



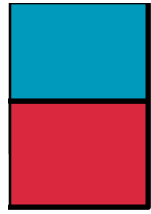
# **Internet Routing Table Analysis Update**

**Philip Smith**

**pfs@cisco.com**

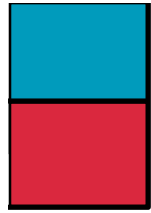
**APNIC Routing SIG, APRICOT,**

**Kuala Lumpur, 27<sup>th</sup> February 2001**



# Internet Routing Table Analysis

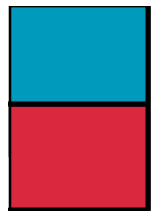
- **New:**
  - Unassigned but announced ASNs flagged**
  - /24 announcements from each /8 block**
- **Full Stats on APNIC web page**  
<http://www.apnic.net/stats/bgp>



# 16<sup>th</sup> February summary

## Global summary

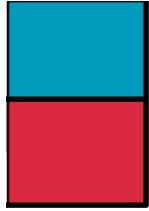
BGP routing table entries examined:	101368
Origin ASes present in the Internet Routing Table:	9972
Origin ASes announcing only one prefix:	3547
Transit ASes present in the Internet Routing Table:	1315
Average AS path length visible in the Internet Routing Table:	5.3
Max AS path length visible:	18
Illegal AS announcements present in the Routing Table:	18
Non-routable prefixes present in the Routing Table:	0
Prefixes being announced from the IANA Reserved Address blocks:	3
Number of addresses announced to Internet:	1226430539
Equivalent to 71 /8s, 84 /16s and 50 /24s	
Percentage of available address space announced:	33.1
Percentage of allocated address space announced:	64.9
Percentage of available address space allocated:	51.0



# 16<sup>th</sup> February summary

## APNIC region summary

```
Prefixes being announced by APNIC Region ASes:           15764
Prefixes being announced from the APNIC address blocks:   14074
APNIC Region origin ASes present in the Internet Routing Table: 1151
APNIC Region origin ASes announcing only one prefix:      416
APNIC Region transit ASes present in the Internet Routing Table: 189
Average APNIC Region AS path length visible:             5.0
  Max APNIC Region AS path length visible:                15
Number of APNIC addresses announced to Internet:          70018996
  Equivalent to 3 /8s, 218 /16s and 108 /24s
  Percentage of available APNIC address space announced:  68.8
APNIC AS Blocks      4608 - 4864, 7467 - 7722, 9216 - 10239,
                    17408 - 18431
APNIC Address Blocks 61/8, 202/7, 210/7 and 218/8
```



# 16<sup>th</sup> February summary

## ARIN region summary

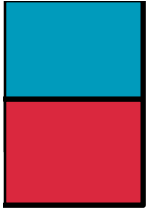
```
Prefixes being announced by ARIN Region ASes:                70049
Prefixes being announced from the ARIN address blocks:        47710
ARIN Region origin ASes present in the Internet Routing Table: 6078
ARIN Region origin ASes announcing only one prefix:           1760
ARIN Region transit ASes present in the Internet Routing Table: 626
Average ARIN Region AS path length visible:                   5.2
  Max ARIN Region AS path length visible:                     13
Number of ARIN addresses announced to Internet:                177616408
  Equivalent to 10 /8s, 80 /16s and 78 /24s
  Percentage of available ARIN address space announced:       81.4
ARIN AS Blocks      1 - 1876, 1902 - 2042, 2044 - 2046, 2048 - 2106
                   2138 - 2584, 2615 - 2772, 2823 - 2829, 2880 - 3153
                   3354 - 4607, 4865 - 5119, 5632 - 6655, 6912 - 7466
                   7723 - 8191, 10240 - 12287, 13312 - 15359
                   16384 - 17407, 18432 - 20479
ARIN Address Blocks 63/8, 64/7, 66/8, 199/8, 200/8, 204/6, 208/7
                   and 216/8
```



