



IPv6 @ VOO

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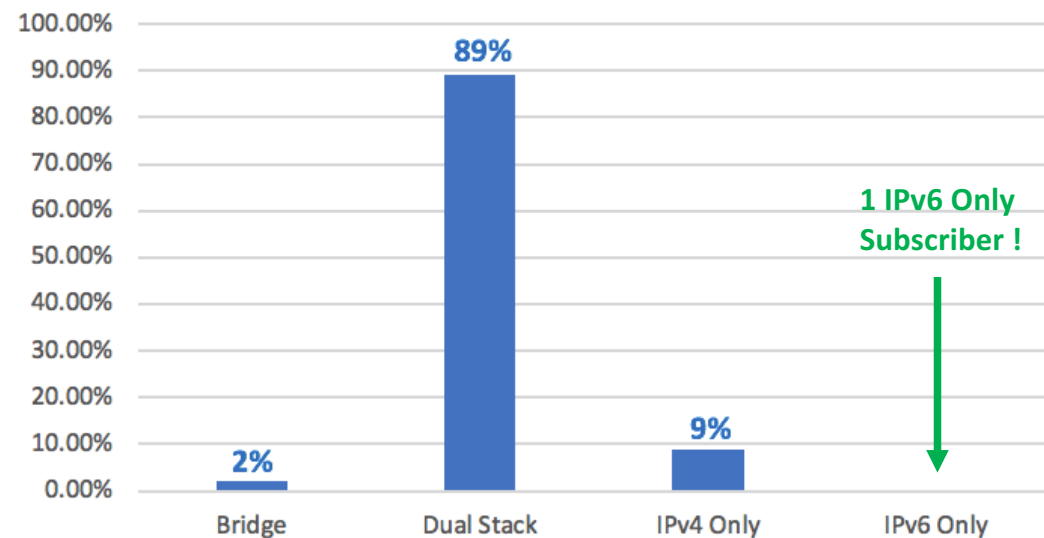
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CABLE MODEMS



- At least 89% of our customers have an IPv6
 - 89% Dual Stack have IPv6
 - 2% Bridged mode may use IPv6 or not
 - + 8% compared to 2017
- 9% of our customers have opted-out from IPv6
 - Decreasing in relative and absolute numbers
- Since last month we have our first IPv6 Only customer

