

Chapter 2

2.1.

```
; zone file for wareagle.com
$TTL 2d ;
$ORIGIN wareagle.com.
@      IN SOA ns1.wareagle.com. master.wareagle.com. (
        2011101600 ; serial number
        12h ; refresh (h: hour)
        15m ; update retry (m: minute)
        3w ; expiry (w: week)
        3h ; minimum
    )
    IN NS ns1.wareagle.com.
    IN NS ns2.wareagle.com.
    IN NS ns3.wareagle.com.
    IN A 131.204.10.10
    IN MX 10 mail
mail   IN A 131.204.10.13
www    IN CNAME wareagle.com.
ftp.ns IN A 131.204.10.14
ns1    IN A 131.204.10.10
ns2    IN A 131.204.10.11
ns3    IN A 131.204.10.12
```

2.2. Registrar inserts six RRs (3 authoritative DNS servers) into the com TLD server:

```
(wareagle.com, ns1.wareagle.com, NS)
(ns1.wareagle.com, 131.204.10.10, A)
(wareagle.com, ns2.wareagle.com, NS)
(ns2.wareagle.com, 131.204.10.11, A)
(wareagle.com, ns3.wareagle.com, NS)
(ns3.wareagle.com, 131.204.10.12, A)
```

2.3. 1

```
Command Prompt
C:\Users>nslookup -type=mx mit.edu
Server:  dns.eng.auburn.edu
Address:  131.204.10.13

Non-authoritative answer:
mit.edu MX preference = 100, mail exchanger = DMZ-MAILSEC-SCANNER-6.mit.edu
mit.edu MX preference = 100, mail exchanger = DMZ-MAILSEC-SCANNER-7.mit.edu
mit.edu MX preference = 100, mail exchanger = DMZ-MAILSEC-SCANNER-8.mit.edu
mit.edu MX preference = 100, mail exchanger = DMZ-MAILSEC-SCANNER-1.mit.edu
mit.edu MX preference = 100, mail exchanger = DMZ-MAILSEC-SCANNER-2.mit.edu
mit.edu MX preference = 100, mail exchanger = DMZ-MAILSEC-SCANNER-3.mit.edu
mit.edu MX preference = 100, mail exchanger = DMZ-MAILSEC-SCANNER-4.mit.edu
mit.edu MX preference = 100, mail exchanger = DMZ-MAILSEC-SCANNER-5.mit.edu

mit.edu nameserver = STRAWB.mit.edu
mit.edu nameserver = BITSY.mit.edu
mit.edu nameserver = W20NS.mit.edu
DMZ-MAILSEC-SCANNER-4.mit.edu  internet address = 18.9.25.15
DMZ-MAILSEC-SCANNER-5.mit.edu  internet address = 18.7.68.34
DMZ-MAILSEC-SCANNER-6.mit.edu  internet address = 18.7.68.35
DMZ-MAILSEC-SCANNER-7.mit.edu  internet address = 18.7.68.36
DMZ-MAILSEC-SCANNER-8.mit.edu  internet address = 18.7.68.37
DMZ-MAILSEC-SCANNER-1.mit.edu  internet address = 18.9.25.12
DMZ-MAILSEC-SCANNER-2.mit.edu  internet address = 18.9.25.13

C:\Users>
```

2.4.

Registrant:

Apple Inc.
Apple Inc.
1 Infinite Loop
Cupertino CA 95014
US
eddingsk@apple.com +1.4089744286 Fax: +1.4089741560

Domain Name: apple.com

Registrar Name: Markmonitor.com
Registrar Whois: whois.markmonitor.com
Registrar Homepage: <http://www.markmonitor.com>

Administrative Contact:

Apple Inc.
Apple Inc.
1 Infinite Loop
Cupertino CA 95014
US
eddingsk@apple.com +1.4089744286 Fax: +1.4089741560

Technical Contact, Zone Contact:

NOC Apple (NA4189-ORG)
Apple Inc.
1 Infinite Loop M/S 60-DR
Cupertino CA 95014
US
Apple-NOC@APPLE.COM +1.4089961010 Fax: +1.4089741560

Created on.....: 1987-02-19.

Expires on.....: 2020-02-19.

Record last updated on...: 2010-11-15.

Domain servers in listed order:

nserver2.apple.com
nserver.apple.com
nserver.asia.apple.com
nserver3.apple.com
nserver4.apple.com
nserver.euro.apple.com

2.5.

dc.wareagle.com. IN A 131.204.79.100
_ldap._tcp.wareagle.com. SRV 0 0 389 dc
_kerberos._tcp.wareagle.com. SRV 0 0 88 dc
_kerberos._udp.wareagle.com. SRV 0 0 88 dc

2.6. Given the canonical server names: w1.x.com, w2.x.com, the following RR's were created with TTL's of one hour (for example).

...
(w1.x.com, 131.204.1.5, A, 3600)
(w2.y.com, 131.204.3.5, A, 3600)
(www.x.com, w1.x.com, CNAME, 3600)
(www.x.com, w2.x.com, CNAME, 3600)

2.7.

