RIS update

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What is RIS?

- Routing Information Service

- Looking glass with history

- Collects routing information (BGP)
  - 590 peers
  - 14 collectors running Quagga bgpd
  - Peering from AS 12654

- 3 months data in MySQL database

- Query tools at http://www.ripe.net/ris/

What is RIS?

- All raw data available for download

  - Standard format (MRT)

- Generates statistics reports

- Notification system: MyASN

  - Notifies you when someone else announces your prefix

What is RIS?

- For each collector:
  - Three "RIB" dumps a day: all prefixes seen at that time
  - "Update" dumps every 5 minutes: all updates seen
  - Stored in MySQL database and as raw data (MRT)

- Beacon and anchor routes announced from collectors
  - Beacons are 2hrs on, 2hrs off
  - Anchors are always-on
  - One anchor, one beacon per collector
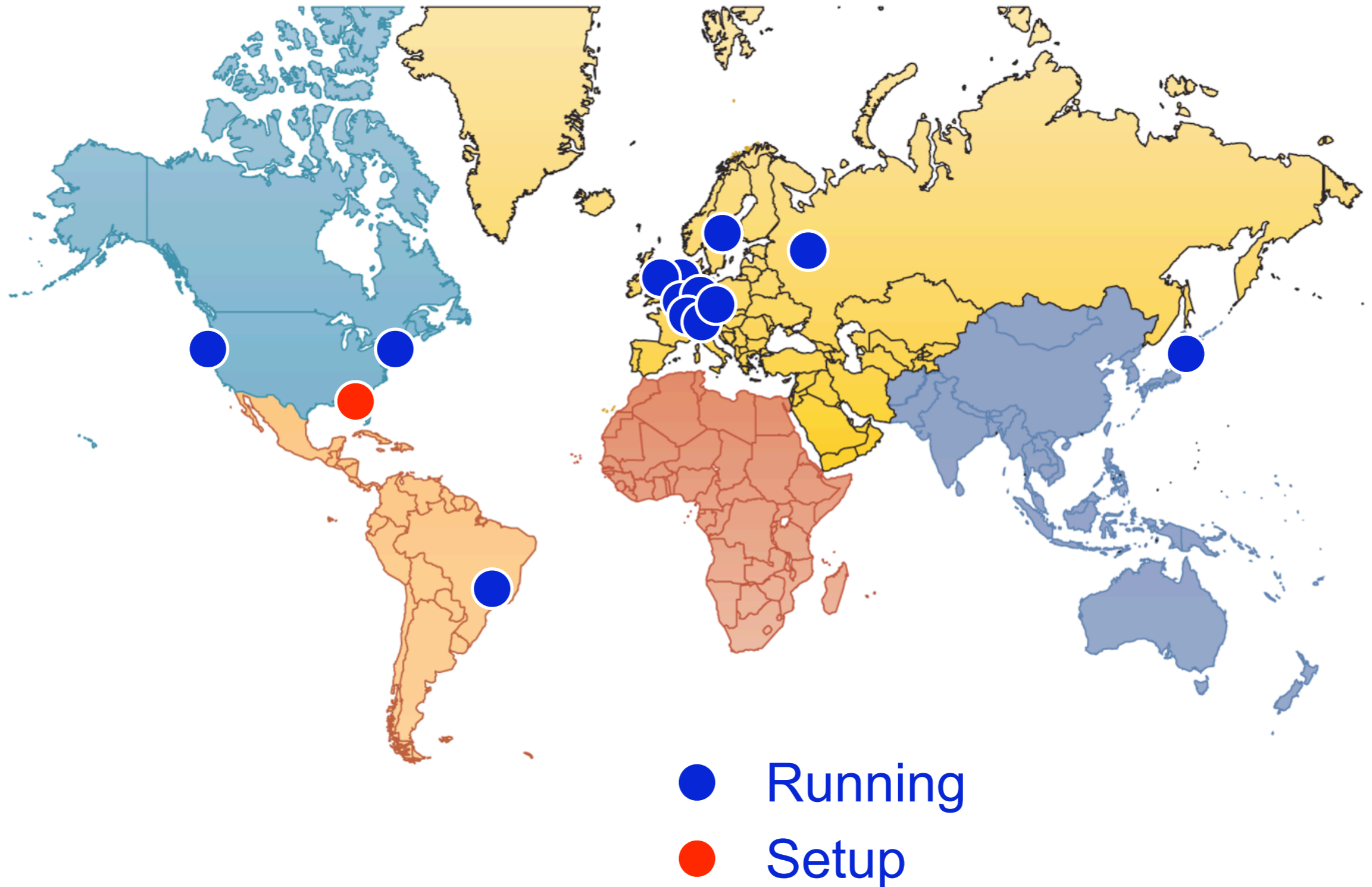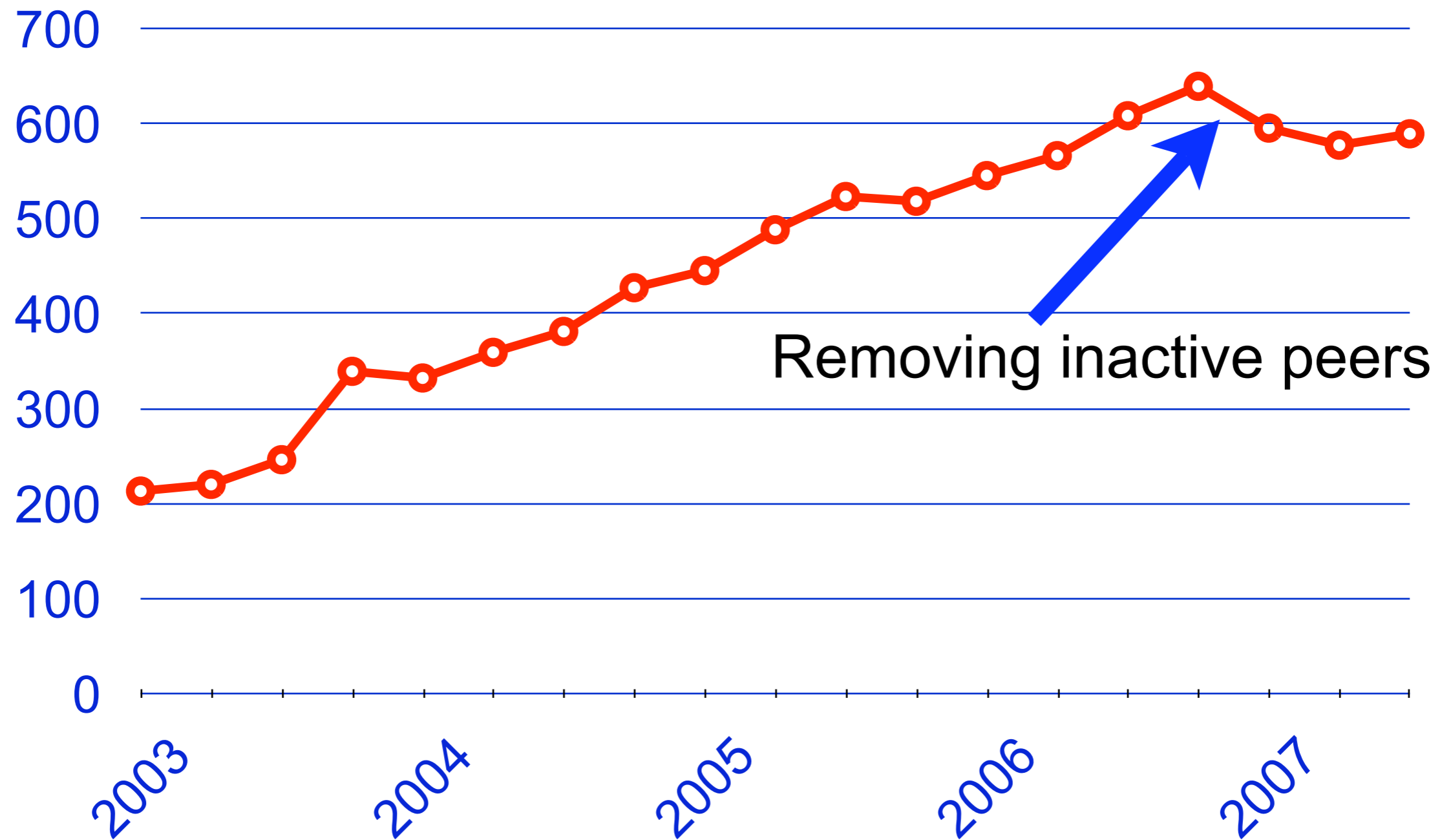 - **Beacons and anchors also on IPv6**