VOO modem stack mode

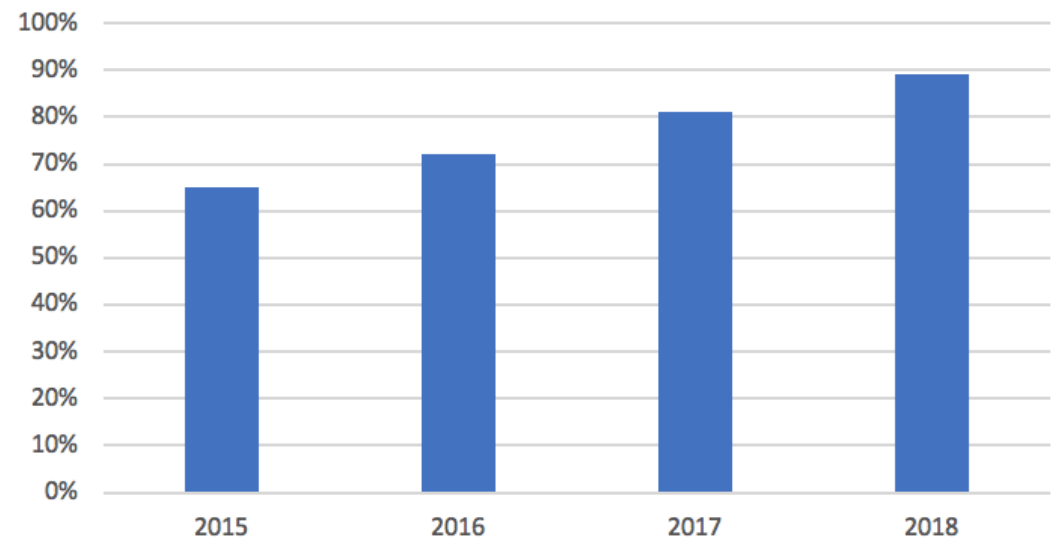


CABLE MODEMS



- Steady growth, +/- 8% per year
- Apparently new customers do not opt-out

VOO IPv6 enabled modems

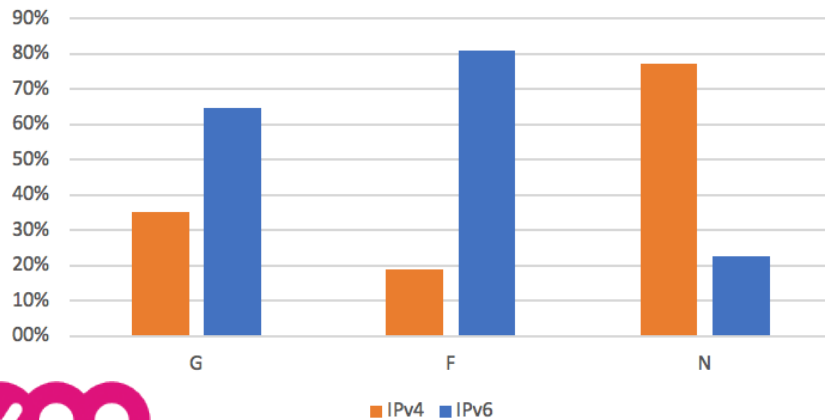


TRAFFIC STATISTICS

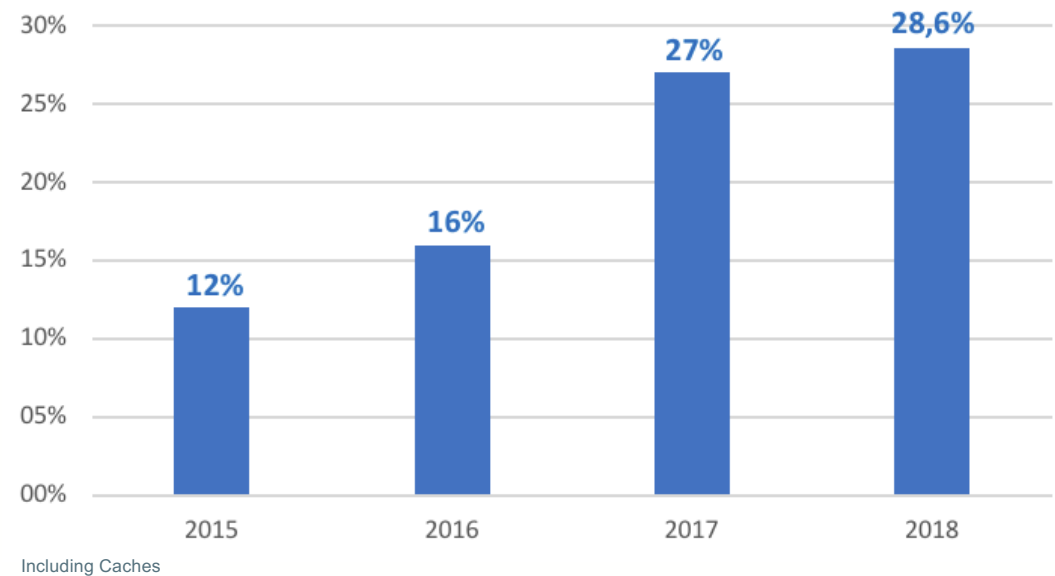


- IPv6 traffic growth is smaller than previous years (+1,6%)

