



# Where is IPv6 deployed in the world?

Eric Vyncke

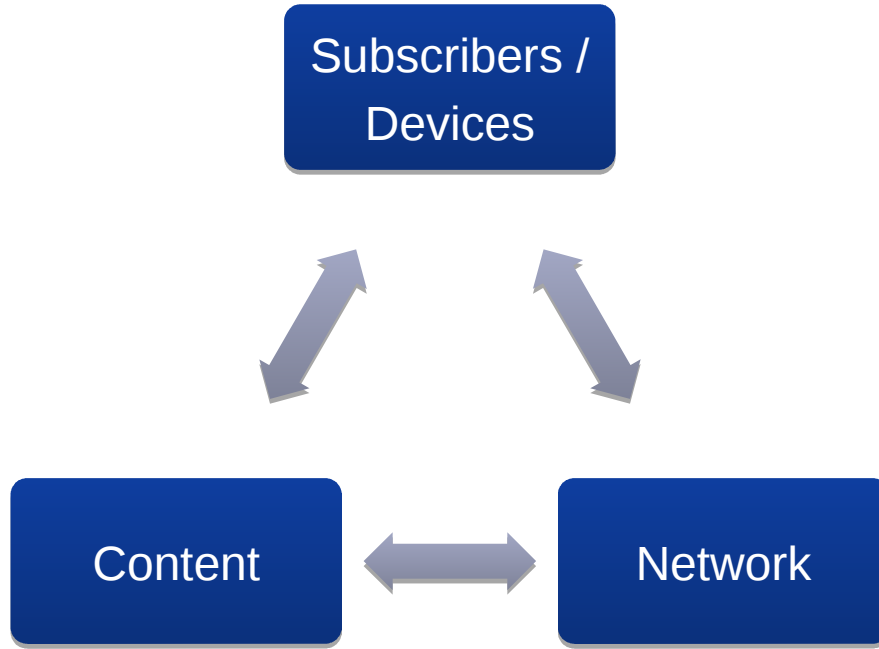
Distinguished System Engineer

Novembre 2015

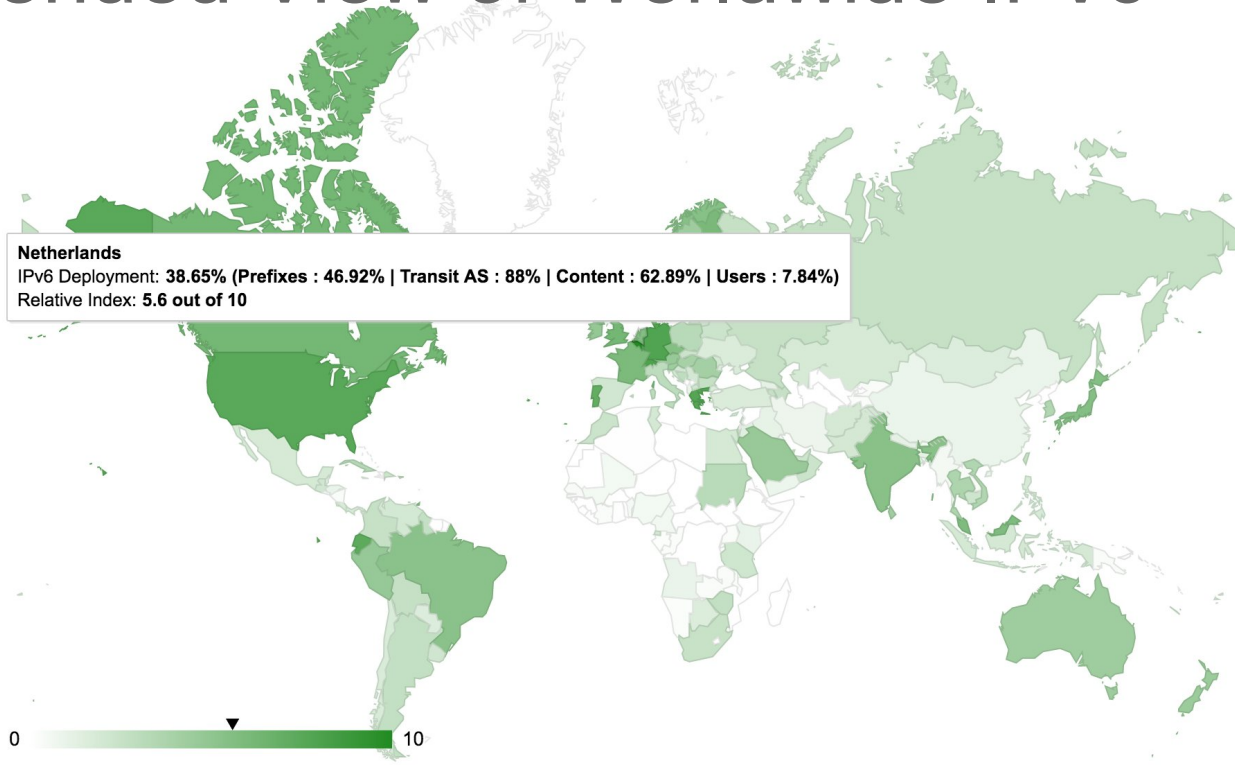
# IPv6 Council of Belgium

- [www.ipv6council.be](http://www.ipv6council.be)
- 2 +2 'core' members
- Mailing list for discussion
  - Mainly used to announce news
- **Two meetings per year (about 40 people)**
  - **Competing ISP are present => building trust & info sharing**
  - **Social event at the end => enforce community spirit**
- Free membership & admission to the event
  - Not always good: no money = no value
    - Hidden sponsoring of the after-meeting 'party'