RIS status
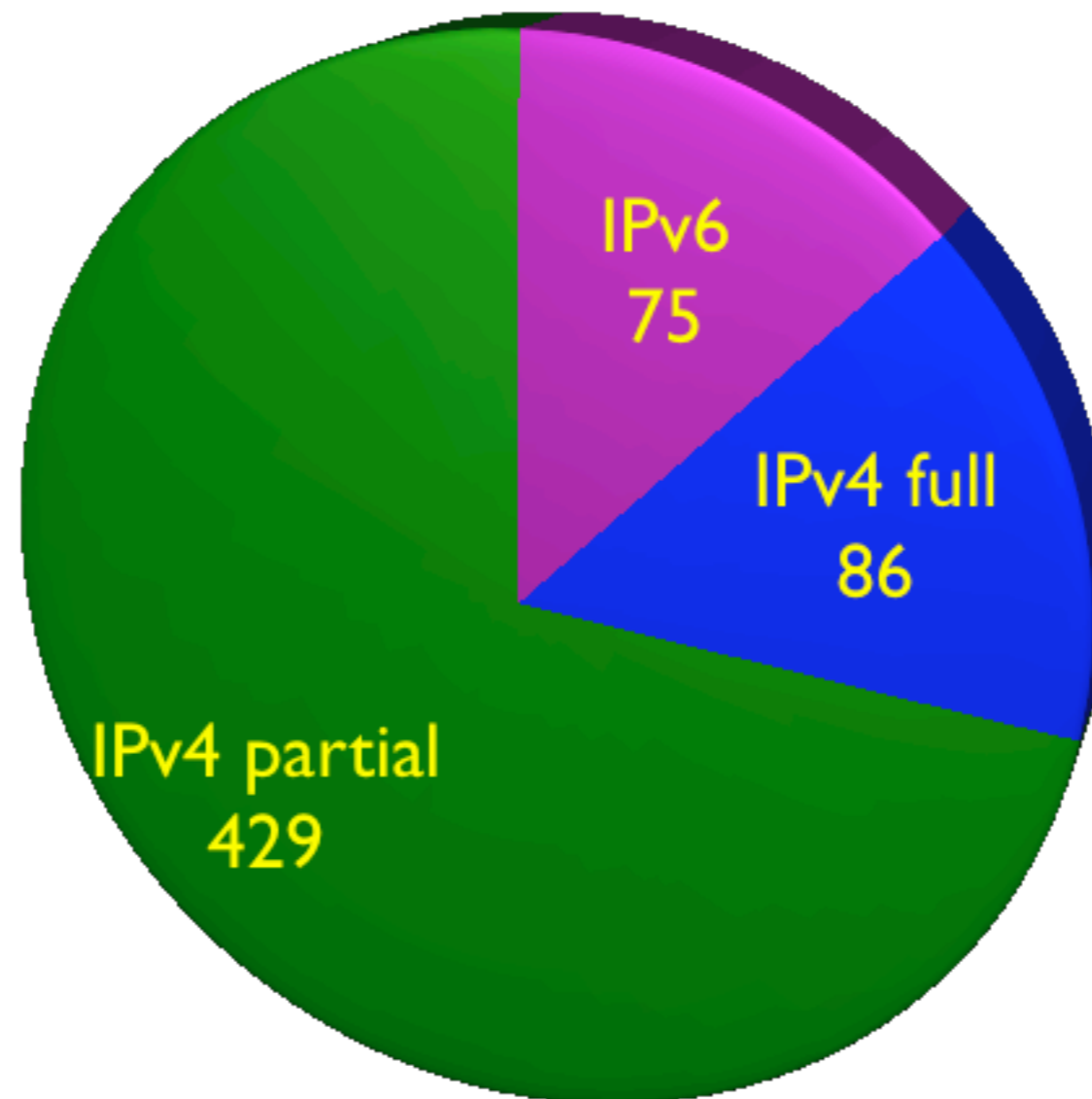
14 Remote Route Collectors (RRCs)

