SPAMHAUS

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4. Mailserver-Konferenz 2009

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Welcome! In the next 75 minutes:

- About Spamhaus
- Spammer infrastructure
- Stories from the field
- All mixed with your questions

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But first some questions for you!

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Who here is doing spam research and/or filtering?

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Are you using Spamhaus data?

Are you happy with it?

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About Spamhaus

- Since 1998, non-profit
- Headquartered in the UK
- 30+ specialists around the world
- DNSBLs: SBL, XBL and PBL
- ROKSO, DROP
- Corporate research team

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Spamhaus relations

- ISPs / ESPs / xSPs
- Networks and regulators
- Registries and registrars
- Law enforcement
- Research community

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Spamhaus users

- Small, medium, large ISPs / ESPs
- Mobile networks
- Governments & law enforcement
- Universities
- Military
- ...

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Over

1.500.000.000

mailboxes protected with our data

So what exactly is our data?

Part one: DNSBLs

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Spamhaus SBL

Spamhaus Block List

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Spamhaus SBL

- 100% human input
- Static spam sources
- Spam webhosting / DNS
- Other spam support services
- Escalations if needed

Spamhaus SBL

- Since the start of proxy and later botnet usage we can't manually list every emitter
- Static spammers, snowshoe spam, Spammer infrastructure

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Snowshoe spam

```
75.127.2.32   mail2.urexqsteweb.com
75.127.2.33   mail3.funexqstarts.com
75.127.2.34   mail4.myexqstearts.com
75.127.2.35   mail5.fnexqsitearts.com
75.127.2.36   mail6.myfnexqsteart.com
75.127.2.37   mail7.funexqstartz.com
75.127.2.38   mail8.exqsteartstes.com
75.127.2.39   mail9.webexqsteart.com
75.127.2.40   mail10.myexqsiteartsz.com
75.127.2.41   mail11.bestexqstartss.com
...
```

Spamhaus SBL

- Spammer infrastructure: DNS servers, web servers, MX, backends, C&C servers, reverse proxies, payment gateways, etc.
- SpamAssassin URIBL_SBL

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Spamhaus SBL

Spam URL storemedsthank.com

```
storemedsthank.com. 2D IN NS ns1.wooddoes.in.
storemedsthank.com. 2D IN NS ns2.wooddoes.in.

ns2.wooddoes.in has address 60.191.239.153
ns2.wooddoes.in has address 61.191.191.241
ns2.wooddoes.in has address 218.75.144.6
ns2.wooddoes.in has address 119.39.238.2
ns2.wooddoes.in has address 203.93.208.86
```

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Spamhaus DROP

- Don’t Route Or Peer list
- Known rogue networks / IP ranges / ASNs, 100% under spammer control
- Excellent for no-traffic policies and router/firewall usage

Spamhaus DROP

- Using DROP makes lots of Botnet C&Cs, rogue DNS servers and web-based exploits ‘drop off the net’

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Spamhaus XBL

Spamhaus eXploits Block List

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Spamhaus XBL

- 100% automated input
- Lists illegal 3rd party exploits
- Only /32 listings
- No-questions-asked (but limited) removals