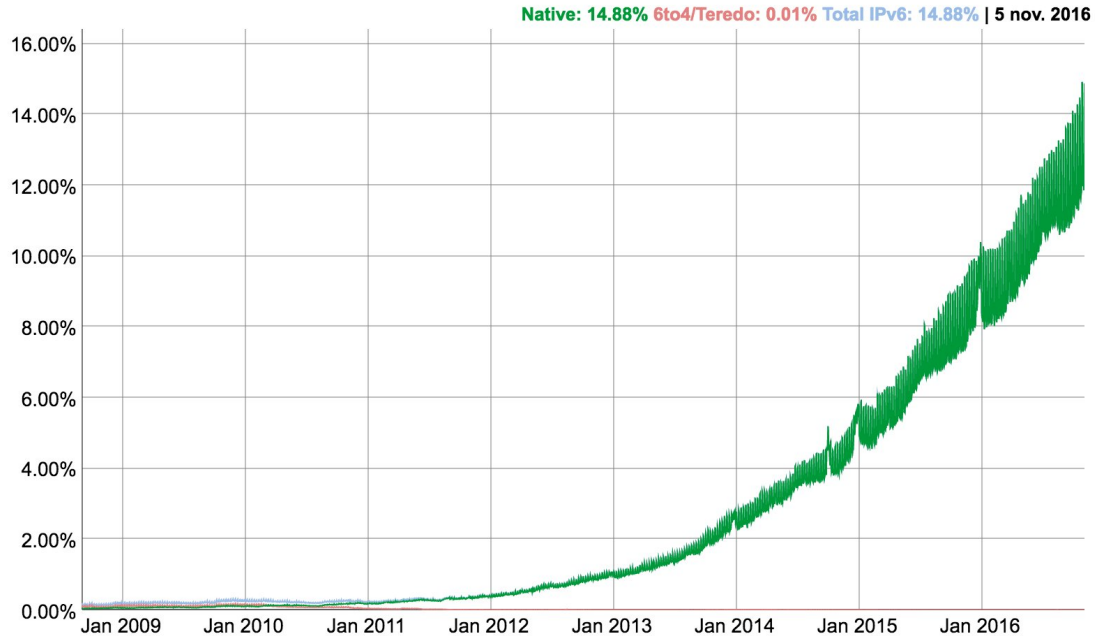
# The Internet Triangle Relationship



# A Blended View of Worldwide IPv6

