

# World IPv6 Trends

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# Stats on IPv6 deployment worldwide

# The world is on around 18% IPv6 Capability

- Capability as in 'can use IPv6' not necessarily preferring it.
  - Measured as % of sampled users who can fetch an IPv6 addressed web asset embedded in a web advertisement.
- 15million or more samples per day, worldwide
  - Figures adjusted for relative internet population
  - We over-sample the US, under-sample India
- Other measures place it slightly higher at 20% or better
  - Consider APNIC a 'low side' count and them as 'high side count'
  - Its pretty well bracketed. It's a high confidence figure.
- Lets rank the economies by IPv6 capability above and below 18%

# Economies Ranked around 18% IPv6 Capability

CC		CC		CC		CC		CC		CC		CC		CC	
IN	59.65%	BE	59.09%	US	44.87%	DE	37.15%	GR	36.71%	UY	32.26%	CH	28.03%	BR	27.95%
IE	27.84%	MY	27.47%	LU	26.64%	JP	26.33%	FI	25.82%	GB	25.21%	TT	24.22%	EE	23.75%
CA	22.57%	FR	19.74%	NZ	19.53%										



These ones are “above” World 18% levels

And these ones are “below” World 18% levels



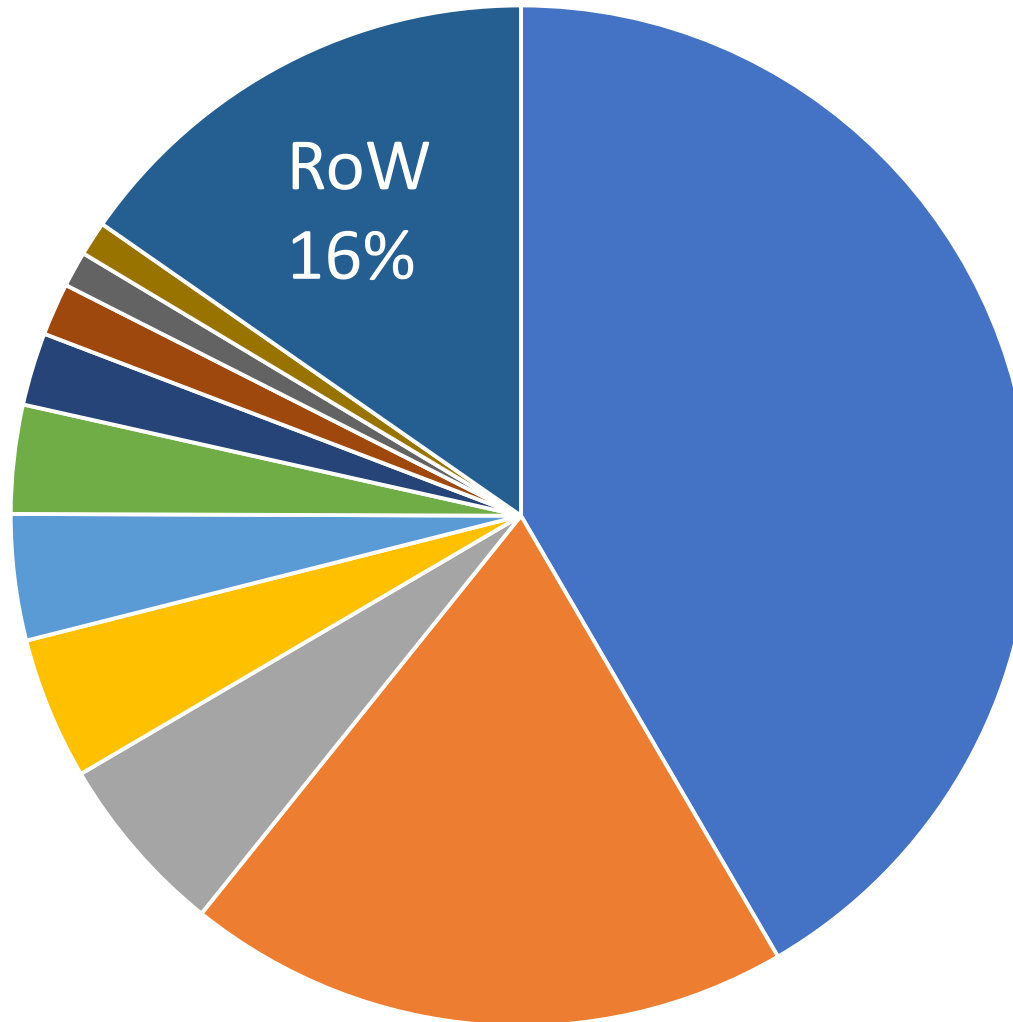
PT	17.83%	TH	17.01%	AU	16.74%	EC	16.67%	VN	15.17%	NO	14.07%	HU	13.36%	TW	13.12%
MO	12.52%	PE	12.35%	RO	11.41%	SI	11.15%	KR	11.04%	NL	11.00%	SE	10.92%	CZ	10.71%
MX	10.70%	SA	9.83%	GT	9.25%	ZW	8.90%	PR	8.89%	SG	7.85%	PL	7.83%	LK	7.81%
AT	7.24%	AR	7.00%	BT	5.67%	BO	5.26%	DK	5.05%	SK	4.37%	EG	3.18%	CN	3.16%
ES	3.00%	BA	3.00%	LV	2.98%	GA	2.49%	IL	2.34%	IR	2.25%	AE	2.23%	IT	2.04%
BG	1.66%	KE	1.62%	RU	1.56%	DO	0.94%	CO	0.66%	TG	0.47%	ZA	0.41%	IQ	0.36%

How much of the world IPv6 is  
each economy

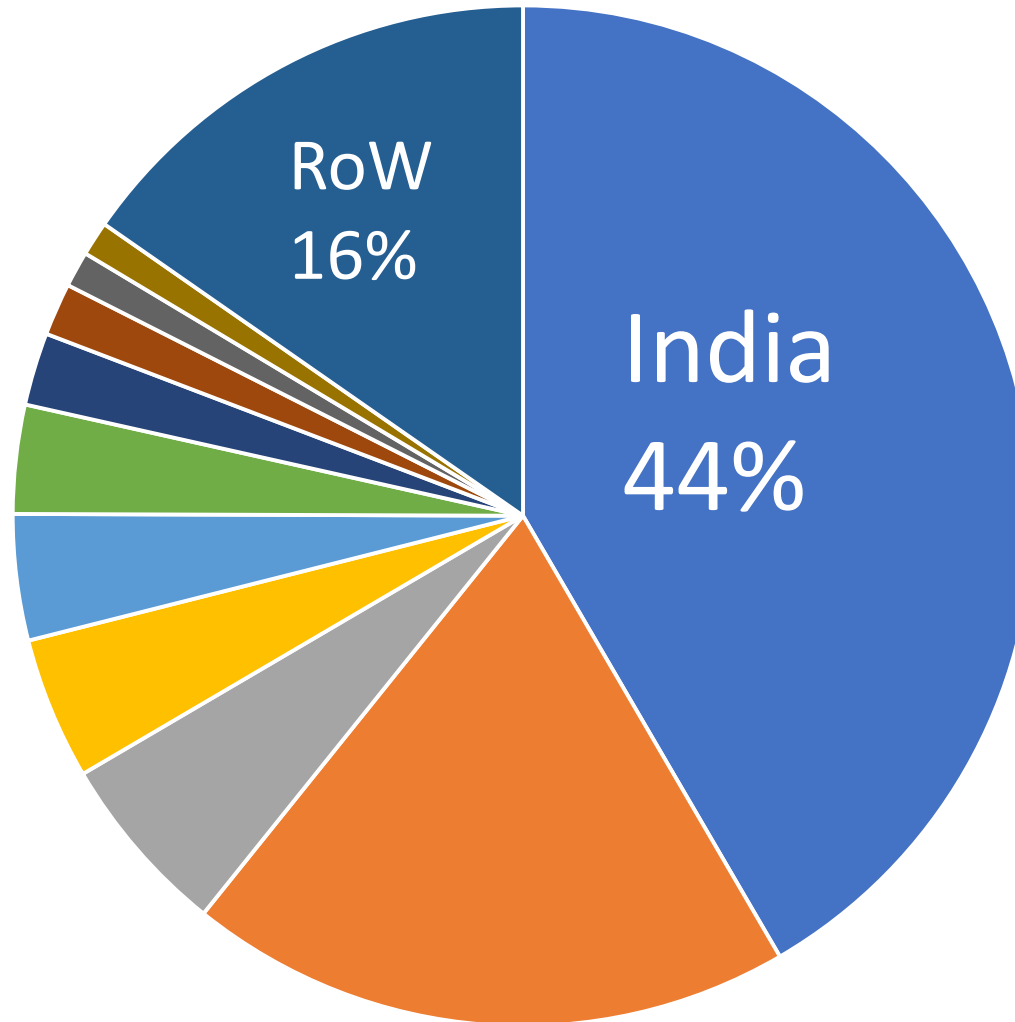
# How much of the world IPv6 is each economy

- Lets re-scale this to reflect the % of world Internet broken out by economies
- and then calculate the % of worldwide IPv6 each economy is contributing by relative size.
- Lets focus on the top 15.

# Guess which Economy is Which..

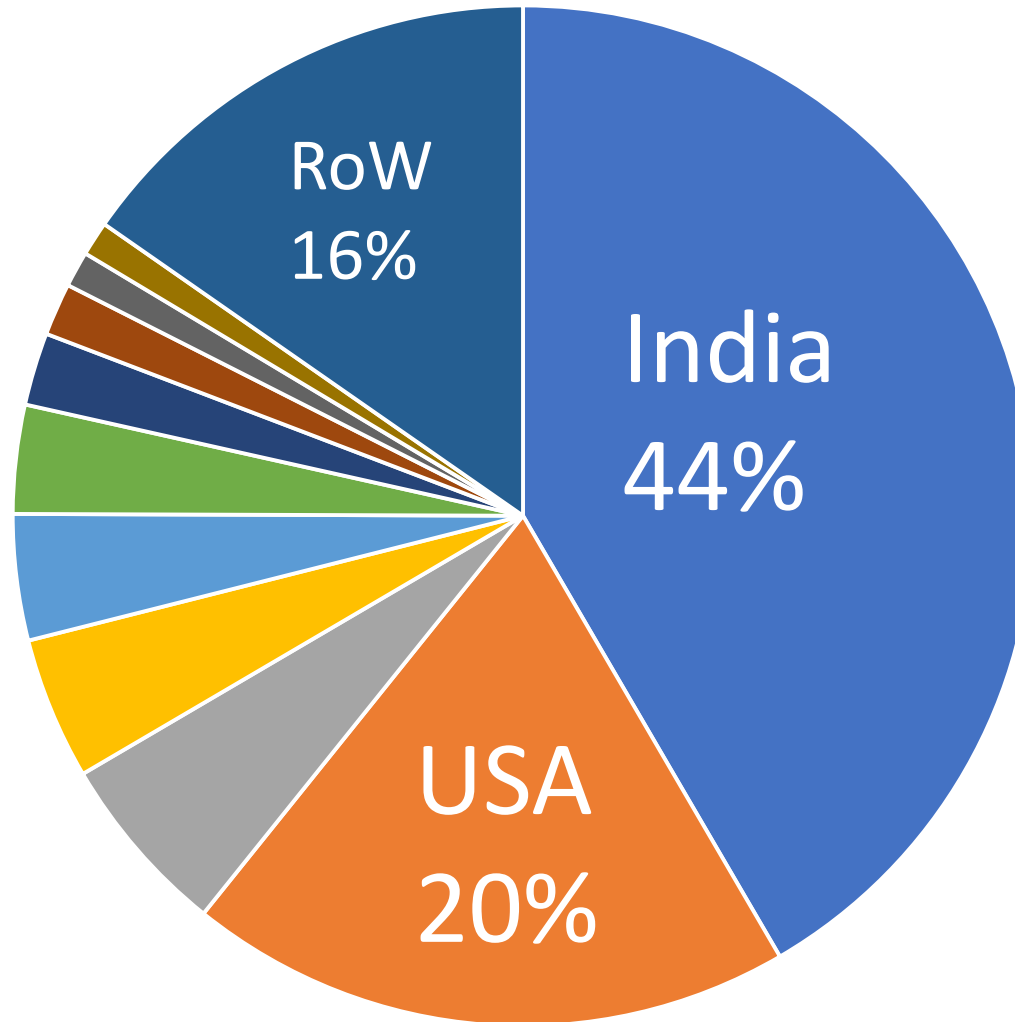


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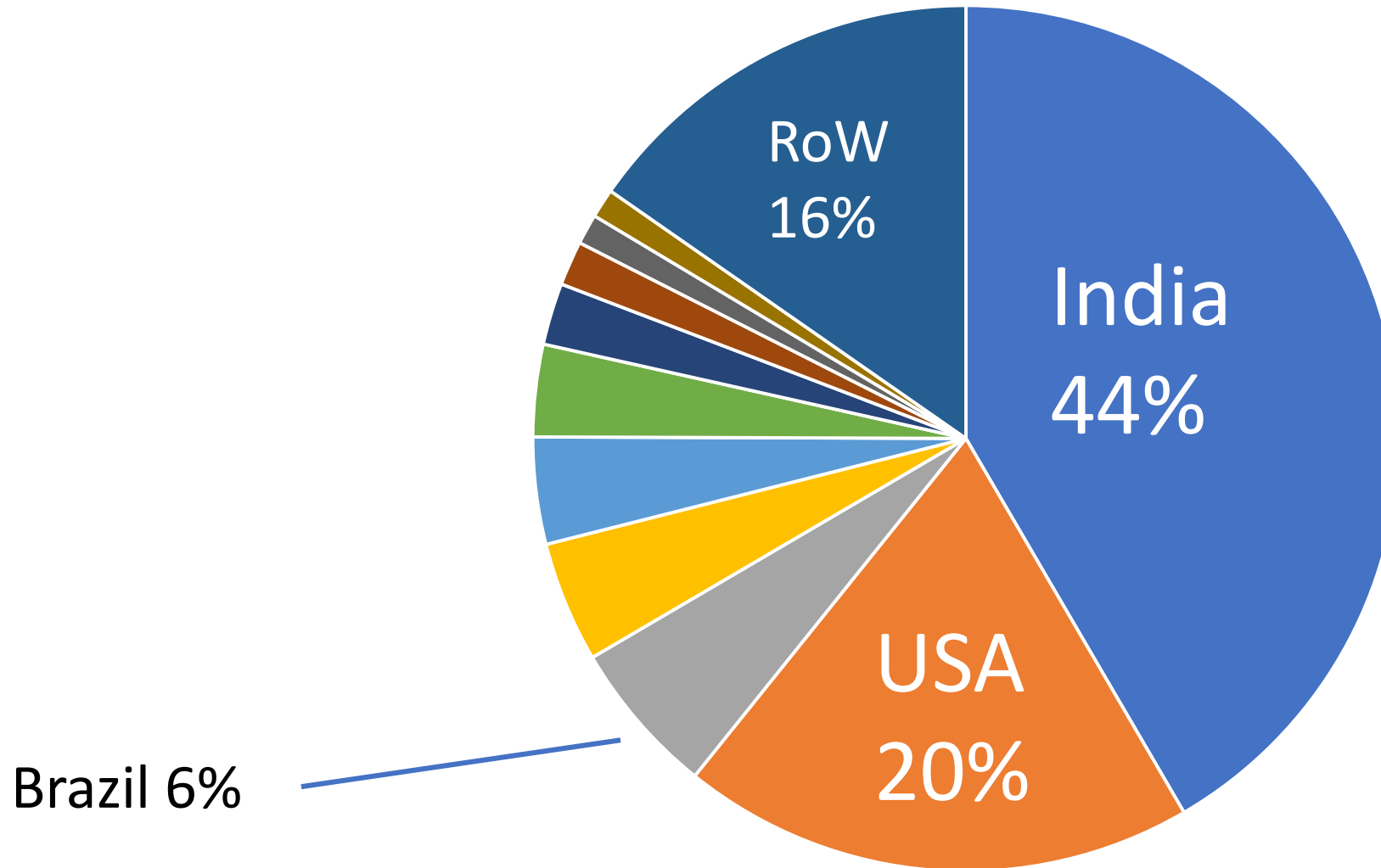