# 16<sup>th</sup> February summary

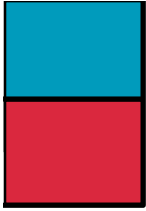
## RIPE NCC region summary

```
Prefixes being announced by RIPE Region ASes:           15537
Prefixes being announced from the RIPE address blocks:   12279
RIPE Region origin ASes present in the Internet Routing Table: 2739
RIPE Region origin ASes announcing only one prefix:      1367
RIPE Region transit ASes present in the Internet Routing Table: 498
Average RIPE Region AS path length visible:             5.9
  Max RIPE Region AS path length visible:               18
Number of RIPE addresses announced to Internet:         106915490
  Equivalent to 5 /8s, 73 /16s and 100 /24s
  Percentage of available RIPE address space announced: 91.0
RIPE AS Blocks      1877 - 1901, 2042, 2047, 2107 - 2136, 2585 - 2614
                   2773 - 2822, 2830 - 2879, 3154 - 3353, 5377 - 5631
                   6656 - 6911, 8192 - 9215, 12288 - 13311,
                   15360 - 16383
RIPE Address Blocks 62/8, 193/8, 194/7, 212/7 and 217/8
```



## APNIC Region per AS prefix count summary

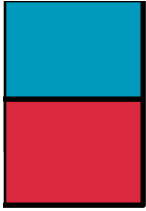
ASN	No of nets	/19 equiv	Description
1221	2423	1190	Telstra
2764	422	139	connect.com.au pty ltd
2907	376	909	SINET Japan
703	370	244	UUNET Technologies, Inc.
4755	303	108	VSNL India
4740	255	16	Ozemail
4618	211	56	Internet Thailand
9269	209	24	Hong Kong CTI
7545	204	7	TPG Internet Pty Ltd
4538	203	973	China Education and Research
7657	203	12	The Internet Group Limited
7474	194	87	Optus Communications
4763	187	43	Telstra New Zealand
4134	173	547	Data Communications Bureau
4766	171	619	KORnet Powered BY Korea Telec
3462	137	205	Data Communications Institute
4786	134	8	NetConnect Communications Pty
7586	132	10	Paradox Digital Pty. Ltd
7539	129	86	Delegated to TWNIC for subseq
7496	128	9	Power Up



## ARIN Region per AS prefix count summary

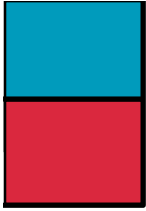
ASN	No of nets	/19 equiv	Description
701	2691	3652	UUNET Technologies, Inc.
1	1020	4583	BBN Planet
7018	924	3025	AT&T
7046	742	551	UUNET Technologies, Inc.
705	692	40	UUNET Technologies, Inc.
1239	685	1580	Sprint ICM-Inria
8013	618	71	PSINet Ltd. Canada
2914	613	1272	Verio, Inc.
174	603	2810	PSINet Inc.
3561	570	1299	Cable & Wireless USA
3549	542	506	Frontier GlobalCenter
2551	500	345	NETCOM On-Line Communication
4293	475	58	Cable & Wireless USA
209	463	656	Qwest
271	437	273	BCnet Backbone
2548	395	523	Digital Express Group, Inc.
3908	393	280	Supernet, Inc.
8151	361	193	UniNet S.A. de C.V.
6082	359	63	Management Analysis, Incorpor
11371	324	49	Rhythms NetConnections





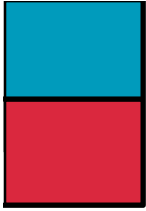
## RIPE NCC Region per AS prefix count summary

ASN	No of nets	/19 equiv	Description
702	417	606	UUNET Technologies, Inc.
3301	401	322	TeliaNet Sweden
1257	317	240	Swipnet AB
1270	270	433	UUNET Germany
3215	268	183	RAIN
680	200	888	Deutschef Forschungsnetz
719	191	146	LANLINK
786	184	960	JANET IP Service
5515	168	318	Sonera Finland
3320	167	462	Deutsche Telekom AG
1849	152	271	UUNET UK (formerly PIPEX)
1942	140	53	GIP Renater
517	135	137	Xlink
2856	133	390	BTnet UK Regional network
3303	129	277	Swisscom
5400	111	31	Concert Internet Plus Europea
1901	104	77	EUnet Austria
1267	99	986	IUnet S.p.A
2830	87	30	UUNET UK (formerly PIPEX)
3269	86	275	TELECOM ITALIA



## Global per AS prefix count summary

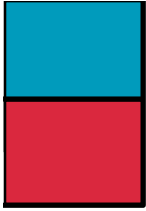
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209	463	656	Qwest
271	437	273	BCnet Backbone
2764	422	139	connect.com.au pty ltd
702	417	606	UUNET Technologies, Inc.
3301	401	322	TeliaNet Sweden
2548	395	523	Digital Express Group, Inc.