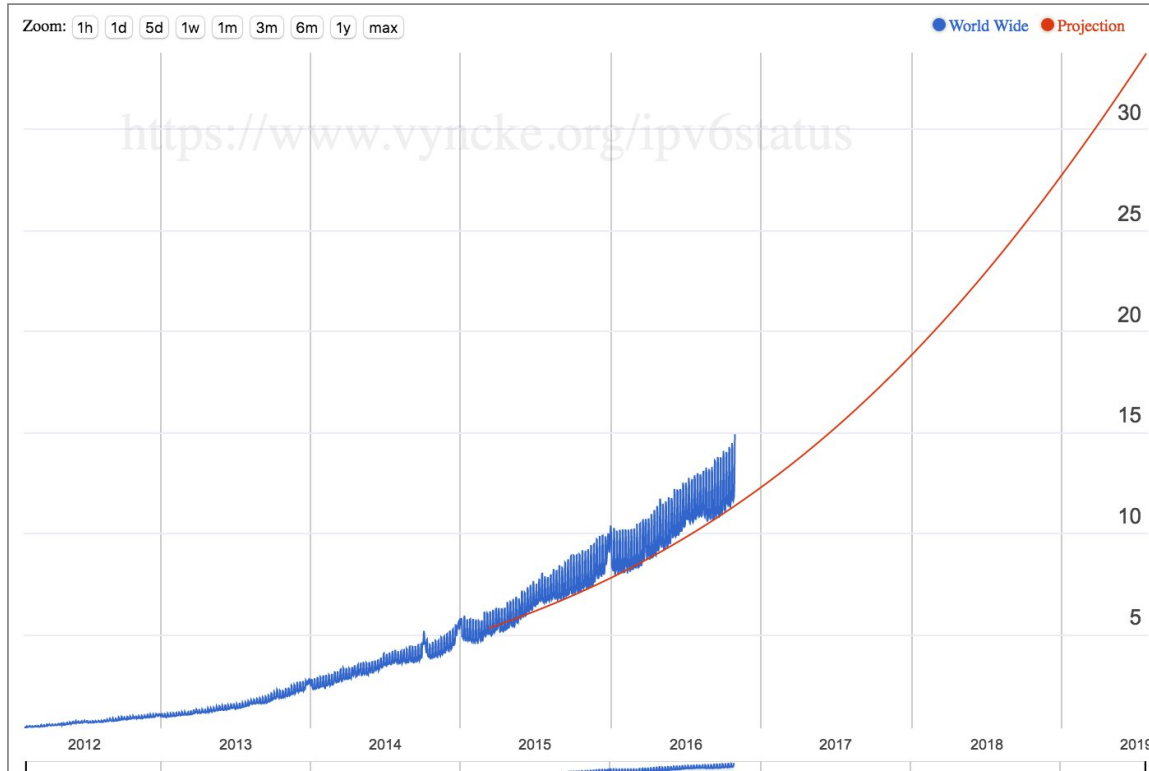


# Sustained Growth of IPv6 Users

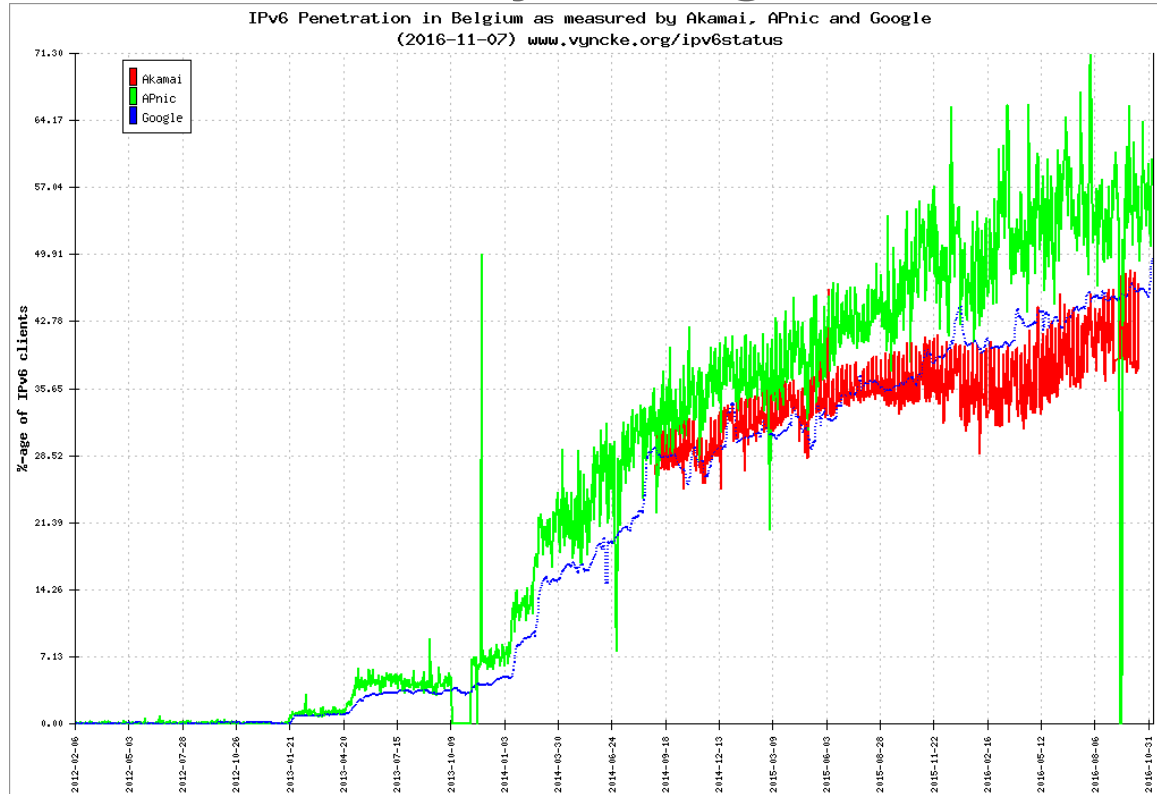


<https://www.google.com/intl