

So You Inherited a DNS Server...

DNS Best Practices from Day One

How did the DNS find you?

- Because I knew *nix
- No one else would
- It just sort of happened...
- voluntold

The Question

- What would you do if dropped into an existing organization to run their DNS?

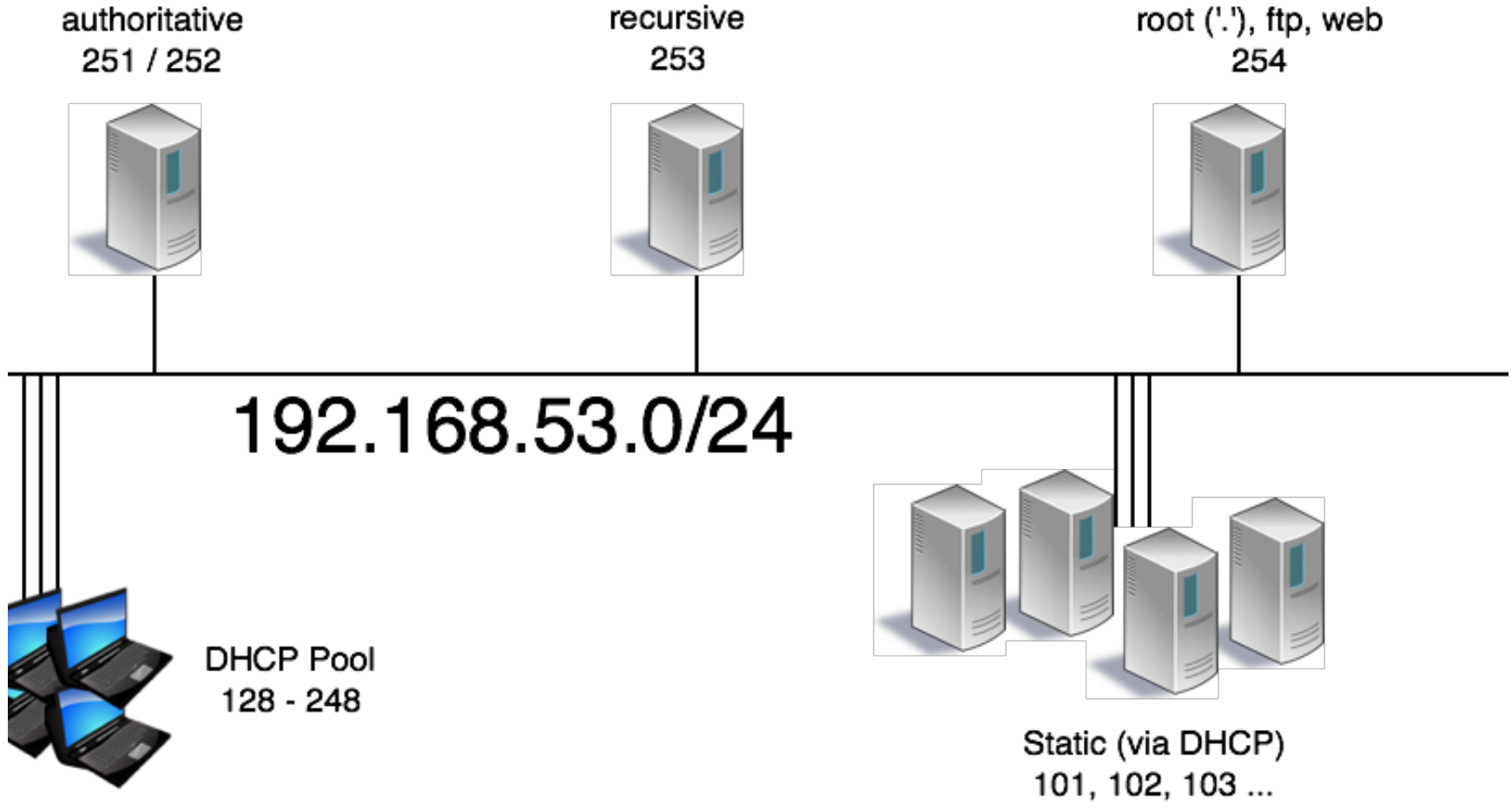


First action, Recon!

