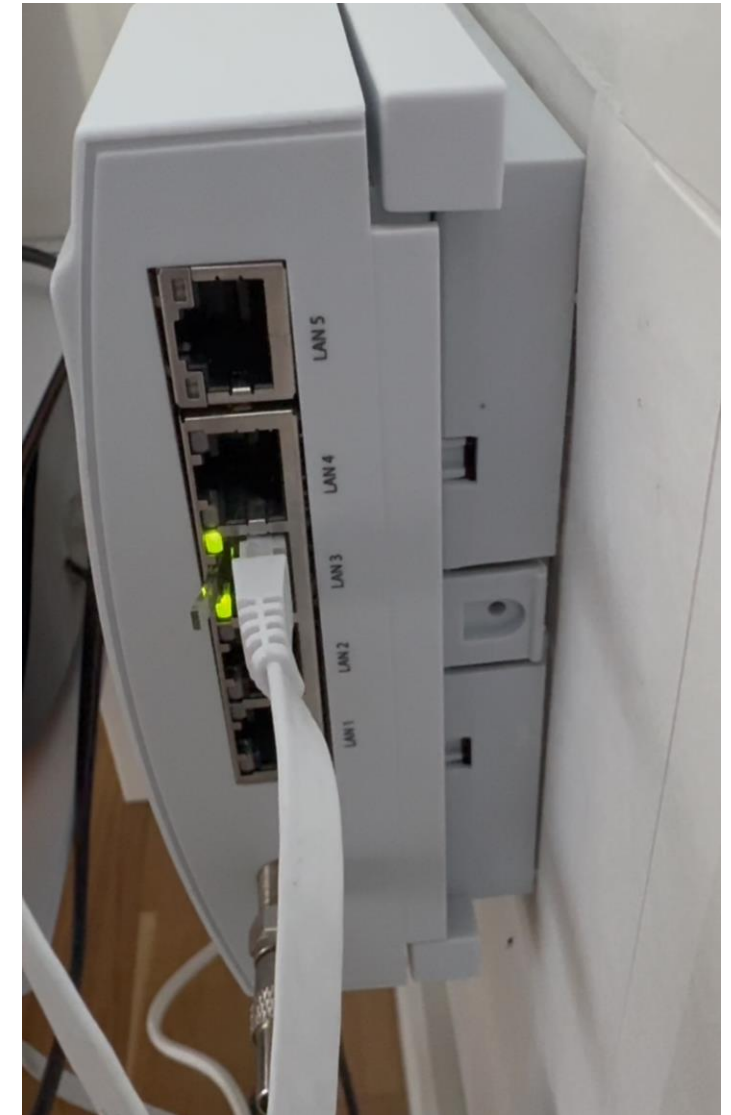
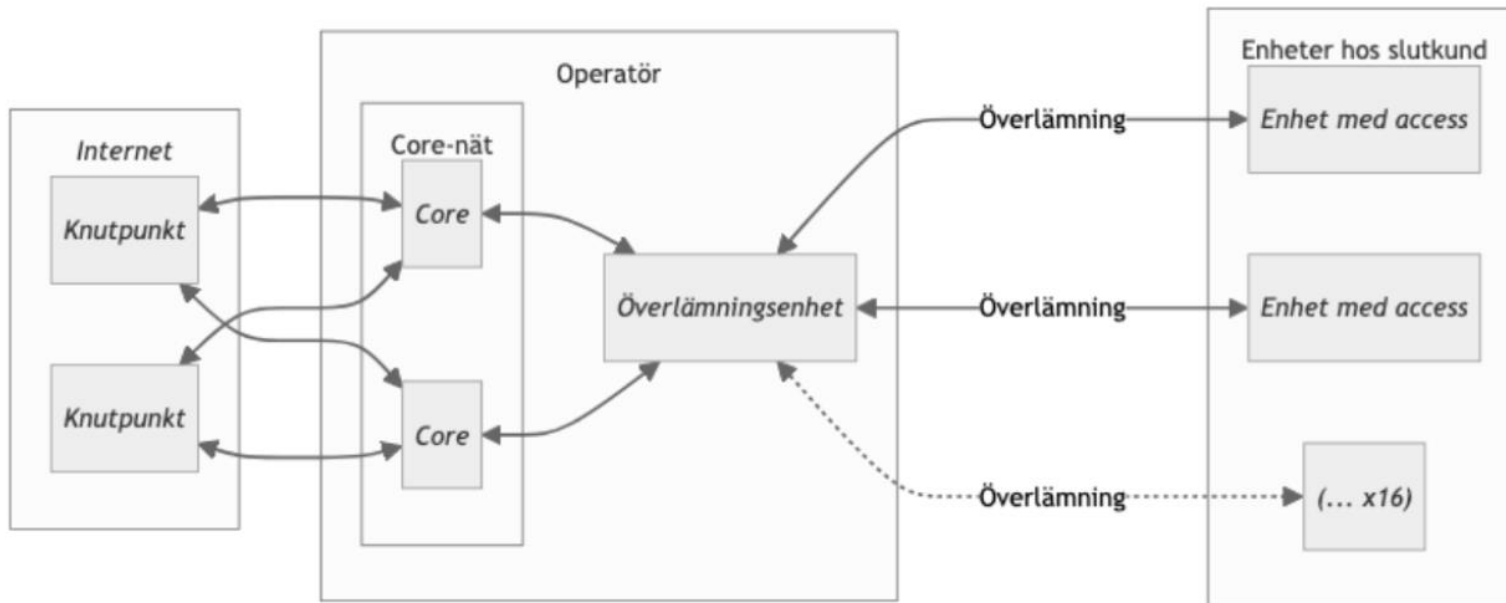