/en/ipv6/statistics.html#tab=ipv6-adoption&tab=ipv6-adoption>

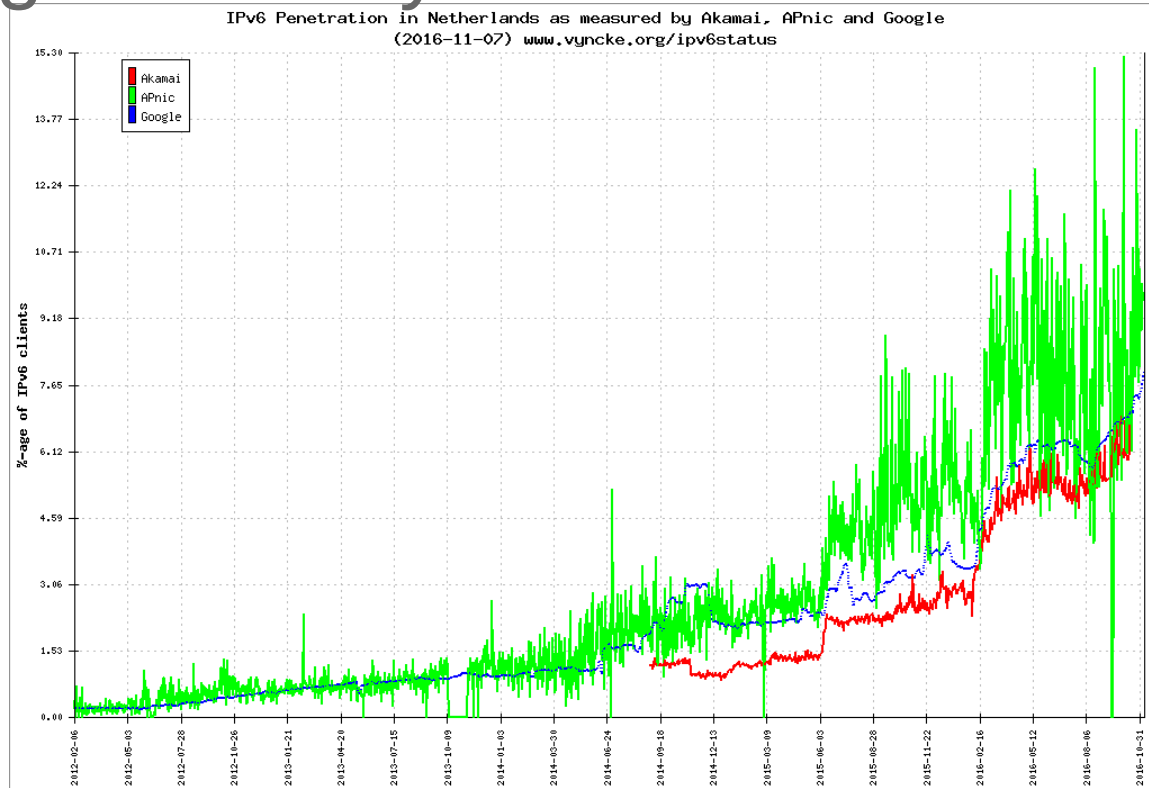
# What About the Future?