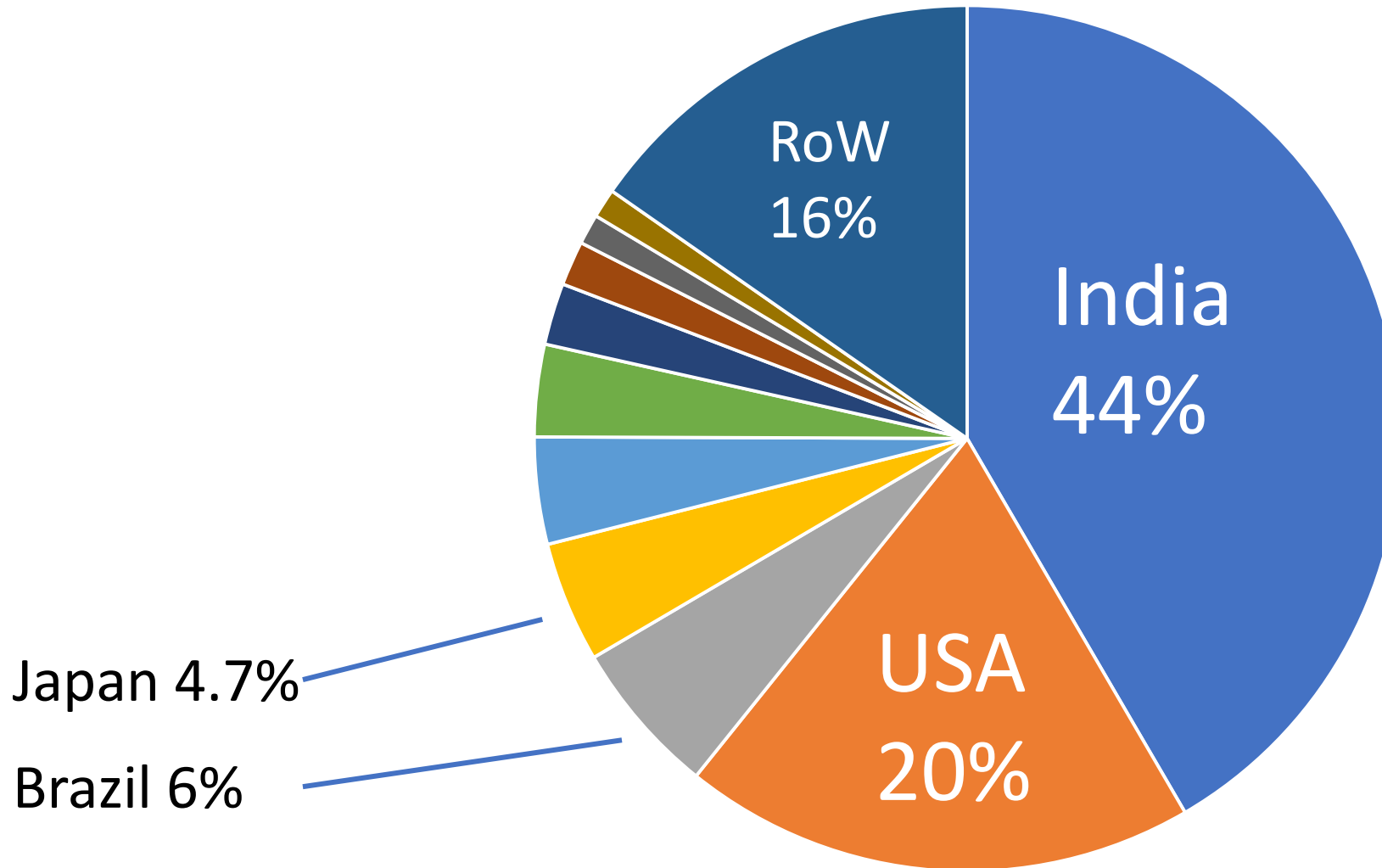
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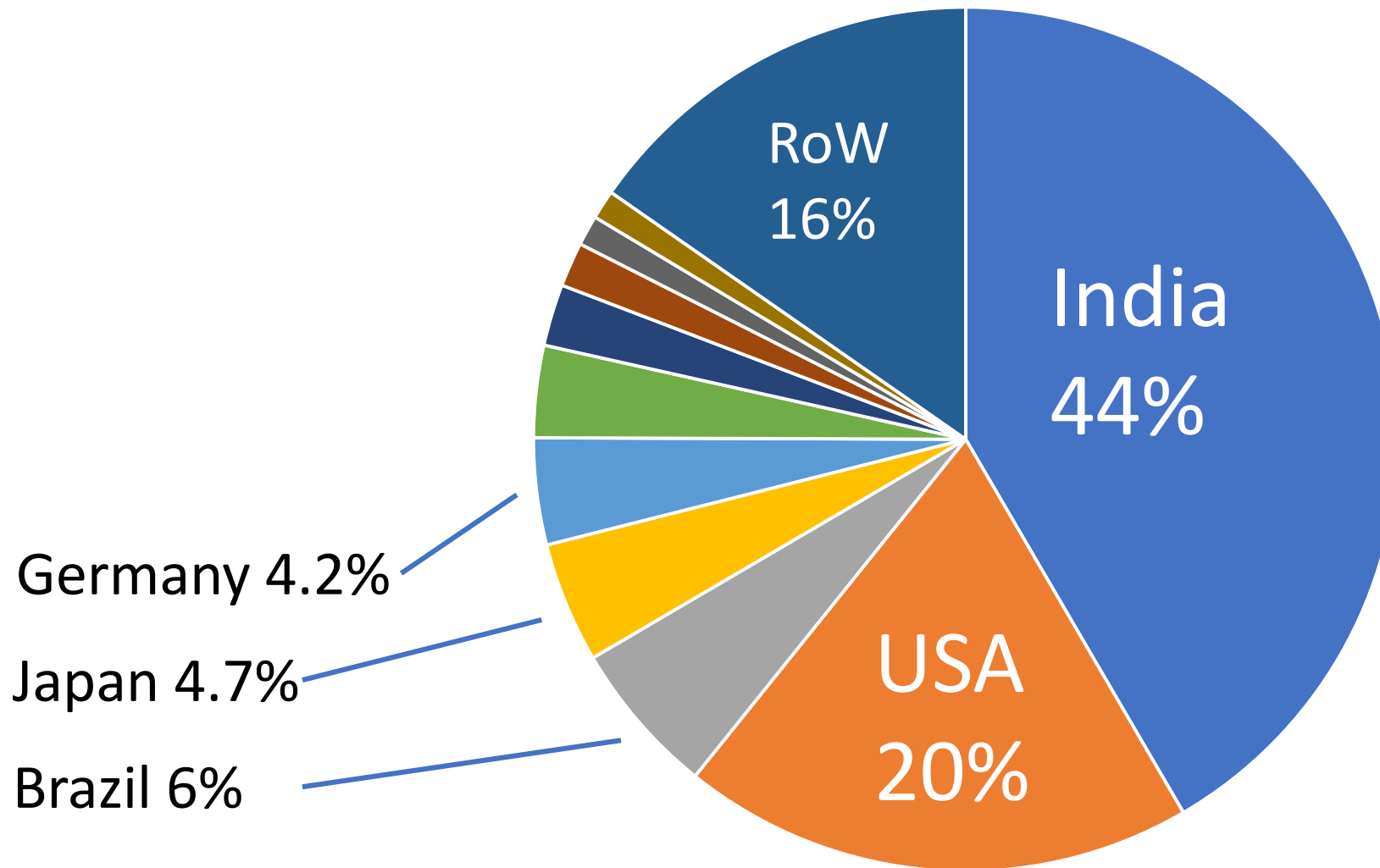
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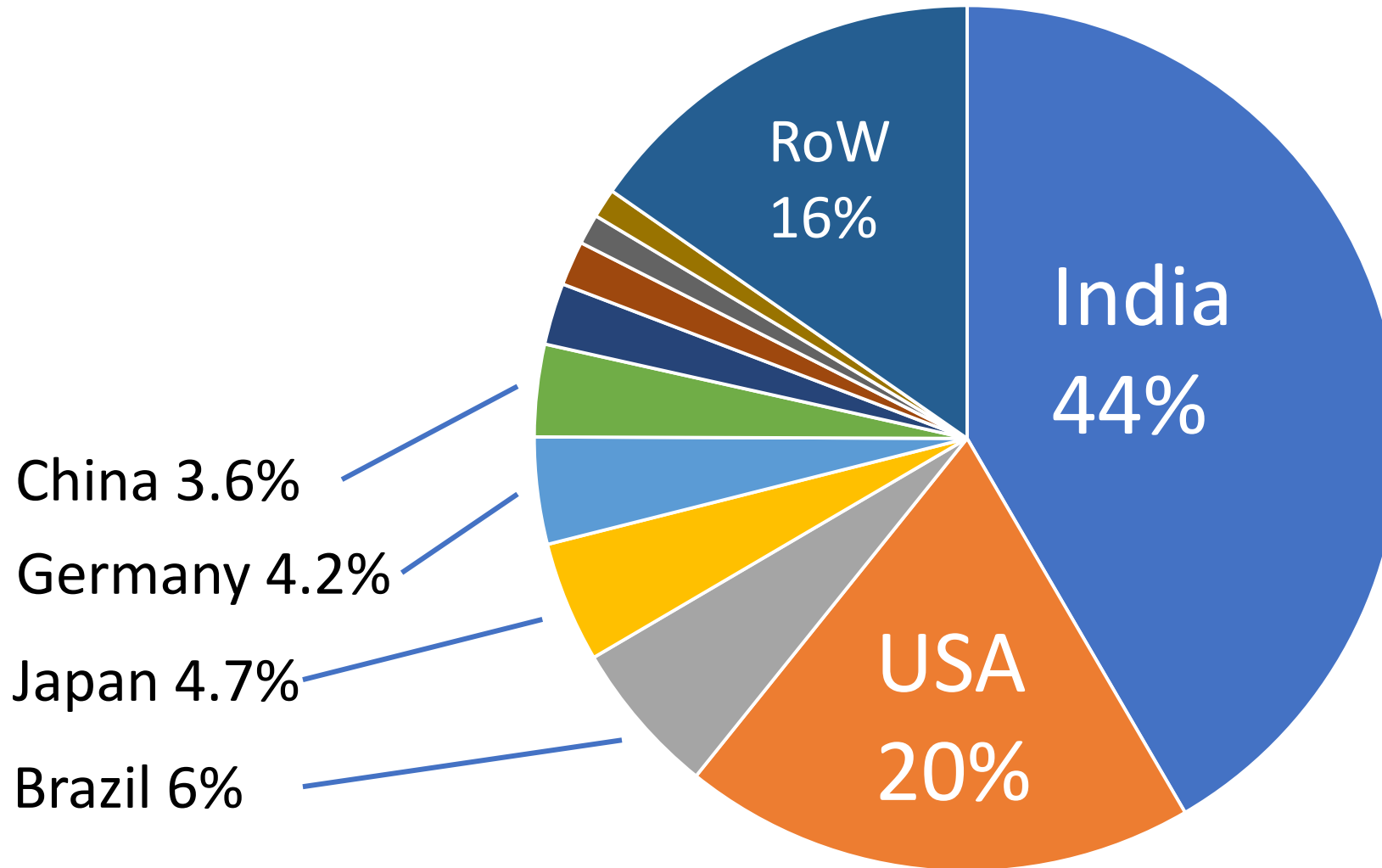
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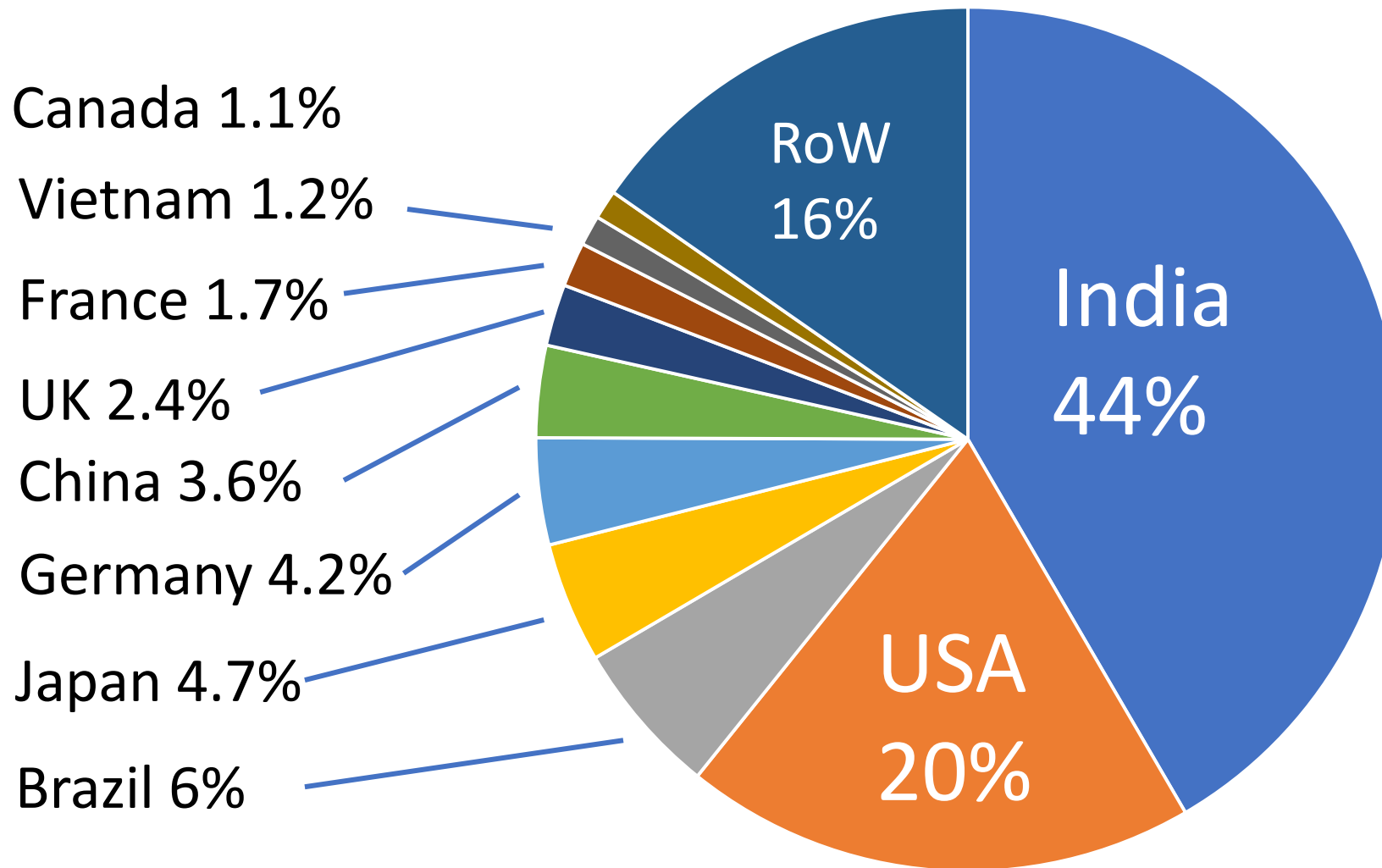
# Guess which Economy is Which..