1649318

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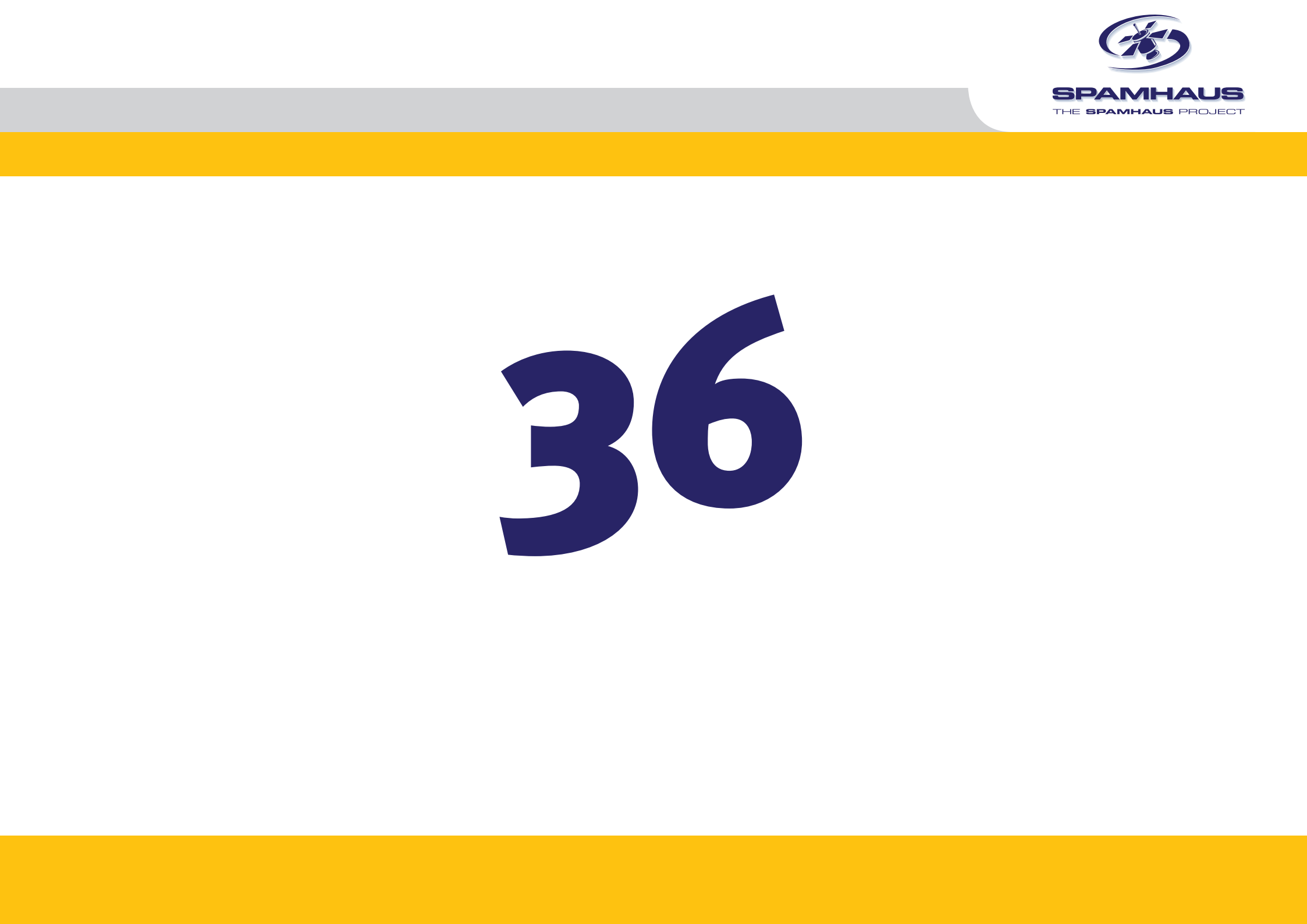
1649318

Zombies detected by XBL on
7th of july 2010 (unique IP addresses)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seconds between infection and first-spam-sent (W32/Warezov)

Spamhaus XBL

- Botnet tracking (2/3 is known)
- Stats per botnet
- ISP tracking
- Country tracking

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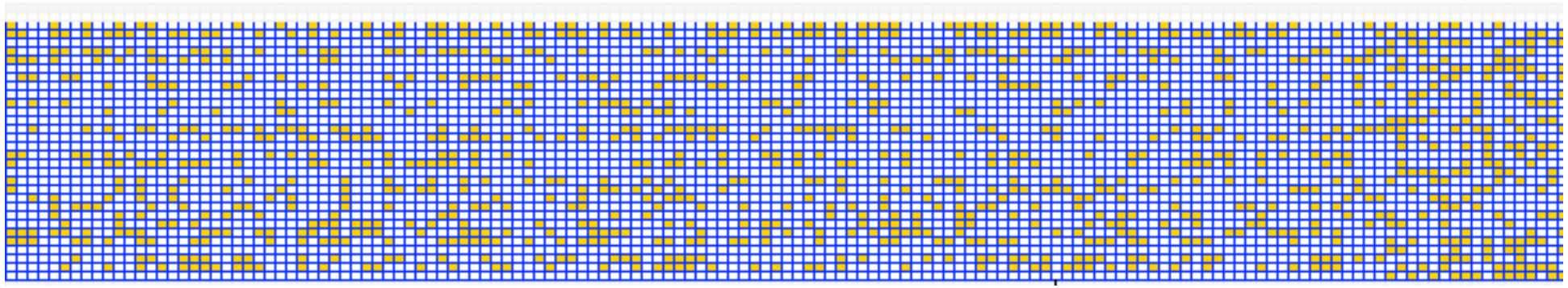
Spamhaus XBL

