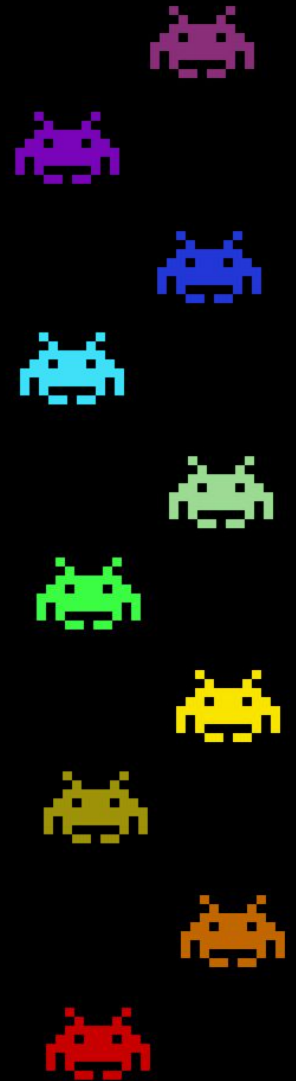


IPv6 : Sysadmin dual stacking challenges in 2016

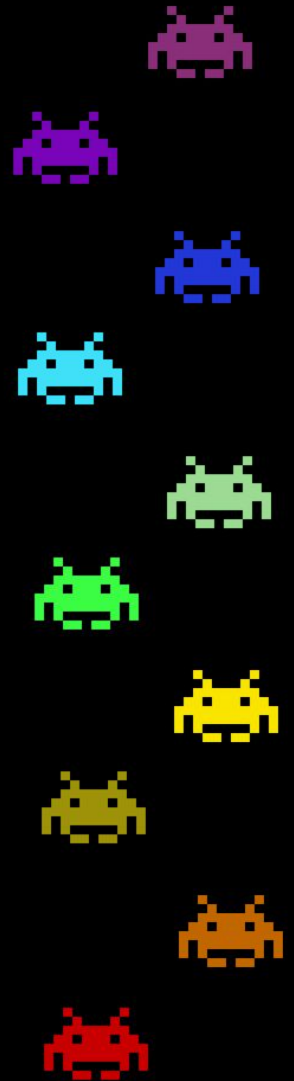
ESNOG GORE 18
October 2016 – Madrid

Matthias Saou <matthias@saou.eu>



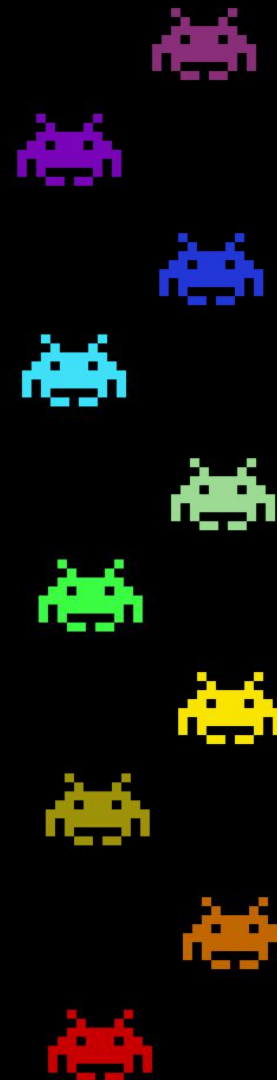
Who am I?

- Sysadmin since Linux kernel 2.0
- Netadmin since 2x 512kbps ISP uplinks
- Freelance computer geek
- Inline skating freak
- LEGO lover



ExoClick & IPv6

- The company
- IPv6 in production?
- Challenges



ExoClick : The company

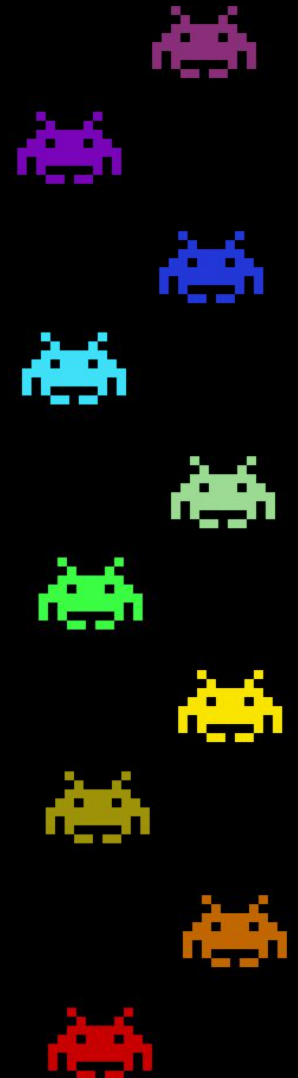
- 4th most used advertising network

Source: <https://w3techs.com/technologies/overview/advertising/all>

- Founded in 2006 (by a PHP developer!)

- Alexa rank 245 (19th w/ IPv6 w/o Google)

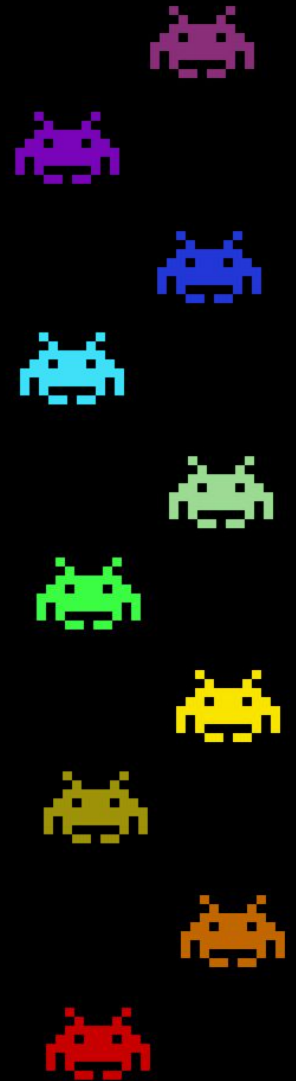
Source: http://www.delong.com/ipv6_alex500.html



IPv6 in production?