Internet access 2.0 +  
There is and will be more IPv6  
than you know

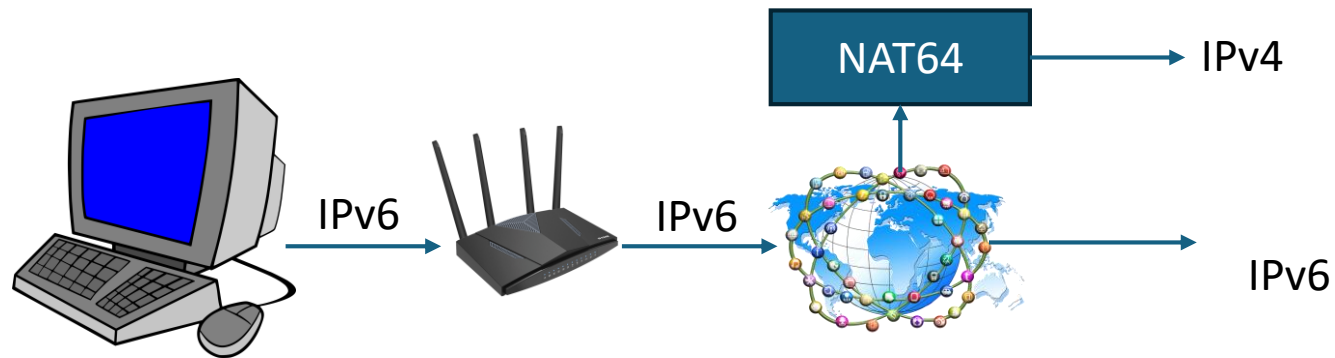
Torbjörn Eklöv ISOC-SE

# Internet access 2.0

- Nothing has happened yet, this is from fem små hus – five little houses



# Only IPv6



## Windows 11 Plans to Expand CLAT Support

By  Tommy Jensen

Published Mar 07 2024 07:00 AM

11.4K Views



Thank you everyone who responded to our recent IPv6 migration survey! We want you to know that we are committed to improving your IPv6 journey and these data are helpful in shaping our future plans.

To that end, just a quick update: we are committing to expanding our CLAT support to include non-cellular network interfaces in a future version of Windows 11. This will include discovery using the relevant parts of RFC 7050 (ipv4only.arpa DNS query), RFC 8781 (PREF64 option in RAs), and RFC 8925 (DHCP Option 108) standards. Once we do have functionality available for you to test in Windows Insiders builds, we will let you know.

We are looking forward to continuing to provide support for your platform networking needs!