# My Own Little Country: Belgium



# Your Larger Country: Netherlands





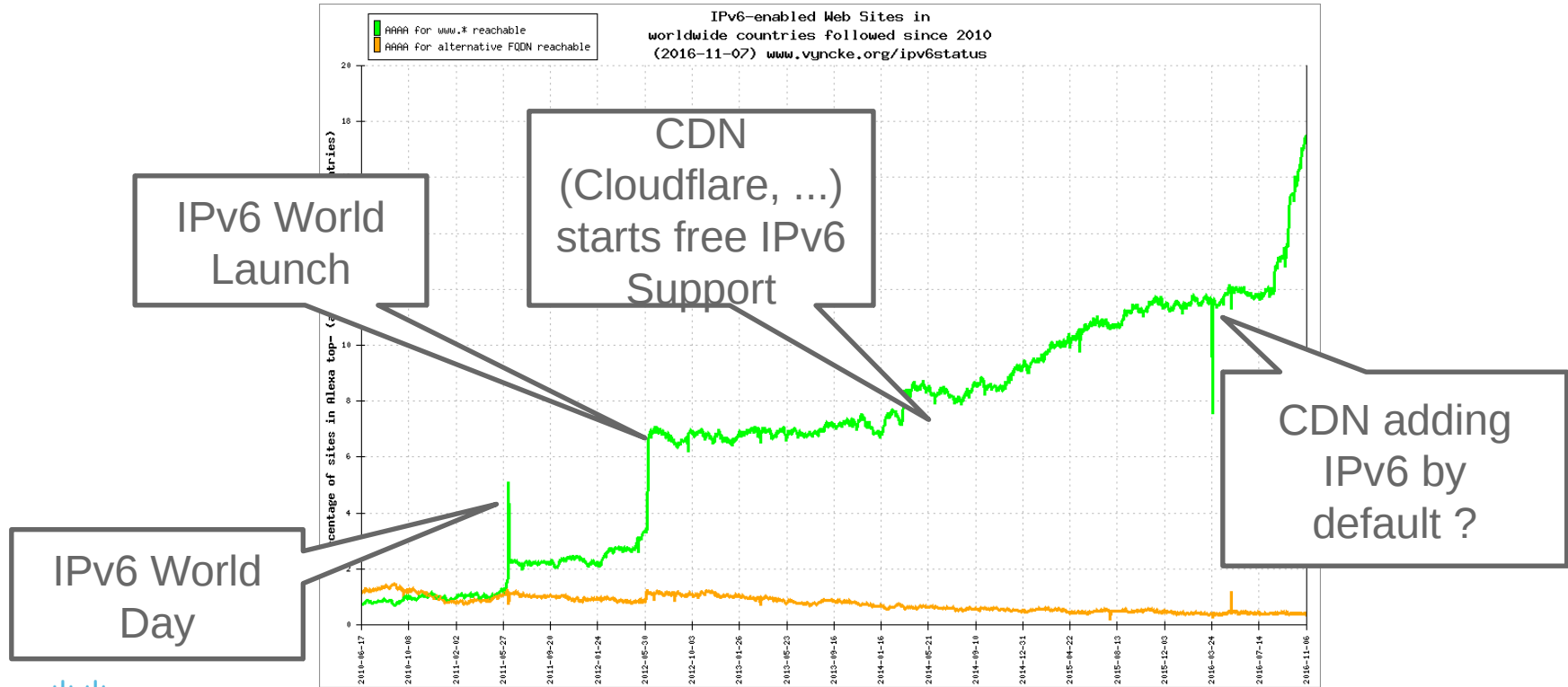
# Top Countries with IPv6 Users

Rank	Country	%-age
1	 <a href="#">Belgium</a>	49.28%
2	 <a href="#">United States of America</a>	29.36%
3	 <a href="#">Greece</a>	27.83%
4	 <a href="#">Switzerland</a>	27.26%
5	 <a href="#">Germany</a>	26.55%
6	 <a href="#">Luxembourg</a>	22.45%
7	 <a href="#">Ecuador</a>	20.06%
8	 <a href="#">Portugal</a>	18.32%
9	 <a href="#">United Kingdom</a>	15.87%
10	 <a href="#">Peru</a>	15.36%

20	 <a href="#">Trinidad and Tobago</a>	9.90%
21	 <a href="#">Ireland</a>	8.41%
22	 <a href="#">Netherlands</a>	7.84%
23	 <a href="#">Norway</a>	7.24%
24	 <a href="#">Romania</a>	6.62%
25	 <a href="#">Australia</a>	5.75%
26	 <a href="#">Austria</a>	5.24%