● Running
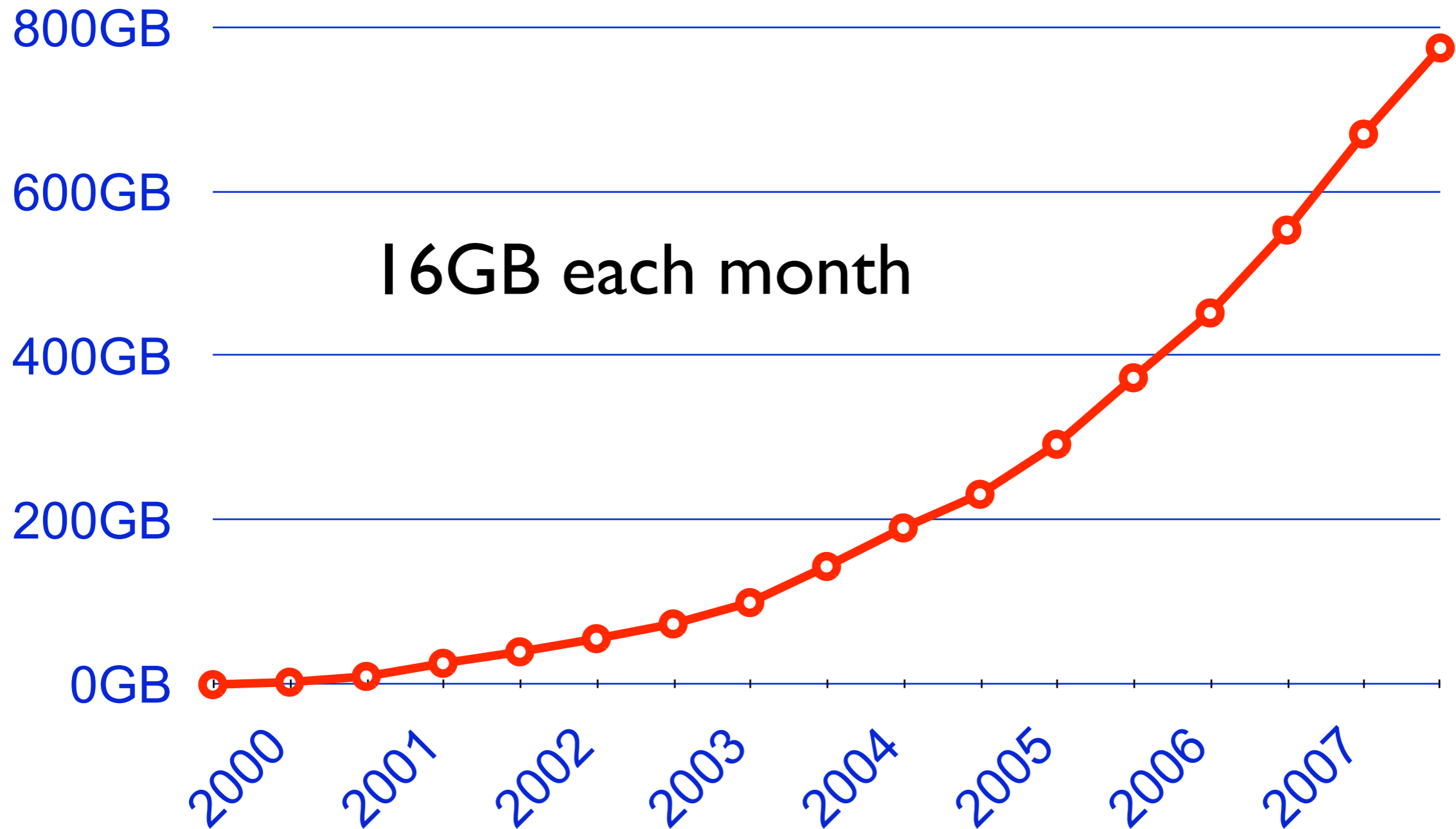
● Setup

How many peers?

Removing inactive peers

Session distribution: IPv6 and IPv4

- Most IPv6 is full table

How much raw data?

