contains PTR record with hostname

- Must be maintained in parallel with host domain

Where to go Next

Name Server software:

- BIND 9 (isc.org)
- ANS/CNS (nominum.com)
- djbdns (cr.yp.to/djbdns.html)
- PowerDNS (powerdns.com)
- NSD (nlnetlabs.nl)
- MaraDNS (maradns.org)

Books

DNS & BIND
Paul Albitz and Cricket Liu

DNS & BIND Cookbook
Cricket Liu

Other Resources

BIND 9 Administrator Reference Manual

www.bind9.net

www.dns.net

menandmice.com

End of slide show, so don't click that button anymore, dummy.