- Good ISP
  (Vodacom in South Africa)



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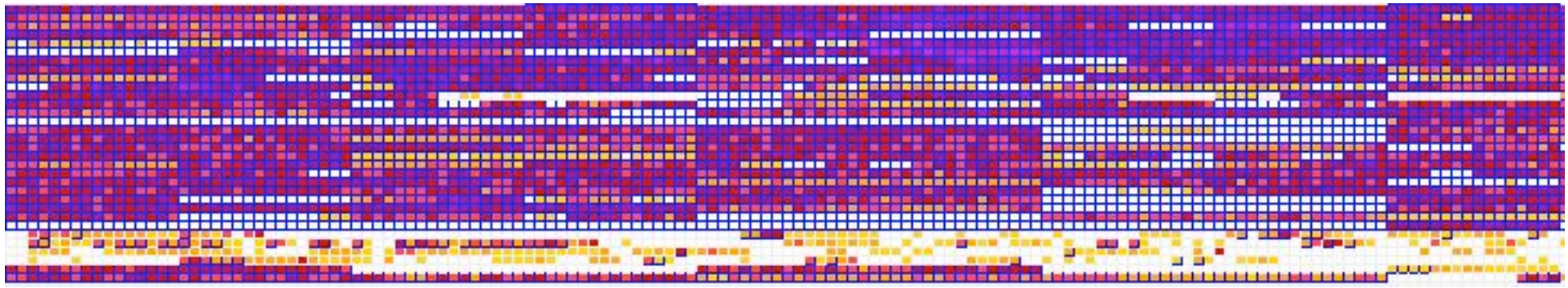
Spamhaus XBL

- Bad ISP
  (Vietnam Datacom Company)



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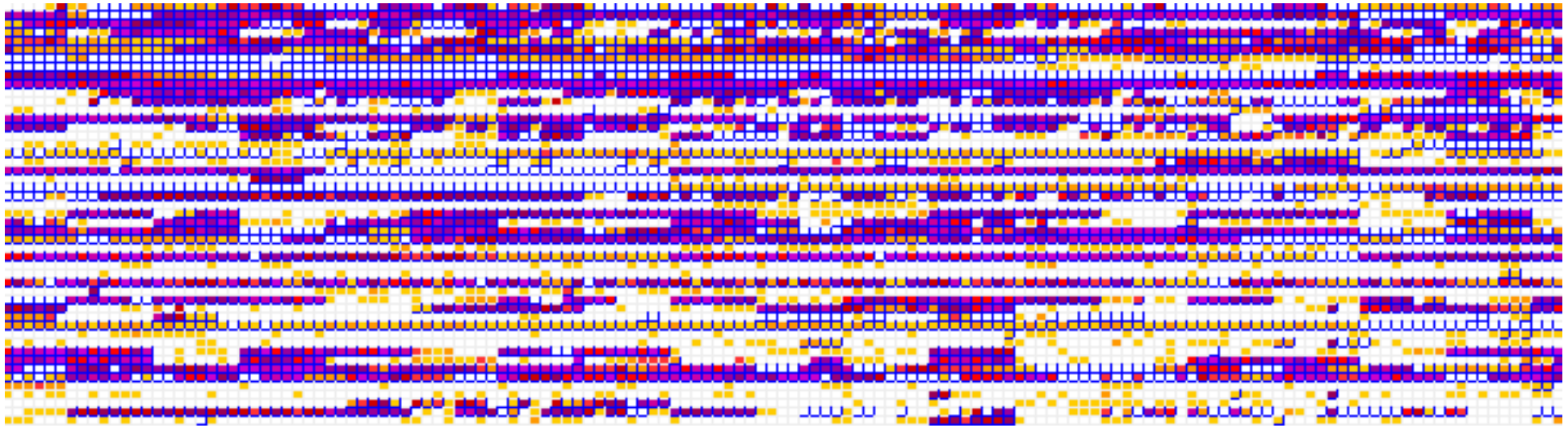
Spamhaus XBL

- Zooming out: bad region (South America / LACNIC)



