

# DNA IPv6

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# National IPv6 launch June 2015

- FICORA had announced Finnish national IPv6 launch date
- DNA decided to participate and enable IPv6 to all consumer products that support IPv6
- Backbone network had already supported IPv6 for long time

The screenshot shows the website of Viestintävirasto (Finnish Communications Regulatory Authority). The page features a blue header with the organization's name and logo. Below the header is a large image of hands holding a smartphone, overlaid with a green circular logo that says "WORLD IPv6 LAUNCH". To the right of the logo, the text reads "IPv6 enables a better and more functioning internet for all users". Below this is a navigation bar with links for "FRONT PAGE", "BROADBAND SERVICE PROVIDERS", "CONTENT SERVICE PROVIDERS", and "PARTICIPANTS". The main content area is titled "National IPv6 launch" and contains text inviting providers to participate in the national IPv6 launch. The text explains that IPv6 offers a fast lane past the jammed IPv4 network and that the requirement for participating is that the participant brings IPv6 into use permanently. It also provides contact information for registration and a link to the launch seminar program.

**National IPv6 launch**

**FICORA invites providers of broadband, content and web services to participate in the national IPv6 launch**

IPv6 offers a fast lane past the jammed IPv4 network. IPv6 must be brought into use so that all users can communicate with each other on the internet also in the future. In addition, IPv6 enables that the availability and functionality of services can be guaranteed for all who wish to use them.

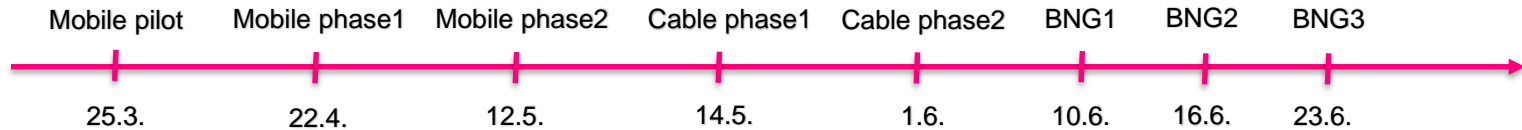
The requirement for participating in the launch day is that the participant brings IPv6 into use permanently. If the launch cannot be performed within the required timescale for all broadband subscriptions, websites or services of the participant, the registration is also possible with only selected broadband technologies, websites or content services.

The participants of the launch day must meet the participation requirements and notify FICORA of this by 8 May 2015. More information and registration for the event to the e-mail address: [ipv6nyt@ficora.fi](mailto:ipv6nyt@ficora.fi)

The national IPv6 launch seminar was held on 9th of June 2015. See program and presentations from (in Finnish) <https://www.viestintavirasto.fi/ipv6seminaari2015/>

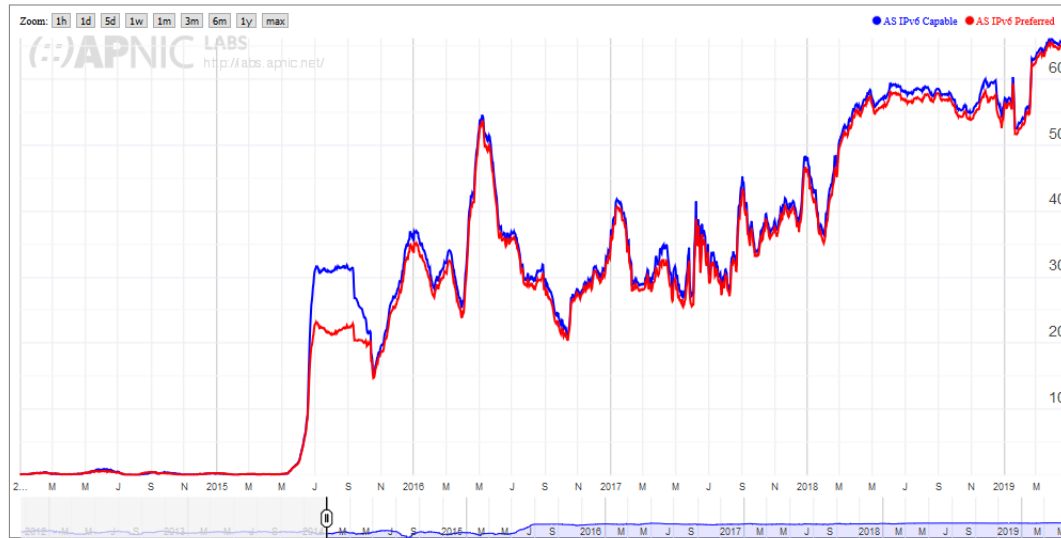
# Slow start at 2015

- IPv6 was first tested internally
- Testing was done with all broadband technologies, mobile and fixed
- For customers IPv6 was enabled first on mobile broadband and cable
- On mobile IPv6 was enabled one customer group at a time
- On cable side IPv6 was first enabled to small group of customers and then to all the rest
- On FTTH/ETH/DSL IPv6 was enabled one BNG at one go