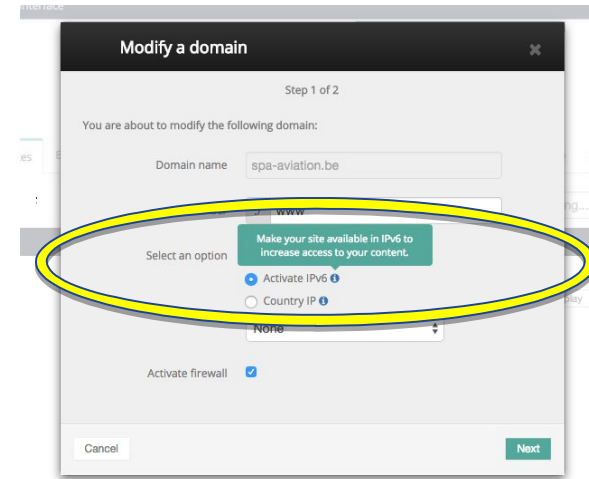
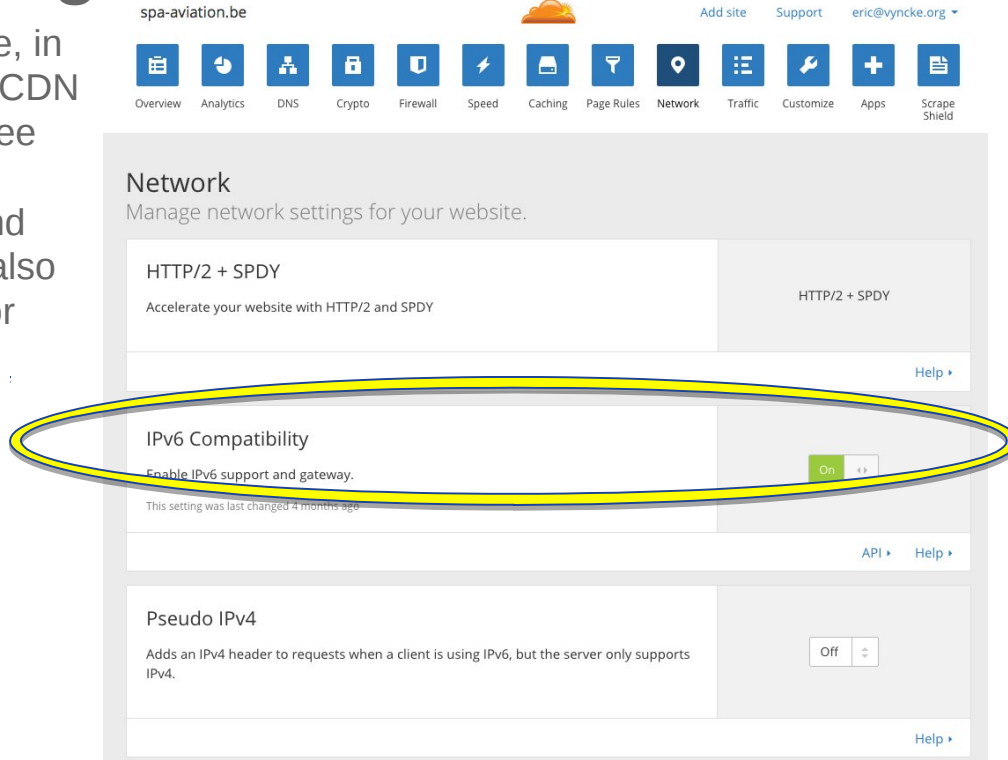
Recent uptakes   
This also means  
time to deploy  
content (less risks)

# What about Content?



# Adding IPv6 in a Click

For example, in CloudFlare CDN (even the free version). TLS/SSL and SPDY can also be added for security.