<https://circleid.com/posts/20240502-do-we-need-ipv4-at-home-soho-any-more>

# Internet access 2.x -> my opinions

- Native IPv6 everywhere and IPv4/CGNAT/NAT64aaS
- Home/SOHO – dynamic address assignment
- Enterprise/public sector – PA from Internet operator
- Enterprise/public sector – own addresses PI
- Enterprise/public sector – PI/diversity/BGP

# Things that run IPv6

- More than a third of hosts in Sweden run IPv6 today

**Sweden**

IPv6 Adoption: **33.69%**

Latency / impact: **0ms / -0.01%**

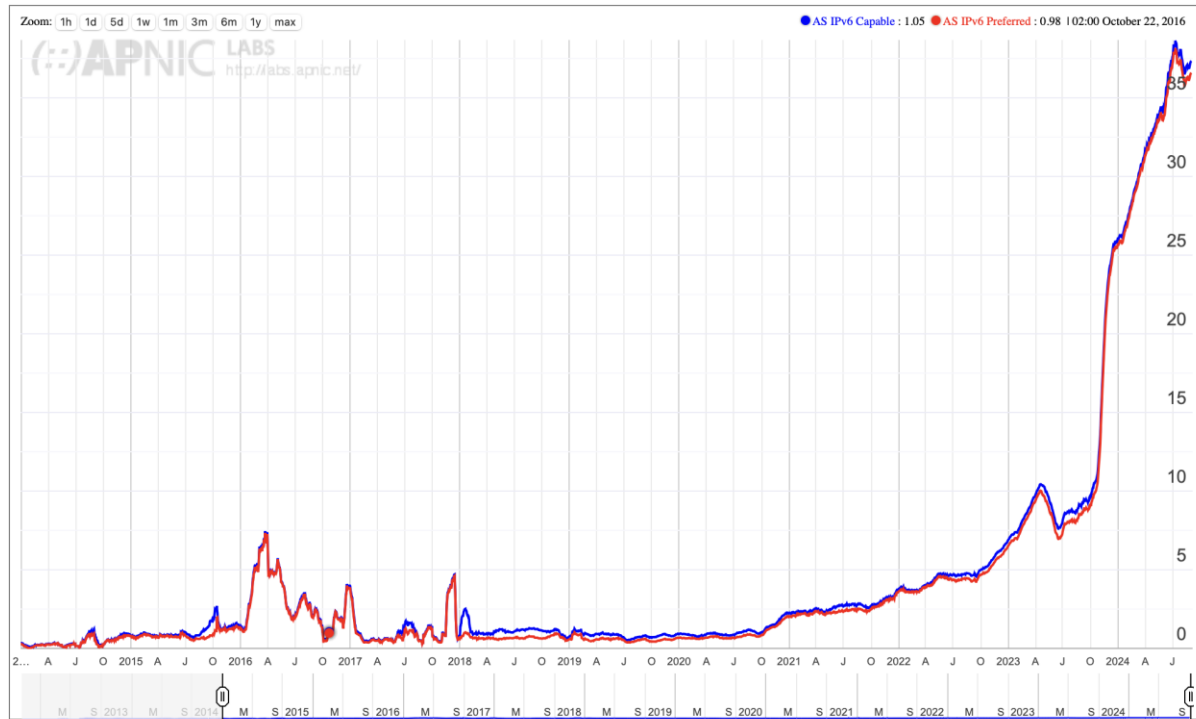
# Google IPv6 Country Adoption - Sweden

Country adoption graph based on data from [Google IPv6 Statistics](#) page.