## List of Illegal AS's

Bad AS	Designation	Network	Transit AS	Description
2027	UNALLOCATED	150.185.0.0/16	10530	Interpacket Group,
2027	UNALLOCATED	150.185.128.0/18	8143	Publicom Corp.
2027	UNALLOCATED	150.186.0.0/16	10530	Interpacket Group,
2027	UNALLOCATED	150.187.0.0/16	10530	Interpacket Group
2027	UNALLOCATED	150.188.0.0/16	10530	Interpacket Group
2027	UNALLOCATED	150.189.0.0/16	10530	Interpacket Group
1877	UNALLOCATED	192.108.196.0/24	1800	SPRINT
1877	UNALLOCATED	192.108.209.0/24	1880	Stupi, house man's
1877	UNALLOCATED	192.108.210.0/24	1880	Stupi, house man's
1877	UNALLOCATED	192.108.214.0/24	1800	SPRINT
5757	UNALLOCATED	192.239.13.0/24	701	UUNET Technologies,
5757	UNALLOCATED	207.19.224.0/24	701	UUNET Technologies,
65500	PRIVATE	203.166.86.0/24	10084	Western Australian I
65400	PRIVATE	213.161.78.0/24	6461	AboveNet Communicati

**UUNET are aware of AS5757 and will resolve ASAP**  
**RIPE NCC and Peter are aware of 1877 and will fix ASAP**  
**ARIN are aware of AS2027 - no more news**

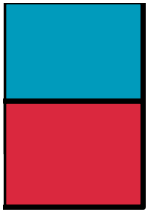


## Advertised IANA Reserved Addresses

Network	Origin AS	Description
39.96.40.224/30	14408	iCAIR
91.16.23.0/24	11770	Net56
103.22.7.0/24	9768	PubNet (Korea Telecom)

