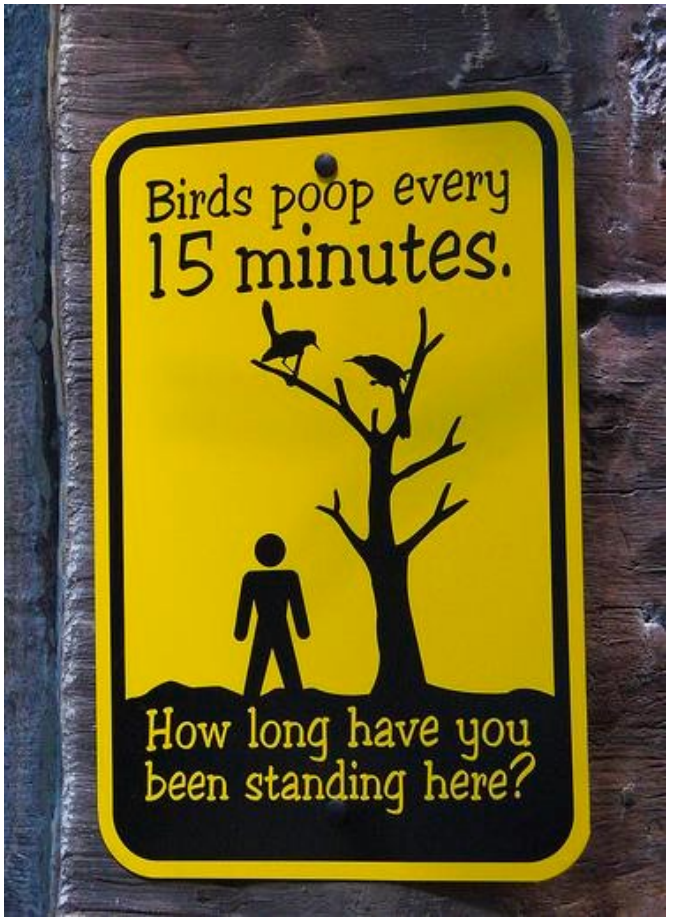
Fighting Spam with pf

Introducing

- Dan Langille
- http://langille.org/
- http://www.freebsddiary.org/pf.php

What is spam?

Warning


Birds poop every
15 minutes.
How long have you
been standing here?

Where does spam come from?

- open relays
- spam bots
- “friends” and family
- people on your mailing lists

spam networks

- compromised machines
- open relays (not so much any more)
- massive volume
- ignore errors, get the mail through!

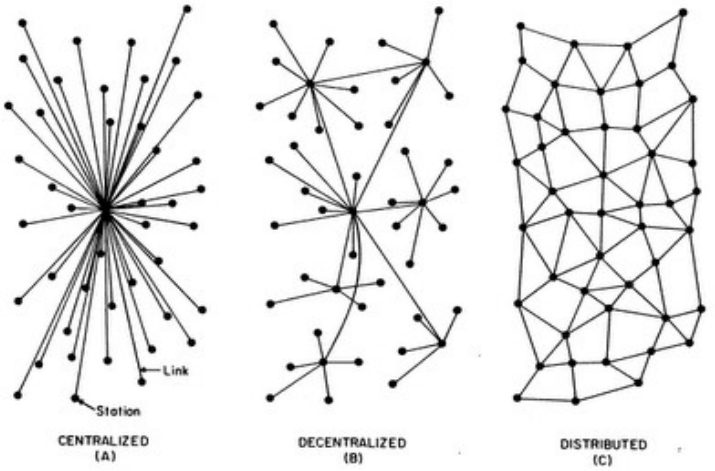


FIG. 1 — Centralized, Decentralized and Distributed Networks

The Perfect Solution

- requires no changes to your existing mail server
- reduces load on virus scanners and mail servers
- MTA agnostic

What is pf

- pf is a packet filter produced by the OpenBSD project
- spamd also from OpenBSD
- ported
- damn fine product
- use it if you can
- highly recommended
- Absolute OpenBSD – Michael W. Lucas

pf

- tables
- reloaded programatically
- macros
- simple and powerful rules
- stateful

A Packet Filter?