# Guess which Economy is Which..



# Guess which Economy is Which..



Lets mark out some economic groups

# G8

CC		CC		CC		CC		CC		CC		CC		CC	
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All the G8 "on the board"

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BG	1.66%	KE	1.62%	RU	1.56%	DO	0.94%	CO	0.66%	TG	0.47%	ZA	0.41%	IQ	0.36%



# G20

CC		CC		CC		CC		CC		CC		CC		CC	
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Missing: ID, TR

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# OECD

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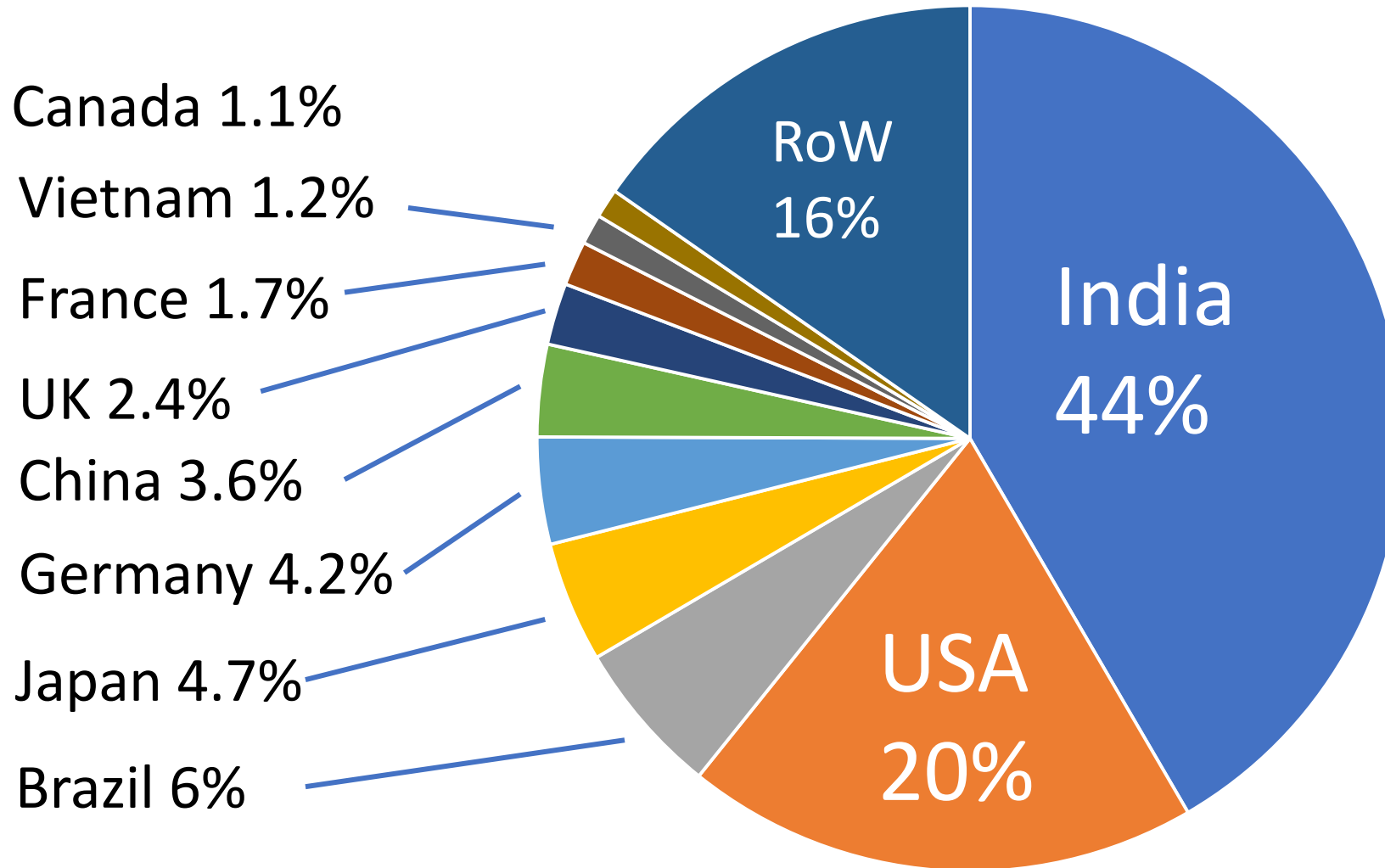
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# Take-away messages

- There is no strong indication that specific sector-economy drivers are making IPv6 happen
  - We have strong, developed G8/G20 economies with little or no IPv6
  - We have emerging Internet Economies with significant IPv6
- There are signs suggesting a two-track internet is an emerging risk
  - Lack of investment (capex or opex) to upgrade to dualstack or IPv6
- IPv6 is interesting because of the future potential to innovate
  - Don't get caught behind incumbent thinking!

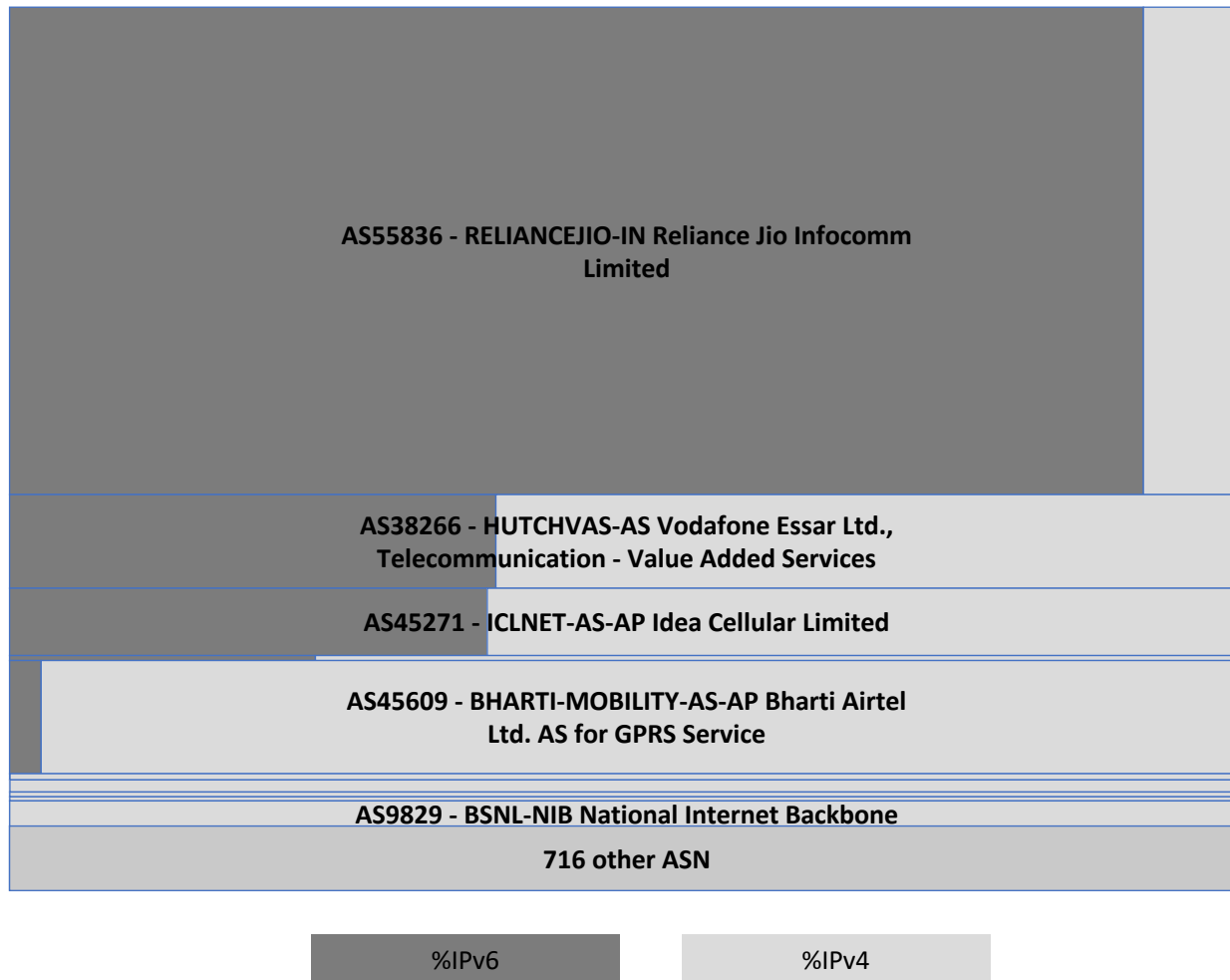
# Looking into the top 10 economies



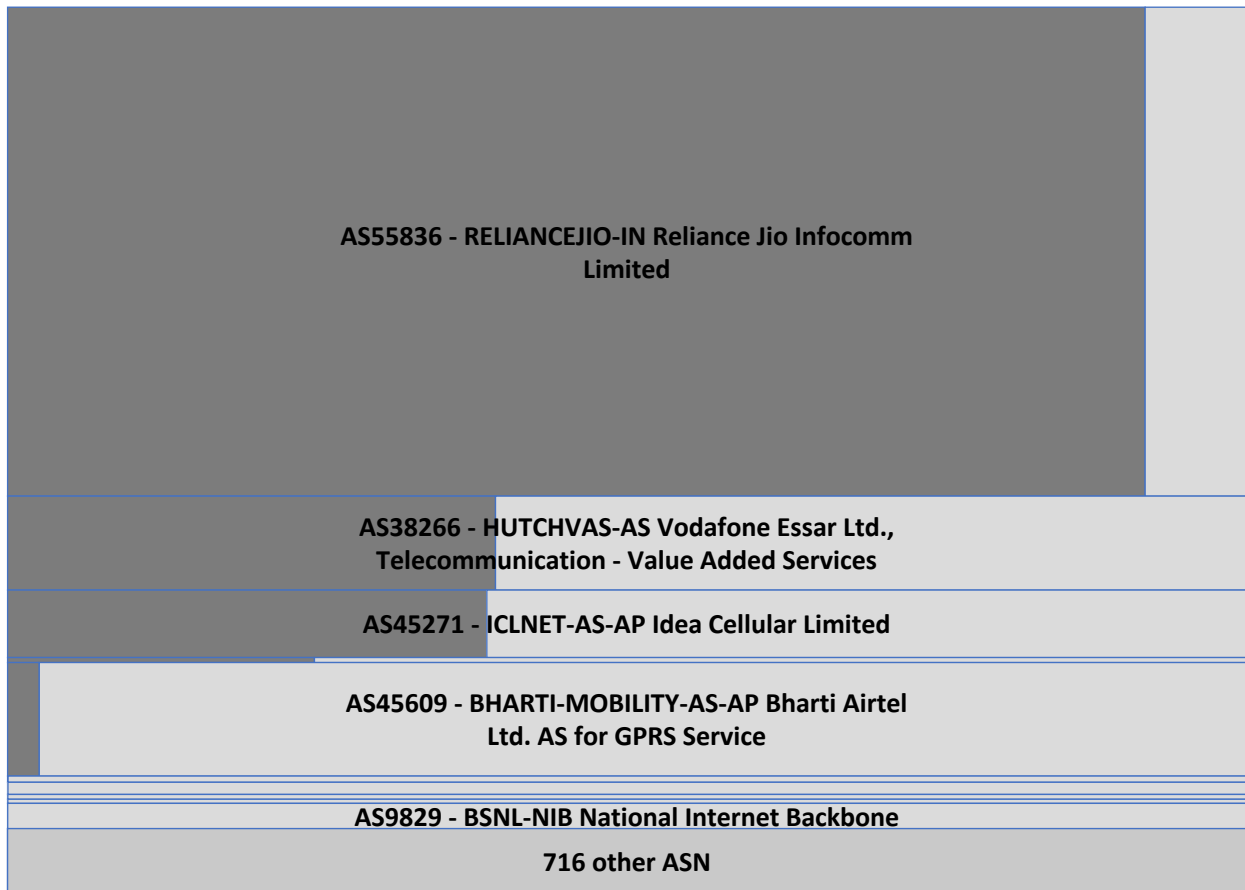
Lets look at the top 10 in more detail

- Whats going on inside these economies?
- Look at the per-AS statistics on when their top ASN (by measured share of experiments) enabled IPv6.
- Focusses on the most ‘impactful’ ASN, and their deployment stories
- What can this say about competitive ‘tension’ in services?
- Can we see signs of active competition in IPv6? Do we see signs of market dominance?

# How to interpret the charts



# How to interpret the charts



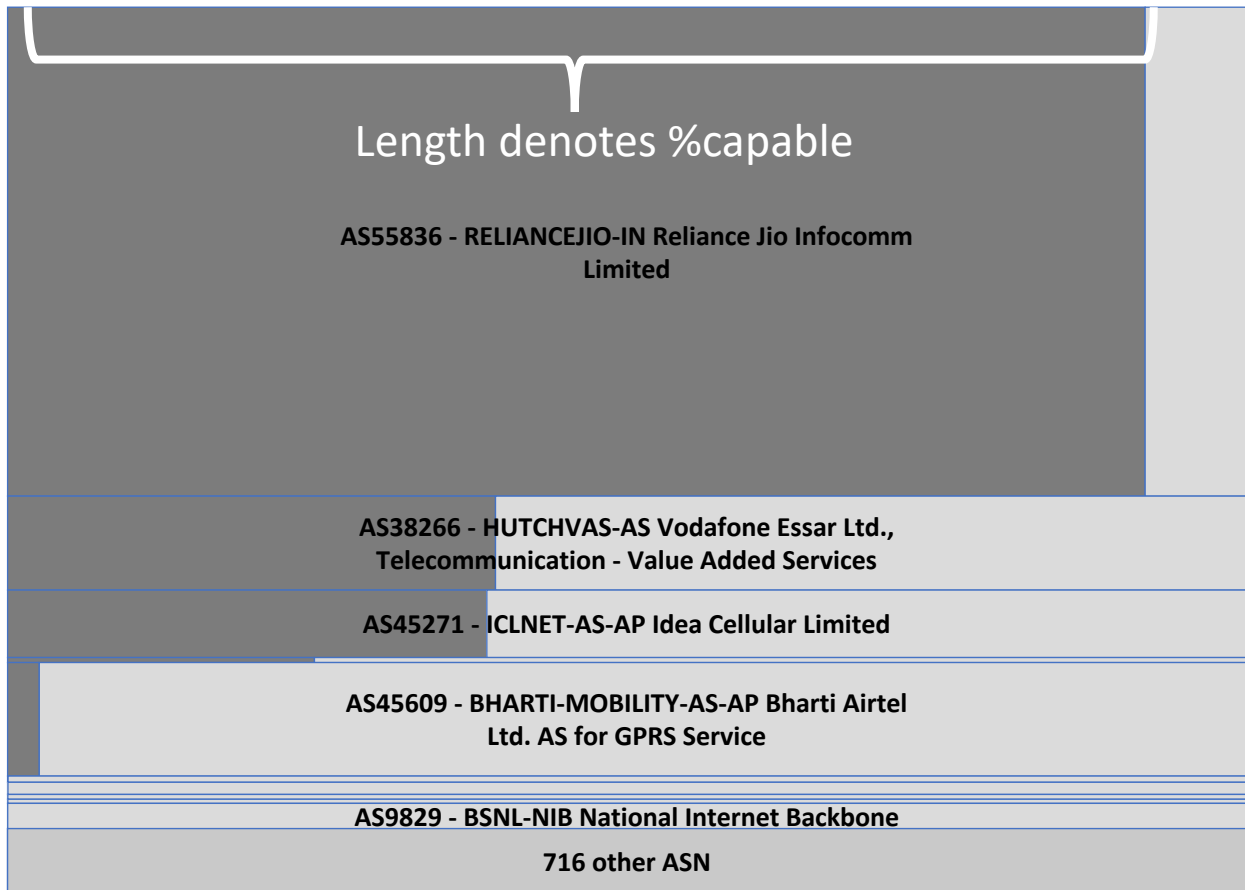
- AS NUMBER and WHOIS Nice name
- "Width" of the box is % of economies IPv6

%IPv6

%IPv4



# How to interpret the charts



Length denotes %capable

AS55836 - RELIANCEJIO-IN Reliance Jio Infocomm Limited

AS38266 - HUTCHVAS-AS Vodafone Essar Ltd.,  
Telecommunication - Value Added Services

