

# How to Prevent IPv6 from Running Over Your DNS

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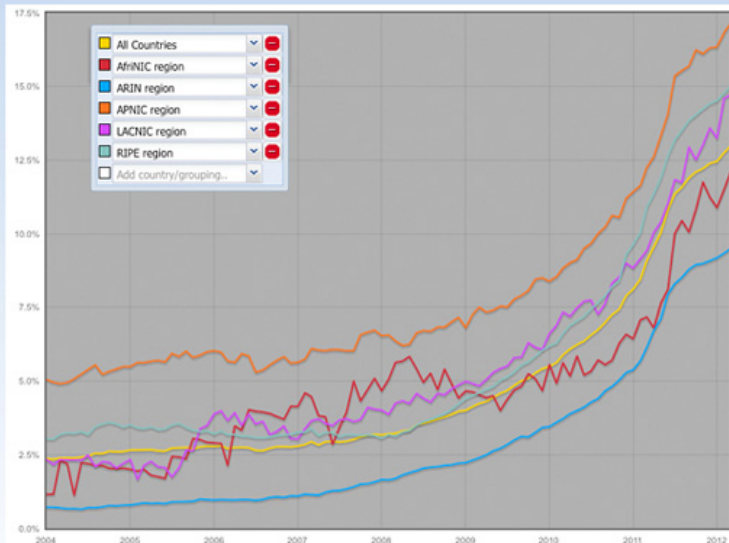
# I am the Guy that Knows That



# NOT Talking About

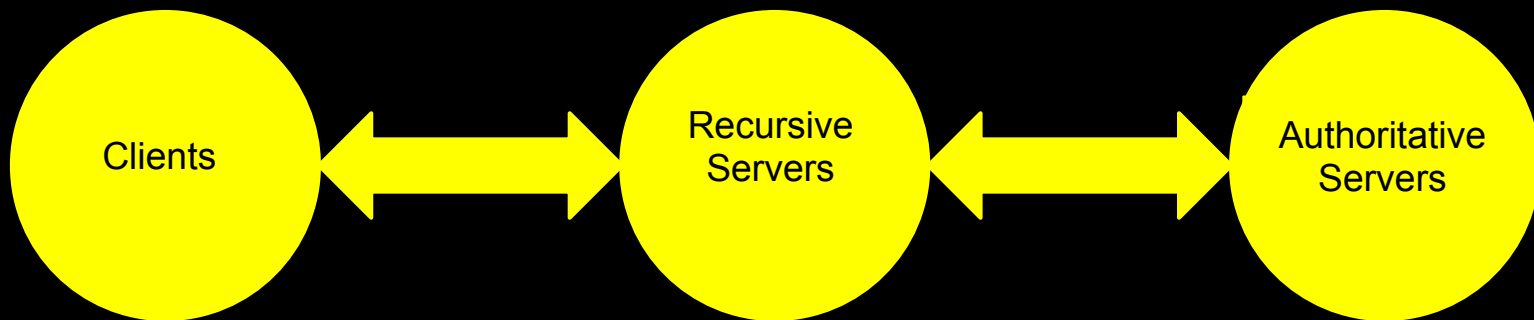
- What is IPv6? What is DNS?
- IPv4 Address Depletion
- IPv6 is a "good thing"

Networks Announcing IPv6 Per RIR Region



# What is IPv6 DNS?

- Transport. Clients and Servers over IPv6
- AAAA records
- PTR records ("ip6.arpa.")



# Transport

- Transport is independent.
  - Clients and Servers
1. Txns for v4 data over IPv4 transport
  2. Txns for v6 data over IPv6 transport
  3. Txns for v4 data over IPv6 transport
  4. Txns for v6 data over IPv4 transport

# AAAA Records

DNS Record Type is "AAAA" (28)

brig AAAA 2001:dead:beef:0:21e:68ff:fe49:c783

caravel AAAA 2001:dead:beef::72ff:fe5d:c42f

ipv6.google.com. -> 2001:4860:800e::67

www.v6.facebook.com. -> 2620:0:1cfe:face:b00c:3

# PTR Records

Instead of "in-addr.arpa", we have "ip6.arpa"

```
f.2.4.c.d.5.e.f.f.f.2.7.0.0.0.0.0.0.0.f.e.e.b.d.a.e.d.1.0.0.2.ip6.arpa. PTR caravel.xerocole.net.
```

It looks ugly, but, precise delegation is now possible.

# Things to Worry About

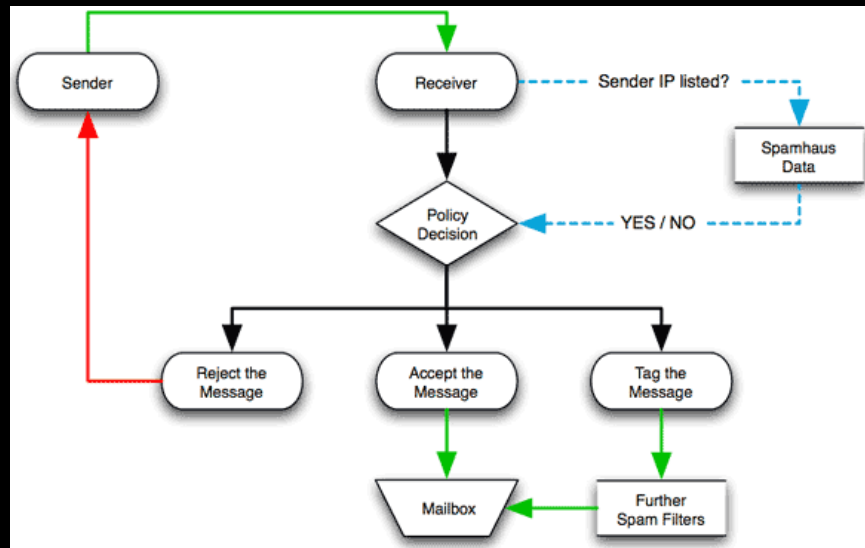
- Antispam DNSBL's use DNS (Spamhaus, etc)
- Simply more Traffic
- Reverse DNS



# AntiSpam DNSBL's

Incoming IP is checked against a remote DNS zone via a DNS query:

"1.0.0.127.dnsbl.com. A"



# Ouch

- IPv6 Spammer attacks your mail server
- A /64 allows "billion/sec" for 1000 yrs
- Cache Destruction
  
- No v6?
- Separate DNS server (or customizable policy)?
- Whitelist?

# Lots More Traffic from IPv6

- Apps don't say "A" or "AAAA"
- AAAA first
- Windows 7+Vista Devolution (.com, .net)
- Microsoft Search, Google Prefetch

One URL can be 12-40 DNS queries

# Reverse DNS

Why?

- Building Trust
- Validating other data
- Security, Geo
- RFC1912 : "PTR records must point back to a valid address record"

# Reverse DNS with IPv6

- Address Space per customer (/64 to /80)
- SLAAC, and DHCPv6 make it impossible to know "ahead of time"
- DYNAMIC is needed!
- Delegation to CPE
- Populate from DHCP server
- On-the-Fly generation

# Thank You



Let me know if I can help.

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