WTF?

Spammers are lazy

- maximum return
- minimum effort
- queues?
- volume

Connection Profiling

- whitelist – good
- blacklist – bad
- greylist - undecided

greylisting

- exploit the protocol
- If you're not on the blacklist or the whitelist, you are unknown
- hence, greylist
- prove yourself
- move
- tuple

smtp is a simple protocol

- text based protocol
- you can type commands by hand via telnet
- for example...

Simplified SMTP conversation

Hi, I'm Ed

Hello Ed

I have a message from Dan Langille

OK

It's for Jordan Hubbard

OK

here it is

Oh wait, I'm busy

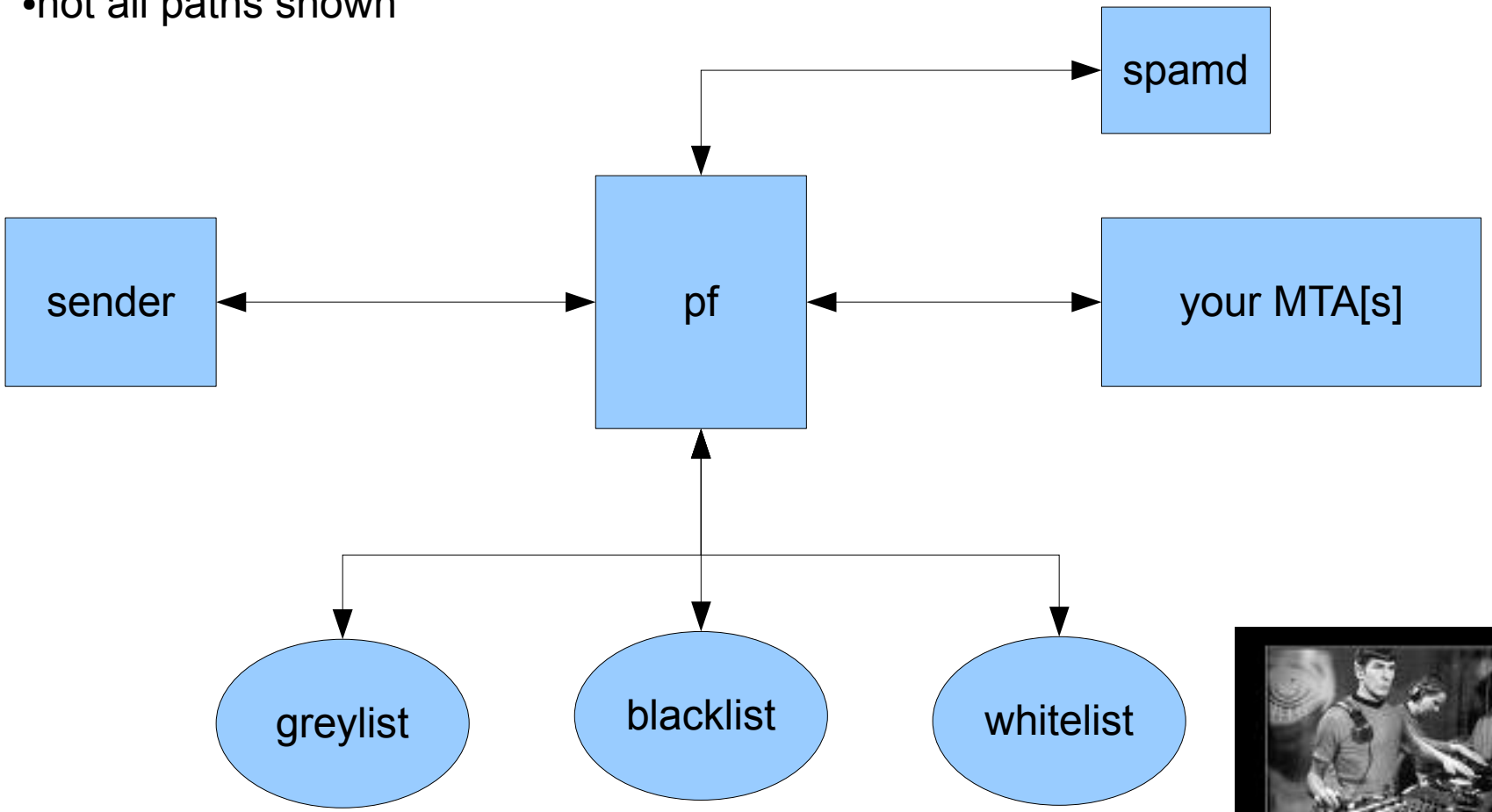
Eh? I'll come back later.