(x.com, 10 m1.x.com, MX)
(m1.x.com, 131.204.1.6, A)
(x.com, 10 m2.x.com, MX)
(m2.x.com, 131.204.1.8, A)

2.8. At the ISP, company y must register ns.x.com at the TLD and place the following 2 RR's in .com TLD server

The DNS server at y is 100.100.100.3
(x.com, ns.x.com, NS, 3600)
(ns.x.com, 100.100.100.3, A, 3600)

Note that the following RR's were created with TTL's of one hour (for example).

...
(w1.x.com, 131.204.1.5, A, 3600)
(w2.x.com, 131.204.3.5, A, 3600)
(m1.x.com, 131.204.1.6, A, 3600)
(m2.x.com, 131.204.1.8, A, 3600)
(www.x.com, w1.x.com, CNAME, 3600)
(www.x.com, w2.x.com, CNAME, 3600)
(x.com, 10 m1.x.com, MX, 3600)
(x.com, 10 m2.y.com, MX, 3600)

The local RR's at company x:

null set !

In other words, no DNS resolution services need be hosted by company x if the ISP as company y has been selected to provide server hosting for company x -- It is assumed that company y will also provide DNS resolution software and services. i.e., no other RR allocations need to be made on other servers.

2.9. Note that all of the following RR's were created with TTL's of one hour (for example)

1) Register name, x.com, at .com DNS TLD registrar server (i.e., Network Solutions)

```
...
(x.com, ns1.x.com, NS, 3600)
(ns1.x.com, 131.204.1.2, A, 3600)
(x.com, ns2.x.com, NS, 3600)
(ns2.x.com, 131.204.1.3, A, 3600)
```

2) Create records in the first authoritative server, ns1.x.com, inside the x.com domain

```
...
(w1.x.com, 131.204.1.5, A, 3600)
(w2.x.com, 131.204.3.5, A, 3600)
(m1.x.com, 131.204.1.6, A, 3600)
(m2.x.com, 131.204.1.8, A, 3600)
(www.x.com, w1.x.com, CNAME, 3600)
(www.x.com, w2.y.com, CNAME, 3600)
(x.com, 10 m1.x.com, MX, 3600)
(x.com, 10 m2.y.com, MX, 3600)
```

3) Create records in the second authoritative server, ns2.x.com, inside the x.com domain

```
...
(w1.x.com, 131.204.1.5, A, 3600)
(w2.x.com, 131.204.3.5, A, 3600)
(m1.x.com, 131.204.1.6, A, 3600)
(m2.x.com, 131.204.1.8, A, 3600)
(www.x.com, w1.x.com, CNAME, 3600)
(www.x.com, w2.y.com, CNAME, 3600)
(x.com, 10 m1.x.com, MX, 3600)
(x.com, 10 m2.y.com, MX, 3600)
```

2.10. At the ISP, company y needs to register ns.z.com at the TLD and put the following 2 RR's in the .com TLD server

The DNS server at y is 100.100.100.3
(z.com, ns.z.com, NS, 3600)
(ns.z.com, 100.100.100.3, A, 3600)

Note that the following RR's were created with TTL's of one hour (for example).

...
(sole.z.com, 131.204.10.3, A, 3600)
(www.z.com, sole.z.com, CNAME, 3600)
(ftp.z.com, sole.z.com, CNAME, 3600)
(z.com, 10 sole.z.com, MX, 3600)

The local RR's at company x:

null set !

2.11.

Service	Name	IP/Alias	RR Type
Name Server	nserver.apple.com	17.254.0.50	NS
	nserver2.apple.com	17.254.0.59	NS
	nserver3.apple.com	17.112.144.50	NS
	nserver4.apple.com	17.112.144.59	NS
	nserver.asia.apple.com	17.82.254.3	NS
	nserver.euro.apple.com	17.72.133.64	NS
Mail Server (Priority)	mail-in1.apple.com (20)	17.254.13.4	MX
	mail-in2.apple.com (20)	17.254.13.5	MX
	mail-in3.apple.com (100)	17.254.13.8	MX
	mail-in6.apple.com (20)	17.254.13.9	MX
	mail-in11.apple.com (10)	17.254.13.7	MX
	mail-in12.apple.com (10)	17.254.13.10	MX
	mail-in13.apple.com (10)	17.254.13.11	MX
	eg-mail-in2.apple.com (25)	17.112.144.124	MX
	eg-mail-in11.apple.com (15)	17.112.144.127	MX
Web Server	www.apple.com	www.apple.com.akadns.net	CNAME
	www.apple.com.akadns.net	17.112.152.32	A
		17.251.200.32	A

- 2.12. (b)
- 2.13. (b)
- 2.14. (c)
- 2.15. (a)
- 2.16. (c) and (d)
- 2.17. (a)
- 2.18. (a)
- 2.19. (a)
- 2.20. (a)

- 2.21. (b)
- 2.22. (d)
- 2.23. (a)
- 2.24. (c)
- 2.25. (d)
- 2.26. (e)
- 2.27. (c)
- 2.28. (a)
- 2.29. (c)
- 2.30. (b)
- 2.31. (c)
- 2.32. (a)
- 2.33. (a)
- 2.34. (a)
- 2.35. (b)
- 2.36. (b)
- 2.37. (a)
- 2.38. (d)
- 2.39. (d)
- 2.40. (a)
- 2.41. (a)
- 2.42. (a)