16GB each month

800GB ─────────────────────────────────

600GB ─────────────────────────────────

400GB ─────────────────────────────────

200GB ─────────────────────────────────

0GB ─────────────────────────────────

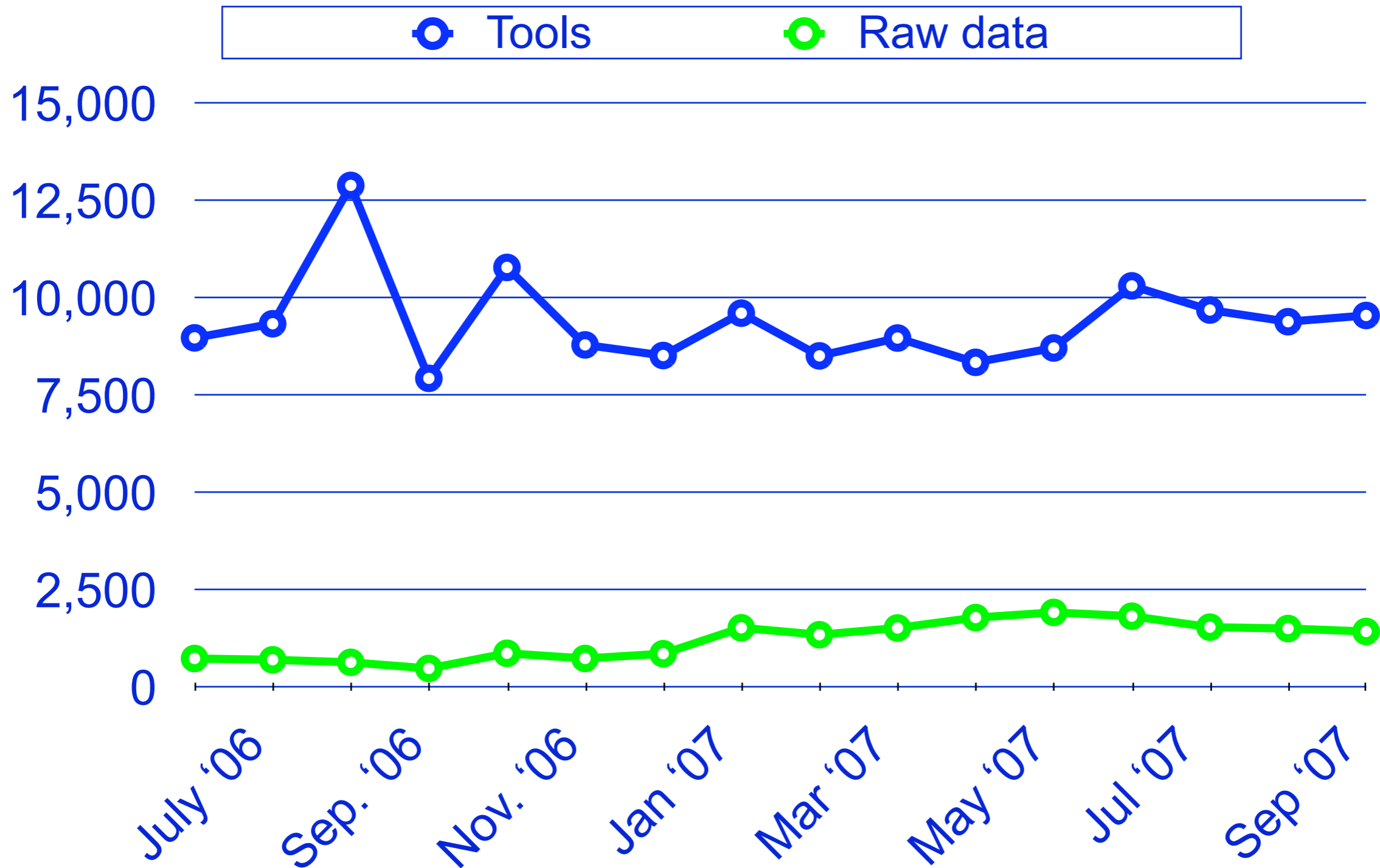2000 2001 2002 2003 2004 2005 2006 2007

MySQL database size (3 months of data)

(approximate values)
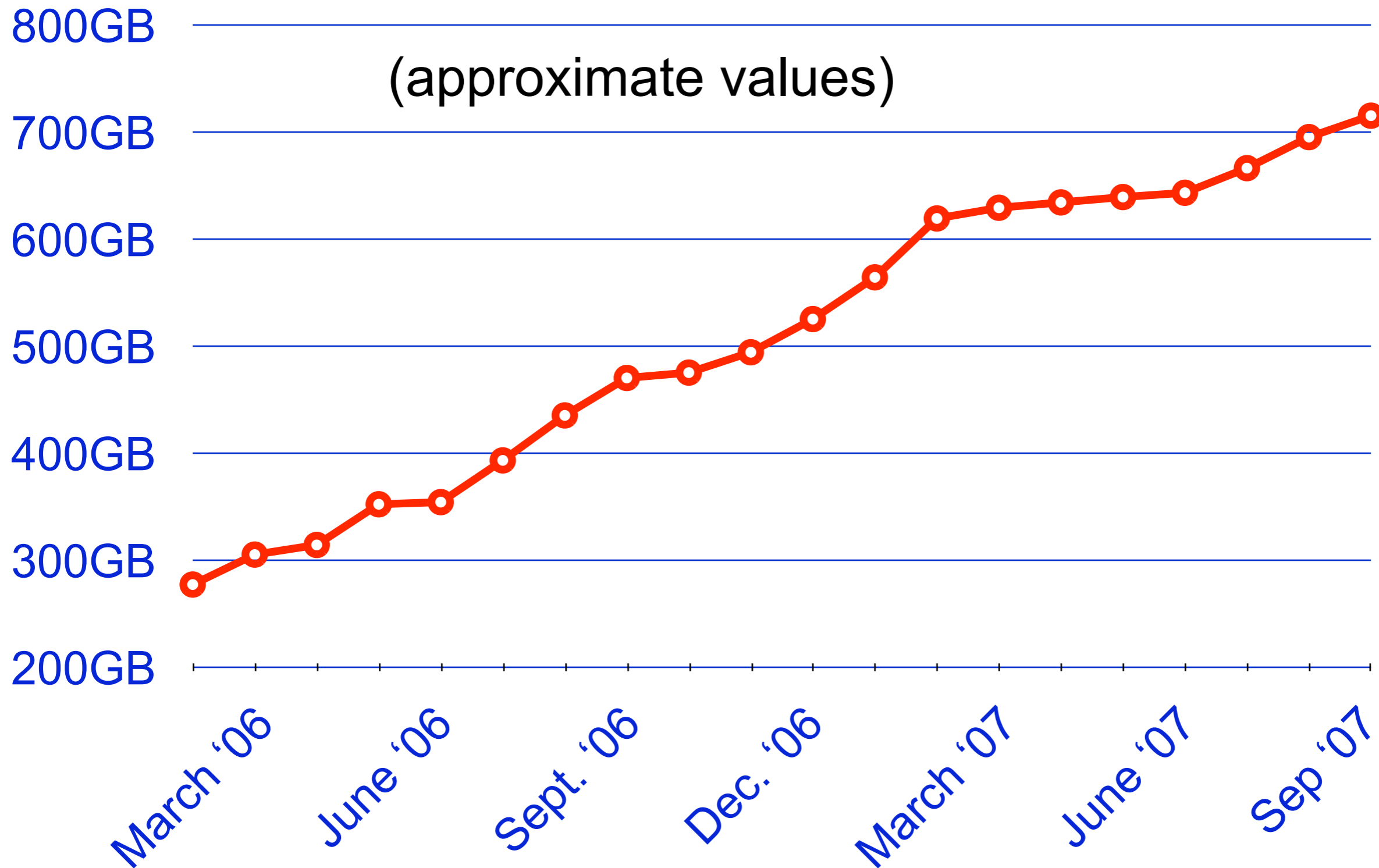
Average hosts per month on website

Other interesting numbers

- Prefixes seen (some IGP in here):
  - IPv4: 253,450
  - IPv6:   1190

- Multiple originating AS prefixes (excluding 6to4):
  - IPv4: 1462 from 1061 ASes
  - IPv6:   8 from   26 ASes

- Single-homed ASes: 8182 (30%)

- Average AS path length: 6.23 ASes

- Least stable prefix: 1,194,574 updates per week

- More on http://ris.ripe.net/weekly-report/

What keeps us busy?