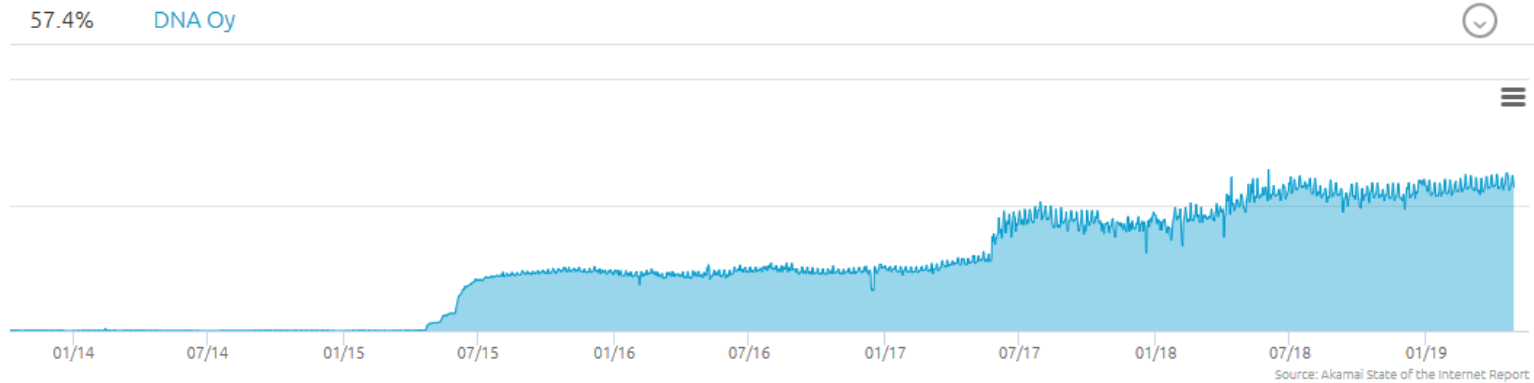


# DNA IPv6 usage seen by APNIC

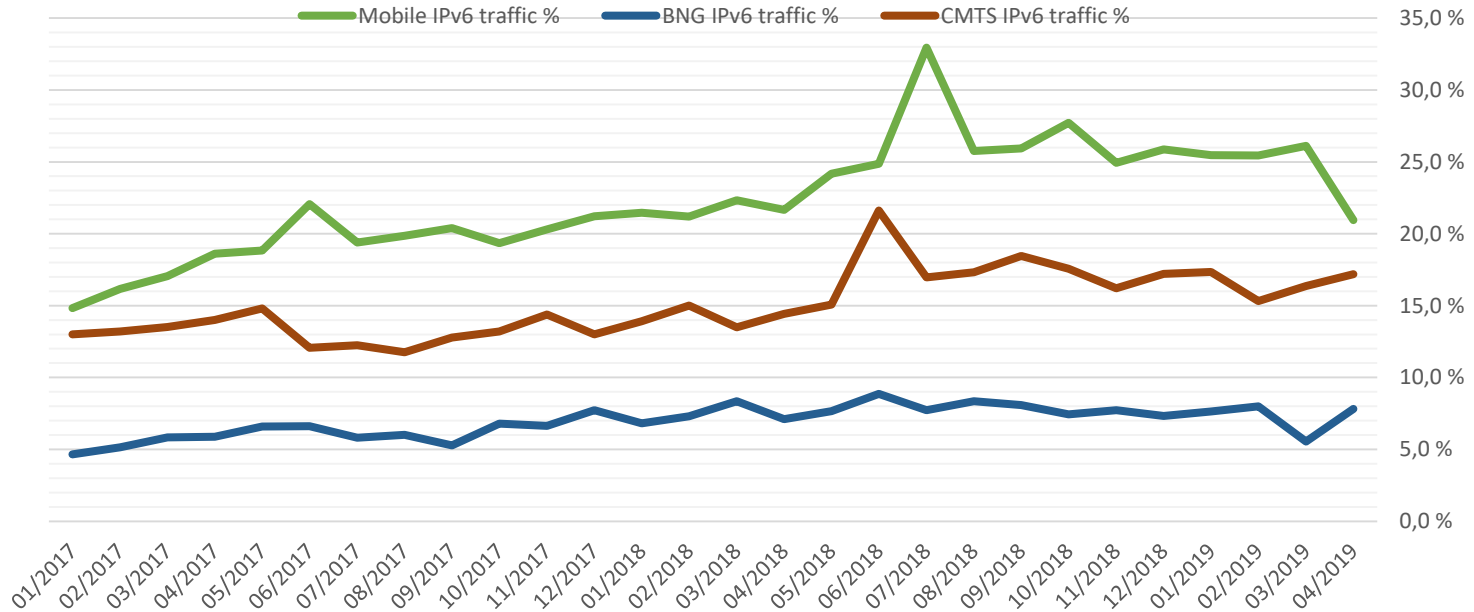
## IPv6 Per-Country Deployment for AS16086: DNA, Finland (FI)