- Actually, first action is freak out!
- 2nd action is caffeine, then deep breath and recon:

Any network or infrastructure diagrams available?

diagrams



Pick a nameserver, login!

- Running a current version of dns software?
- OS?
- How is dns service started on this box? Does this match the version currently running?
- Is there a nanny script in use?
- ntp?

named -V

% named -V

BIND 9.8.4-P2 built with '--prefix=/usr' '--
infodir=/usr/share/info' '--mandir=/usr/share/man' '--
enable-threads' '--enable-getifaddrs' '--disable-linux-caps'
'--with-openssl=/usr' '--with-randomdev=/dev/random' '--
without-idn' '--without-libxml2'
using OpenSSL version: OpenSSL 0.9.8zd-freebsd 8 Jan
2015

On to configuration

- Do the global options make sense?
- Basic security check:
 - TSIG secured zone transfers?
 - allow-transfer?
 - allow-query (is this an open resolver?)

Global options

```
options {    directory "/etc/namedb/";    dnssec-enable yes;    dnssec-validation yes;    allow-recursion { none; };    allow-query { any; };    allow-transfer { none; };    notify no;    key-directory "/etc/namedb/keys";    max-journal-size 32k;    zone-statistics yes;    listen-on { 192.168.53.251; };    listen-on-v6 { 2001:db8:100::251; };    notify-source 192.168.53.251;    notify-source-v6 2001:db8:100::251;};
```

zone stanzas

```
zone "example.com" IN { file  
"example.com-zone"; type slave; masters {  
192.168.53.4; 192.168.53.8; }; notify no;};
```

logging

- Is the logging stanza sane and actually occurring?
- Check the config as well as the actual logs.
- Have a look at the system logs

logging stanza

```
logging {
  channel query_log {
    "logs/query.log" versions 5 size 1M;
    severity info;
    print-time yes;
    category queries { query_log; };
  };
};
```

checkconf is your friend

```
$ named-checkconf -z  
zone ./IN: loaded serial 121 (DNSSEC signed)zone  
test.dnslab.org/IN: loaded serial 50 (DNSSEC  
signed)
```

rndc

- Is rndc configured?
- If not, 'rndc-confgen -a'

- rndc status

- rndc notify zone
- rndc retransfer zone

Recon Repeat

- Repeat the prior Recon for all known nameservers!
- If diagrams were available, check to see if configs match stated functionality.