Why?

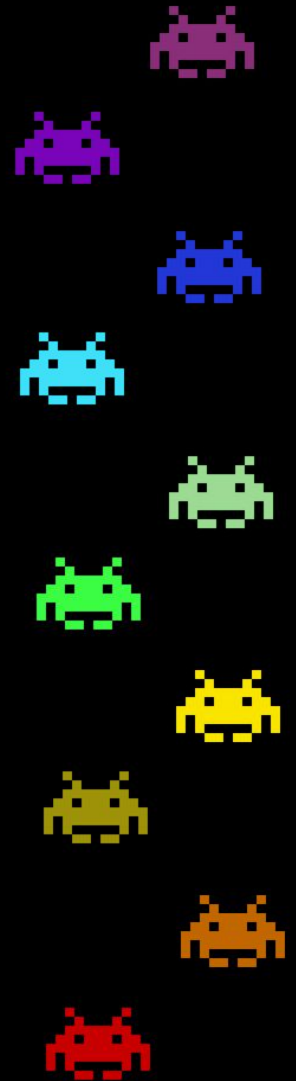
- It's the future
- It's fun
- Big names do it



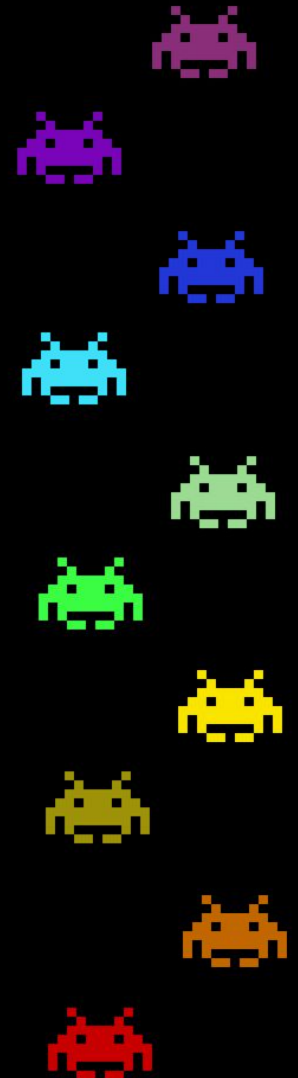
IPv6 in production?

Why not?

- Extra initial work
- Extra recurring work
- Extra overall complexity



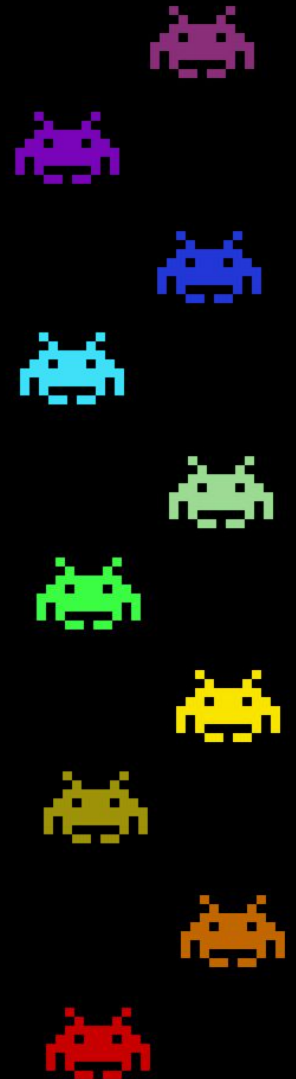
IPv6 in production?



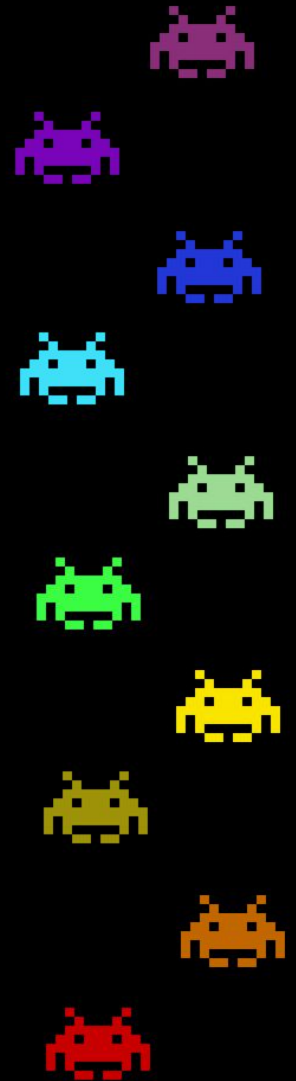
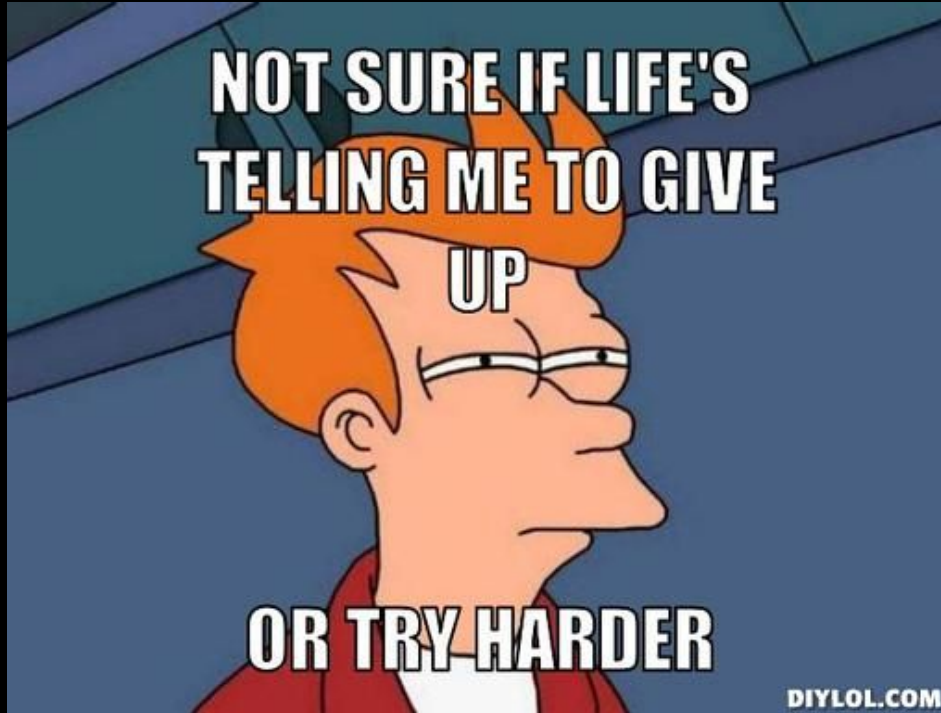
IPv6 in production?