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Spamhaus PBL

Spamhaus Policy Block List

Spamhaus PBL

- Spamhaus Policy Block List
- List ranges that should not do direct-to-MX
- Input by Spamhaus and ISPs
- No questions asked single IP removal

Spamhaus PBL

- Over 600 million IP addresses listed
- 1/3rd contributed by ISPs
- Big German participants:
  Arcor, 1&1, Netcologne
- Big other ISPs:
  Comcast, Roadrunner, Verizon

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Spamhaus DBL

Spamhaus Domain Blocklist

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Spamhaus DBL

- Provide additional protection against spam that passes IP-based DNSBLs
- Shorten the usable lifespan of spammer controlled domains
- Help registrars and registries protect their TLD(s)

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What is the input for the DBL?

- Domains, domains, domains
- And some IP addresses as well
- Not only bad domains!

And then?

- DBL engine processes each domain to calculate reputation
- Bad domains are put into the DBL zone
- New zone is built and distributed to worldwide users ***every minute***

What ends up in the zone?

- Domains fully under the control of cybercriminals and spammers
- Used for spam, phishing or malware distribution
- These domains will have either been used in spamvertized URLs or as nameservers, redirectors, reverse DNS, etc.

Some lessons learned (1)

- The big ‘Ruskranian’ spam operations use new domains every few minutes
- So, they consider domains a throw-away resource!
- Makes them very different from regular customers, who tend to be in it for the long run

Some lessons learned (2)

- Some spammers ‘age’ domains: domains are not always used directly after registration
- Aging can be weeks or months, periods of over a year have been seen in the wild

Some lessons learned (3)

- Who considers rogoxxywtrcwph.info to be a legit domain?
- Apparently there is no need to hide
- Some register domains like these in batches of thousands

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Some lessons learned (4)

- Speaking of hiding… whois privacy protection is still strongly associated with badness
- Roughly 1 in 5 privacy protected domains we see ends up being listed in the DBL

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Some lessons learned (5)

- Some registrars have over 90% of their sponsored domains listed
- We doubt the legitimacy of these kind of ‘registrars’

Some lessons learned (6)

- Domains have become a vital part of the spammer infrastructure
- Resiliency is built by spreading over TLDs, registrars and nameservers

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Trends in spammer infrastructure

Current ‘hot technologies’ (1)

- P2P botnets
- Reverse proxies
- VPN usage
- Fast flux / bulletproof hosting

Current 'hot technologies' (2)

- DNS hijacking
- Malware staging
- iframe exploits
- Legit website compromises

P2P

No more easy C&C shutdown

Reverse proxies

Content is not where it seems to be

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VPN

Shady VPN providers deliver encrypted anonimity

Fast flux

x new locations. Every y minutes.

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DNS hijacking

Addresses are not
where they seem to be

Malware staging

Modulized malware for specific tasks

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iframe exploits

Embed badness in any webpage

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Legit website compromises

Get infected by visiting the website of the local soccer team

Compromise-du-jour

- Spamvertized:
  http://emaze.gr/phenol17.html

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML (etc)
<html><head>
<META HTTP-EQUIV="refresh"
CONTENT="0;URL=http://ersteskur.com">
        <title></title>
</head></html>
```

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Stories from the field

Storm worm web-based updates

```
server {
        listen        80;
        server_name  localhost;
        access_log  logs/host.access.log  main;

include conf/blacklistrules;