AS45271 - ICLNET-AS-AP Idea Cellular Limited

AS45609 - BHARTI-MOBILITY-AS-AP Bharti Airtel  
Ltd. AS for GPRS Service

AS9829 - BSNL-NIB National Internet Backbone

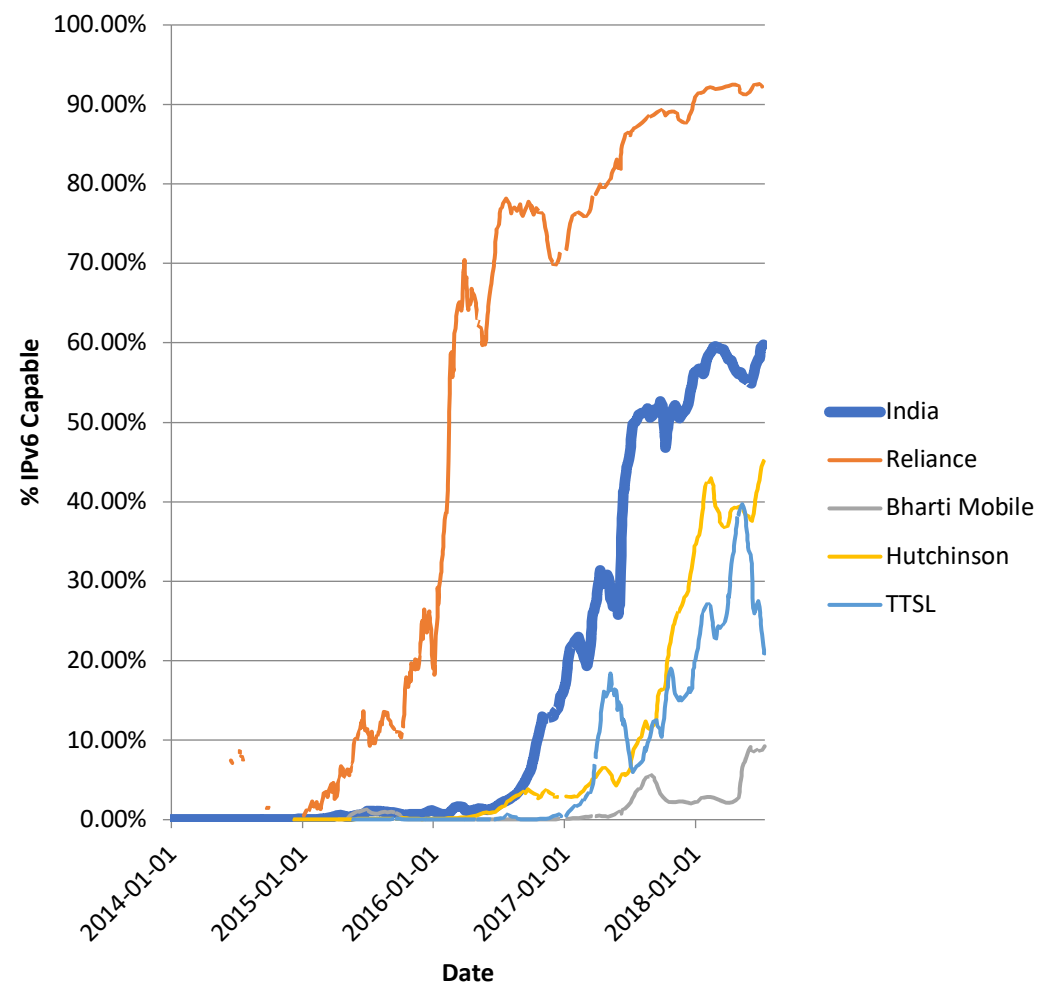
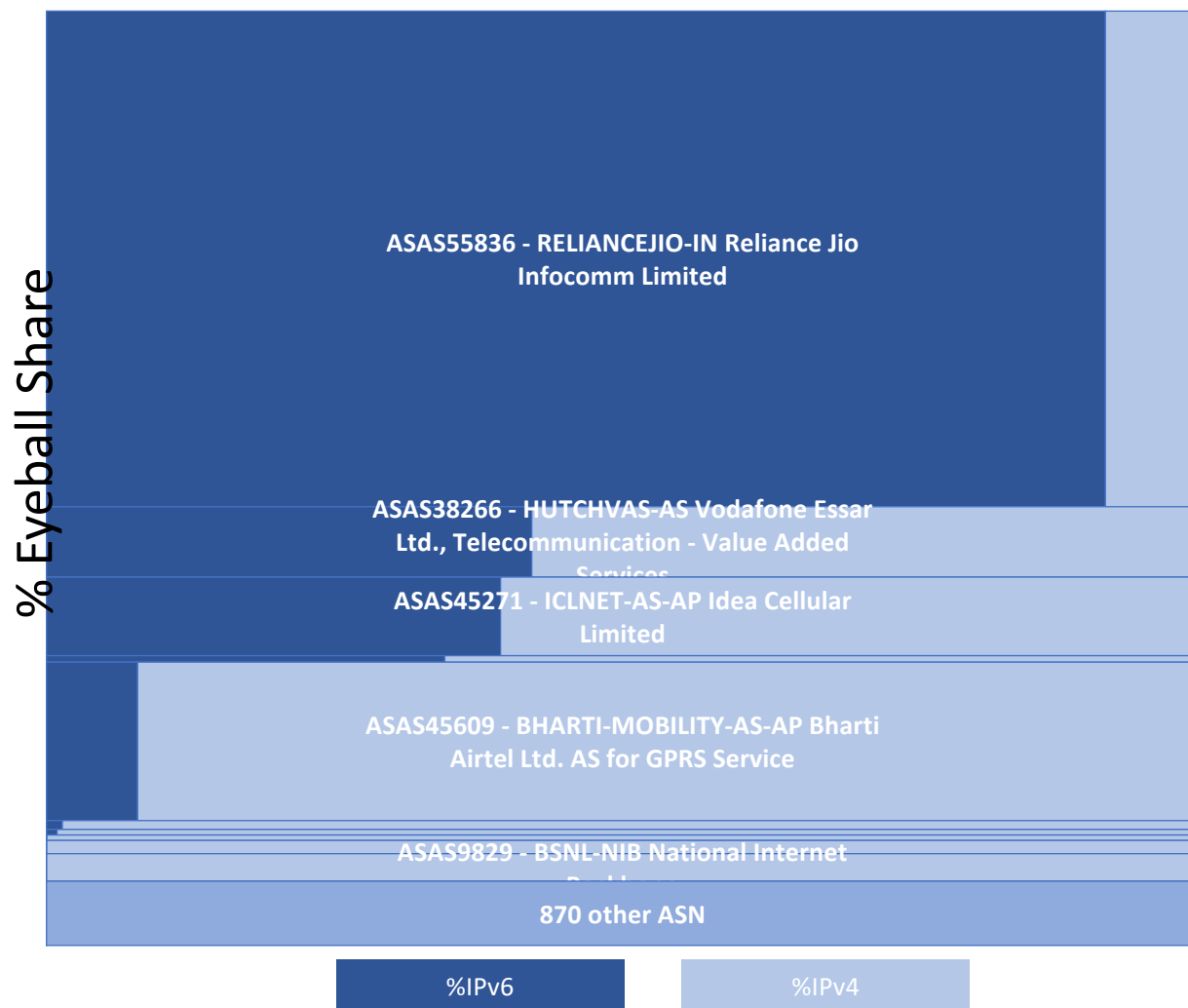
716 other ASN

%IPv6

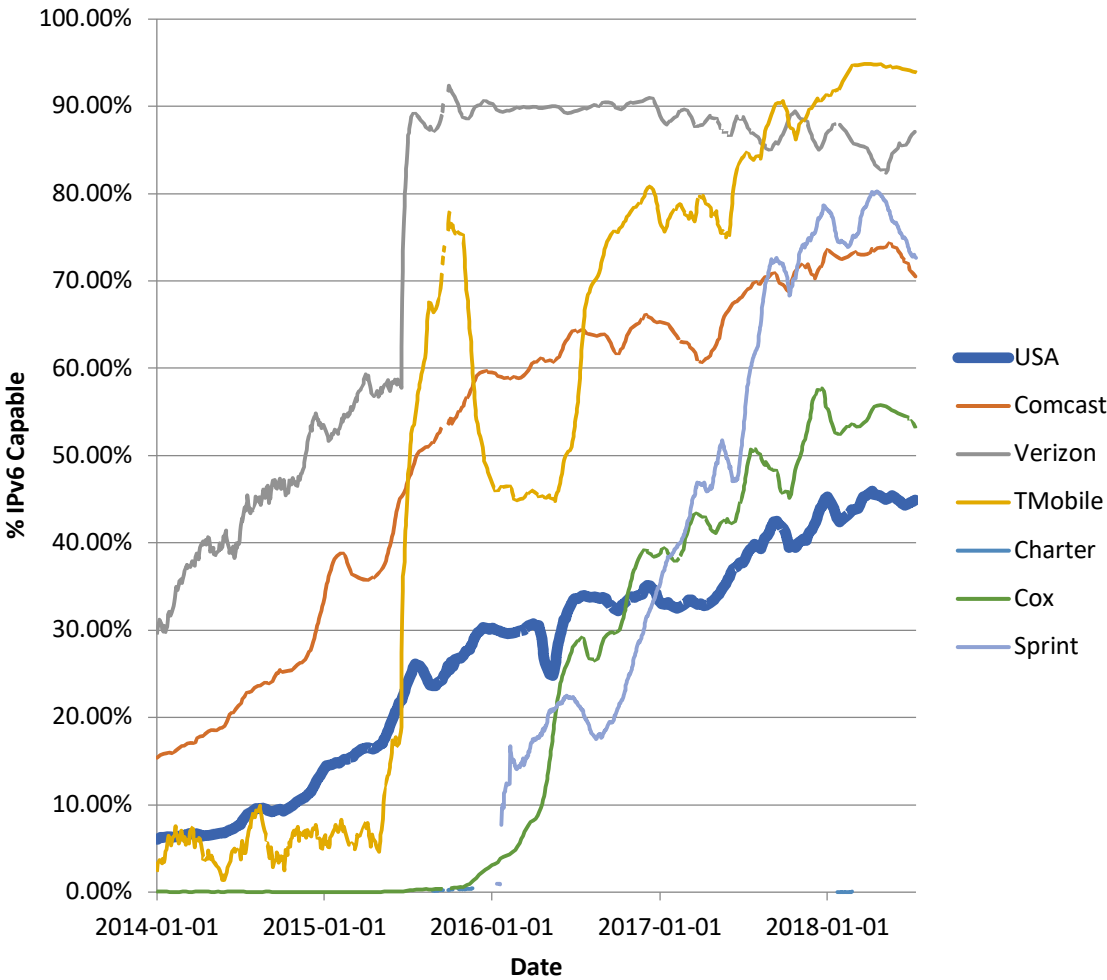
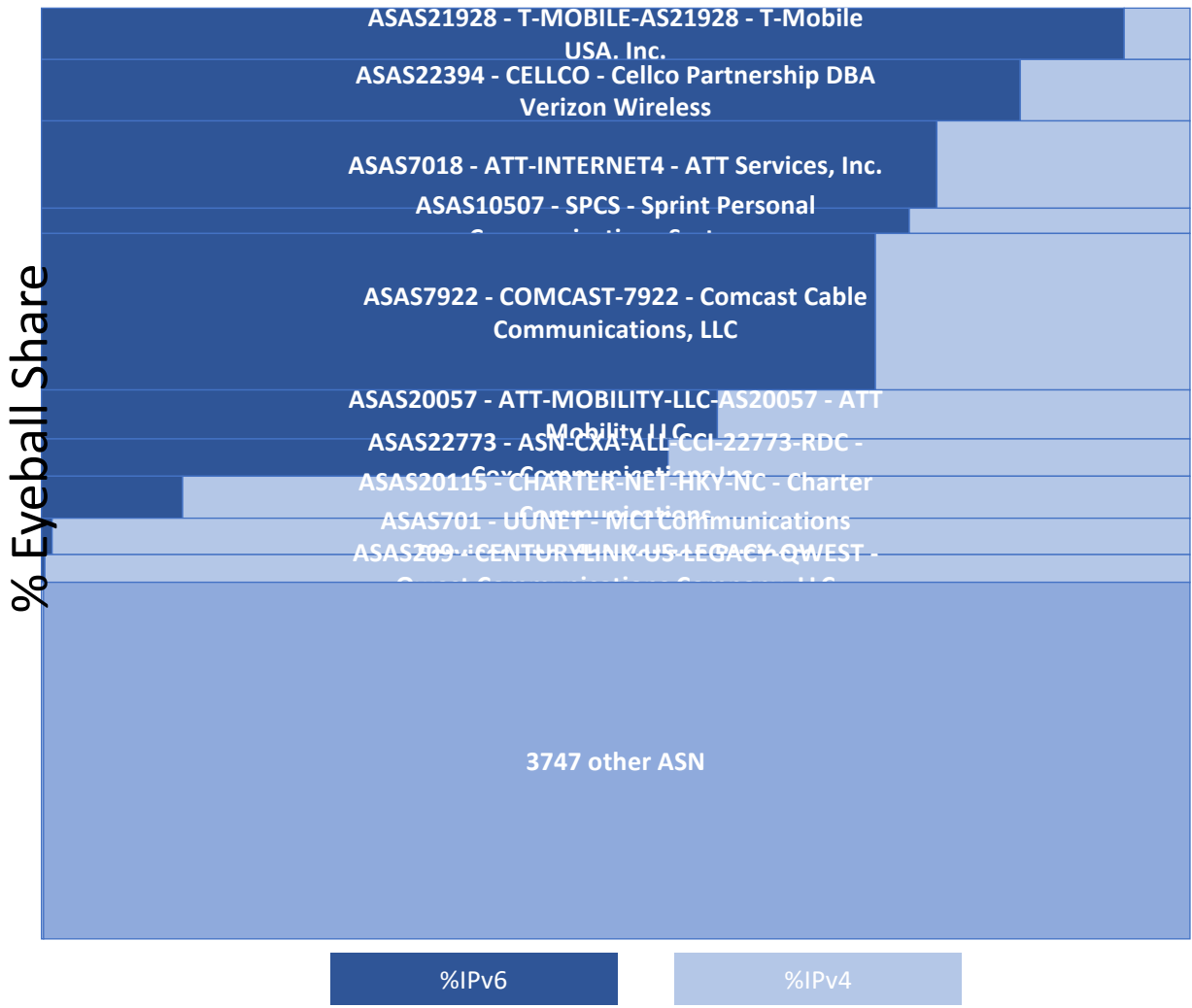
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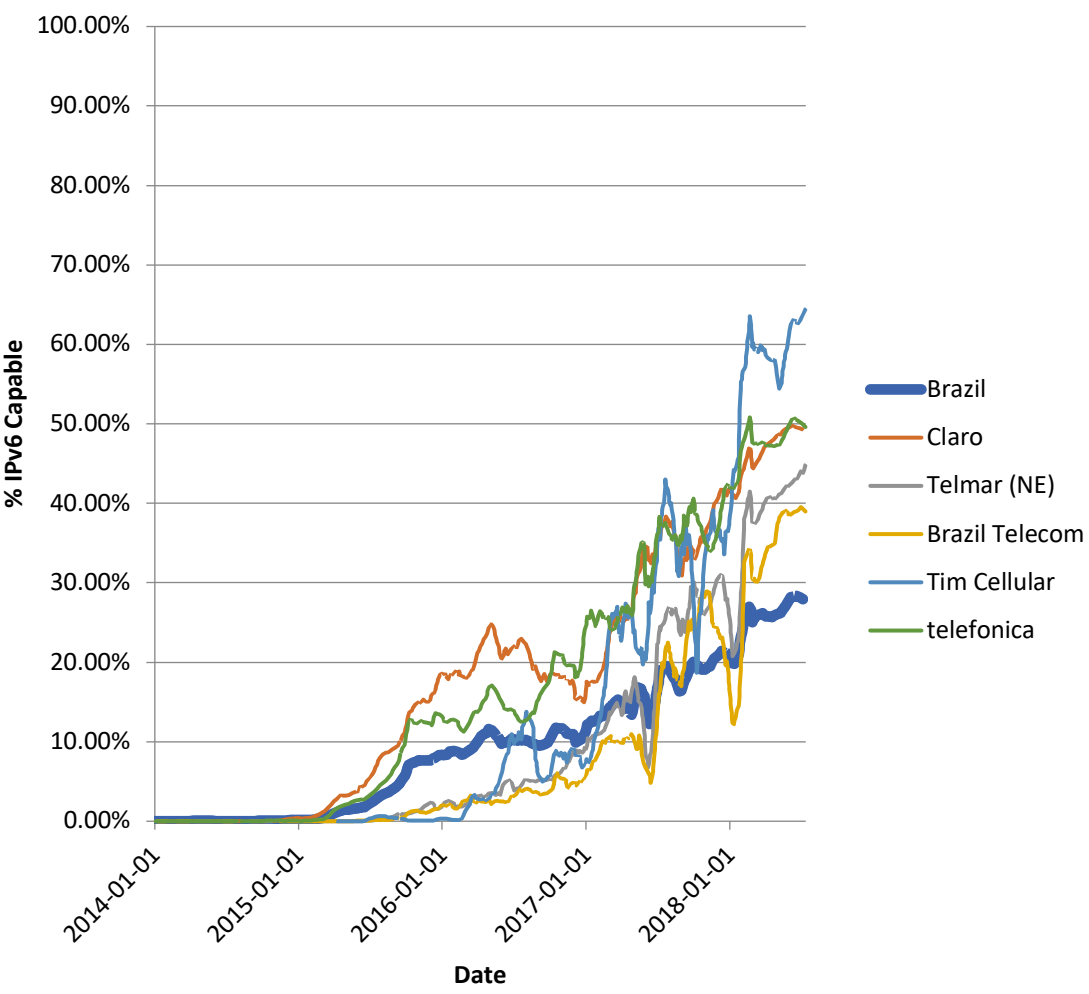
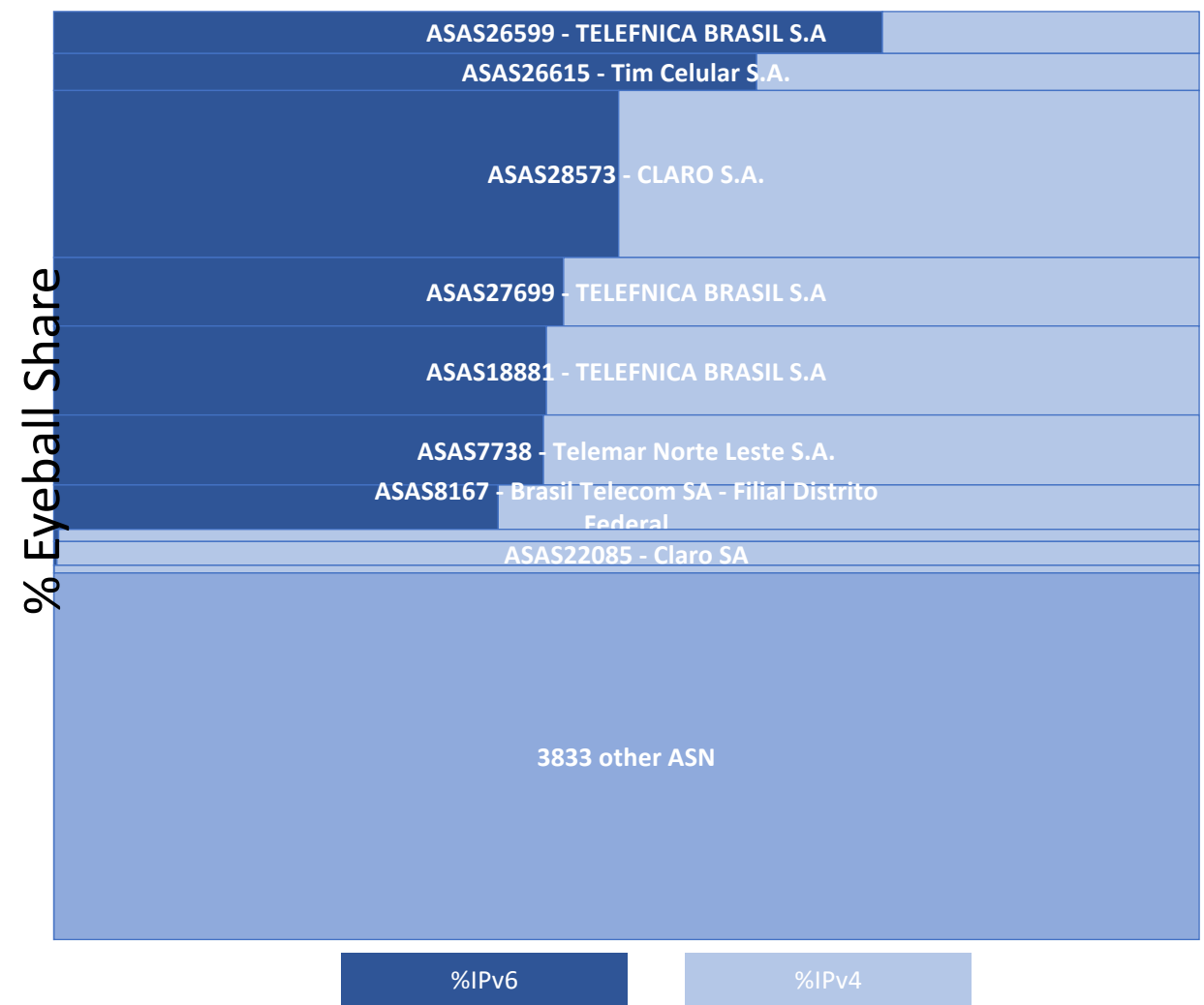
# India