Debogonising project

- IANA assigns new /8 to RIR

- RIS announces set of prefixes from /8

- RIS measures reachability of prefixes and sets up pingable addresses

- Participating RIRs:
    - AfriNIC
    - APNIC
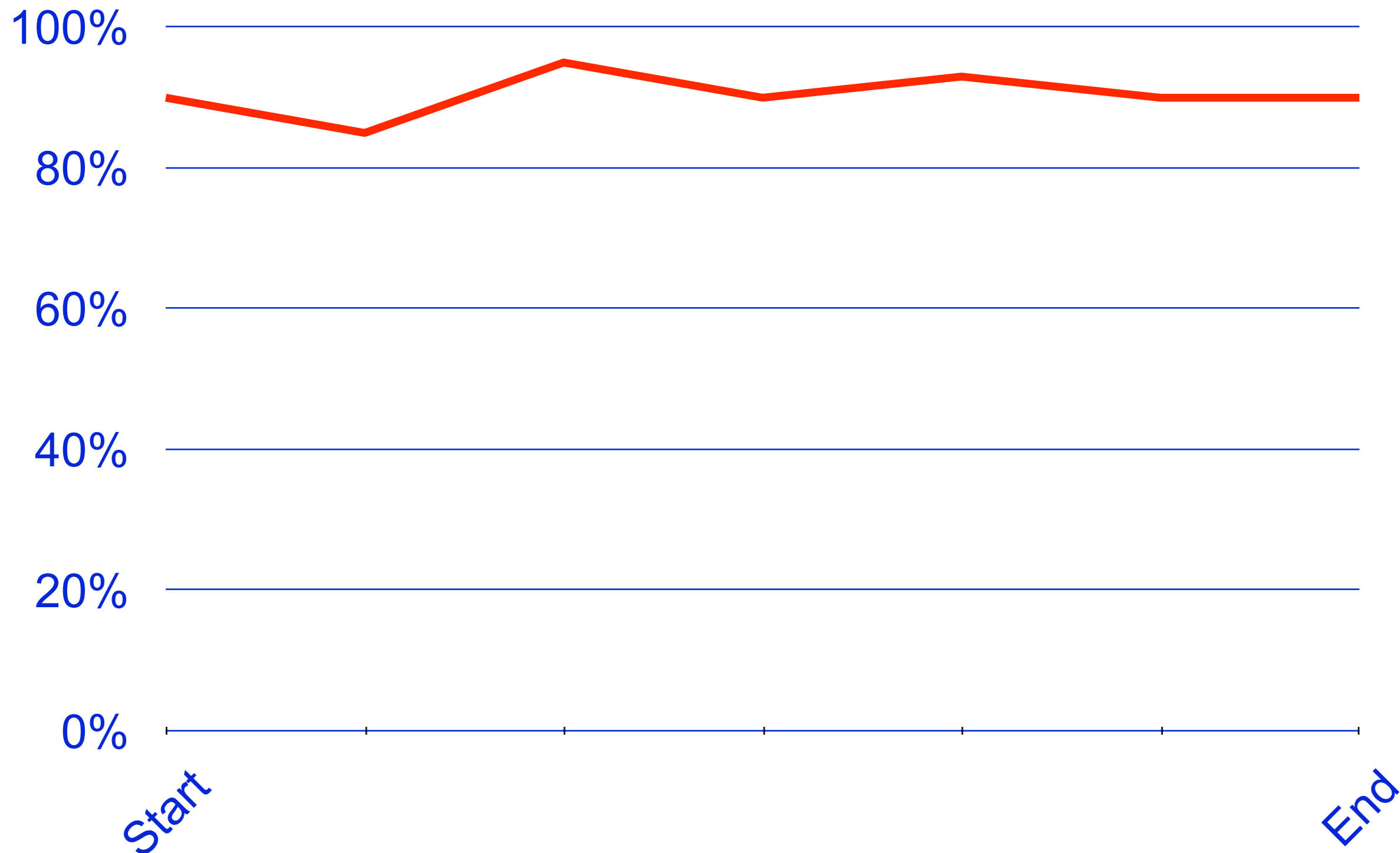   - LACNIC (since October 2007)
    - RIPE NCC

How do we measure visibility?