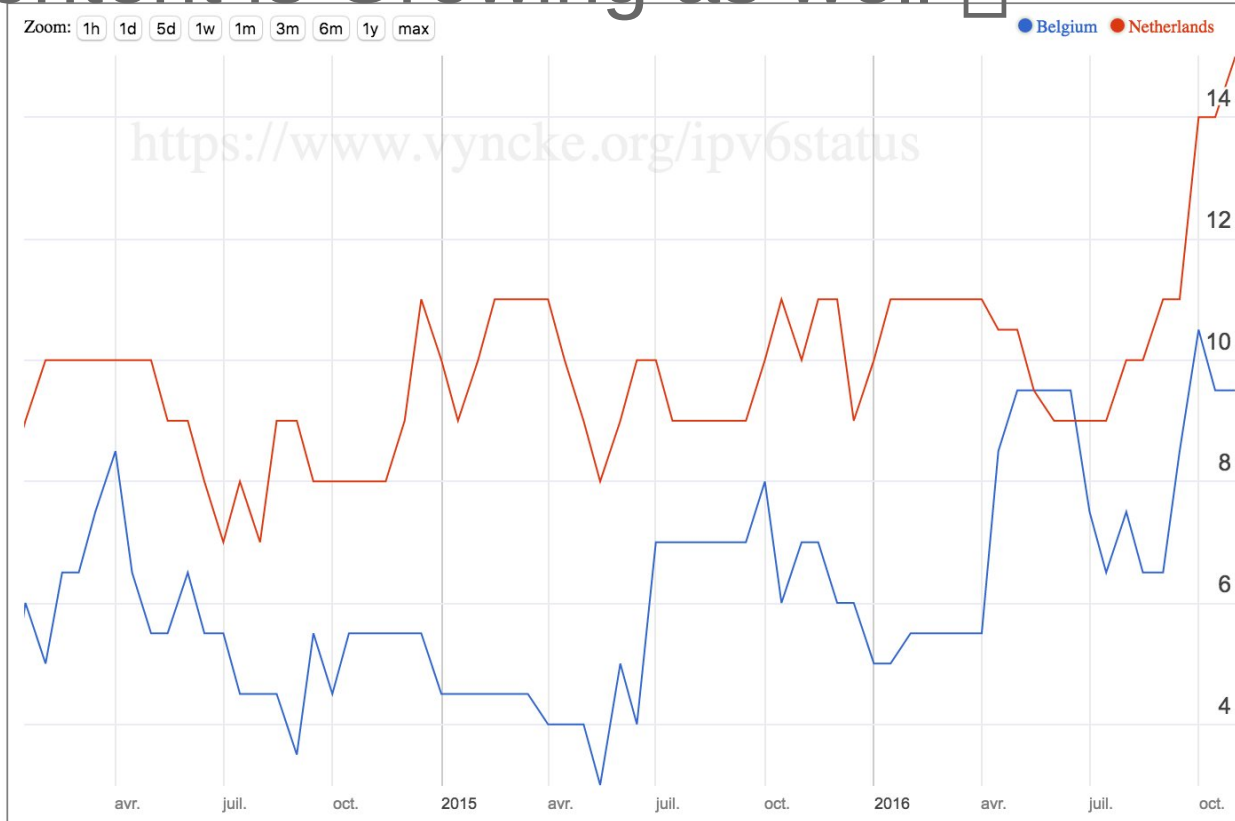


Another example, OVH, web hosting, also a single click

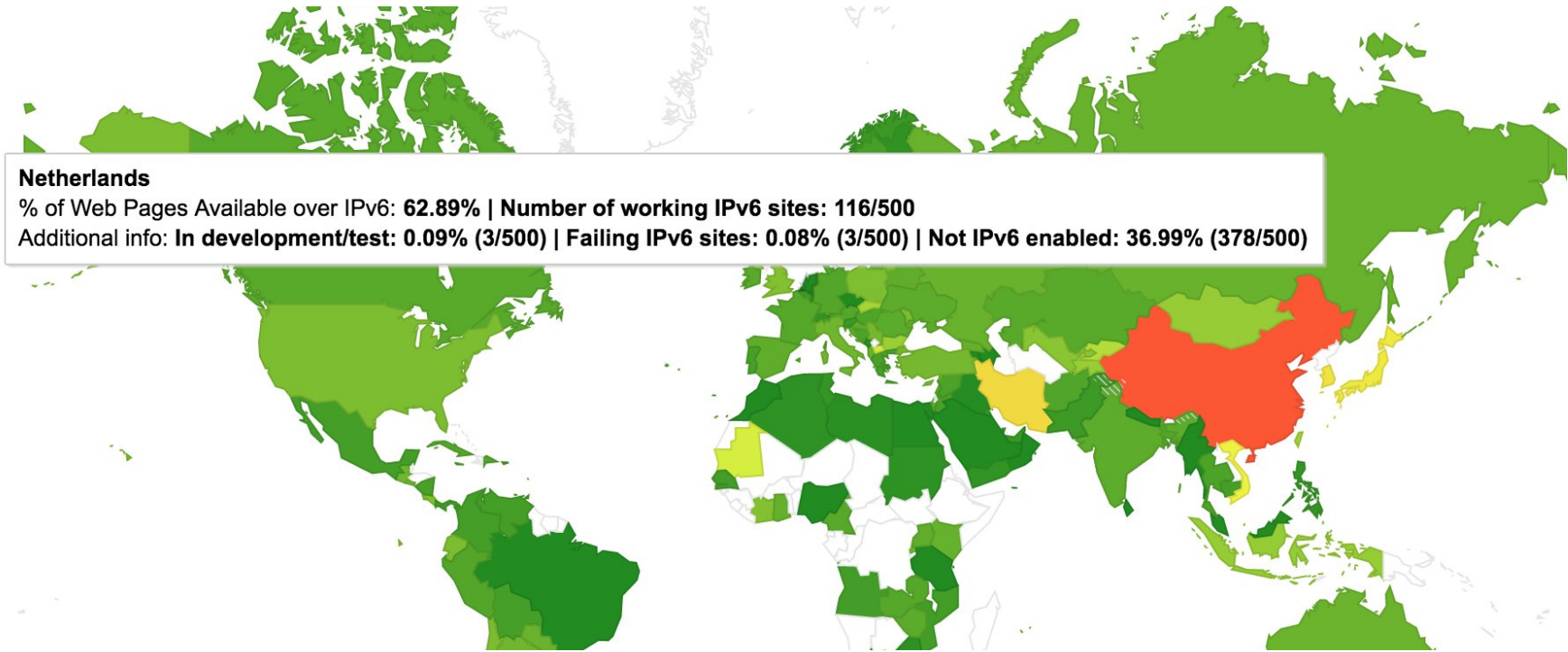
# Example of Akamai and News Organizations