temporary errors

- defined in RFC
- sending server must re-queue and retry
- disk space
- network problems
- etc

Logical

- not to scale
- not all paths shown



pf directives

table <spamd> persist

table <spamd-white> persist

table <spamd-mywhite> persist file
"/usr/local/etc/spamd-mywhite"

pf directives (2)

```
MYSELF="64.147.113.42"

# redirect to spamd

rdr pass inet proto tcp from <spamd-mywhite> to
   $MYSELF port smtp -> 127.0.0.1 port smtp

rdr pass inet proto tcp from <spamd>         to
   $MYSELF port smtp -> 127.0.0.1 port spamd

rdr pass inet proto tcp from !<spamd-white>  to
   $MYSELF port smtp -> 127.0.0.1 port spamd
```

spamd

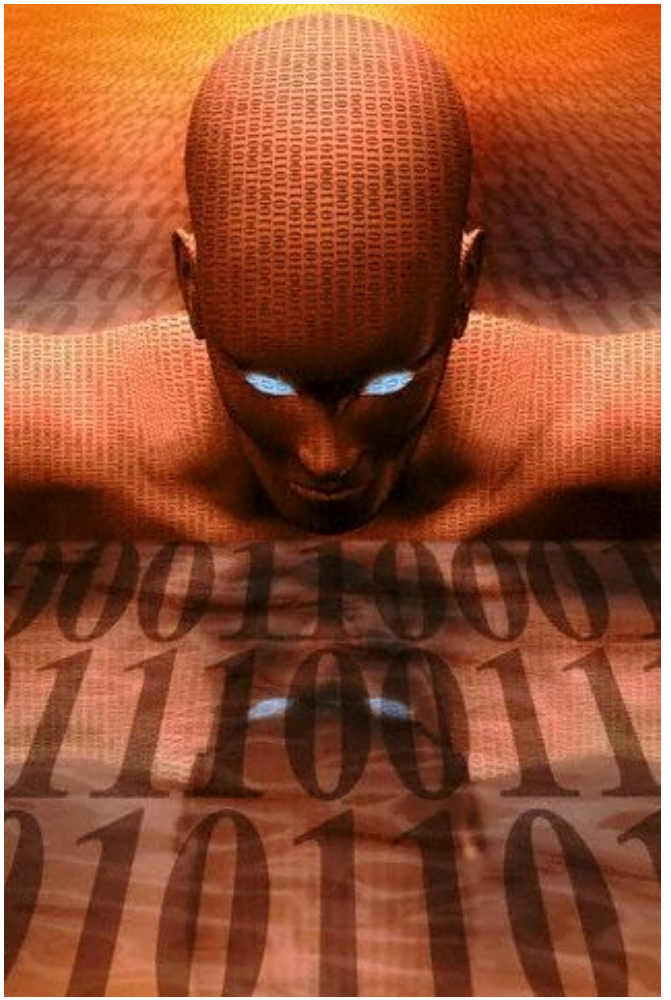
- daemon
- AKA tarpit
- very small footprint
- easy on resources
- handles a large volume of connections
- Runs on OpenBSD, FreeBSD, NetBSD, and DragonflyBSD

spamdb

- database
- list of entries known to pf
- unique tuples (src IP, sender email, receiver email, ?)
- GREY
- TRAP
- TRAPPED

