Slightly worse but alive, surgery in flight on Internet addresses

Arno Meulenkamp, RIPE NCC

PLNOG, 11 September 2009

Homework

The Registry System

The End Is Near

Lasting Longer

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Homework

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32-bit AS Numbers Assignments

- 1 Jan 2008:   16-bit default, 32-bit on request

- 1 Jan 2009:   32-bit default, 16-bit on request

- 1 Jan 2010:   Undifferentiated ASN Pool

Independent Resources: Choose!

Independent Resources – Contractual Relationship

For detailed information, see Implementation of RIPE Policy Proposal 2007-01 Phase 2: Existing Assignments.

After submitting your results, you can visit this page to upload contracts and registration papers for your end-user resources.

Resources	My infrastructure	My End User	Not My End User
IPv4 PI			
194.153.157.224/27	○	⊙	○
IPv6 PI			
2001:db8:8000::/33	○	⊙	○
IPv4 Anycast			
10.0.0.0/8	○	⊙	○
IPv6 Anycast			
2001:db8:8000::/33	⊙	○	○

Submit

What am I supposed to do?

- You are asked, as an LIR representative, to indicate in this form whether the End Users will enter into a contractual relationship with you:
  As part of the implementation of "Direct Internet Resource Assignments to End Users from the RIPE NCC", End Users holding independent Internet number resources must enter into a contractual relationship either with a Sponsoring LIR or the RIPE NCC. LIRs are asked to indicate whether the End Users who have received independent Internet number resources through your LIR will enter into a contractual relationship with you.

What are the possible choices? (click to expand...)

What are the consequences of my choice? (click to expand...)

Timelines:

- 20 September 2009: Until this date you can change your selections (My Infrastructure/My End User/Not My End User)
- 31 December 2009: Until this date you can upload contract and registration papers

Charging for Independent Resources

- 5 LIR categories: Extra Small to Extra Large
  - Determined by LIRs allocations over time

- Direct assignments **don't** influence category

- 50 Euro fee for **every** direct assignment

- Discussed at General Meeting in Lisbon!

The Registry System

Registration

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Conservation

Aggregation

The 5 RIRs

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2009-03

Run Out Fairly

This is a proposal to gradually reduce the allocation and assignment periods in step with the expected life time of the IPv4 unallocated pool in order to address the perception of unfairness once the pool has run out.

http://ripe.net/ripe/policies/proposals/2009-03.html

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2009-04

IPv4 Allocation and Assignments to Facilitate IPv6 Deployment

The last IPv4 /8 that the RIPE NCC will hold is proposed to be dedicated to facilitate deployment of IPv6. The proposed minimum allocation size is to be a /27.

http://ripe.net/ripe/policies/proposals/2009-04.html

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2009-06

Removing Routing Requirements from the IPv6 Address Allocation Policy

The IPv6 address allocation policy currently contains mandates about how an allocated address range should be announced into the routing table.

http://ripe.net/ripe/policies/proposals/2009-06.html

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2008-07

Ensuring efficient use of historical IPv4 resources

This is a proposal to require documentation of all address resources held when assessing a RIPE NCC member's eligibility for further IPv4 address space.

http://ripe.net/ripe/policies/proposals/2008-07.html

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Policy-Announce Mailing List