- Customers aren't asking for it
- Management isn't asking for it

ZERO added value as of right now



IPv6 in production?

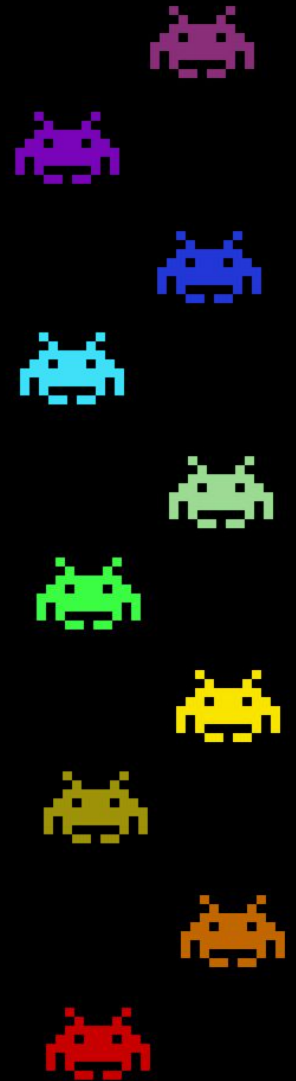


IPv6 in production?

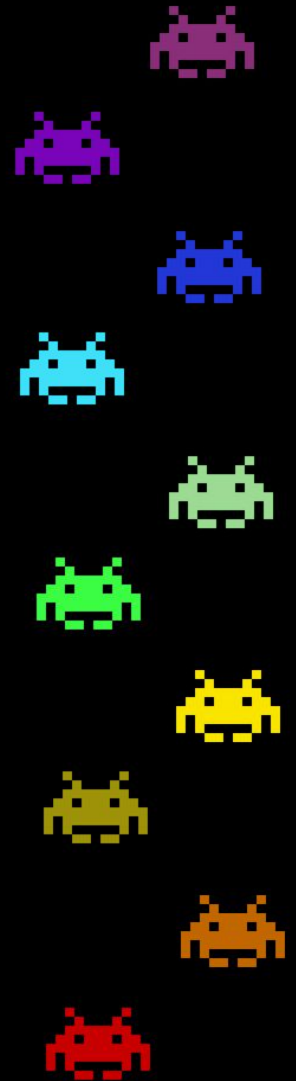
- It can have a negative impact

AND

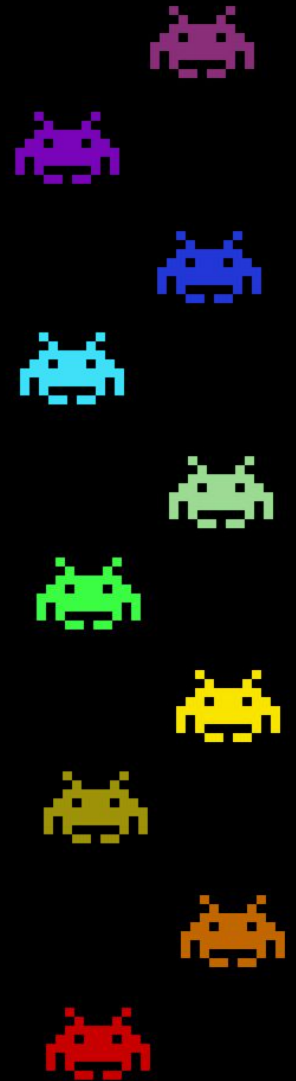
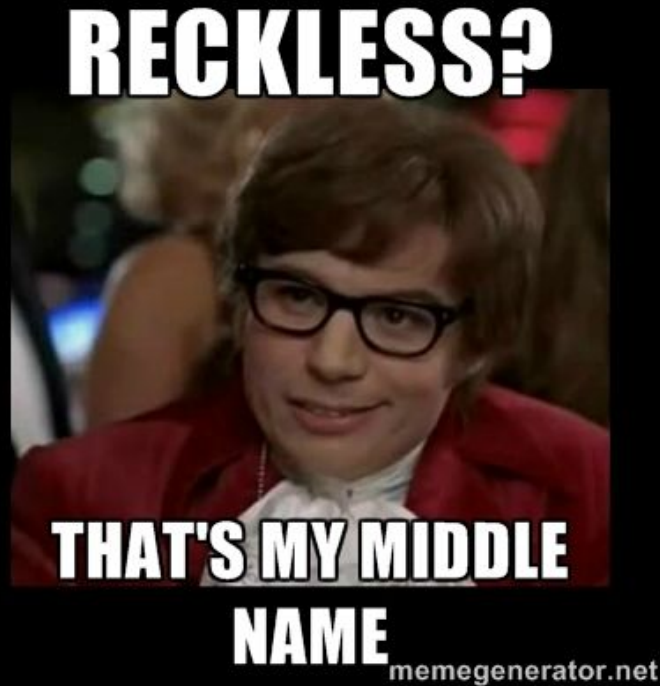
- It can't have a positive impact



IPv6 in production?