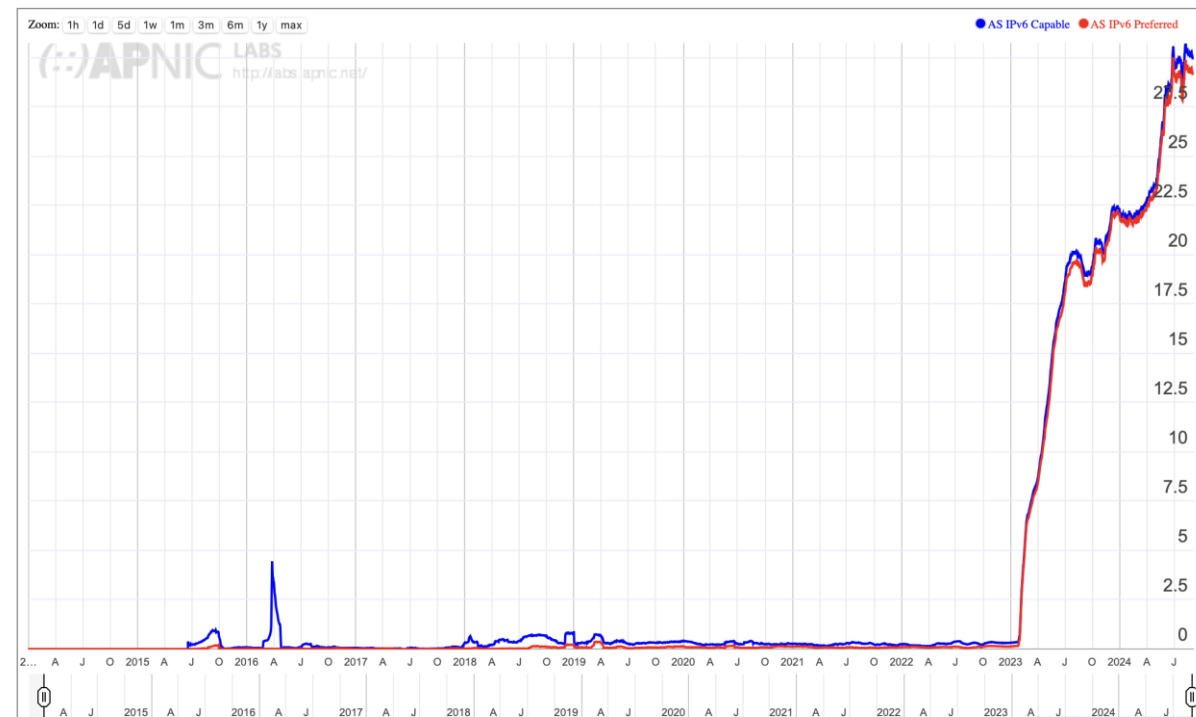


# Who have contributed to the increase?

**AS3301: TELIANET-SWEDEN Telia Company, Sweden (SE)**

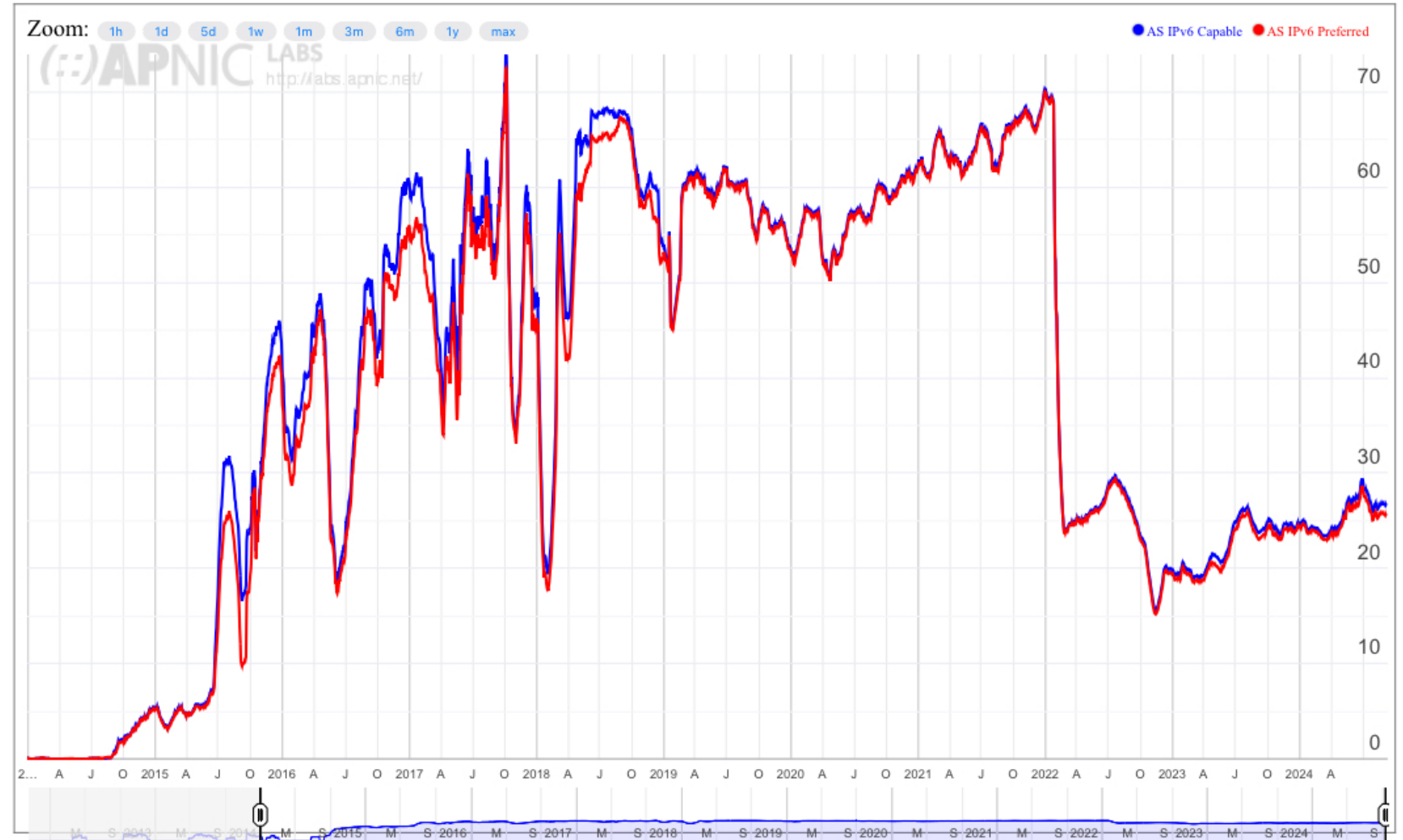


**AS2119: TELENOR-NEXTEL Telenor Norge AS, Sweden (SE)**



# Why???

## IPv6 Per-Country Deployment for AS1257: TELE2, Sweden (SE)





# World

## France

IPv6 Adoption: **70.59%**  
Latency / impact: **-20ms / -0.01%**

## India

IPv6 Adoption: **73.55%**  
Latency / impact: **-20ms / -0.09%**

## United States

IPv6 Adoption: **51.94%**  
Latency / impact: **-10ms / -0.04%**

## Germany

IPv6 Adoption: **71.93%**  
Latency / impact: **-20ms / -0.02%**

## Malaysia

IPv6 Adoption: **66.62%**  
Latency / impact: **-10ms / -0.05%**

## Japan

IPv6 Adoption: **53.07%**  