location ~ /aff/.* {
proxy_pass          http://216.255.187.146:80;
proxy_set_header  X-Real-IP  $remote_addr;
}
```

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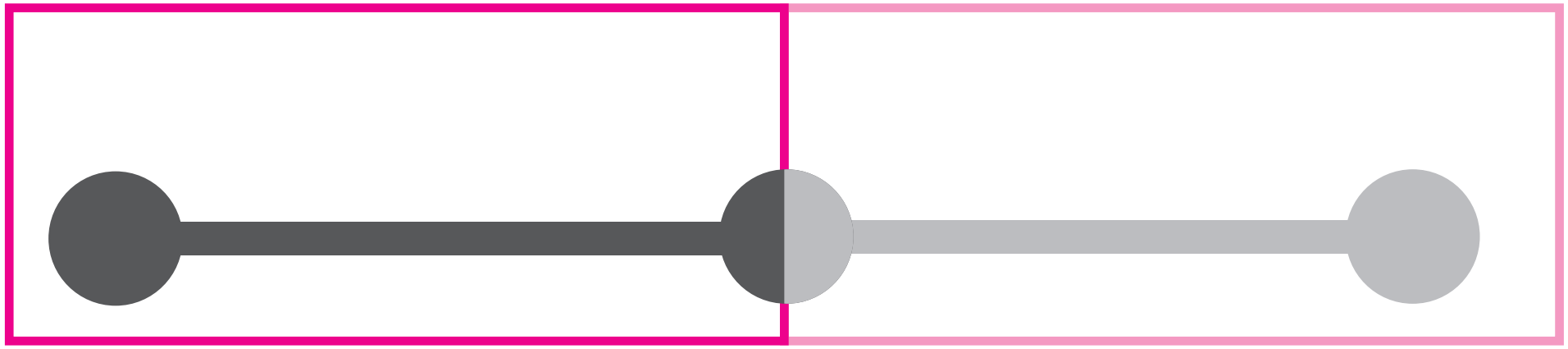
Storm worm web-based updates

Visible with packetlogging

Only visible at ISP!



Storm infectee

nginx server

real server containing the malware

Custom proxies

- *nix binary for web and DNS
- Built in list of good guys
- Good guys (us!) firewalled with iptables
- Deletes itself from disk on startup

Back-end zonefile

- Administrative domain for spammer infrastructure found with passive DNS
- Due to config error whole zone was found

Back-end zonefile

- 241 DNS records pointing to over 100 servers
- Hosted at 25 ISPs
- In 11 countries

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Back-end zonefile

```
001          1H IN A    195.128.[redacted]
agava1       1H IN A    89.108.7[redacted]
anyy         1H IN A    192.168.[redacted]
backup       1H IN A    208.43.6[redacted]
backup2      1H IN A    75.126.2[redacted]
chat         1H IN A    195.128.[redacted]
china100     1H IN A    211.91.2[redacted]
china105     1H IN A    111.67.2[redacted]
china106     1H IN A    60.191.2[redacted]
china111     1H IN A    119.18.2[redacted]
china113     1H IN A    59.63.15[redacted]
china119     1H IN A    111.67.2[redacted]
china121     1H IN A    218.10.1[redacted]
```

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Back-end zonefile

```
china122        1H IN A    61.235.1[redacted]
china125        1H IN A    61.191.6[redacted]
china127        1H IN A    61.191.1[redacted]
china128        1H IN A    60.172.2[redacted]
china129        1H IN A    61.191.1[redacted]
china130        1H IN A    222.172.[redacted]
china132        1H IN A    222.241.[redacted]
china133        1H IN A    221.12.8[redacted]
china134        1H IN A    218.93.2[redacted]
china135        1H IN A    219.72.2[redacted]
china136        1H IN A    202.111.[redacted]
china137        1H IN A    121.14.1[redacted]
china138        1H IN A    60.172.2[redacted]
```

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Back-end zonefile

```
china139        1H IN A    61.158.1[redacted]
china140        1H IN A    218.75.1[redacted]
china141        1H IN A    59.53.88[redacted]
china142        1H IN A    218.75.1[redacted]
china143        1H IN A    58.218.2[redacted]
china144        1H IN A    121.170.[redacted]
china145        1H IN A    61.191.1[redacted]
china146        1H IN A    222.138.[redacted]
china147        1H IN A    59.53.91[redacted]
china148        1H IN A    222.241.[redacted]
china149        1H IN A    60.172.2[redacted]
china150        1H IN A    60.172.2[redacted]
china151        1H IN A    58.17.36[redacted]
```

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Back-end zonefile

```
china152        1H IN A    218.10.1[redacted]
china153        1H IN A    117.41.1
china154        1H IN A    61.191.1
china155        1H IN A    218.10.1
china156        1H IN A    61.191.1
china157        1H IN A    60.172.2
china158        1H IN A    60.172.2
china159        1H IN A    222.138.
china160        1H IN A    220.181.
china161        1H IN A    61.191.1
china162        1H IN A    121.11.8
china163        1H IN A    218.61.1
china164        1H IN A    58.218.1
```

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Back-end zonefile