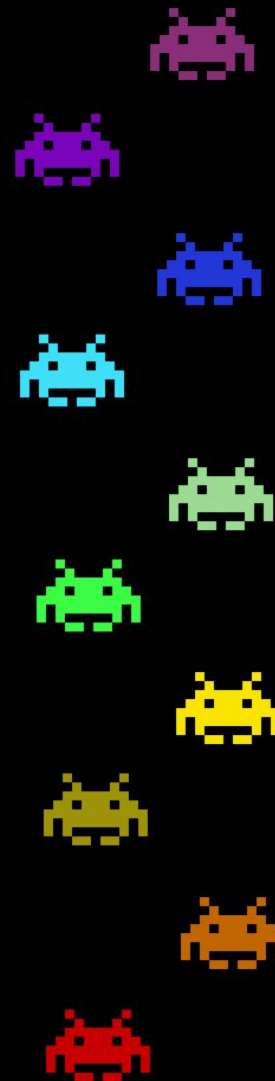


IPv6 in production?

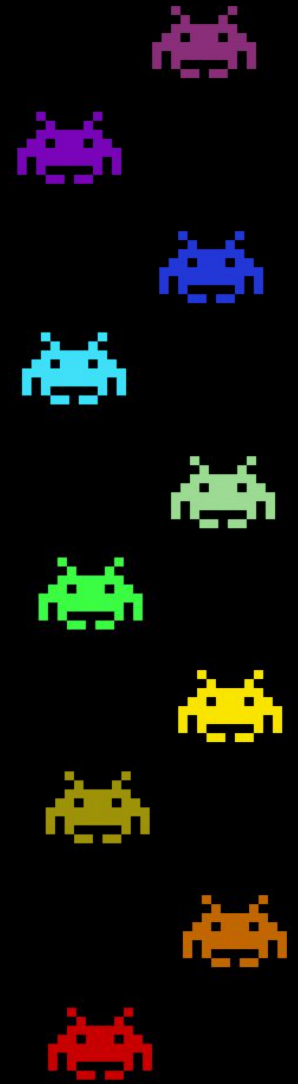


Challenges

- Office Internet connection
- External services
- Company services
 - Internal
 - Customer facing

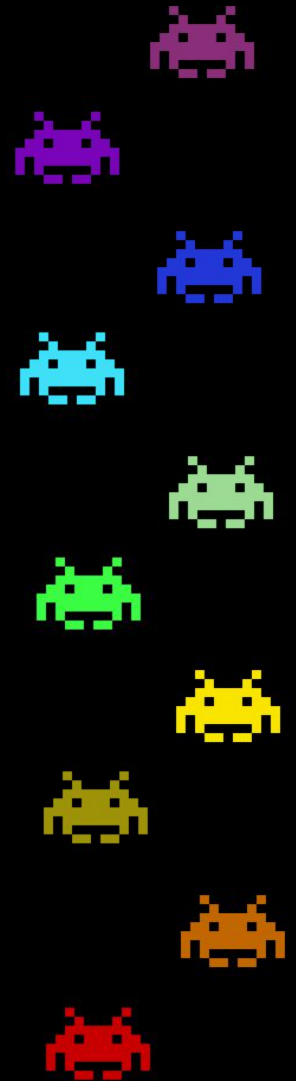


Challenges

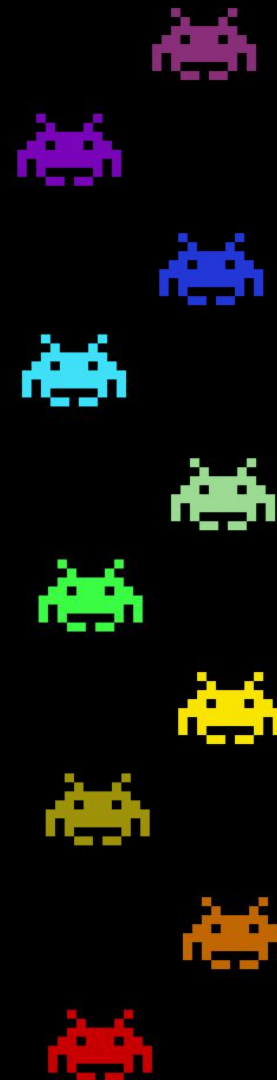
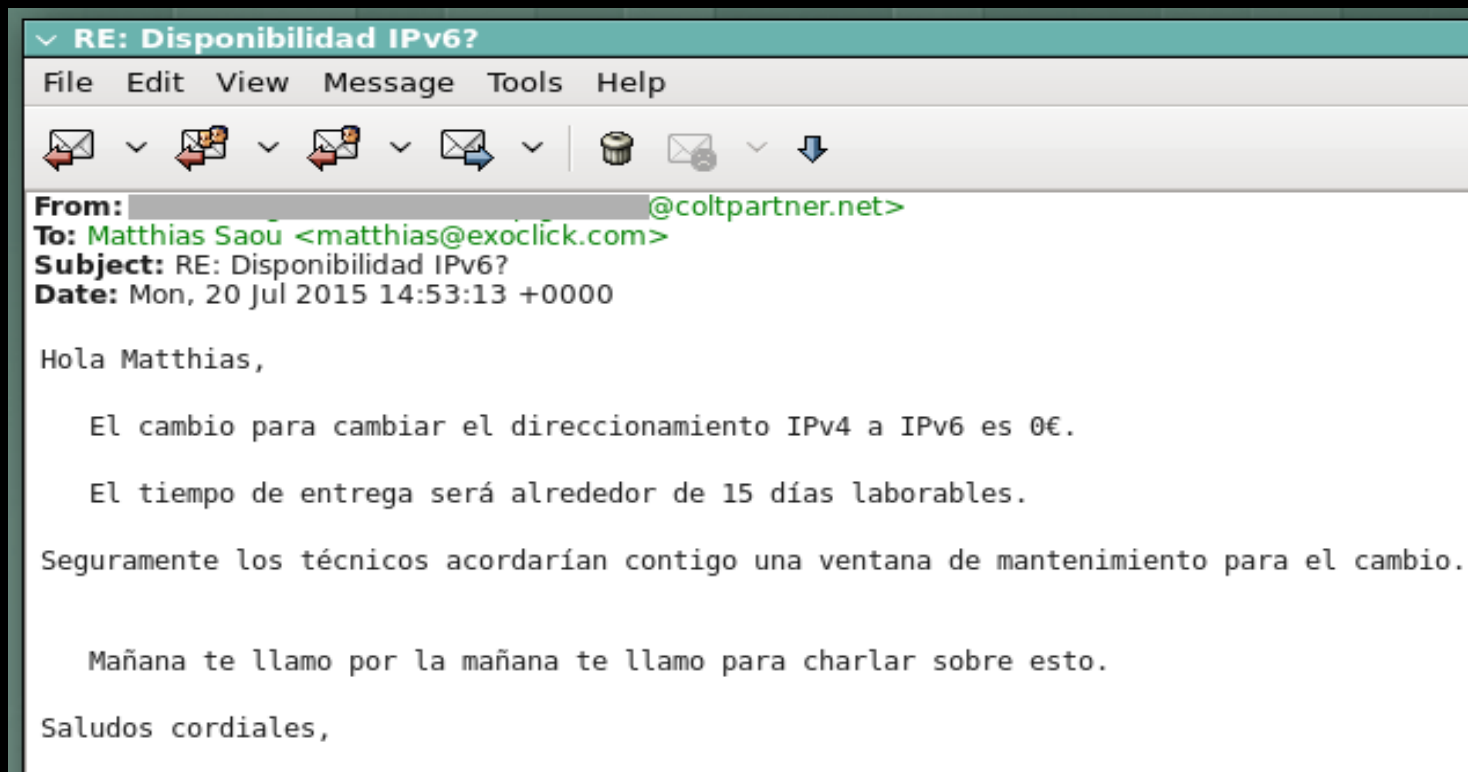