**SOME FUN THINGS YOU
OUGHT TO KNOW...**

DNS personality disorders

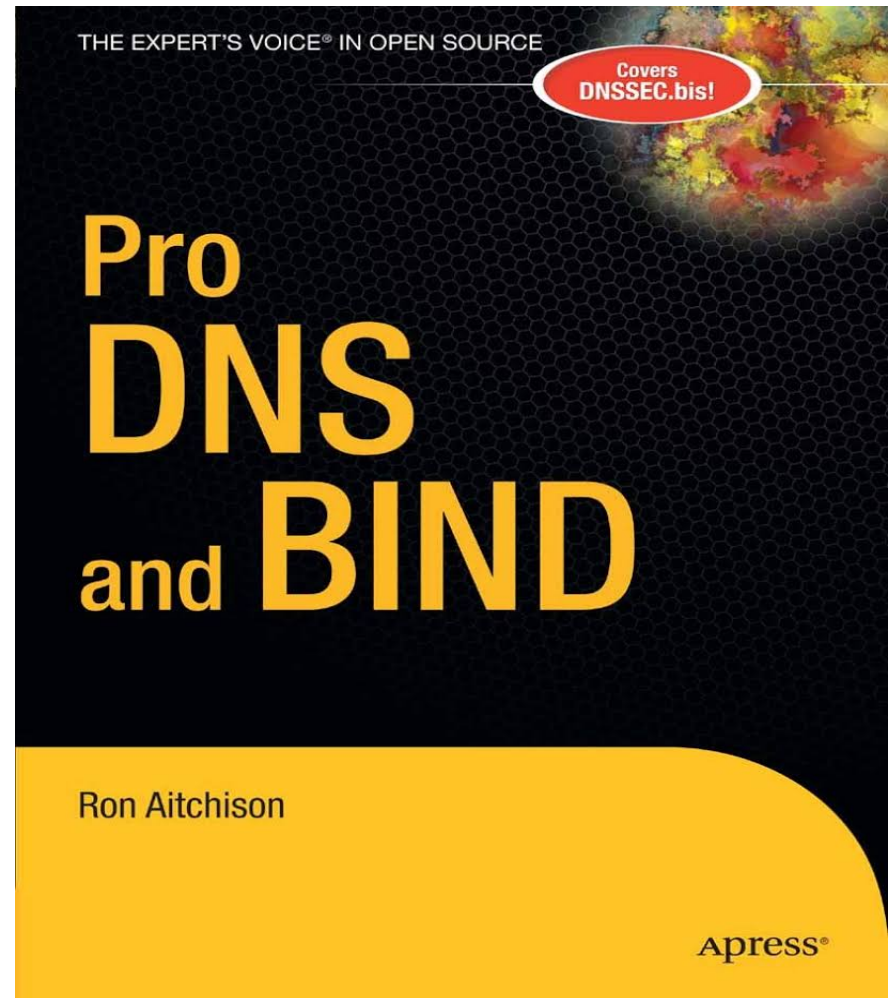
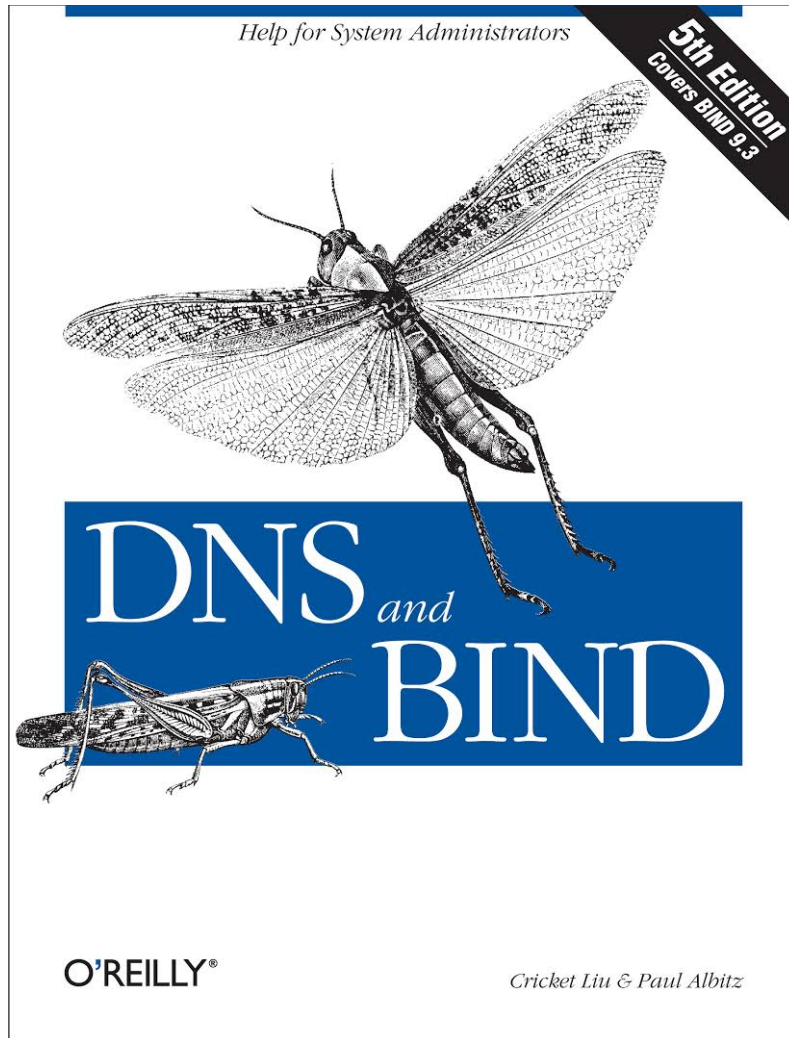
- Clients are often happy even when servers aren't configured well.
- A bit passive-aggressive... things are acceptable until they're not.
- OCD, clients and resolvers are content to retry and retry and retry...