Number of mails

2005	16
2006	43
2007	40
2008	40
2009	32

http://www.ripe.net/mailman/listinfo/policy-announce

The End Is Near

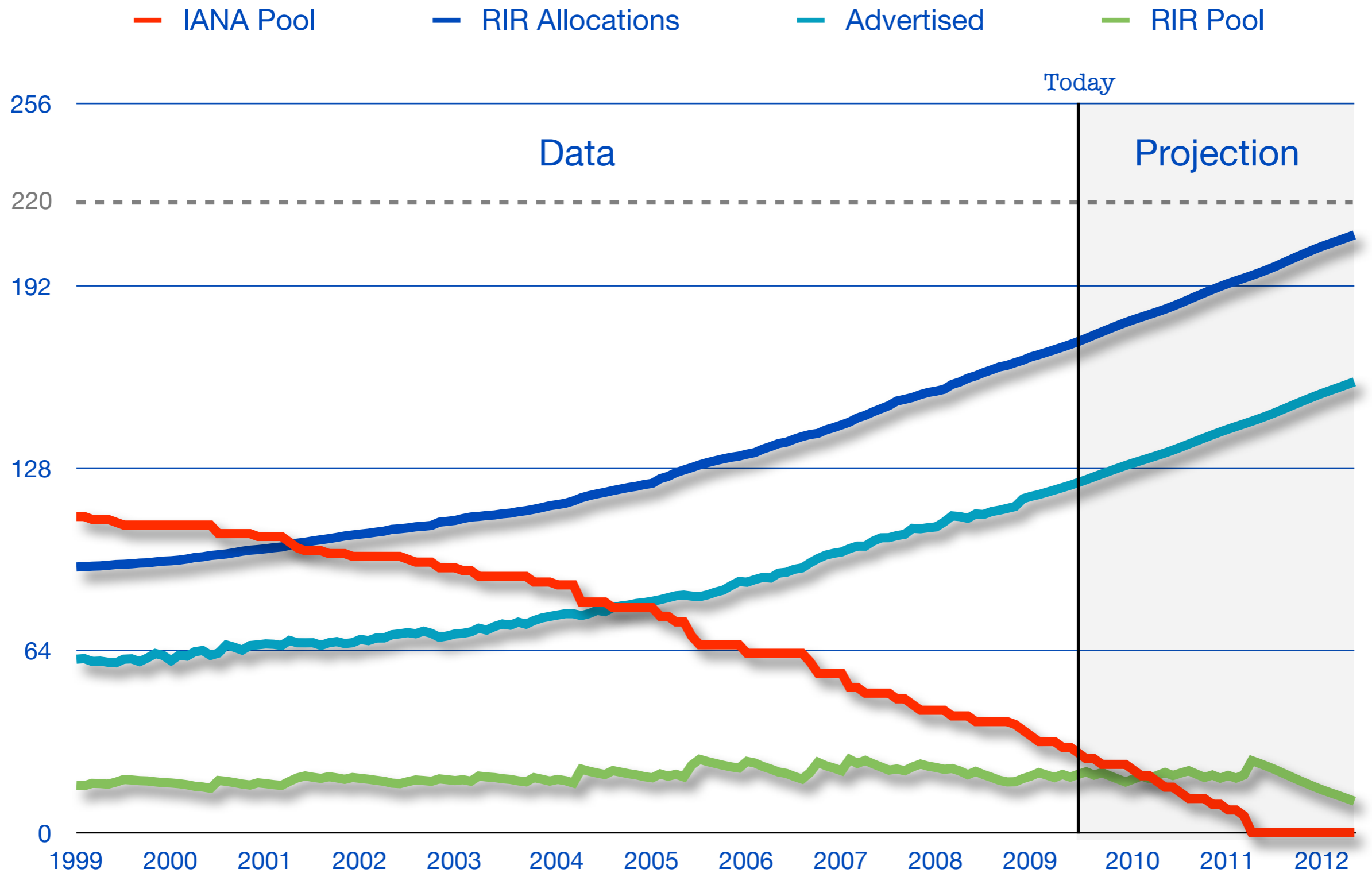**RIPE** NCC

Reaching the next billion

- Around 1.6 billion Internet users now
  - around 25% of all people

- Mobile phones are becoming Internet devices

- The Internet of things

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IPv4 Allocation Timeline

Friday, 11 September 2009

Lasting Longer

Where can you "reclaim" IPv4 addresses?

- Change products to include less addresses

- Review your subnetting and renumber

- Change to /31 point-to-point

- Change infrastructure to private addresses

- How much would the restructure cost?
  - How much would implementing IPv6?

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Punishing Customers

- Give NAT'd private addresses by default

- Charge for public addresses

- Audit public address usage in customers
    - reclaim where possible

- Reclaim from "network abusers"

- Implement Carrier-Grade-NAT

- Will your customers accept this?

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How Much longer?