Office Internet connection

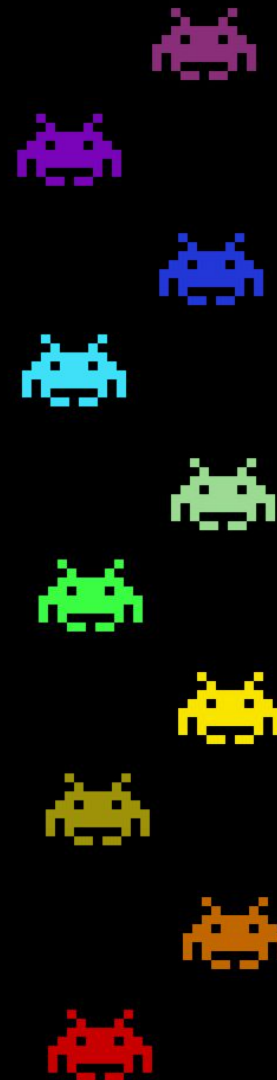
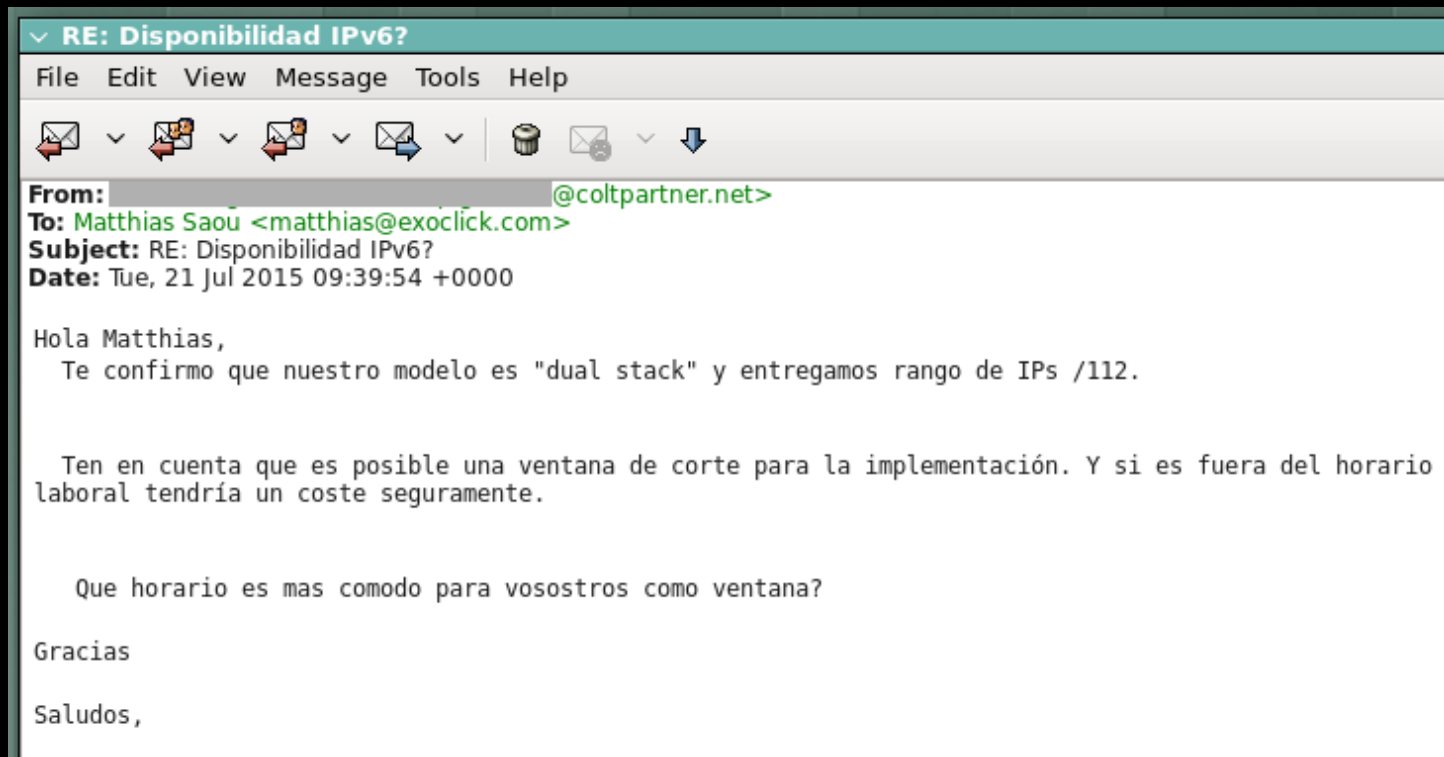
- Native is still not easy to get
- Tunnel?
 - Adds latency
 - Lowers reliability