Latency / impact: **0ms / 0%**

## Saudi Arabia

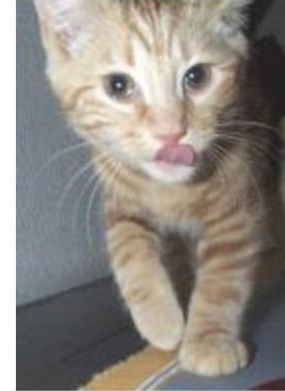
IPv6 Adoption: **61.07%**  
Latency / impact: **-20ms / -0.06%**

# Sweden and the world

27	 <a href="#">Dominica</a>	45.08%
28	 <a href="#">Bhutan</a>	44.76%
29	 <a href="#">Thailand</a>	43.74%
30	 <a href="#">Nicaragua</a>	40.32%
31	 <a href="#">Canada</a>	40.03%
32	 <a href="#">Switzerland</a>	38.86%
33	 <a href="#">Austria</a>	38.11%
34	 <a href="#">Mongolia</a>	34.54%
35	 <a href="#">Peru</a>	34.33%
36	 <a href="#">Sweden</a>	33.69%
37	 <a href="#">Paraguay</a>	33.2%
38	 <a href="#">Portugal</a>	33.03%

Your IP is: 2a07:1c81:face:abba:6c82:c9a4:4873:c16e

Hello IPv6 World



IPv6! Look at the first IPv6-kitten in the world  
Online for over 23 years...