```
china165        1H IN A    121.10.1[redacted]
china166        1H IN A    123.164.[redacted]
china167        1H IN A    211.234.[redacted]
china168        1H IN A    218.61.1[redacted]
china169        1H IN A    61.235.1[redacted]
china170        1H IN A    222.162.[redacted]
china171        1H IN A    124.248.[redacted]
china172        1H IN A    58.218.1[redacted]
china173        1H IN A    60.172.2[redacted]
china174        1H IN A    61.191.1[redacted]
china175        1H IN A    59.34.19[redacted]
china176        1H IN A    61.158.1[redacted]
china177        1H IN A    218.93.2[redacted]
```

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Back-end zonefile

```
china178        1H IN A    219.129.[redacted]
china79         1H IN A    222.241.[redacted]
china95         1H IN A    59.53.88[redacted]
clock           1H IN A    195.128.[redacted]
clock           1H IN A    195.128.[redacted]
cvs             1H IN A    80.93.56[redacted]
czech1          1H IN A    193.104.[redacted]
de              1H IN A    195.95.1[redacted]
dev             1H IN A    195.128.[redacted]
dim             1H IN A    80.250.2[redacted]
egor1           1H IN A    89.149.1[redacted]
eurovps1        1H IN A    77.235.4[redacted]
gera2           1H IN A    195.190.[redacted]
```

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Back-end zonefile

```
gera3          1H IN A    91.207.4[redacted]
german1        1H IN A    89.149.2
glavmedvds     1H IN A    92.63.11
holland1       1H IN A    85.12.25
hongkong1      1H IN A    119.42.1
hop1           1H IN A    217.65.9
hop2           1H IN A    217.65.9
hop2mf         1H IN A    217.65.9
hop3           1H IN A    217.65.9
hop4           1H IN A    89.188.1
icq            1H IN A    195.128.
incom-mail     1H IN A    82.146.4
ipserver3      1H IN A    91.193.1
```

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Back-end zonefile

```
ipserver6       1H IN A    95.211.1
isps            1H IN A    82.146.5
isps-nss        1H IN A    82.146.3
isps10          1H IN A    78.24.21
isps11          1H IN A    92.63.11
isps12          1H IN A    82.146.4
isps2           1H IN A    82.146.4
isps3           1H IN A    82.146.3
isps4           1H IN A    82.146.5
isps5           1H IN A    82.146.4
isps6           1H IN A    82.146.4
isps7           1H IN A    82.146.4
isps8           1H IN A    82.146.3
```

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Back-end zonefile

```
isps9          1H IN A    82.146.3
israel2        1H IN A    82.166.4
israel3        1H IN A    212.150.
jabb           1H IN A    67.228.8
jail-mail      1H IN A    91.209.1
jail1          1H IN A    195.95.1
jail2          1H IN A    195.95.1
jail3          1H IN A    91.208.1
knock-test     1H IN A    195.128.
knock-welcome  1H IN A    174.36.2
kvm            1H IN A    195.128.
livechat       1H IN A    195.128.
localhost      1H IN A    127.0.0.
```

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Back-end zonefile (highlights)