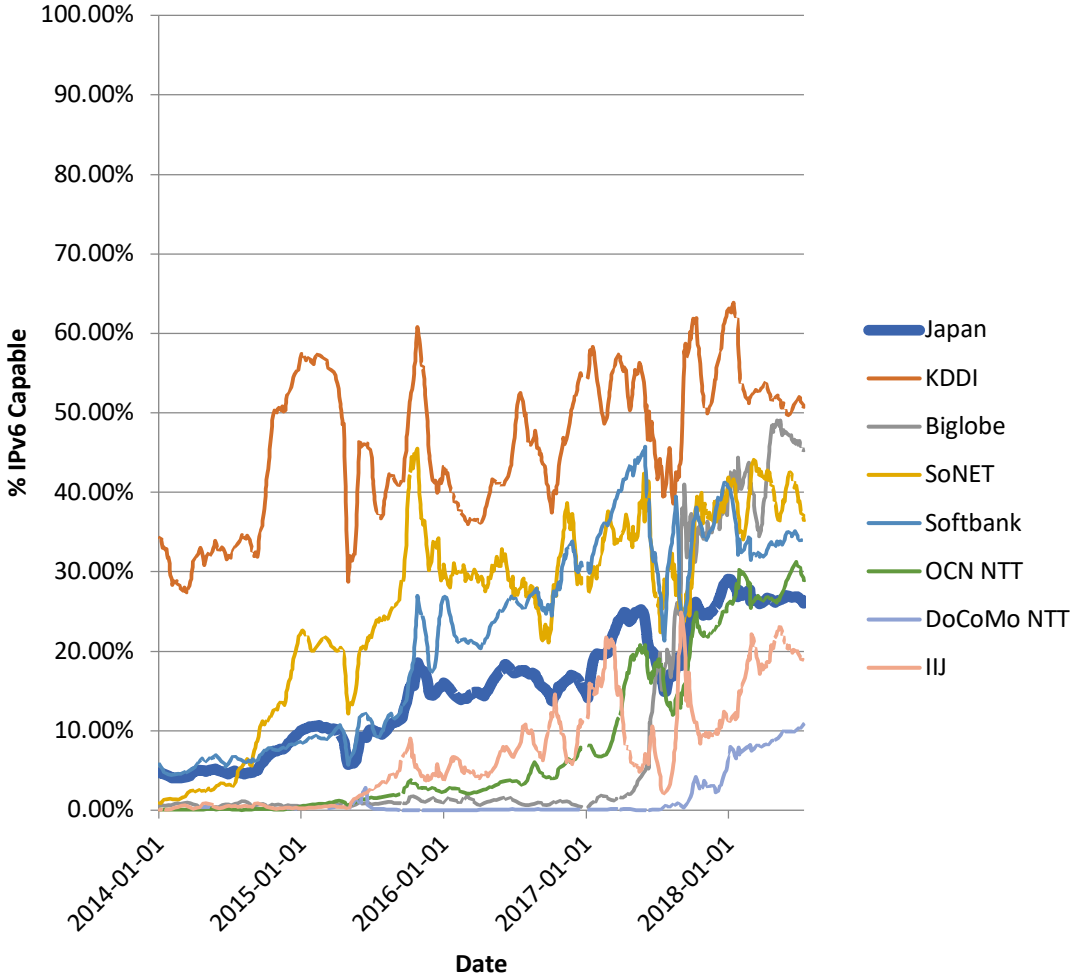
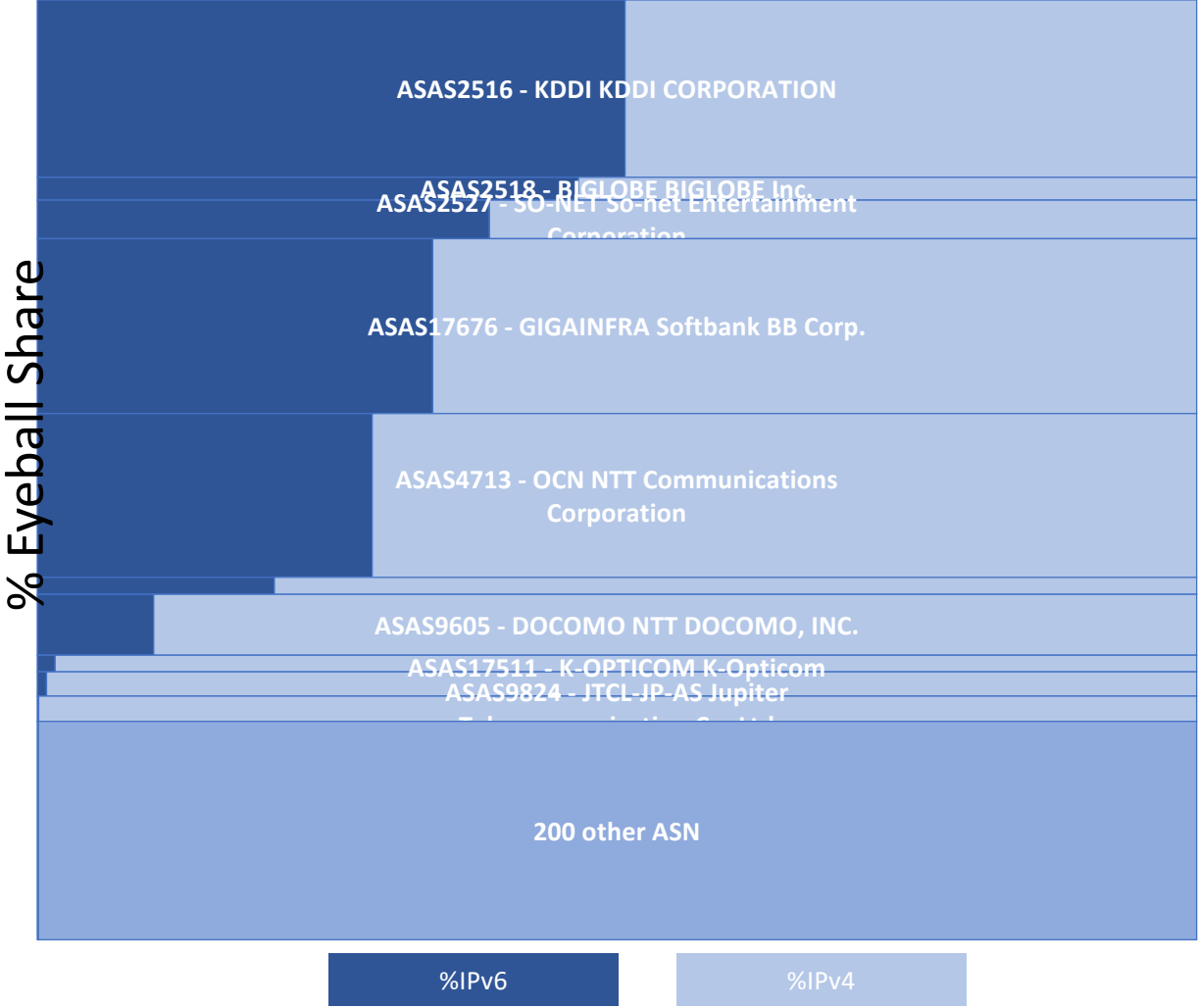
# USA



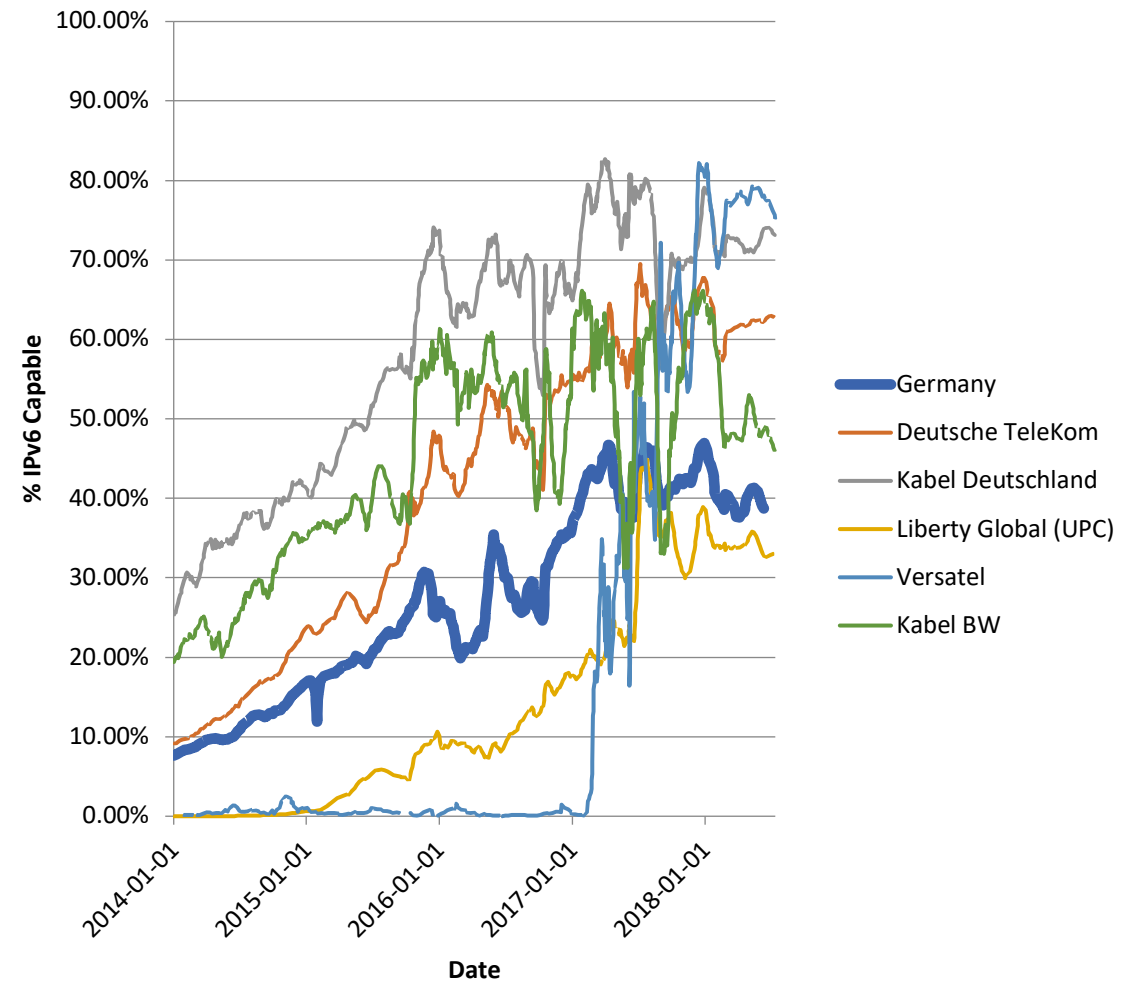
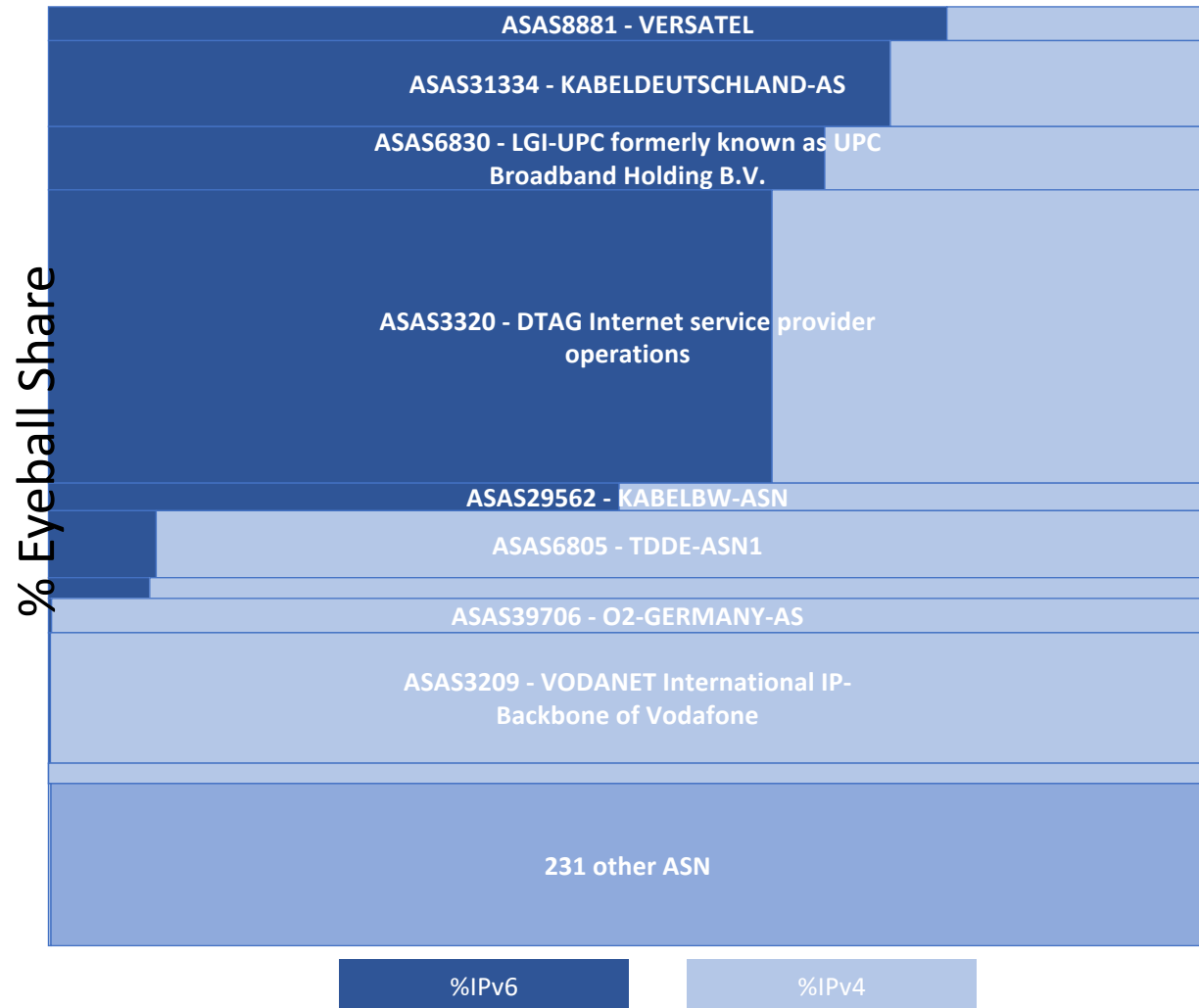
# Brazil