20240909 .se have 1409605 delegated zones  
4946044 UDP and 1 TCP questions in 51m10.768s gave us  
28.23% have IPv6 on www  
82.45% have IPv6 on one or more DNS  
18.86% have IPv6 on one or more MX  
229 have only IPv6 on the www  
I know IPv6, NOT HTML! :)

Date	www	ns	mx	IPv6-only
20240909	28.23	82.45	18.86	229
20240907	28.41	82.92	18.96	232
20240905	28.31	82.91	18.90	232
20240904	28.33	82.97	18.91	226
20240903	28.28	82.89	18.89	225
20240902	28.28	82.90	18.88	226
20240901	28.24	82.80	18.86	224
20240831	28.30	82.98	18.90	223
20240830	28.25	82.86	18.87	223
20240829	28.27	82.91	18.88	222

More IPv6  
than many  
people  
think.....

<https://ipv4.rip> or <https://ipv4.fail>.

In principle, One.com and Loopia are responsible for www and NS. One.com and Google for MX

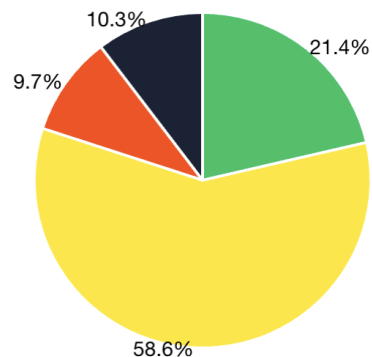
# <https://ipv6ioffentligsektor.se/>

## Översiktlig redovisning - IPv6-status hos kommuner, regioner och statliga myndigheter

Håll pekaren över respektive cirkeldiagram för att se antalet organisationer

### Kommuner

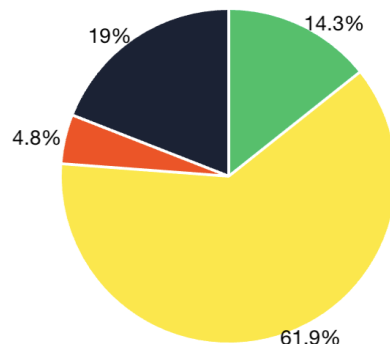
Diagrammet visar antal kommuner med olika status av införande av IPv6 för tjänsterna webbplats, e-post och DNS.



Totalt antal kommuner: 290

### Regioner

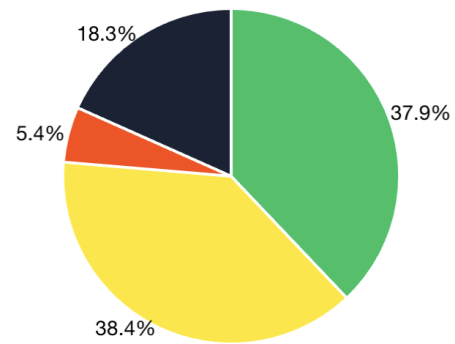
Diagrammet visar antal regioner med olika status av införande av IPv6 för tjänsterna webbplats, e-post och DNS.