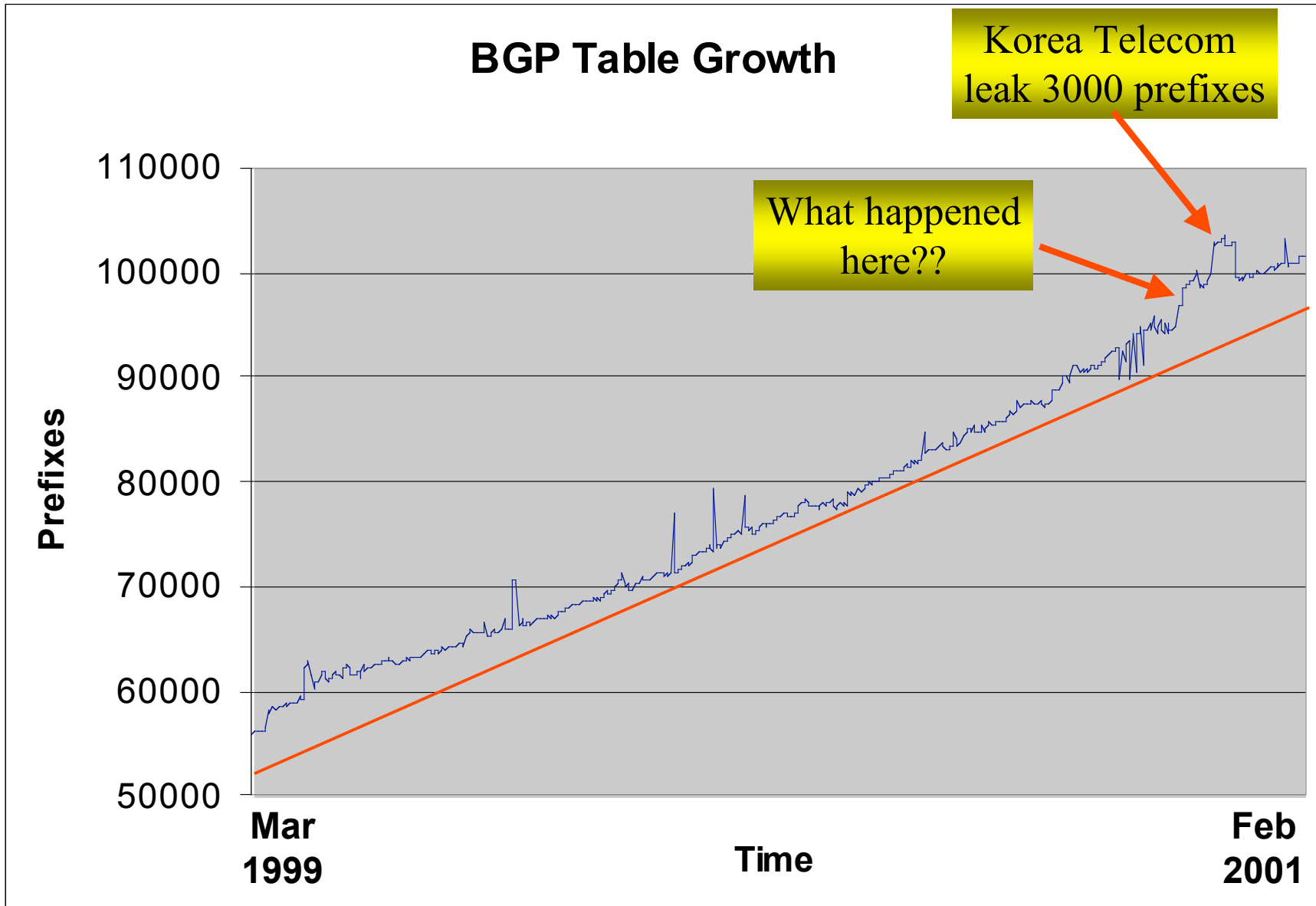
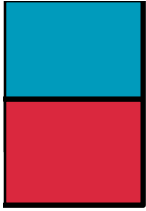
## Number of prefixes announced by prefix length