```
backup          1H IN A    208.43.6[redacted]
backup2         1H IN A    75.126.2[redacted]
chat            1H IN A    195.128.[redacted]
cvs             1H IN A    80.93.56[redacted]
icq             1H IN A    195.128.[redacted]
incom-mail      1H IN A    82.146.4[redacted]
livechat        1H IN A    195.128.[redacted]
nagios          1H IN A    74.86.30[redacted]
mysql.otrs      1H IN A    89.188.1[redacted]
send-mail       1H IN A    82.146.4[redacted]
support-wiki    1H IN A    195.128.[redacted]
vpn-node        1H IN A    67.228.9[redacted]
wiki            1H IN A    174.37.1[redacted]
```

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Funnies ~~Stories~~ from the field

Babblefish or?

How are you.
Me as the Min-ho, Jeong which is in Korea it does. The SBL the bedspread where the mail server child blood of our company is register in list.

The IP Block the substitute actor which is to the IDC and we among the rest are in the process of using one IP.

Happy ISP

Thank you for great help! How about your last weekend? Do you feel happy? Today is Monday. Your efficient reply gives me so much encouragement. Therefore, I won the praises for my job this morning. Personally this praise should be given to you honestly. Furthermore, I hope more efficient cooperation between Spamhaus and [elided] will proceed.

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An invitation...

4/ it is not our main business, we have oil, real estate businesses here, in Moscow and Saint-Petersburg. so we are not so good in Internet business, sure we can mistake, but we wish to work well, to have friendship with you.

5/ we are willing to invite you to visit Russia, we will organize it for free everything for you here for high class. you can see that we are good comapny with good people and we are not spamers and scamers at all.

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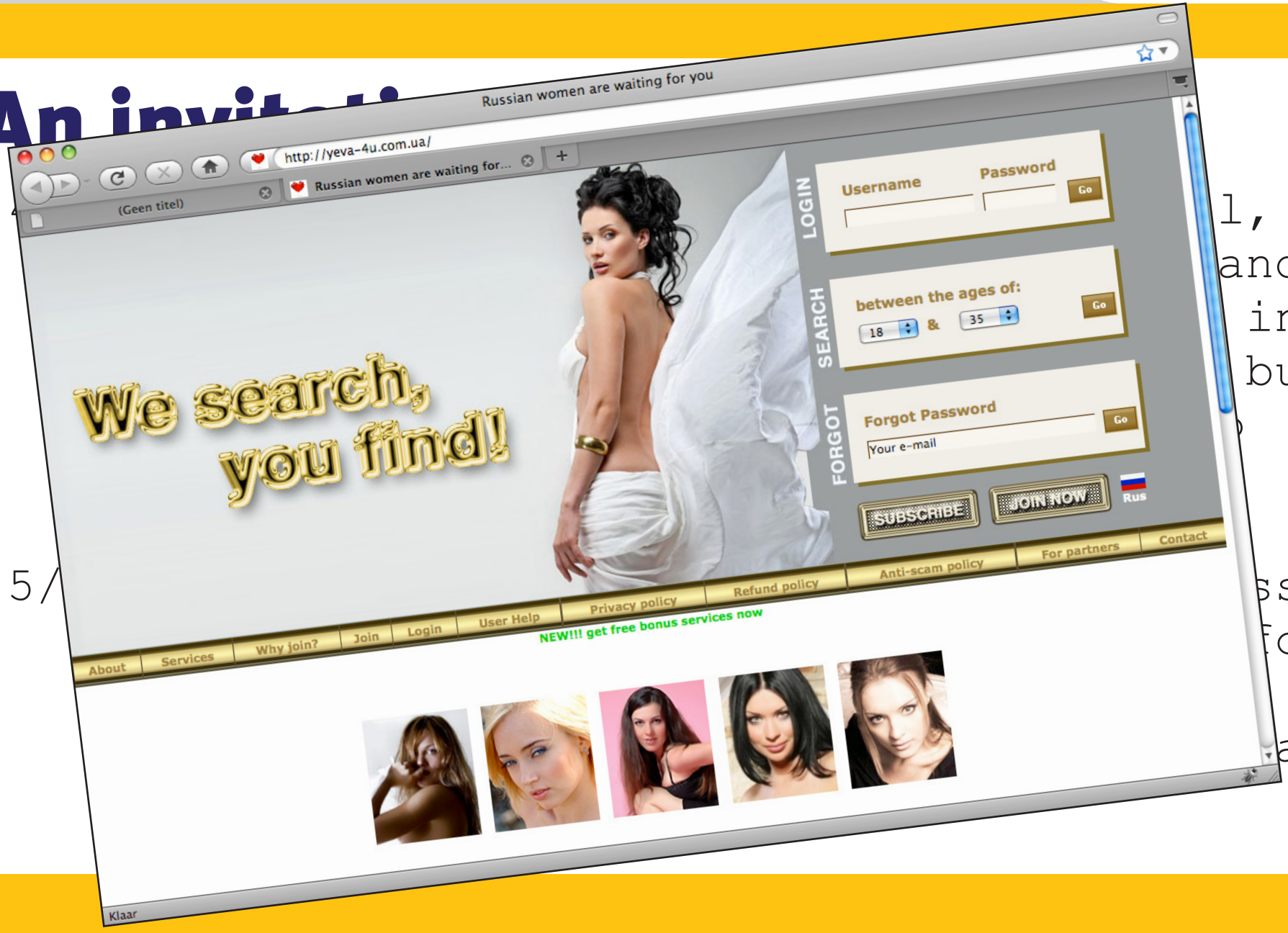
An invitati



l,
and
in
but

5/

ssia,
for
we
are

Closing up...

Closing up...

- Thank you! But...
- We must try harder. Problems are getting more serious and harder to solve.