- We asked ISPs, their answers:

  - not much more time

  - 4 to 6 months

  - indefinitely, we don't assign :)
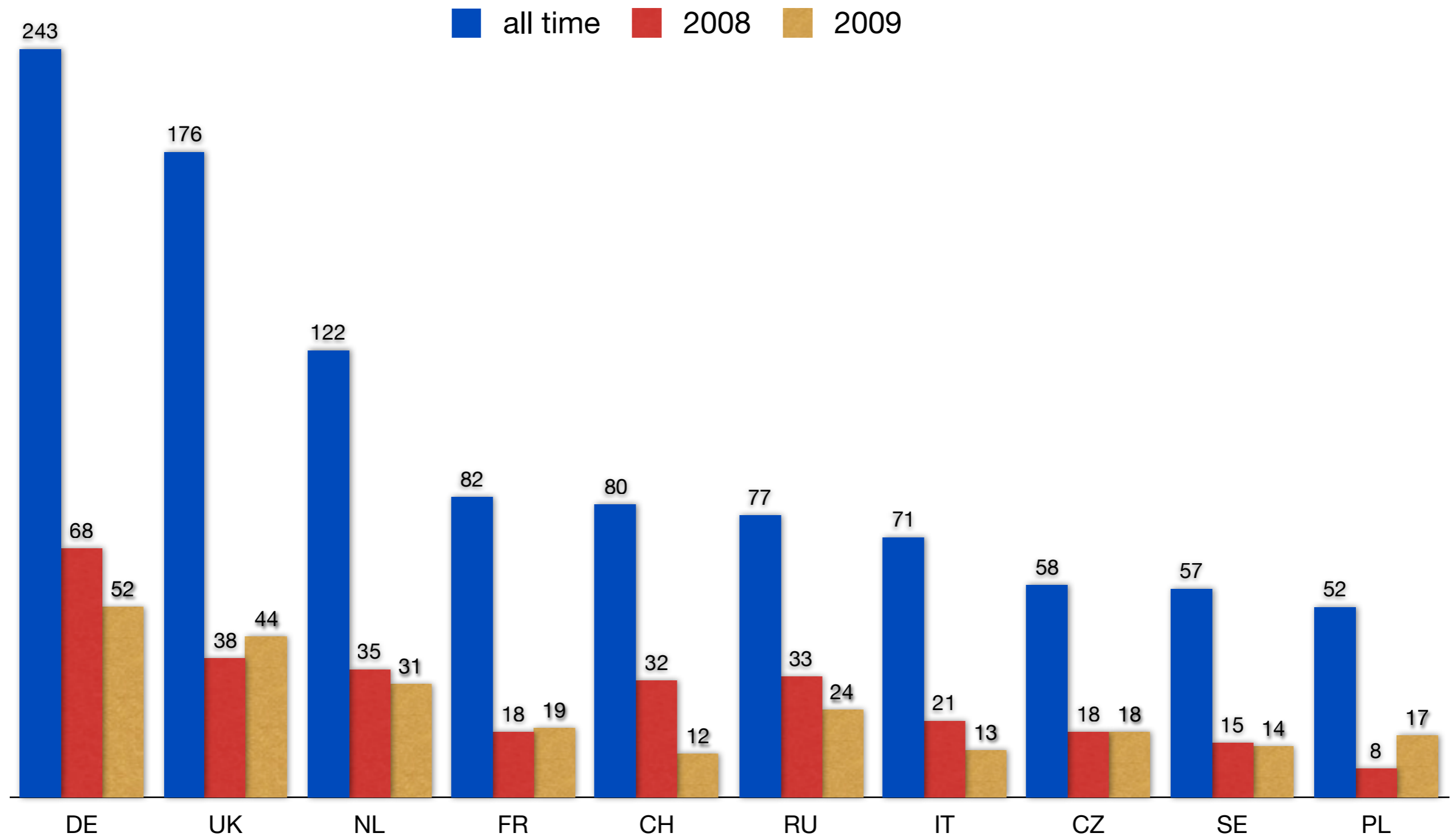
"If you need to do this, you're probably too late"