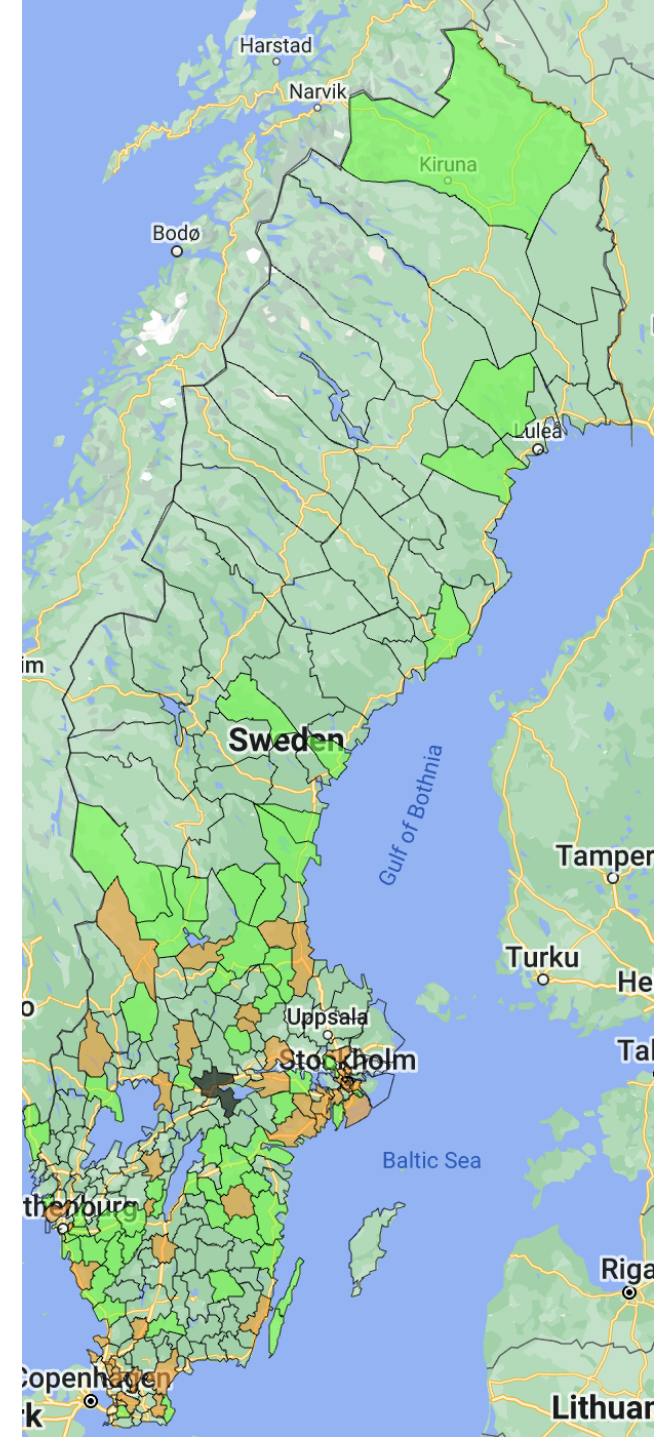
Totalt antal regioner: 21

### Statliga myndigheter

Diagrammet visar antal myndigheter med olika status av införande av IPv6 för tjänsterna webbplats, e-post och DNS.



Totalt antal myndigheter: 223





## Public sector and IPv6 on the website

- 559 Public sector
  - 61% have IPv6 on their homepage
- 68 can activate IPv6 by adding AAAA to the DNS => 73%
- 9% of those who do not have IPv6 have the website of an operator who has not activated IPv6

# MX – incoming mail

## Summary

Starting October 1, 2024, Microsoft will enable IPv6 for Accepted Domains in Exchange Online, enhancing security and performance. Organizations should update network allow-lists to include Exchange Online IPv6 endpoints. Opt-out details will be provided in September for those needing to remain IPv4-Only.

**“enhancing security and performance”**

# What happens to MX in the .se zone then?

- Around 8% of .se's domains use Microsoft =>
- ~27% of the .se domains will have IPv6 activated on incoming mail 

# What happens to public sector then?

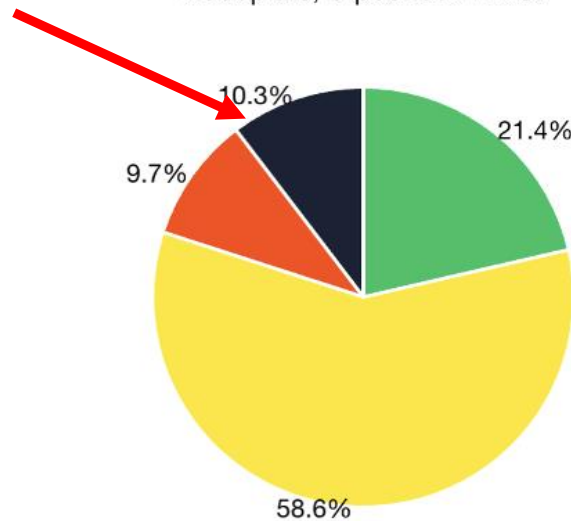
- 238 out of 559 use M365 for incoming mail
- 192 will automatically have IPv6 enabled =>
- Increases from 39% to 77%