Office Internet connection

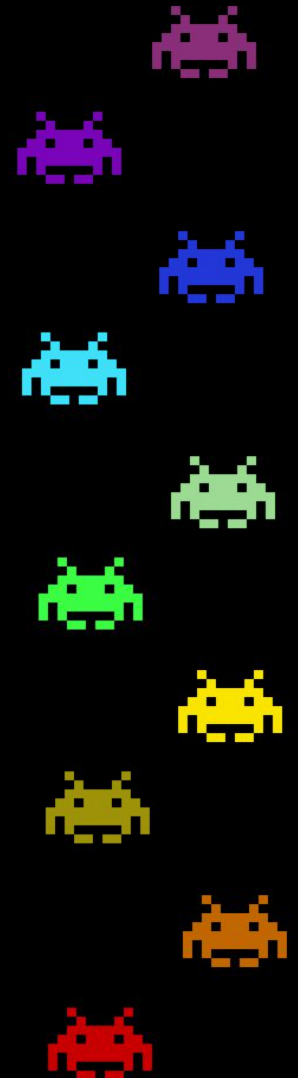
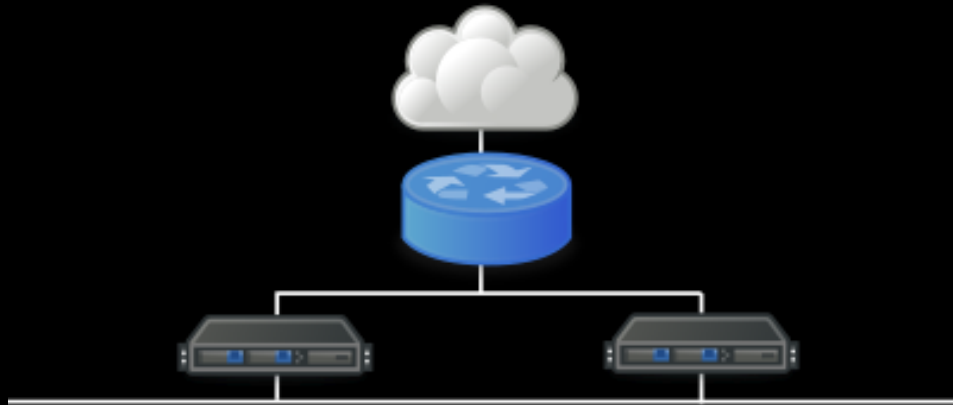


Office Internet connection



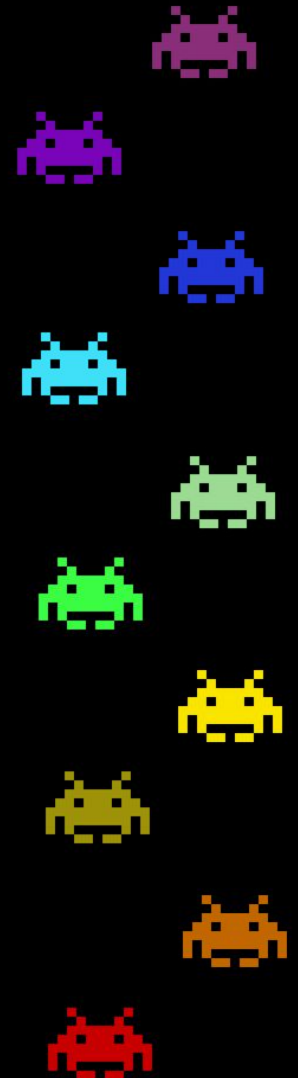
Office Internet connection

- IPv4 : /29 (8 addresses, 5 usable)
- IPv6 : /48 (65536 /64) SINGLE SEGMENT



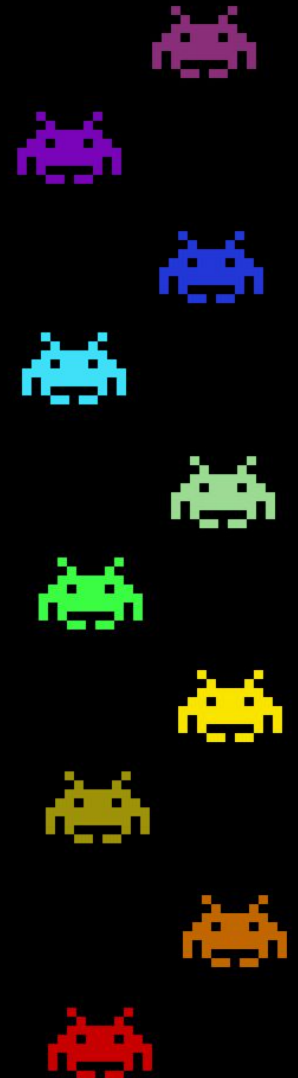
Office : Issues

- Detected by Google as UK or Belgium
- Stateful firewall and autoconfiguration
- <http://notificaciones.060.es/> BAD AAAA
- macOS IPv4 fallback trigger happy
- Colt human error with IPv6 routes