There are rules... RFCs

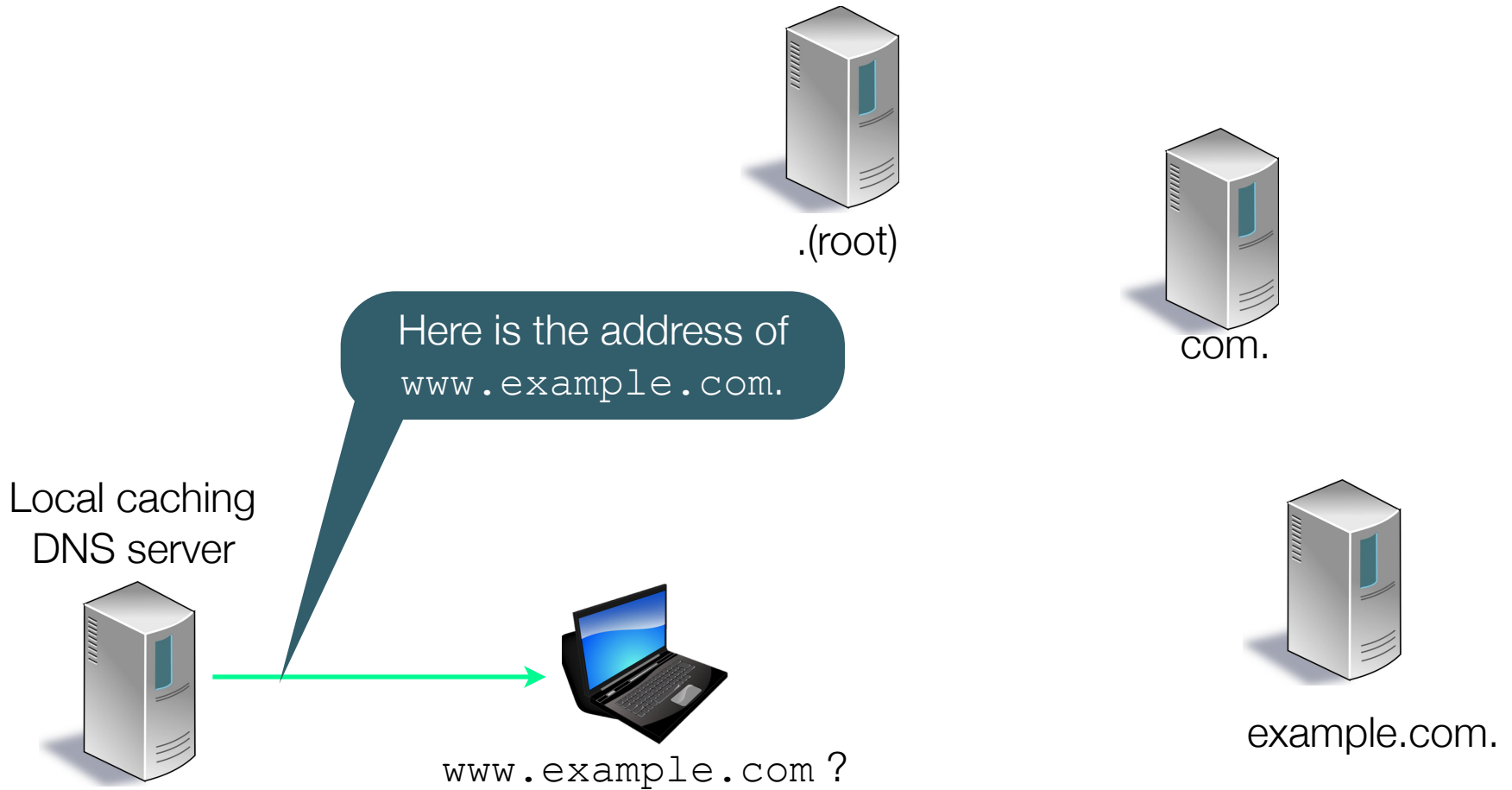
<https://www.isc.org/community/rfc/dns/>