# Feel free to enable IPv6 but make sure it works too!

## Kommuner

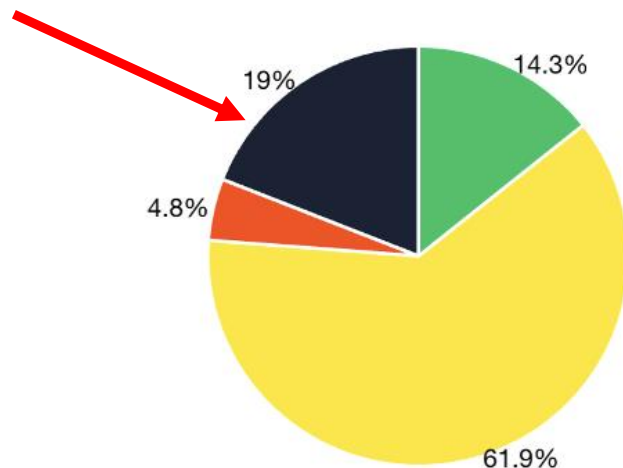
Diagrammet visar antal kommuner med olika status av införande av IPv6 för tjänsterna webbplats, e-post och DNS.



Totalt antal kommuner: 290

## Regioner

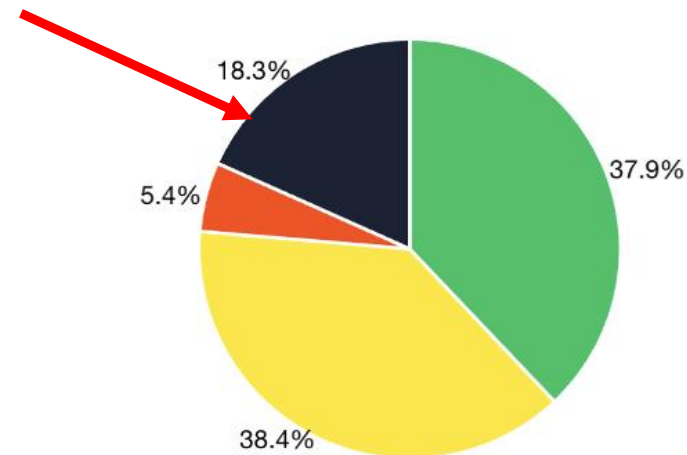
Diagrammet visar antal regioner med olika status av införande av IPv6 för tjänsterna webbplats, e-post och DNS.



Totalt antal regioner: 21

## Statliga myndigheter

Diagrammet visar antal myndigheter med olika status av införande av IPv6 för tjänsterna webbplats, e-post och DNS.



Totalt antal myndigheter: 223

Why is it going so slowly for  
the public sector???

I'll tell you some of it next time!

Why is it so slow, part one!

## working AAAA in web, dns and mail

85 of 1039 domains

alina.se	actionpoint.se	a2n.se	101domain.com
abundo.se	awdata.se	armada.se	bareapp.se
awjab.se	bahnflow.se	bohjort.com	bredbandskollen.se
bitsec.se	boglasoft.se	certezza.net	certit.se
creeightit.se	Creeightit.se	domanshop.se	ejs.nu
eltec.se	ecm.se	enavn.dk	esri.se
extrude.se	fjarrdrift.se	flunk.se	findity.com
frobbit.se	gavlenet.se	google.se	gotanet.se
getgeek.se	gastabudstaden.se	hemlin.se	gota.net
hack.org	internetdagarna.se	internetstiftelsen.se	internetx.de
internetsrs.com	itav.se	isoc.se	jcon.se
junet.se	itplan.se	jowisst.se	jamtport.se
jtrdesign.net	kiruna.se	kirei.se	leissner.se
levonline.com	knaroten.org	lissradio.se	mediateknik.net
nadox.se	msb.se	mydisplay.tv	netatonce.se
netnod.se	obenetwork.com	nmugroup.com	onroute.se
perfectsense.se	r-sys.se	realtimeregister.com	romab.com
sandnet.se	sello.nu	skaradatakonsult.se	softgain.se
snus.se	sitevision.se	streamshed.se	space2u.com
svk.se	tlabwest.se	tranquillity.se	webcows.se
vemendo.se	winsgw.se	xpd.se	wk.se
zednet.se			

<https://konsultermedipv6.se/>

# Pages about IPv6 activation in Sweden

- <https://ipv6ioffentligsektor.se>
- <https://ipv4.fail>
- <https://www.google.com/intl/en/ipv6/statistics.html#tab=per-country-ipv6-adoption>
- Pages reachable only over IPv6
  - <https://ipv4.rip>
  - <https://ispmedipv6.se>
  - <https://kommunermedipv6.se>
  - <https://myndighetermedipv6.se>
  - <https://dnssecandipv6.se>