Getting it

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Getting an IPv6 allocation

- To qualify, an organisation must:
  - Be an LIR

  - Advertise the allocation as a single prefix

  - Have a plan for making assignments within two years

- Minimum allocation size /32
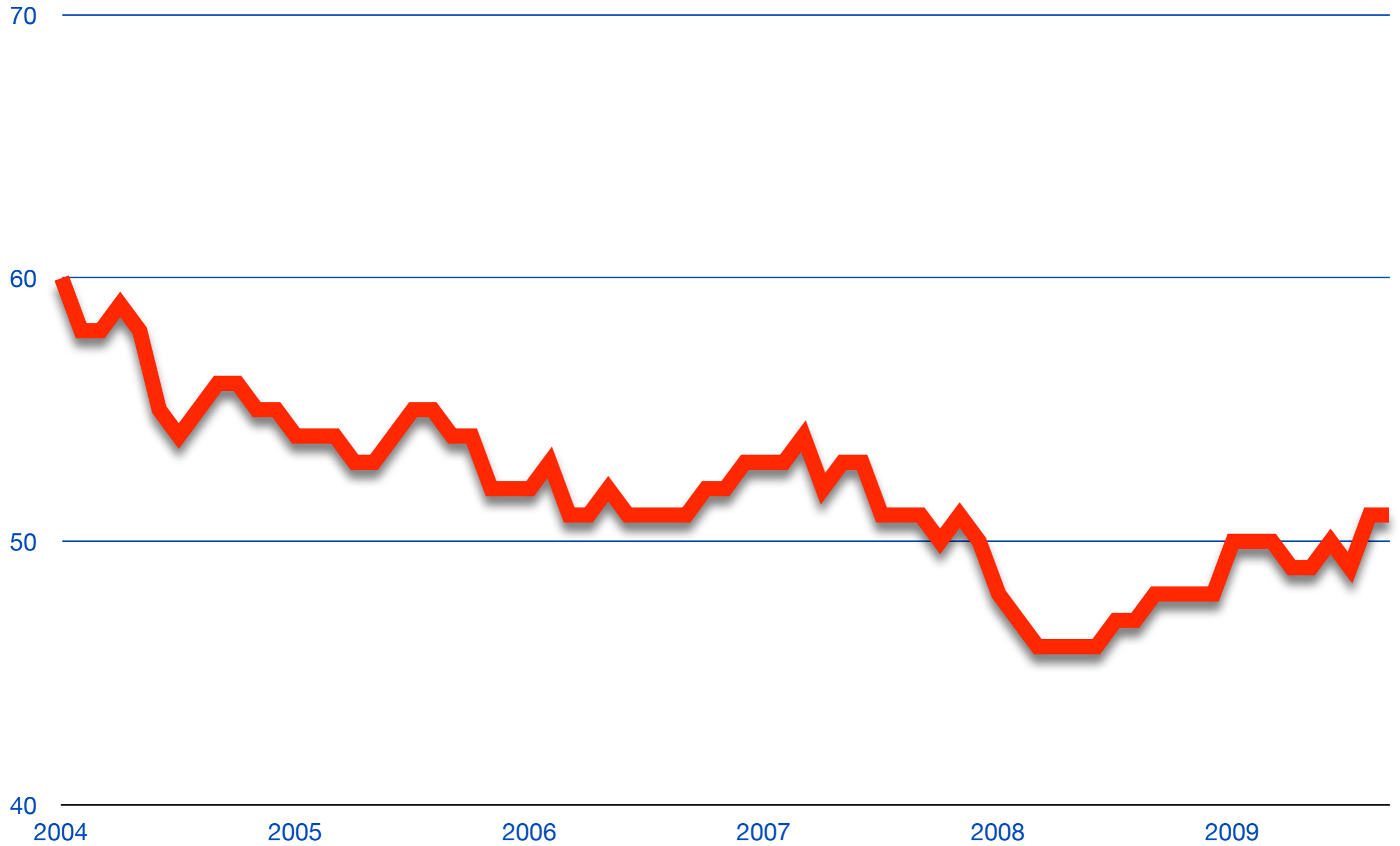
http://space.net/~gert/RIPE/R58-v6-table/page08.html

Percentage of Routed IPv6 Allocations

Deploying

Scenario: Do Nothing

- No problems for next few years

- Some people won't be able to use your services

- No extra costs

  - until you hit the wall

- High costs for quick implementation

- Short planning times will mean some things go
  wrong

Scenario: Do It All Now!

- Hardware may have to be changed

- High investment in time and resources

- No direct return

- High costs for quick implementation

- Short planning times will mean some things go
  wrong

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Scenario: Act Now, Phased Approach

- Change purchasing procedure (feature parity)

- Check your current hardware and software

- Plan every step and test

- One service at a time
  - face first
  - core
  - customers

- Prepare to be able to switch off IPv4

Business Case

- IPv4 is no longer equal to "the Internet"

- Avoiding the issue does not make it go away

- How much are you willing to spend now to save money later?

- Only IPv6 allows continued IP networking growth

"IPv6, act now!"

"96 More Bits, No Magic"

- Gaurab Upadhaya