| RFC | Type | Status | Title | Bgnd | Prot | Names | Ops | RR | Proxy | Stub | Auth | Res | Xfr | DDNS | DNSSEC |
|----------------------|---------------|----------|---|------|------|-------|-----|----|-------|------|------|-----|-----|------|--------|
| 882 | | Obsolete | Domain Names – Concepts and Facilities | x | | x | x | | | | x | | | | |
| 883 | | Obsolete | Domain Names – Implementation and Specification | | x | | x | x | | | x | x | | | |
| 920 | | | Domain Requirements | | | | x | | | | | | | | |
| 973 | | Obsolete | Domain System Changes and Observations | | | x | | x | | | x | x | | | |
| 1032 | | | Domain Administrators Guide | | | | x | | | | | | | | |
| 1033 | | | Domain Administrators Operations Guide | | | | x | | | | | | | | |
| 1034 | Standard | | Domain Names – Concepts and Facilities | x | | x | x | | | x | x | x | | | |
| 1035 | Standard | | Domain Names – Implementation and Specification | | x | x | | x | | | x | x | x | | |
| 1101 | | | DNS Encoding of Network Names and Other Types | | | x | | | | | | | | | |
| 1123 | Standard | | Requirements for Internet Hosts – Application and Support | x | | | | | | | x | x | | | |
| 1178 | Informational | | Choosing a Name for Your Computer | | | | x | | | | | | | | |
| 1183 | Experimental | | New DNS RR Definitions | | | | | x | | | | | | | |
| 1348 | Experimental | Obsolete | DNS NSAP RRs | | | | | x | | | | | | | |
| 1401 | Informational | | Correspondence between the IAB and DISA on the use of DNS throughout the Internet | x | | | | | | | | | | | |
| 1535 | Informational | | A Security Problem and Proposed Correction With Widely Deployed DNS Software | | | | | | | | | x | | | |
| 1536 | Informational | | Common DNS Implementation Errors and Suggested Fixes | | | | | | | x | | x | | | |
| 1537 | Informational | Obsolete | Common DNS Data File Configuration Errors | | | | x | | | | | | | | |
| 1591 | Informational | | Domain Name System Structure and Delegation | | | | x | | | | | | | | |
| 1611 | Historic | Historic | DNS Server MIB Extensions | | | | x | | | | | | | | |
| 1612 | Historic | Historic | DNS Resolver MIB Extensions | | | | x | | | | | | | | |

Less caffeine required...



DNS Resolution



**BACK TO YOUR NEW
PREDICAMENT...**

Authoritative specific

- Are zone transfers working?
- Use external tools to check service:
 - DNSViz
 - dnscheck.iis.se
 - ednscomp.isc.org (firewall check)

Recursive specific

- Perform queries against these servers via dig

```
dig @192.168.53.53 www.example.com.
```

- Are they answering appropriately?
- Are they refusing appropriately?

Actions for Day 2 and beyond

- Meet with the following teams:
 - Provisioning: how fast for new servers?
 - Operations: how's life?
 - Security: about those firewalls...
 - Monitoring: alerting on?, peak traffic?
 - Architecture: future plans?
 - Management: support?

Interconnectedness

- Get your boss to send you to DNS-OARC meeting(s)
- Join some lists:
 - dns-operations (DNS OARC)
 - nanog
 - etc

Questions



Thank You!

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