External services

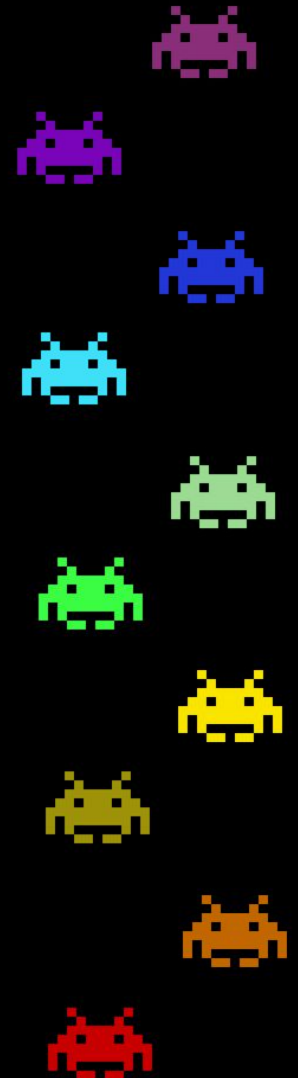
- ISPs :
 - OVH – PASS
 - LeaseWeb – PASS
 - ISPrime – PASS
- DNS : Dyn – PASS
- CDN : EdgeCast/Verizon – PASS
- Cloud : Google – FAIL
- MaxMind GeoIP2 – PASS
- DeviceAtlas – FAIL



Internal : Infrastructure

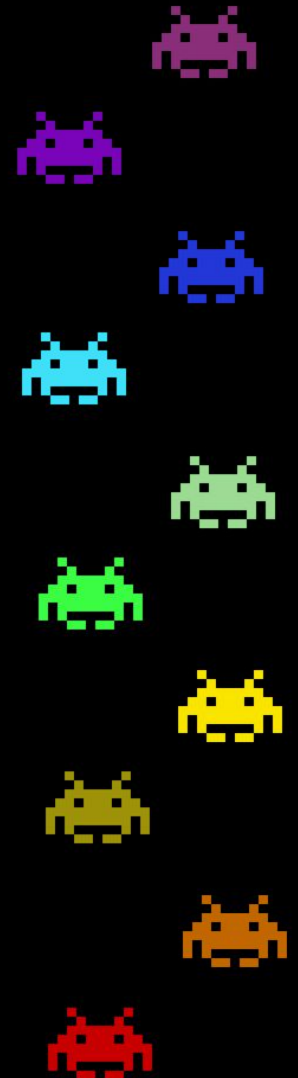
- Servers (OS)
- Network equipment
- Monitoring
- Etc.

GNU/Linux has been ready for a while



Internal : Customer facing

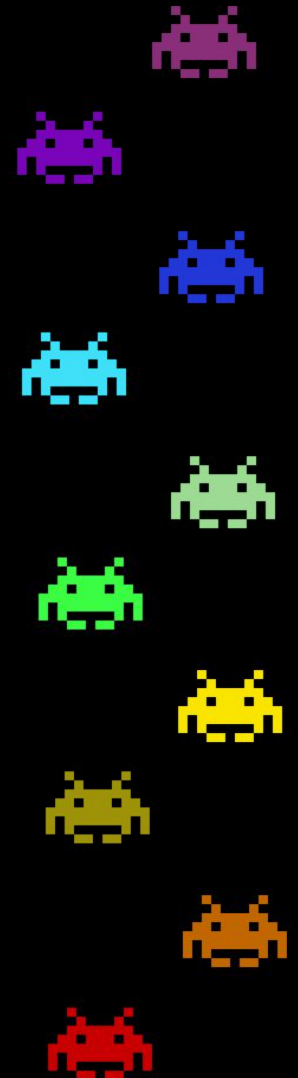
- Ad Serving
 - IP address based detection
- Admin panel
 - Broken IPv6 customer complaints
- Back office
 - Internal sessions vs. IPv4 fallback



