Routing Announcements:

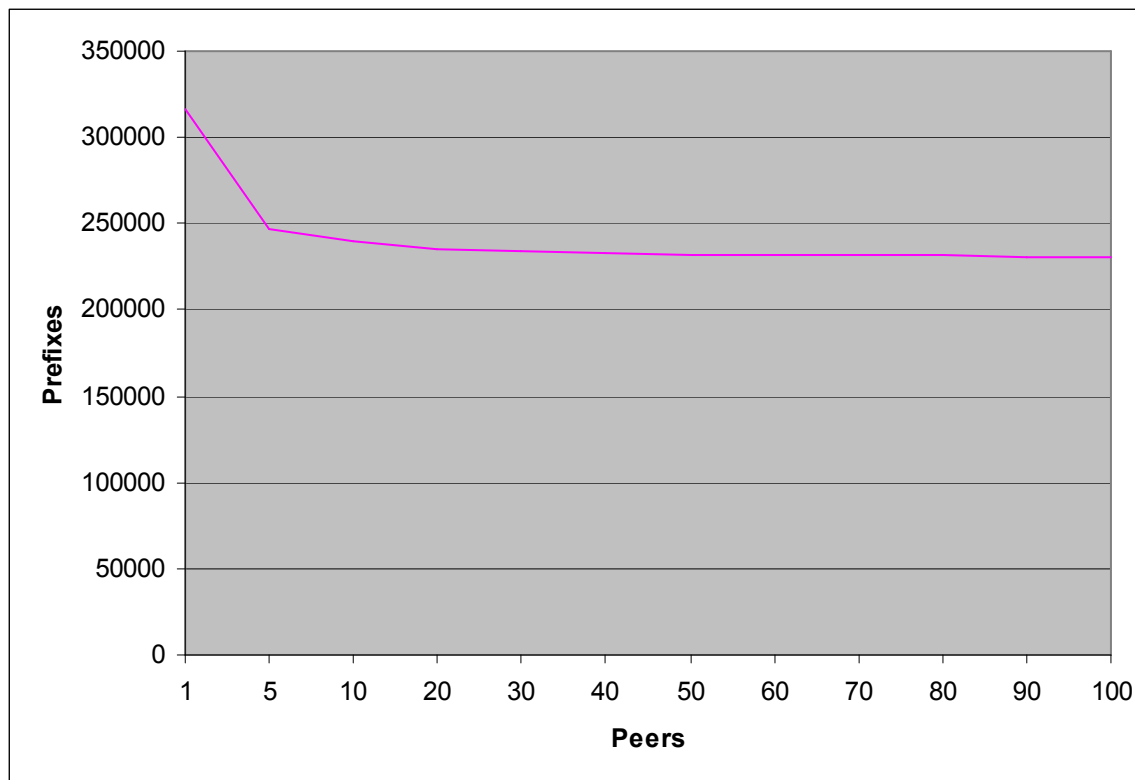## Are small prefixes globally routable?

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How to define *globally routable*?
Routed by more than 50 Renesys peers (out of 225+)

Large prefixes seen by our 225+ peers

Size	# Routed	# Routed by > 50 peers	Globally Routed %
/8	26	19	73.1
/9	9	9	100.0
/10	16	16	100.0
/11	37	37	100.0
/12	136	135	99.3
/13	272	269	98.9
/14	494	481	97.4
/15	955	944	98.8
/16	9836	9660	98.2
/17	4260	4122	96.8
/18	6918	6688	96.7
/19	14854	14276	96.1

Which /8s are not globally routed?

- 6.0.0.0/8 - DOD
- 13.0.0.0/8 - Xerox Parc
- 24.0.0.0/8 - ARIN

- 63.0.0.0/8 - ARIN
- 66.0.0.0/8 - ARIN
- 68.0.0.0/8 - ARIN

➢ All are announced from AS 2706 – Pacific Internet, Singapore

➢ Only seen by the same three Renesys Asian peers

➢ Spammers?

Small prefixes seen by our 225+ peers

Size	# Routed	# Routed by > 50 peers	Globally Routed %
/20	18079	16565	91.6
/21	16527	15328	92.7
/22	21201	19732	93.1
/23	22604	20626	91.2
/24	135723	122925	90.6
/25	1617	203	12.6
/26	1989	8	0.4
/27	10154	7	0.1
/28	5660	4	0.1
/29	7498	0	0

Who is originating these small prefixes?

#	ASN	Organization	Country
174	23577	Korea Telecom	South Korea
15	26769	Bandcon	US
4	38091	CJ CableNet	South Korea
3	10154	ULSAN Office of Education	South Korea
2	17841	MIC EGovernment	South Korea
1	24 ASNs	Various	Various

Country	#
South Korea	202
US	18
Ukraine	1
Russia	1

Provider policies? (from NANOG mailing list)

➢ Sprint:
- Customers may announce /26 for ARIN IPs,
  /28 for RIPE or APNIC IPs obtained from Sprint.
- Everything else is limited to /24.

➢ AT&T
  Limit is /24

➢ Level 3
  Limit is /24

Has anything changed in the past year?

YES!

- In October 2006, we saw 29 prefixes smaller than a /24 routed globally

- Today we see 8 times as many (222).

Conclusions

➢ More prefixes smaller than /24 are globally routed today

➢ Most are from a single provider in South Korea

➢ Filtering these out won't save much – yet!

➢ Has the /24 barrier been broken?

Thank You

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