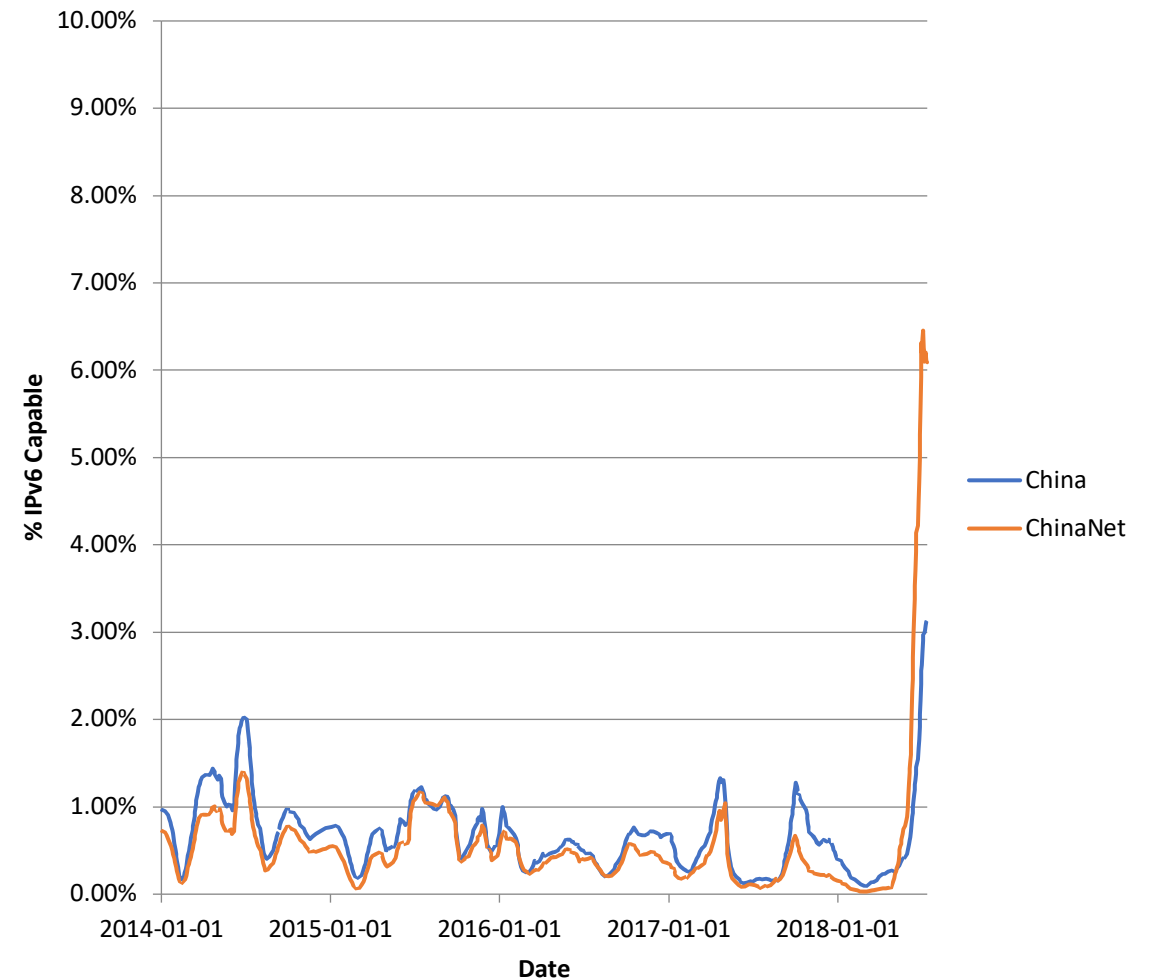
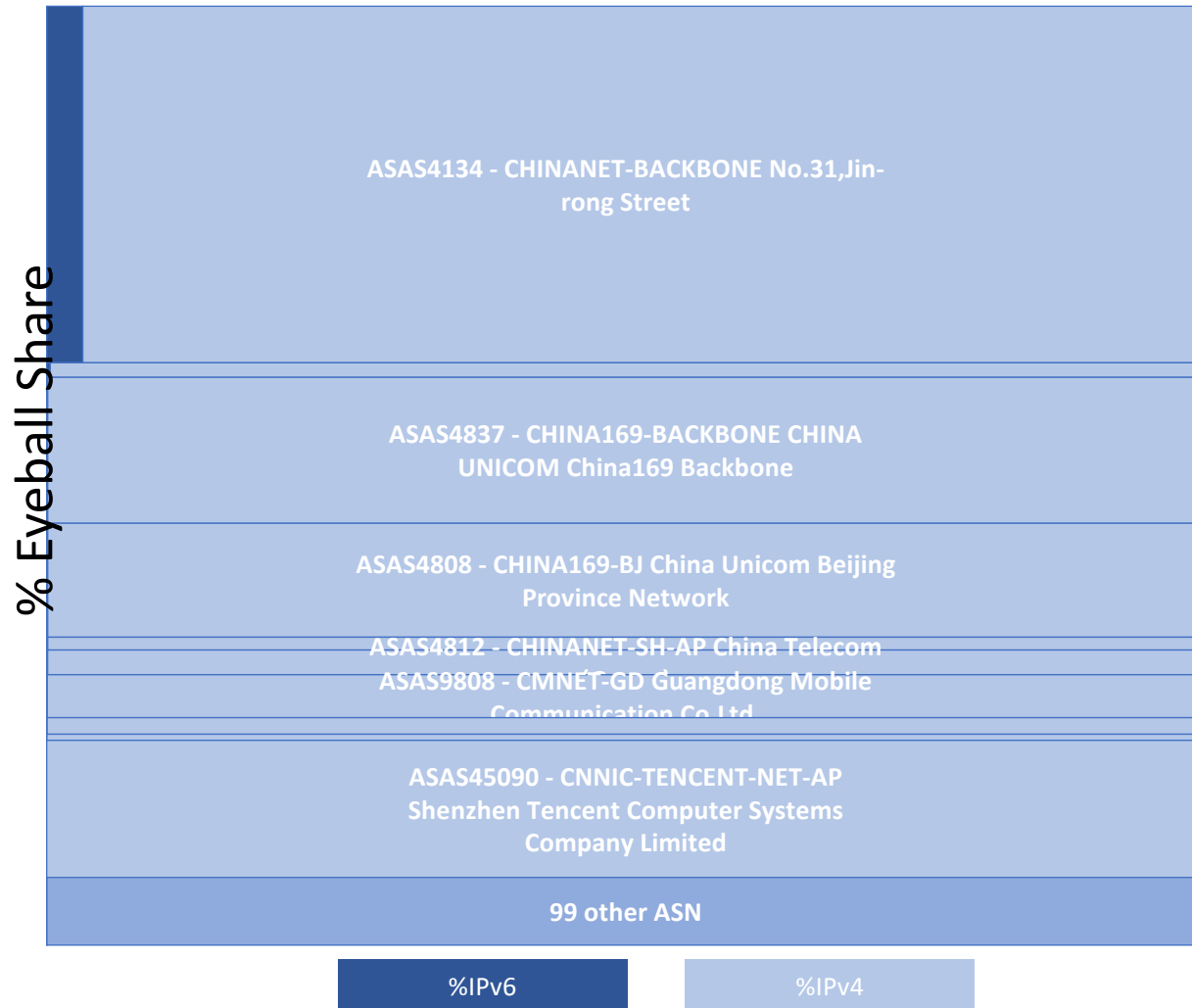
# Japan



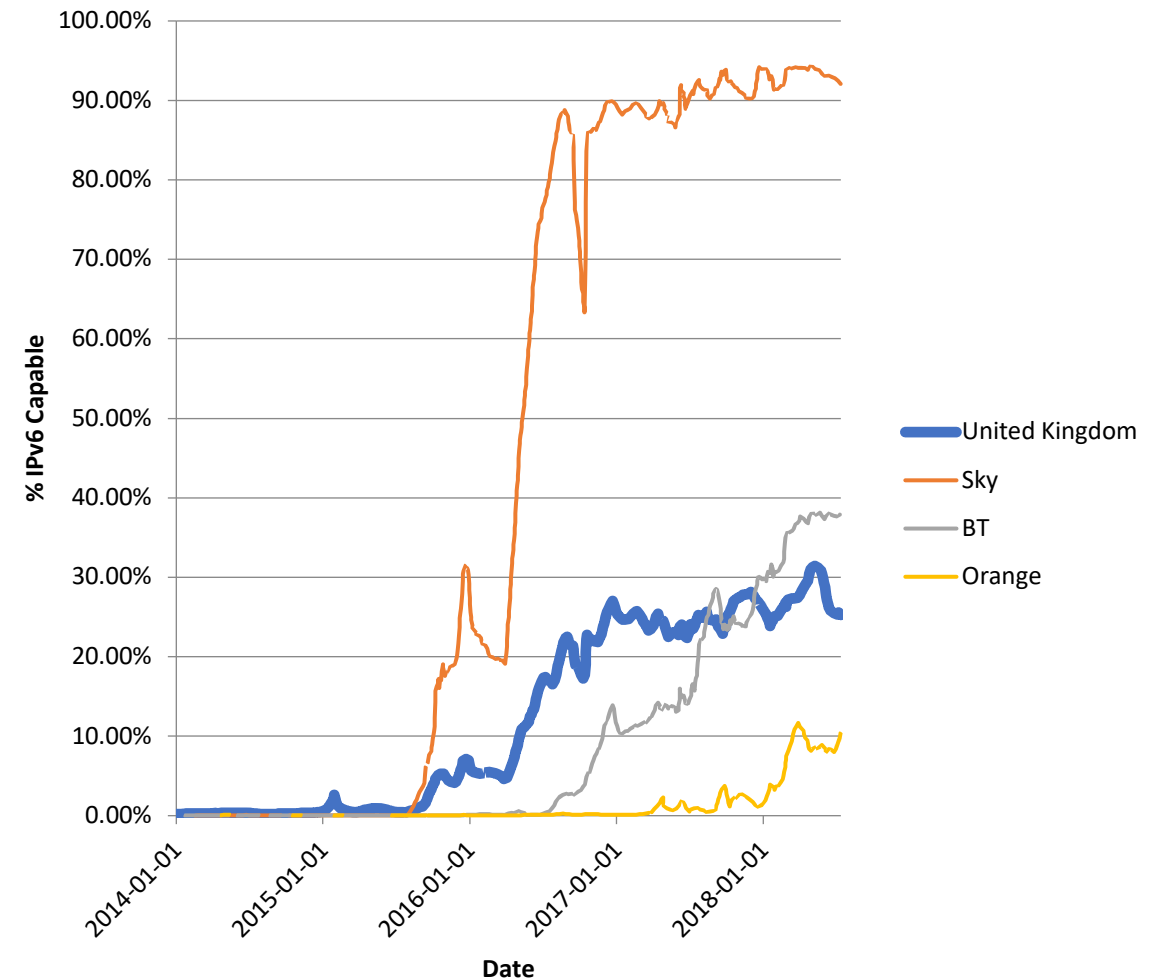
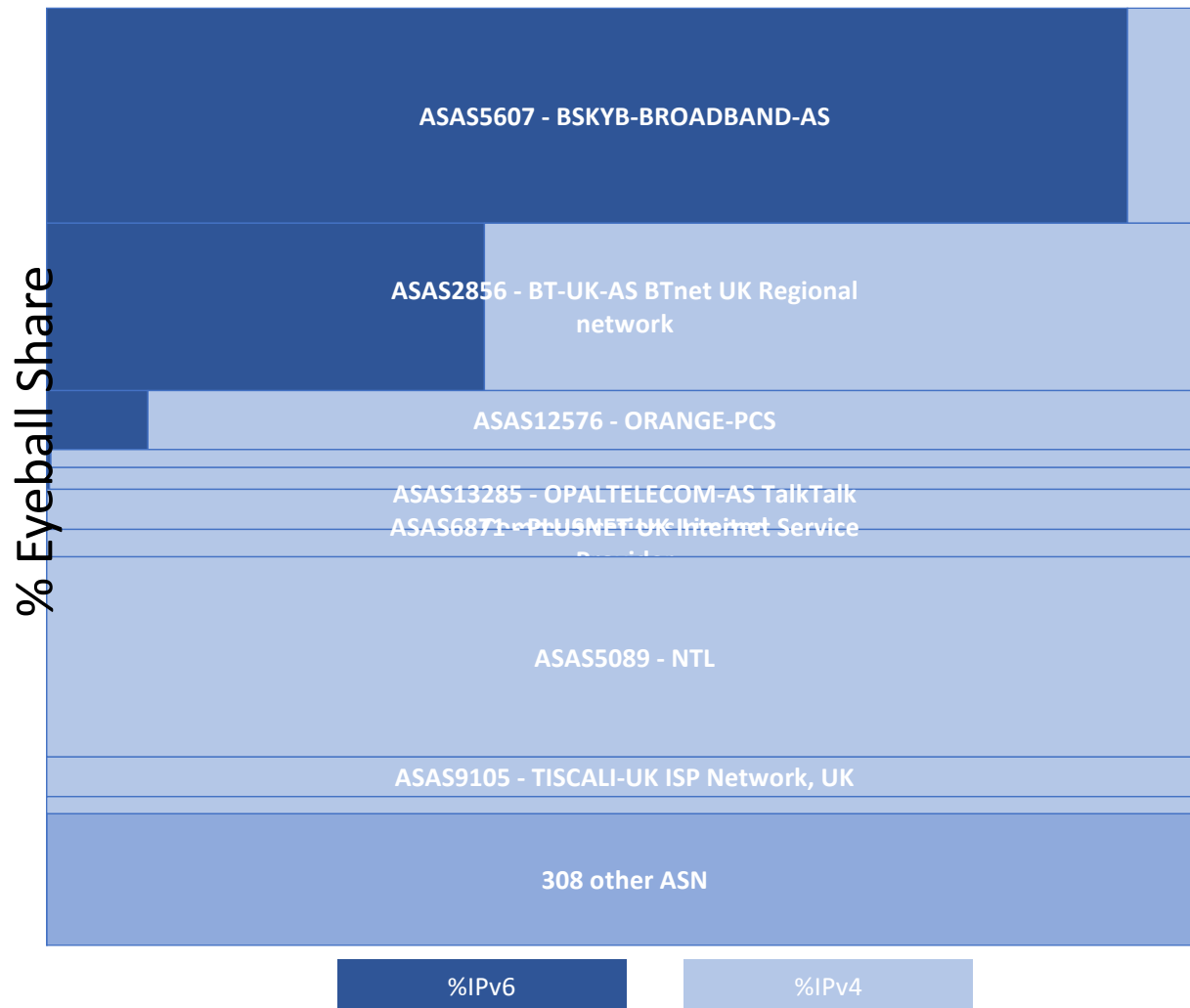
# Germany