- June 2015, [www.lesoir.be](http://www.lesoir.be) (Rossel) thanks to Akamai
- Sept 2016, [www.hln.be](http://www.hln.be) (Persgroep) thanks to Akamai
  - Followed by all other Persgroep properties: [www.demorgen.be](http://www.demorgen.be) but also
    - [www.ad.nl](http://www.ad.nl)
    - [www.volkskrant.nl](http://www.volkskrant.nl)
    - [www.parool.nl](http://www.parool.nl)
    - [www.trouw.nl](http://www.trouw.nl)
    - ... □

# IPv6 Content is Growing as well



# World Wide Content



# News from NL

From <https://www.vyncke.org/ipv6status/atom/sites.nl.atom>

- Since the 2016-11-05, the prefix 2a03:9d40:2400::/40 (IPTP LTD IPTP Networks) is announced on the Internet.
- Since the 2016-11-03, the prefix 2a01:5040:40::/48 (Booking.com) is announced on the Internet.
- Since the 2016-11-02, the prefix 2a01:5040:6000::/36 (Booking.com BV) is announced on the Internet.
- Since the 2016-11-02, the prefix 2a01:8be0::/29 (TCC The Computer Company B.V.) is announced on the Internet.
- Since the 2016-11-01, the prefix 2a01:5041:2002::/48 (Booking.com) is announced on the Internet.
- Since the 2016-11-01, the prefix 2a01:5041:2001::/48 (Booking.com) is announced on the Internet.
- Since the 2016-10-22, <http://www.piratenproxy.nl>; is reachable over IPv6!
- Since the 2016-10-21, <http://www.gsoranje.nl> is reachable over IPv6!
- Since the 2016-10-21, the prefix 2a01:77e0::/32 (Cloud2 B.V. Cloud2 B.V.) is announced on the Internet.
- Since the 2016-10-20, <http://www.wikileaks.nl> is reachable over IPv6!

 Since the 2016-10-07, <http://www.sexjobs.nl> is reachable over IPv6!

# But what about internal networks?

- IPv6 is already in the core of your DC thanks to Microsoft ;-)
- Some large organizations are running out of RFC 1918 addresses
  - Too many BYOD, wireless, IP phones
  - But also VM and more and more containers
  - Not to mention IoT (badge readers, ...)
  - Public examples: Microsoft, Oracle, Boeing, Facebook, LinkedIn, ...
- Running NAT & CGN has a high OPEX and obscure security audits
- IPv6-centric network will bring features impossible to do in IPv4: billions of addresses, extension headers



# Summary

- IPv6 has taken off, no doubt anymore
- US & Europe are leading IPv6 deployments
  - Netherlands is now deploying at fast pace
- IPv6 Content is still not pervasive
  - CDN can help a lot
- IPv6 is still not widely deployed in small/medium enterprises
- New wave of IPv6-only services/applications