# DNA IPv6 usage seen by Akamai



# Total IPv6 traffic volume is lower than capability, because not all services are available with IPv6



# Address and prefix delegation

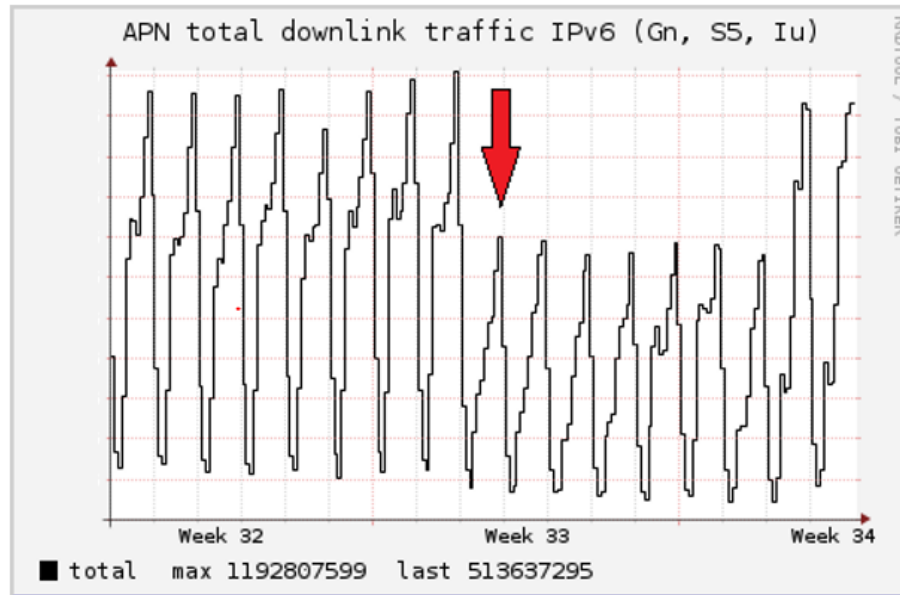
- Mobile phones and other mobile devices get /64
- Fixed broadband connections get /56 with prefix delegation and /64 address assignment with DHCPv6
- BNG has internal DHCPv6 server
- Radius is used for static IPv6 assignments
- ISC DHCPv6 servers are used with CMTS

# Problems or Challenges with IPv6

- A lot of services are still not available with IPv6
- If and when old CPE devices do not support IPv6, customers are slow to renew their equipment
- Some CPE devices do not have IPv6 turned on by default, all CPE devices from DNA have IPv6 on by default
- If IPv6 is not on by default users usually do not enable it by them self
- Sometimes CPE or mobile phone software updates might turn IPv6 off
- In one case, mobile data roaming was not working abroad because of IPv4v6 configuration on SIM subscription
- One CPE router model had active ping monitoring to default gateway and after BNG update gateway stopped answering to access side ping with IPv6, this caused IPv6 interface to go down, CPE still had IPv6 addresses but was not using IPv6, no customer complaints from this
- All together problems that are related only to IPv6 are extremely rare



Google AAAA resolver block in year 2015 resulted in 35% IPv6 traffic volume drop for one week. Total traffic volume was unaffected.



# Why IPv6

- IPv4 addresses runout
- Savings on CGN investment, IPv6 traffic can bypass CGN
- No additional hardware investments
- Gain knowledge and expertise by having IPv6 turned on, rather than just reading or hearing about it
- No reason why not

# Thanks, Questions?