# China

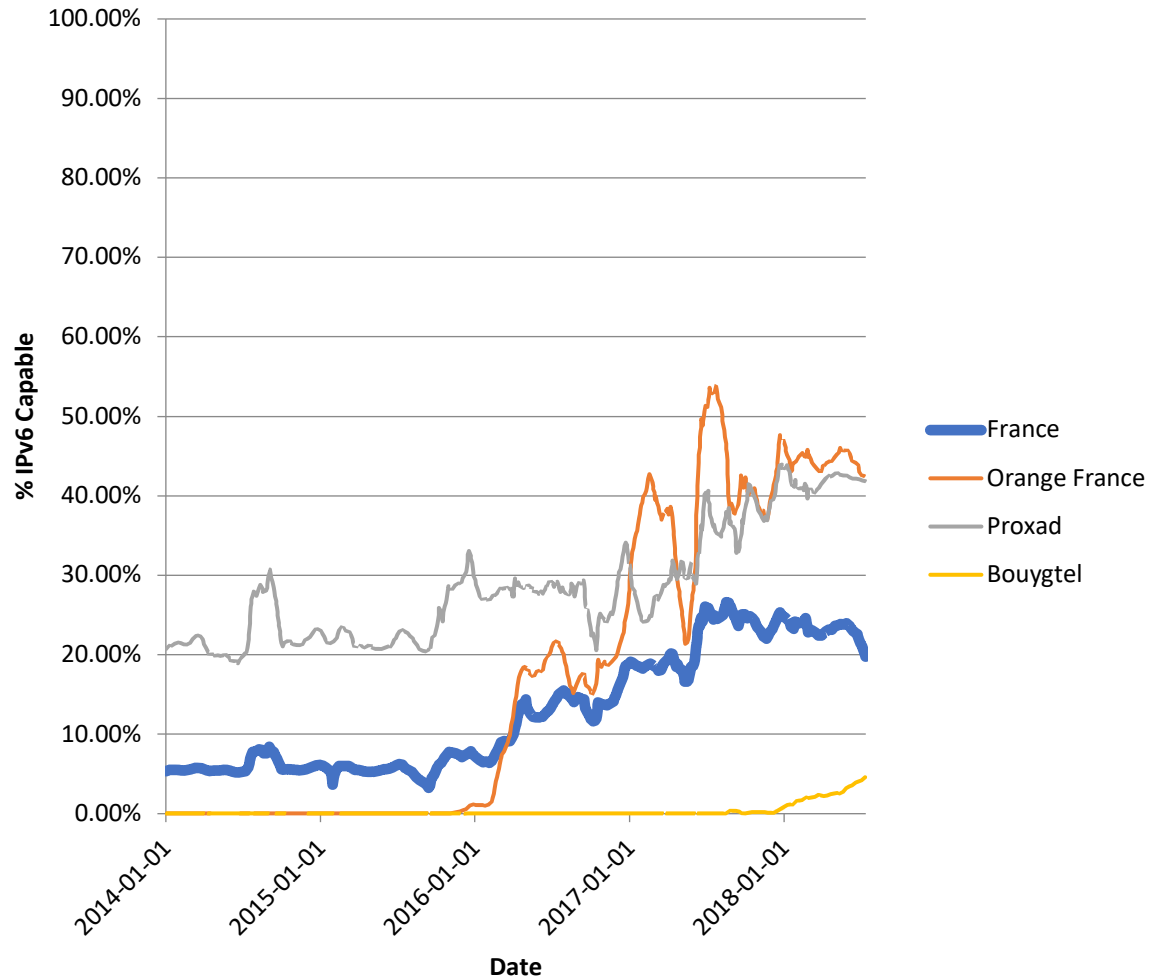
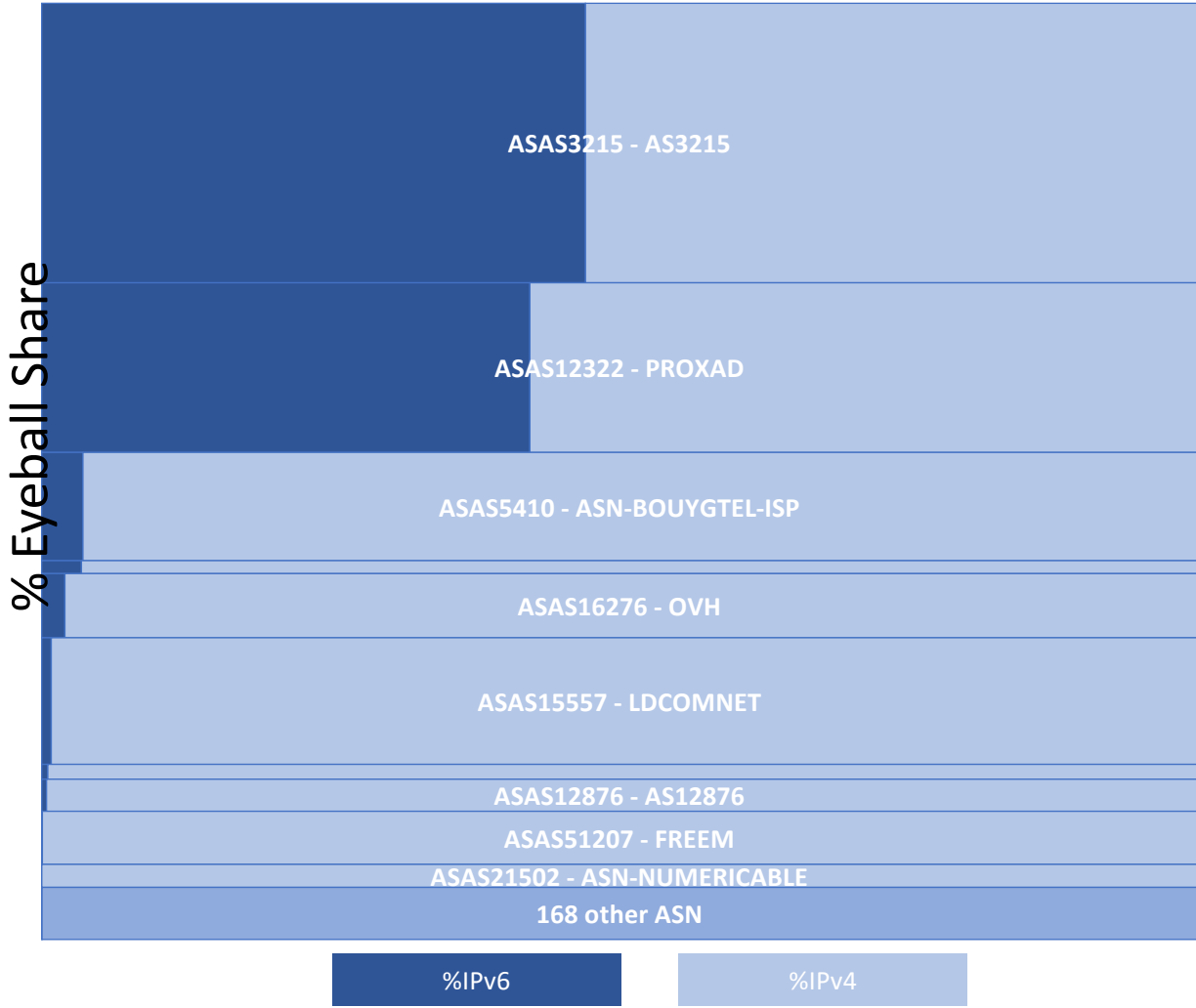


# United Kingdom

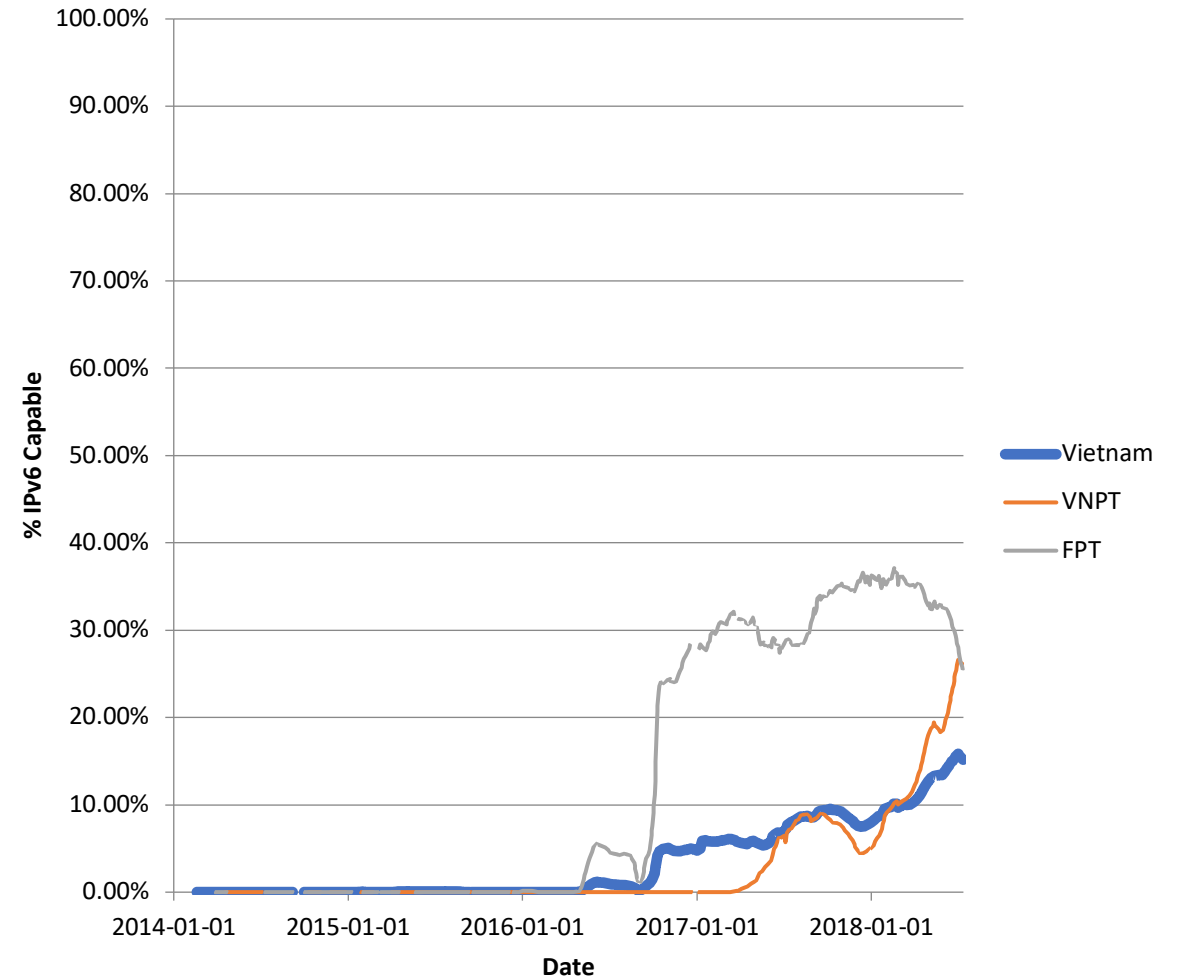
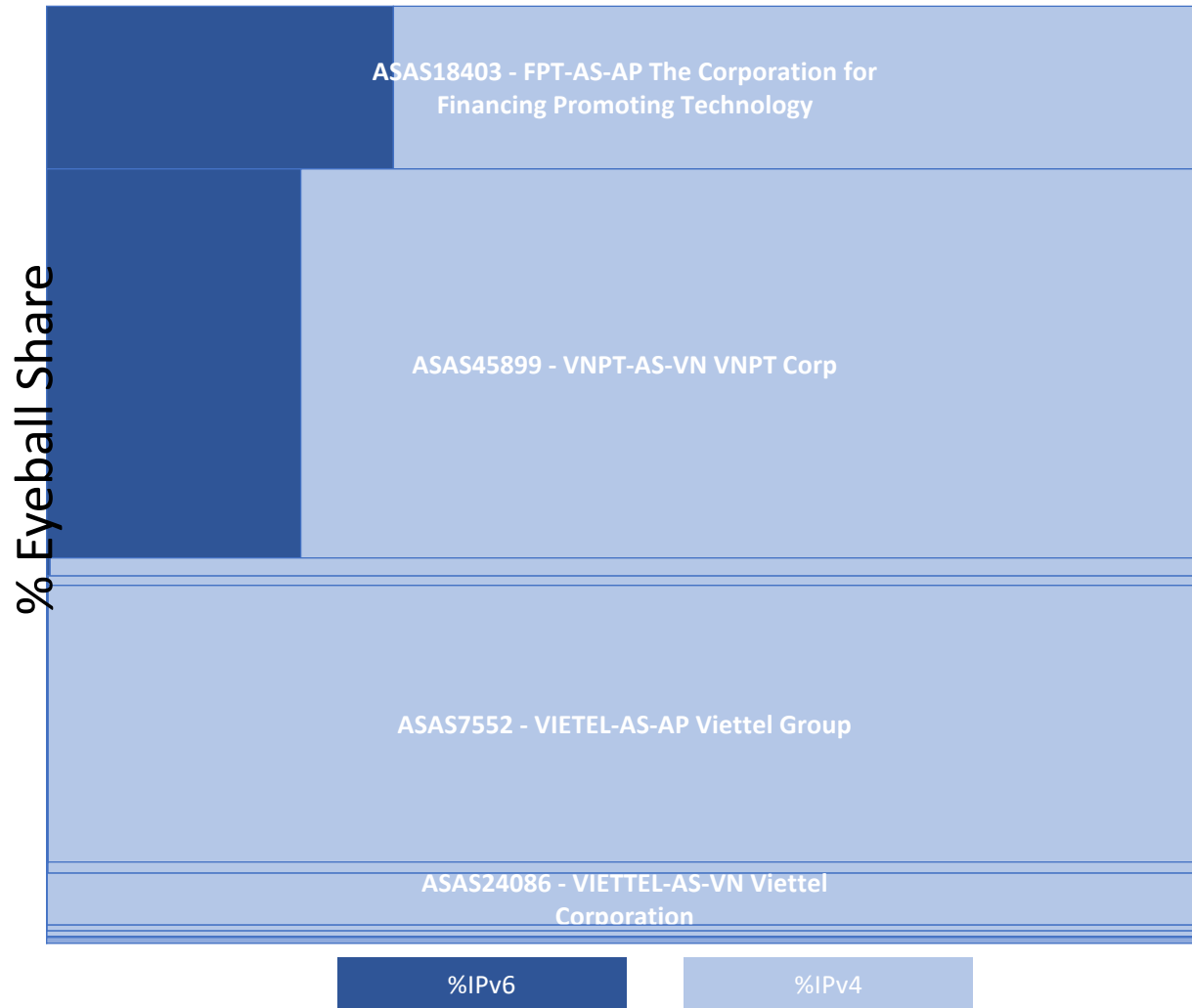