Conclusion: AS2 is *likely* to be filtering

3 out of 4 do not filter, 75% visible

New prefix

Normal prefix
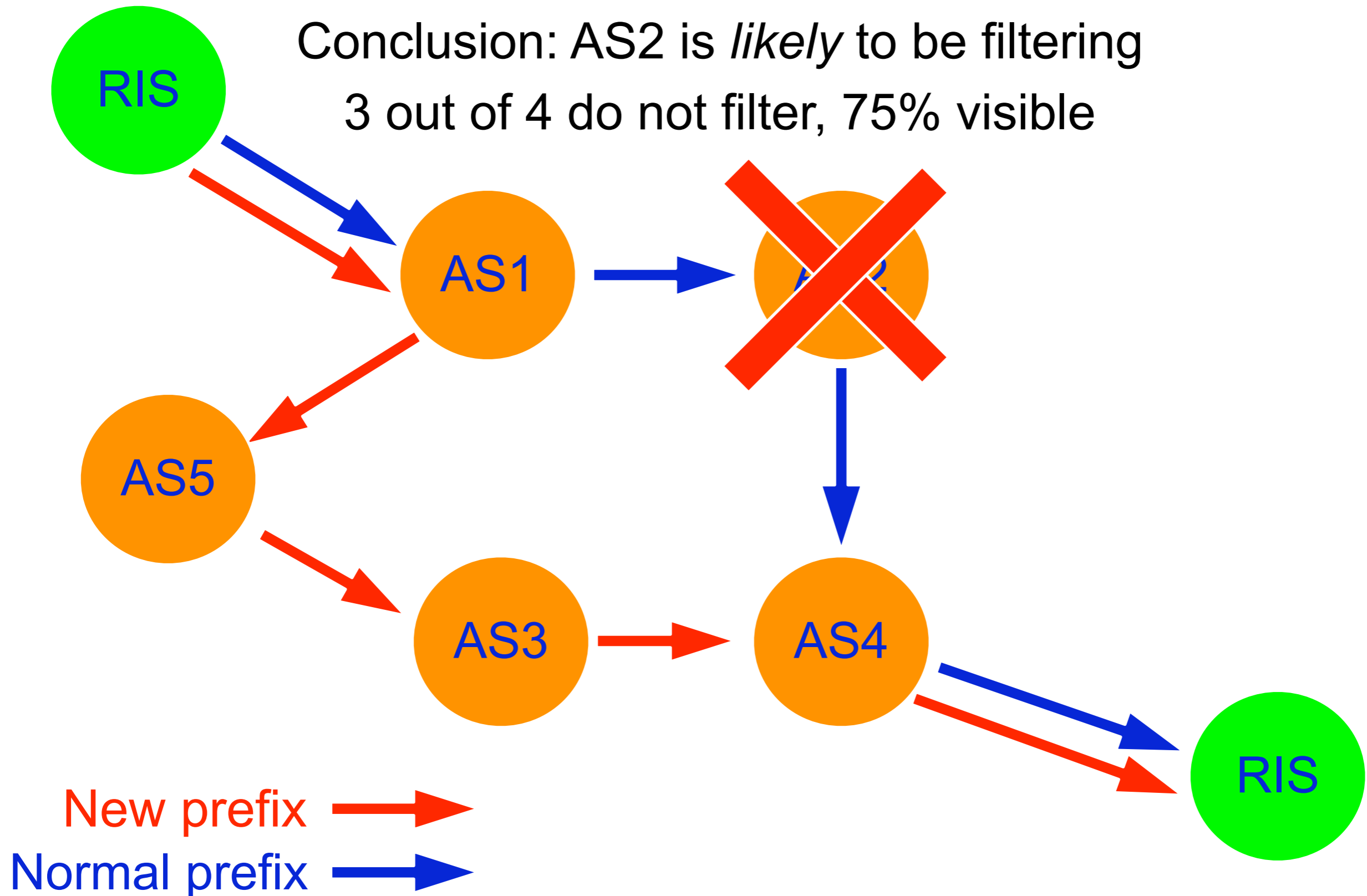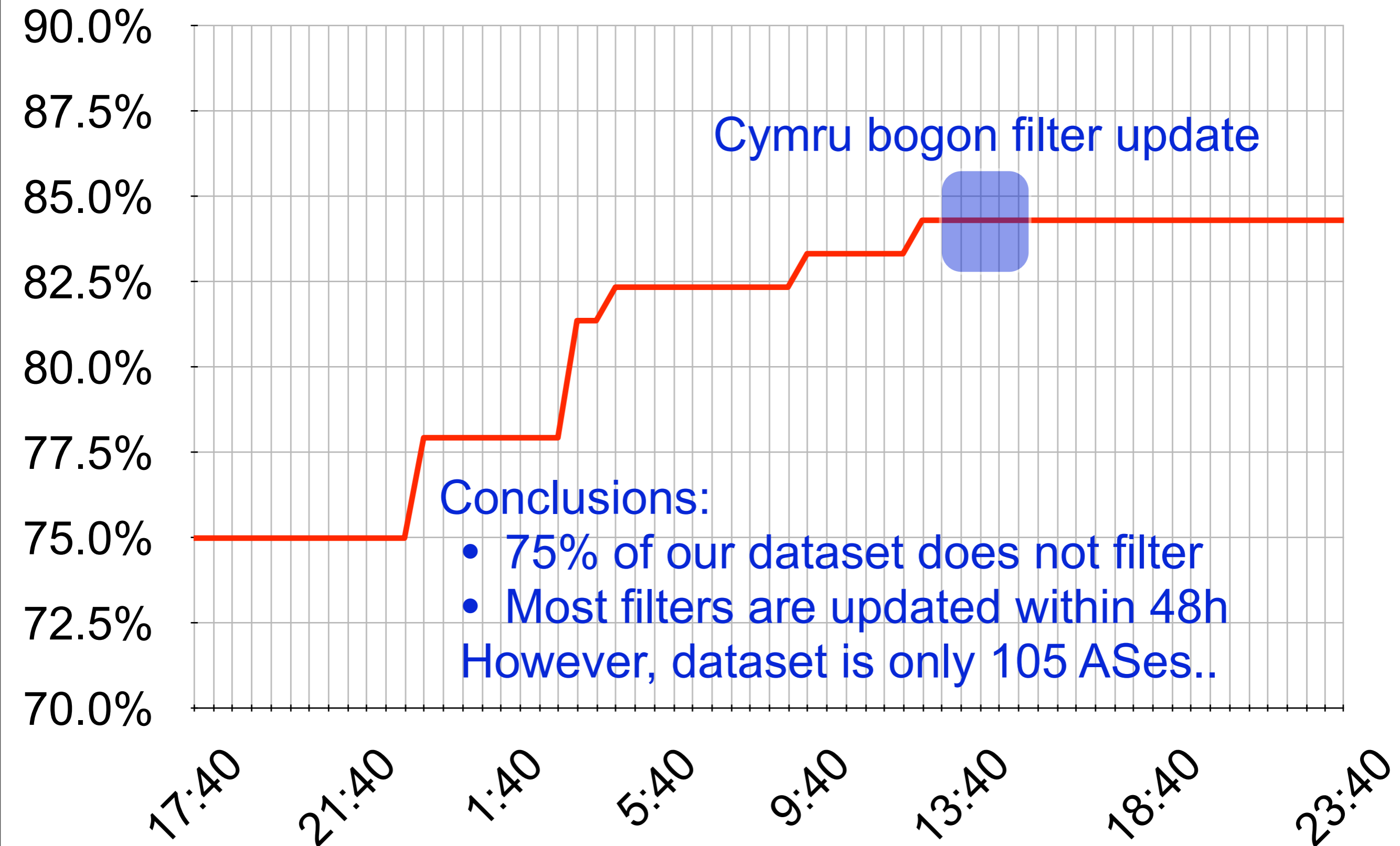
But, what do we see?