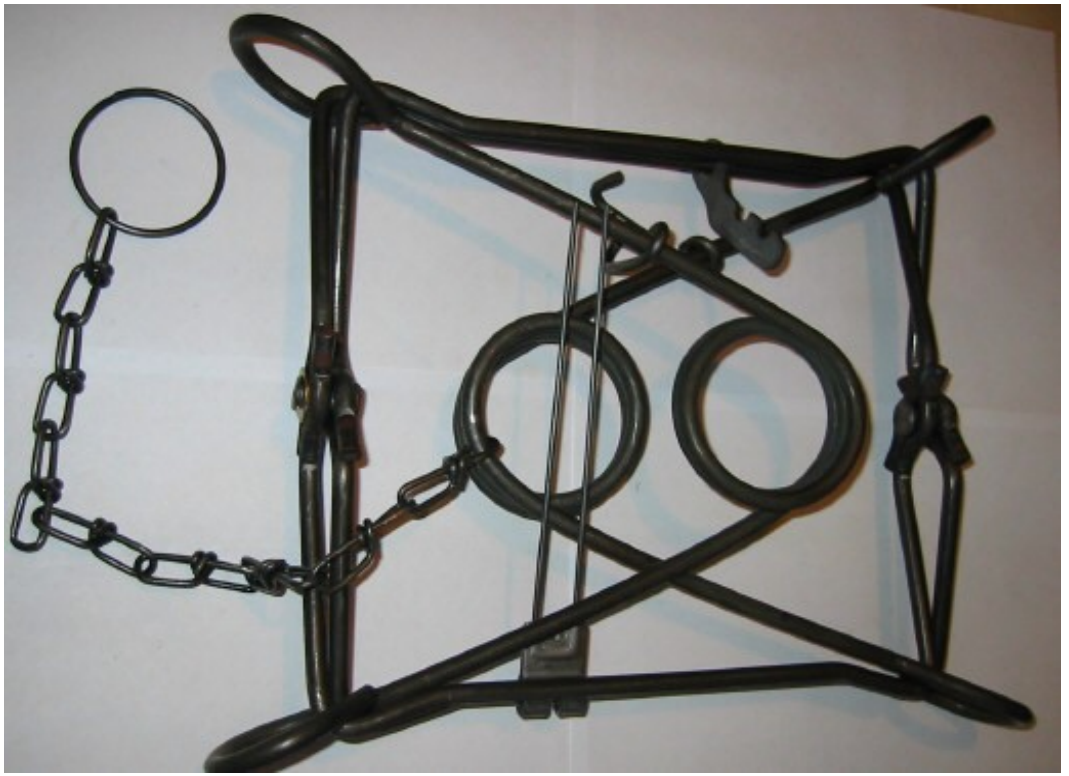
grey scanning

- First connection causes a retry
- During the retry, scan the logs
- bad addresses
- bad domains
- multiple emails
- make up whatever you want



trapping

- honeypot addresses
- old addresses
- message-ids



OK, not so perfect

- some claim it is not RFC compliant
- some claim it unreasonably delays email
- some claim false positives
- some claim it breaks other anti-spam measures
- http://nolisting.org/
- My claims?

FreeBSD /etc/rc.conf

```
$ grep pf /etc/rc.conf
pf_enable="YES"
pflog_enable="YES"
obspamd_enable="YES"
obspamd_flags="-v -n 'Postfix - Special Edition'"
obspamlogd_enable="YES"
```

Finish

http://www.freebsddiary.org/pf.php