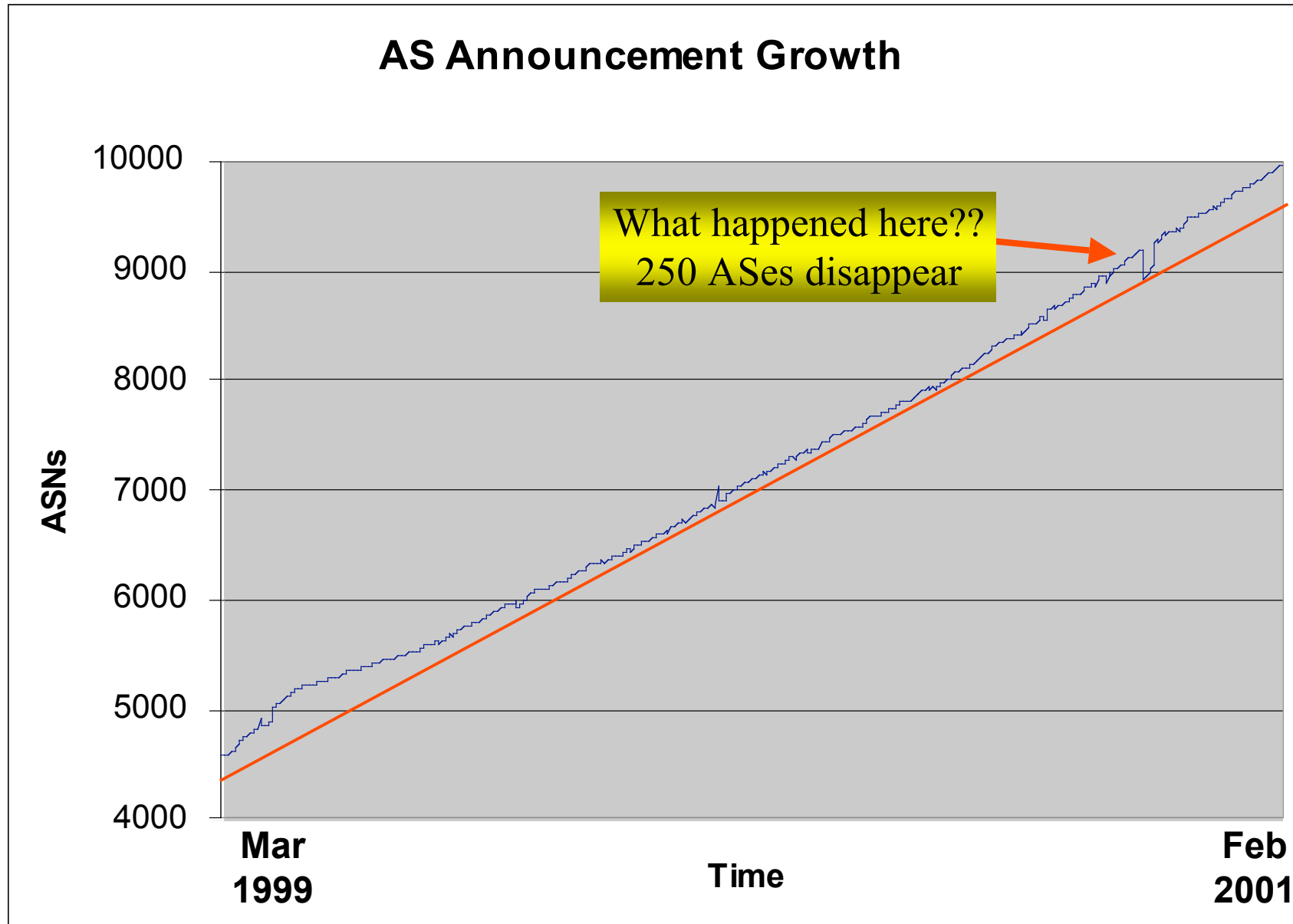
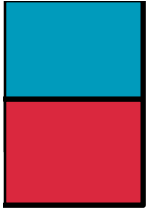
/1:0	/2:0	/3:0	/4:0	/5:0	/6:0
/7:0	/8:22	/9:4	/10:5	/11:10	/12:32
/13:62	/14:196	/15:308	/16:6865	/17:1047	/18:2047
/19:6352	/20:4667	/21:4339	/22:6531	/23:8537	/24:59027
/25:273	/26:346	/27:149	/28:108	/29:103	/30:203
/31:0	/32:135				