Internal : Customer facing

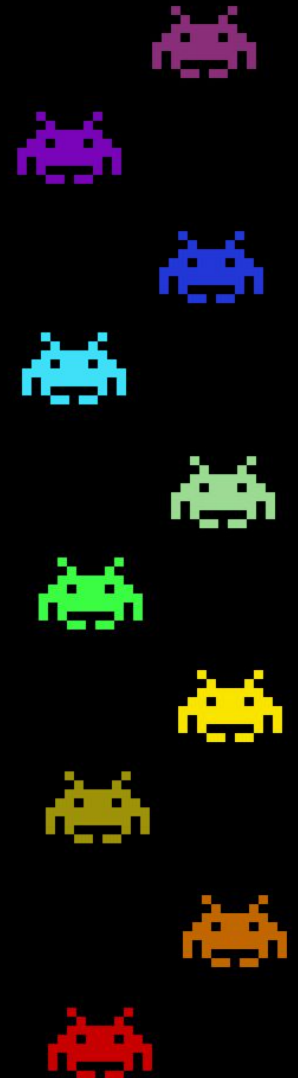
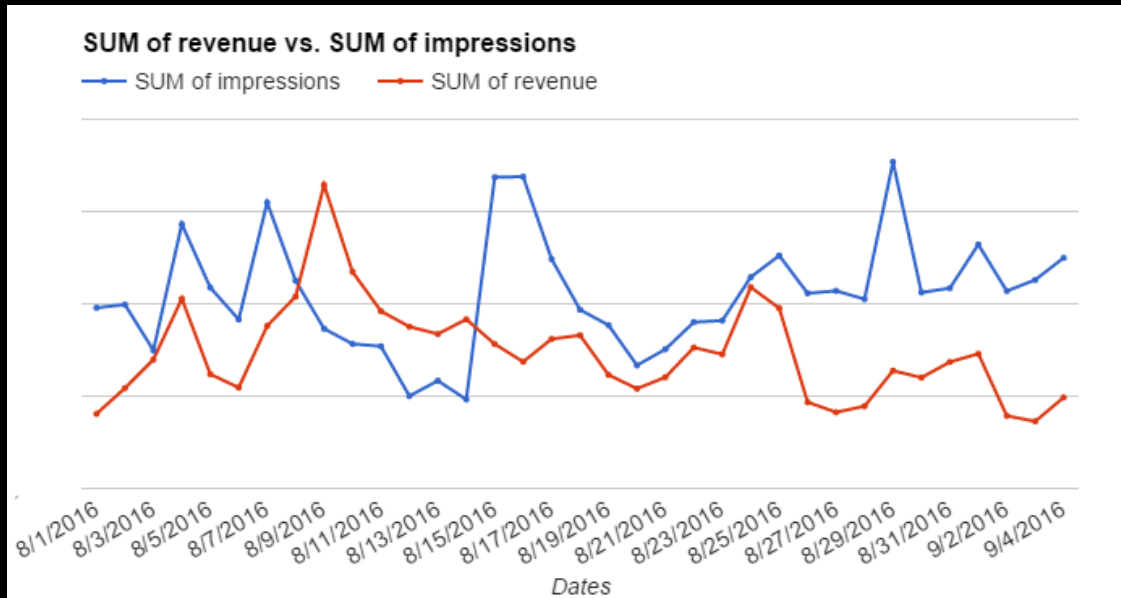
- Logs and audit trails

```
dude@r2d2:~  
MariaDB [dbname]> describe user_connections;  
+-----+-----+-----+-----+  
| Field          | Type          | Null  |  
+-----+-----+-----+-----+  
| id             | int(11)       | NO    |  
| iduser        | int(11)       | NO    |  
| date_cnx      | date          | NO    |  
| ip            | varchar(15)   | NO    |  
| user_agent    | varchar(255)  | NO    |  
+-----+-----+-----+-----+
```



Internal : Customer facing

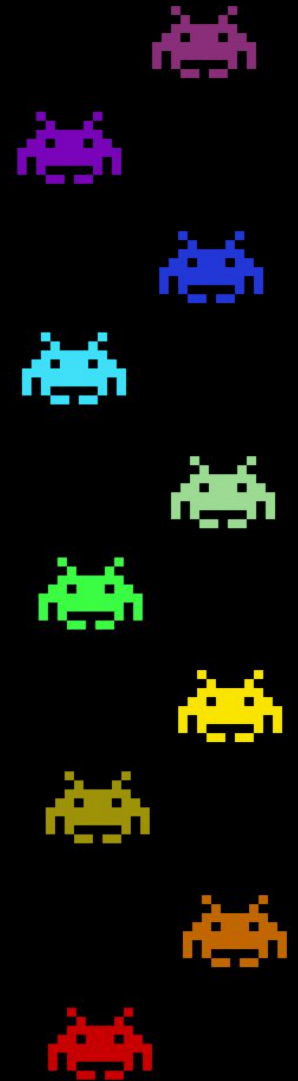
- Mobile Carrier detection :
USA IPv6 traffic



Internal : Customer facing

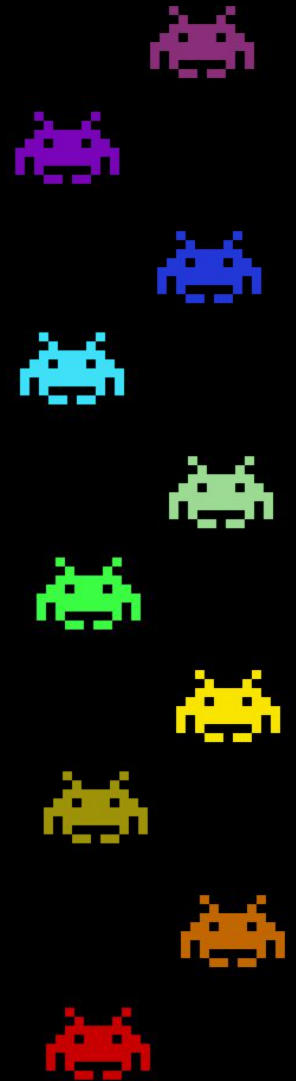
Project to collect IPv4-IPv6
address correspondence

- Ad served from X loads a pixel from Y
- X has A only, Y has both A and AAAA
- X passes REMOTE_ADDR value in Y URL
- Log when addresses are different



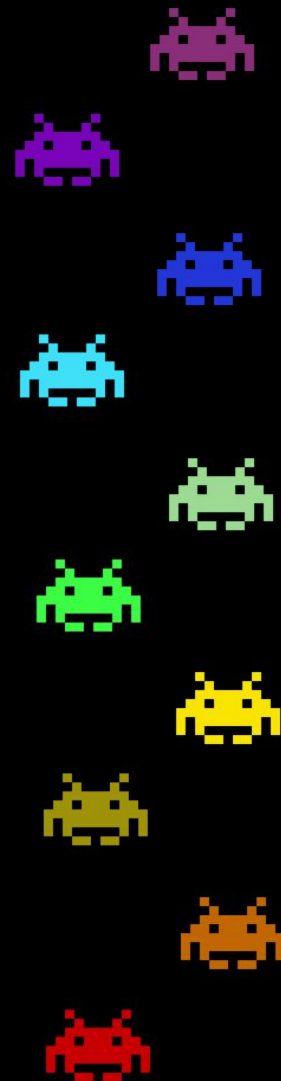
ExoClick & IPv6

To be continued...



Sysadmins & IPv6

THE PESSIMIST
COMPLAINS ABOUT THE WIND;
THE OPTIMIST
EXPECTS IT TO CHANGE;
THE REALIST
ADJUSTS THE SAILS



ExoClick & IPv6

Thanks for listening!