IPv4 vs IPv6 traffic served by Caches @ VOO

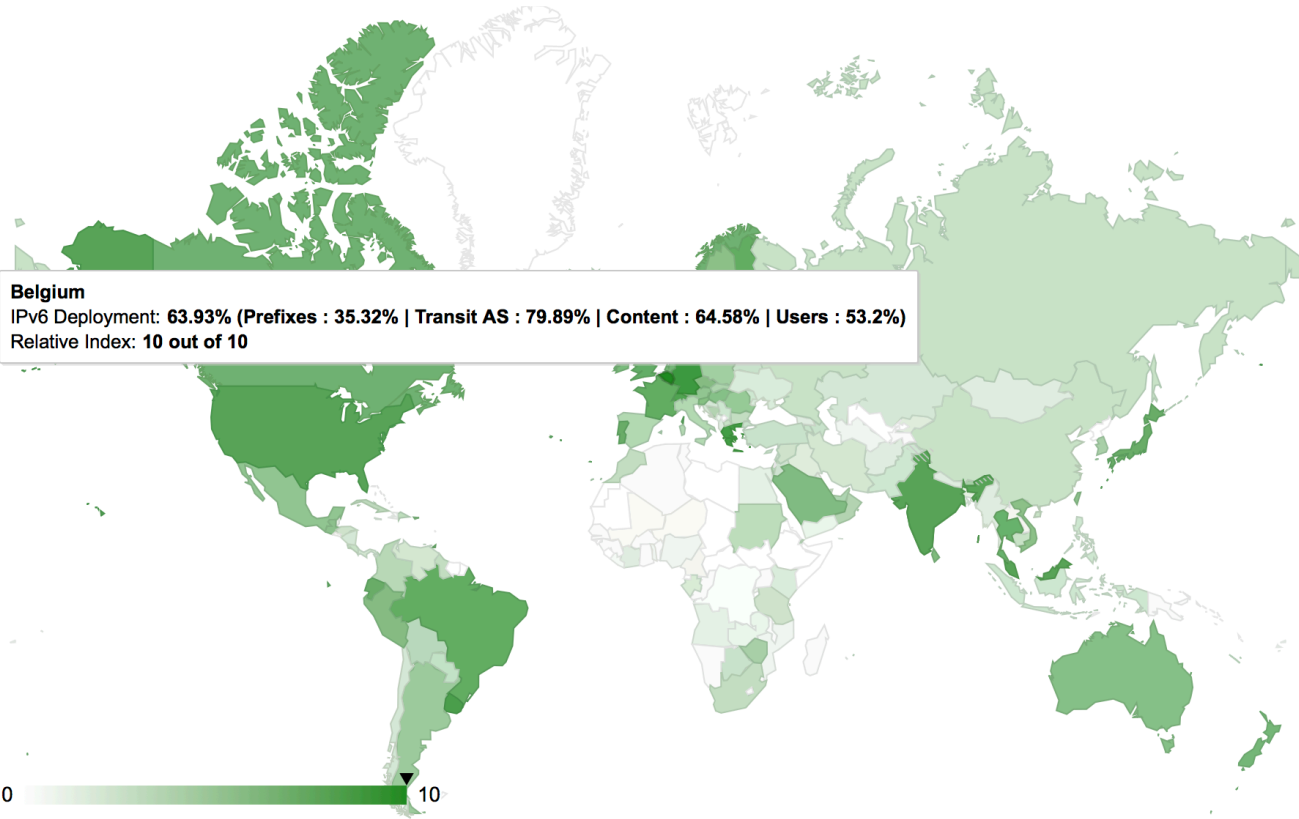


IPv6 downstream traffic @VOO



- Streaming Caches (N) are serving more content in IPv4 but according to N it is due to the IPv4 Only devices used by their customers (older smartTV?).

RANKING WORLDWIDE



RANK	IPv6 %	COUNTRY
1	46.4%	Belgium
2	40.4%	United States of America
3	36.6%	India
4	32.2%	Greece
5	25.5%	Germany
6	21.7%	Luxembourg
7	20.8%	Switzerland
8	20.7%	Finland
9	19.8%	Brazil
10	18.7%	Canada

Belgium is still worldwide leader in IPv6!

Sources: Akamai, Cisco 6lab

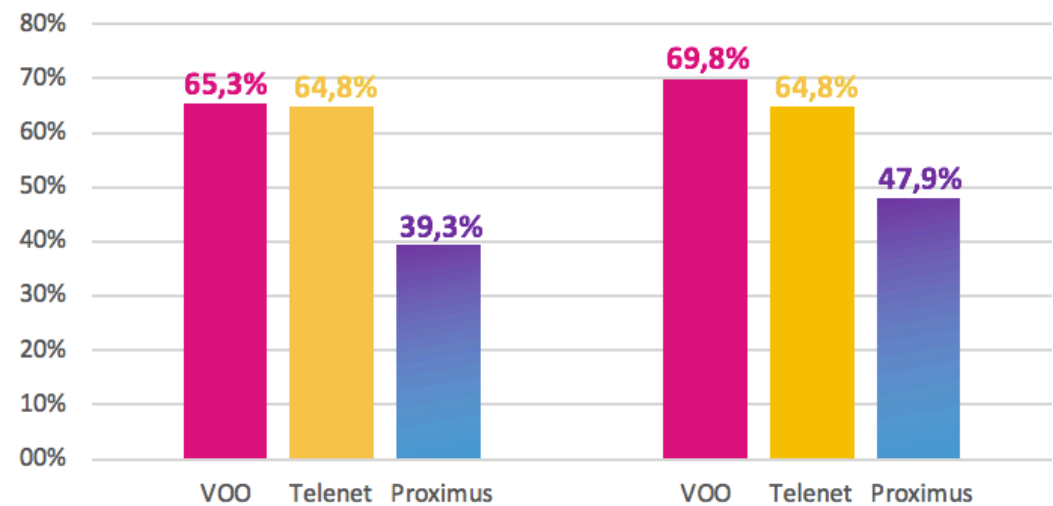


RANKING BELGIUM



- According to several sources, VOO is still the first IPv6 ISP in Belgium but is closely followed by competition.

IPv6 Measurements



Akamai

WorldIPv6Launch.org



ROADMAP (NOT COMMITTED)



- Increase IPv6 prefix-delegation from /64 to /56 for B2C
 - Maybe not supported on all modem types
- Increase IPv6 prefix-delegation from /64 to /56 for B2B (Coax)
 - Already done for fiber customers
- Automatic provisioning of IPv6 for B2B customers
 - Today, only 7% asked for IPv6
- Trial with DNS64/NAT64
 - We have to review our CGN NAT44, good opportunity to check other techno
 - We believe at a certain point it will be more interesting to NAT traffic towards non-IPv6 capable services rather than to NAT all IPv4 traffic
- Enable IPv6 on VOO public services (VOOMotion, SpeedTest, Mail, etc)
- IPv6 trials on VOO Mobile





THANK YOU!

QUESTION?