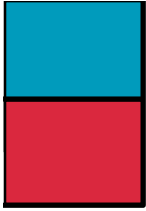


## Number of /24s announced by per /8

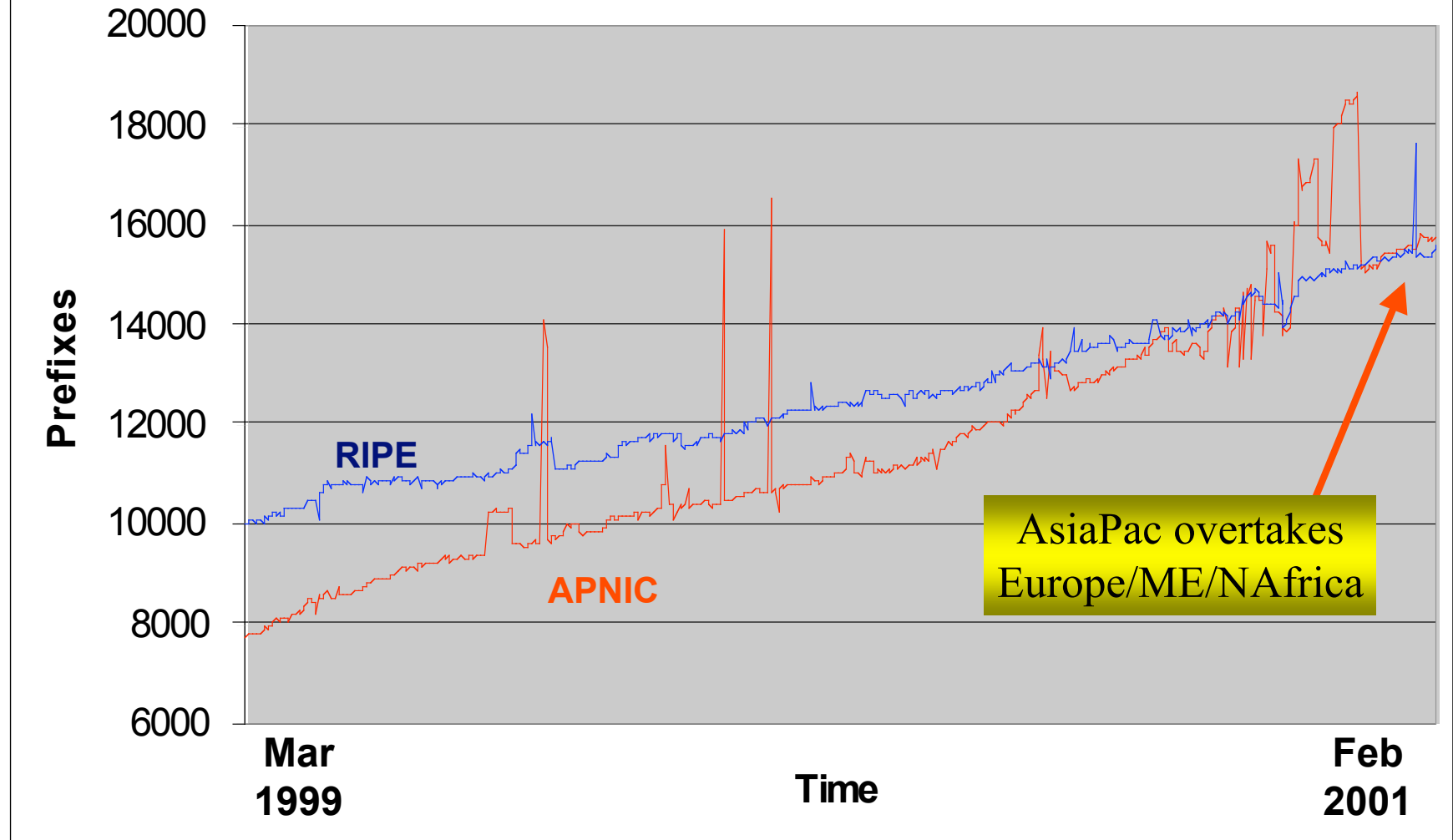
9:3	<b>12:313</b>	13:10	15:1	17:1	<b>24:661</b>
26:1	32:7	38:8	44:3	53:2	55:1
57:9	61:44	62:121	<b>63:1749</b>	<b>64:1307</b>	65:84
66:118	91:1	103:1	128:42	129:173	130:20
131:31	132:10	133:3	134:104	135:8	136:117
137:144	138:189	139:55	140:110	141:44	142:55
143:39	144:189	145:9	146:133	147:55	148:121
149:117	150:25	<b>151:333</b>	<b>152:973</b>	153:35	154:77
155:73	156:15	157:109	158:56	159:61	160:16
161:56	162:60	163:130	164:131	165:107	166:174
167:87	168:72	169:31	170:203	171:2	<b>192:5403</b>
<b>193:1831</b>	<b>194:2016</b>	195:779	196:391	<b>198:3750</b>	<b>199:3432</b>
<b>200:1817</b>	<b>202:2402</b>	<b>203:5236</b>	<b>204:3728</b>	<b>205:2496</b>	<b>206:2765</b>
<b>207:3071</b>	<b>208:2948</b>	<b>209:3395</b>	210:395	211:141	212:829
213:300	214:7	215:11	<b>216:2731</b>	217:114	



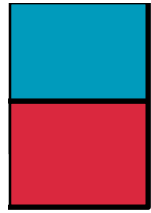




## RIPE vs APNIC prefixes announced







# Final Slide...

- **What other stats would be interesting?**
- **Any comments/discussion?**