Our "problem" with debogonising

- Every graph looks the same:
  - A roughly straight line around 90%

- Why?
  - Almost everyone updates before we start measuring (several days in most cases)

  - Few ASes filter bogons

  - Our measurements or method are inaccurate

- Test: start measurements as early as possible
  - July 25, 2007: 94/8 and 95/8 allocated to RIPE NCC

  - RIS announced prefixes within 10 minutes after IANA registry update

Visibility of 95/8, first 54 hours

Cymru bogon filter update

Conclusions:
- 75% of our dataset does not filter
- Most filters are updated within 48h

However, dataset is only 105 ASes..

RIS screenshot, RIPE 36, May 2000

After 7 years...

Prefix	Last update time	Peer	Next HOP	MED	Origin	ASpath	Community	RRC
84.205.88.0/24	2007-09-21 00:02:03Z	193.0.1.231	193.0.1.231	0	IGP	3.7	-	AMS/NL-IX
84.205.88.0/24	2007-09-21 00:02:17Z	193.203.0.21	193.203.0.21	0	IGP	8447 25232 12654 3.7	1120:1	VIX
84.205.88.0/24	2007-09-21 00:02:30Z	217.29.66.65	217.29.66.65	0	IGP	12779 3356 12654 3.7	3356:2 3356:86 3356:503 3356:666 3356:2067 12779:3356 12779:65098 65000:64990	MIX
84.205.88.0/24	2007-09-21 00:02:32Z	80.81.193.37	80.81.192.205	0	IGP	8763 25232 12654 3.7	-	DE-CIX
84.205.88.0/24	2007-09-21 00:02:32Z	80.81.192.37	80.81.192.205	0	IGP	8763 25232 12654 3.7	-	DE-CIX
84.205.88.0/24	2007-09-21 00:02:37Z	198.32.160.15	198.32.160.15	0	IGP	22691 2914 12654 3.7	2914:420 2914:2203 2914:3200 22691:65050	NYIIX
84.205.88.0/24	2007-09-21 00:02:38Z	193.232.244.30	193.232.244.30	0	IGP	8359 12654 3.7	-	MSK-IX
84.205.88.0/24	2007-09-21 00:02:45Z	193.232.244.138	193.232.244.138	0	IGP	28895 15756 1299 12654 3.7	15756:11 15756:1200 28895:2000 28895:2003	MSK-IX

Presentation of data

- Basics have been the same since ~2000
  - Long lists of text
  - Very useful, but not very attractive

- Some useful queries could not be answered
  - Prefixes originated from an AS
  - Visibility of a prefix

- Project started to improve presentation
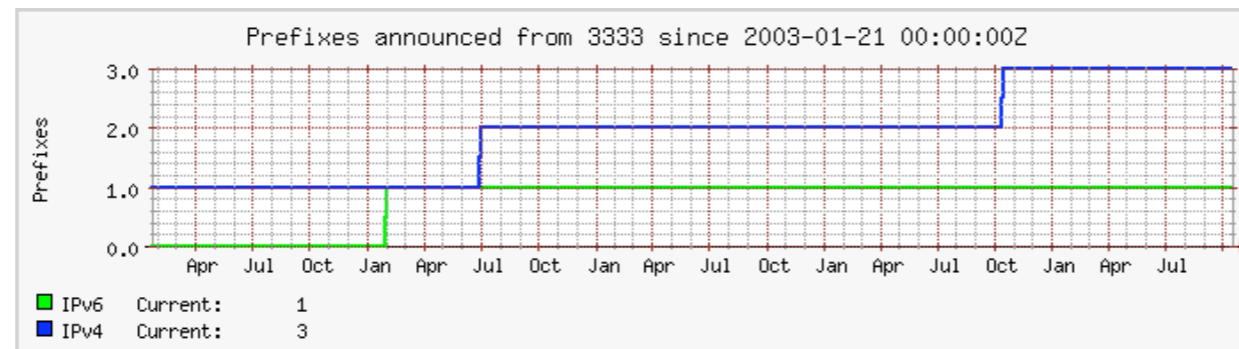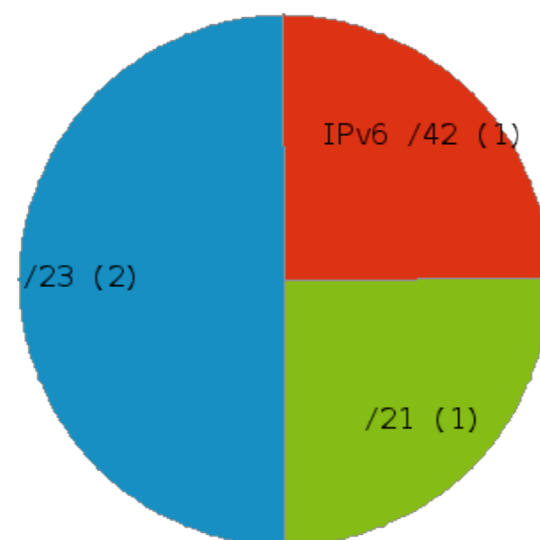 - In a reasonably short time

AS dashboard: AS 3333

Query for a different AS, or for a prefix: [_____] [Query]

RIPE-NCC-AS RIPE Network Coordination Centre [Whois data]

Note: this is not a production service (yet). Performance is not yet at a sufficient level. The purpose of this service is to serve as prototype to collect feedback on our new way of presenting data.
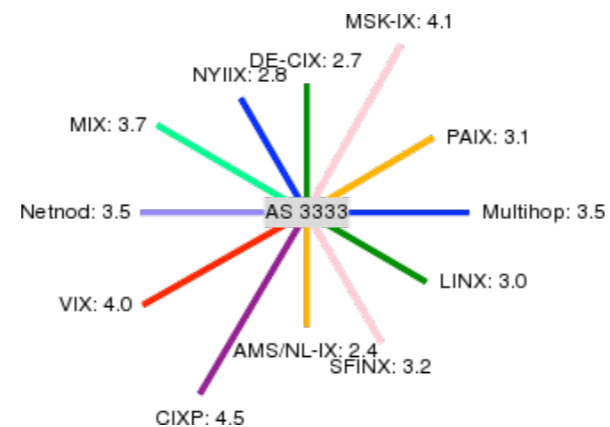
| **Overview** | **Prefixes** | **Upstreams** | **AS path lengths** | **Whois** | **Former bogon filtering** | **Update graphs** |

Prefixes announced from 3333 since 2003-01-21 00:00:00Z

IPv6   Current: 1
IPv4   Current: 3

Prefix size distribution

Average AS path length to each collector

Upstream distribution

rrc00 193.0.0.56: BGP Updates per Minute (2007-10-15)