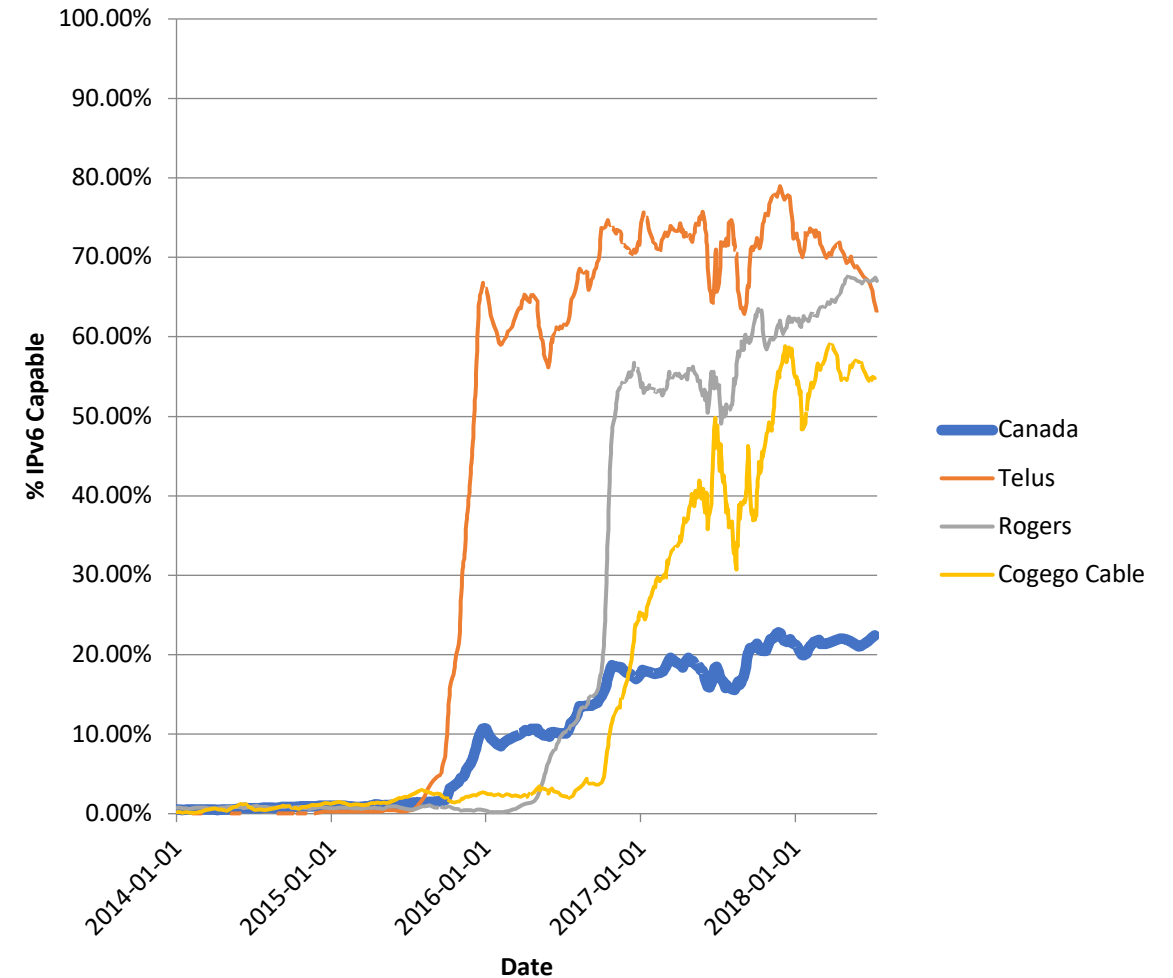
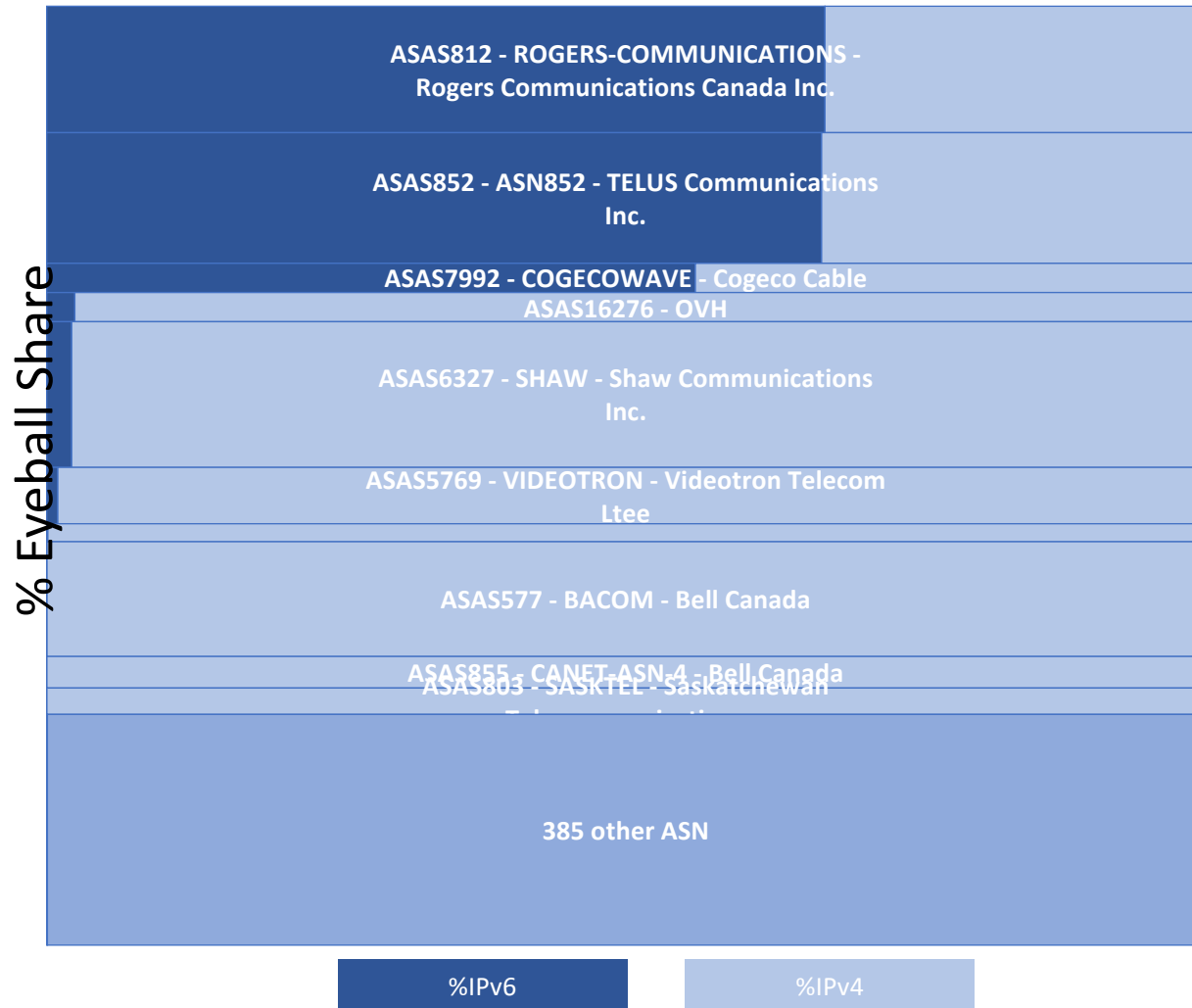
# France



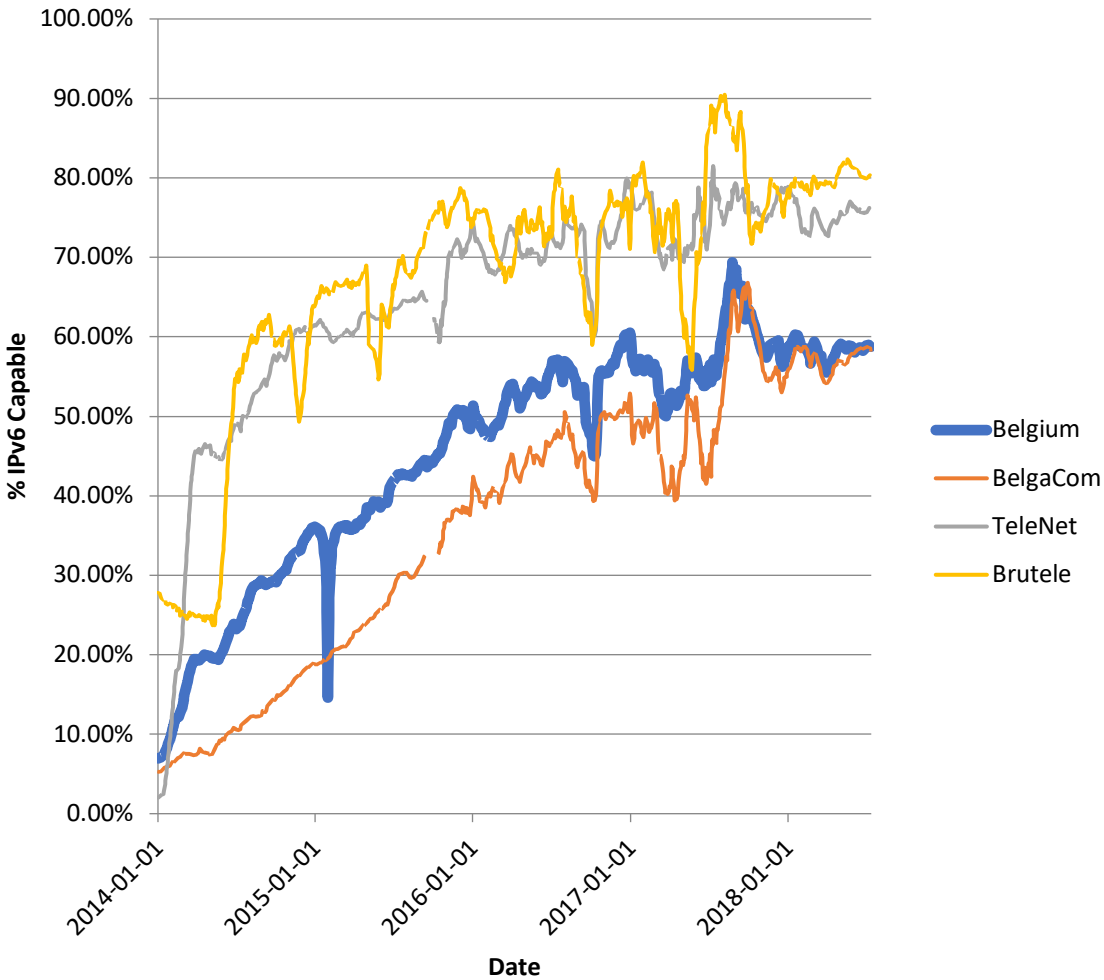
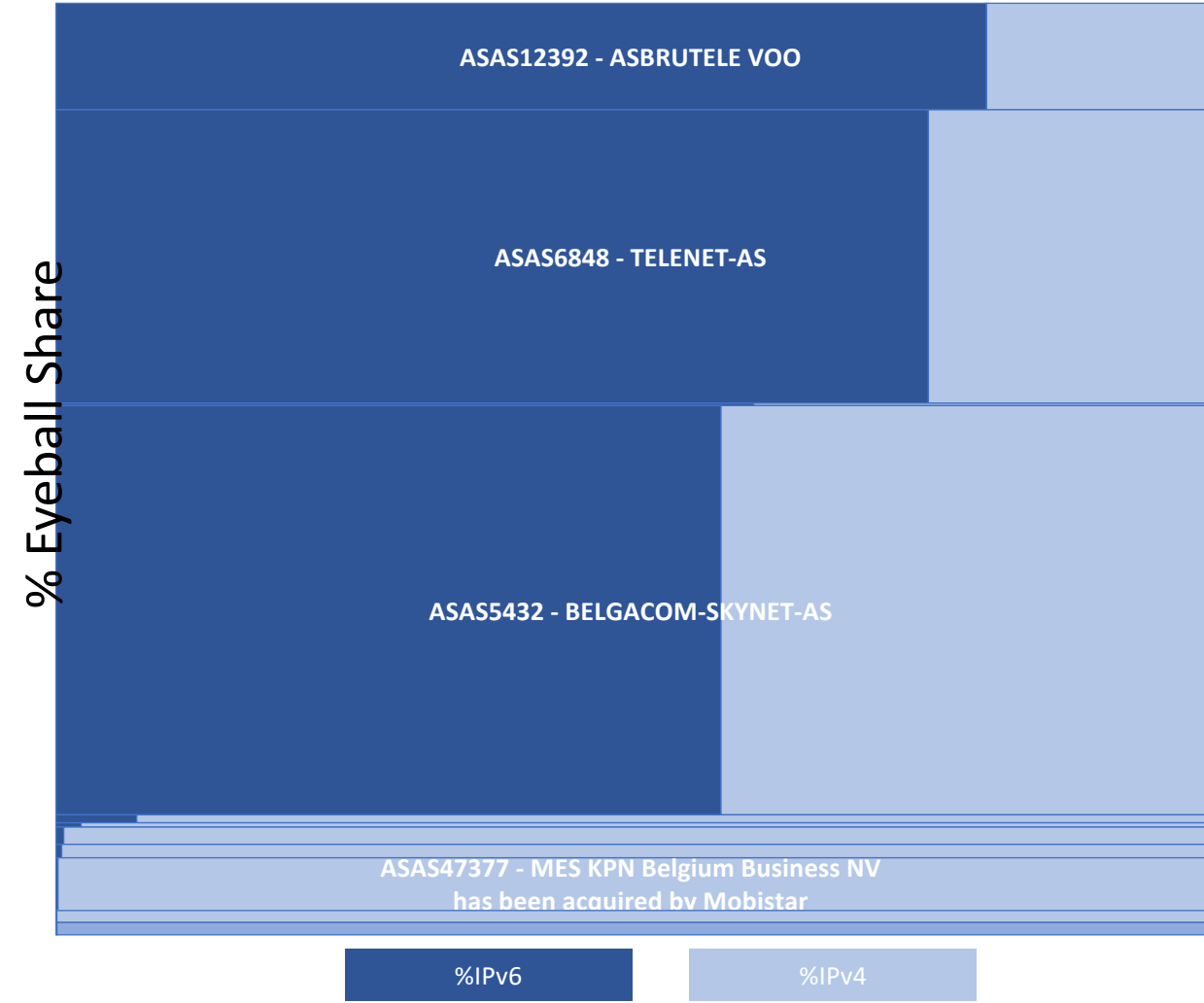
# Vietnam



# Canada



# Belgium



# Observations/Conclusions

- Economically diverse economies are deploying IPv6
- There are signs it encourages competition in the ISP sector
- There are signs that some economies have very entrenched, dominant ISPs
- IPv6 is a significant element of global Internet deployment
  - Its too big to ignore
  - Its fate is not certain, but the trends are very encouraging
  - It looks like good capital investment to deploy
- Where is your economy in this story?