Announcements (15 minutes average) Minimum: 24 Average: 73 Maximum: 318;
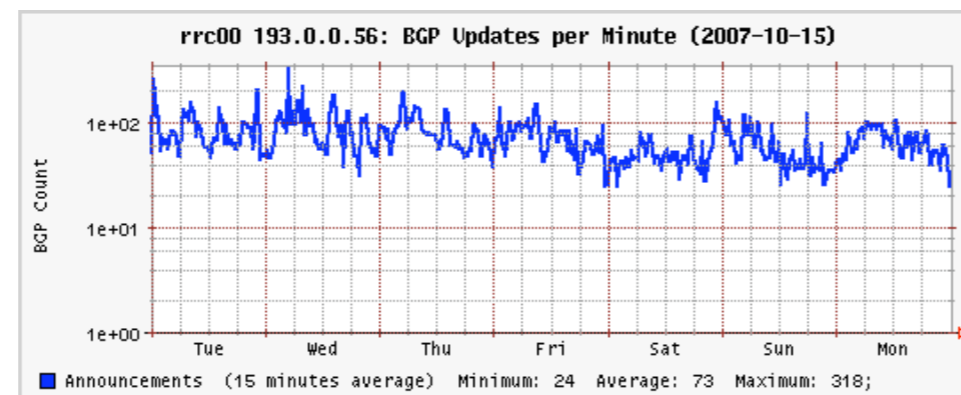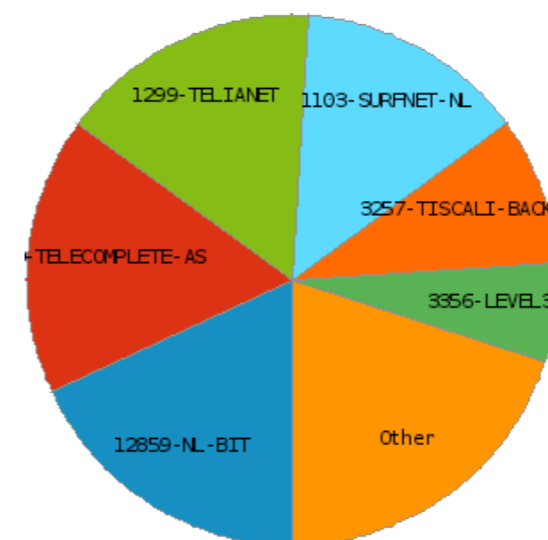
Still prototype!
http://ris.ripe.net/dashboard/<as/prefix>

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Search RIS by AS/Prefix

Specify AS number or Prefix, time interval and RRC box in order to search the RIS database. Please observe that we only keep collected data in our database up to 3 months. However, depending on DB size, we may keep some RRC boxes' data for more than 3 months. To see the last status of data in database, first check RIS DB Status page. In any case, it is possible to access old data (binary format) from our rawdata page. You can find help here on how to query by prefix, or by AS.

Please enable Javascript in your browser to use the full functionality of the form.

Prefix/AS number	84.205.65.0/24	Exact match ▼	IPv4 ▼	Search
From	20071010	12	28	00
To	20071011	12	28	00
RRC Box	ALL ▼	ALL ▼		
Update type	⦿All ○Announcements ○Withdrawals			
Output type	⦿HTML ○Text ○Graphical			
Summarize updates	⦿Yes ○No			HTML only
Plot orientation	⦿West ○North ○East ○South			Graphical only
	Maximum Rank [Unlimited ▼]			Graphical only
	Maximum Size [Unlimited ▼]			Graphical only

BGPlay

The RIS database contains data until **2007-10-17 08:50:00Z** .

Summary of Update entries

⊟ **12654** origin AS : **61** event(s)
　⊞ **A**nnouncement of prefix **84.205.65.0/24** : Seen between **2007-10-10 12:34:26Z** and **2007-10-10 12:37:36Z** , through **2** of AS**12654** neighbours.
　⊞ **A**nnouncement of prefix **84.205.65.0/24** : Seen between **2007-10-10 12:45:02Z** and **2007-10-10 12:47:21Z** , through **1** of AS**12654** neighbours.

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PrefixInuse

PrefixInuse query determines when prefix last appeared in the global routing tables collected by RIS remote route collectors at different locations around the world. The Routing Information Service (RIS) collects default free routing information using BGP from backbone routers on the Internet.

This application will query the database for a given prefix when it last appeared in the global routing tables. The information is displayed, sorted either by prefix or by date. The search type "**All**" will find all related entries to the given prefix (**exact match**, **more specific** and **less specific**). On **more specific**/**all** queries, a section listing all the unannounced blocks encompassed by the prefix, is also shown. Please see our help pages for more information.

It can take more than 20 seconds to process a query. Please send your comments to ris@ripe.net

Prefix	13.0.0.0/8	All ▼		Submit
RRC Box	ALL ▼			
Sort results	by time ▼			
Time interval	1 month ▼			
Output type	◉ HTML ○ Text			

The last announcement of this prefix occurred on **2007-10-17 08:14:09Z**. The RIS database contains data until **2007-10-17 10:29:56Z**.

A full **/11** (**13**%) of **13.0.0.0/8** is being announced.

47 entries found for 13.0.0.0/8

Prefix	Last announced	Origin AS
13.16.0.0/16	2007-10-17 08:14:09Z	1273
13.0.0.0/16	2007-10-17 07:59:59Z	33631
13.1.0.0/16	2007-10-17 07:59:59Z	33631
13.10.0.0/17	2007-10-17 07:59:59Z	26662
13.10.128.0/17	2007-10-17 07:59:59Z	26662
13.10.0.0/16	2007-10-17 07:59:59Z	26662

Next steps

Performance

- The RIS database is >700GB

- We would like to make it faster

- Hardware and software are due for updating

- Existing database setup can be optimised further

- Next project: improve the RIS database architecture:
    - Better performance
    - More scalable
    - Easier to maintain
    - More redundancy

Feedback is welcome

- What do you think of our new (and existing) tools?

- What data do you want from RIS?

- Why do you use RIS?

- Talk to us:
  - In person at the meeting
  - On ris@ripe.net

Questions?