



Bigger and Better Internet

TELFOR #16
27 October 2008, Belgrade

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Training Team
RIPE NCC




RIPE NCC

Located in Amsterdam

Not for profit membership organisation

6000 active members (October 2008)
421 new members in 2008 (jan-aug)


Started by the RIPE community in 1992

One of five RIRs

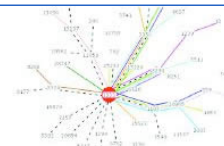


RIPE NCC services


<u>Member services</u>	<u>Public services</u>
Distributing resources IPv4 IPv6 AS numbers	RIPE Database Reverse DNS ENUM (e164.arpa) K-root nameserver E-learning
Training Courses LIR Routing Registry DNS for LIRs	




RIPE NCC Information Services




Routing Information Service (RIS)




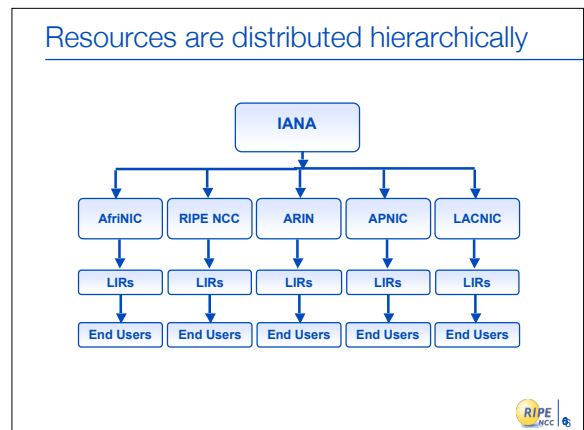
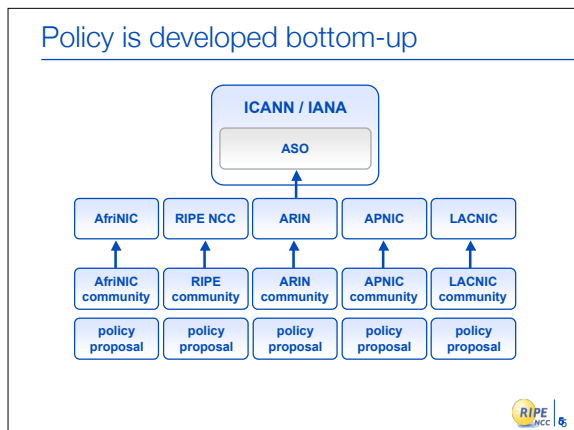
Test Traffic Measurements (TTM)

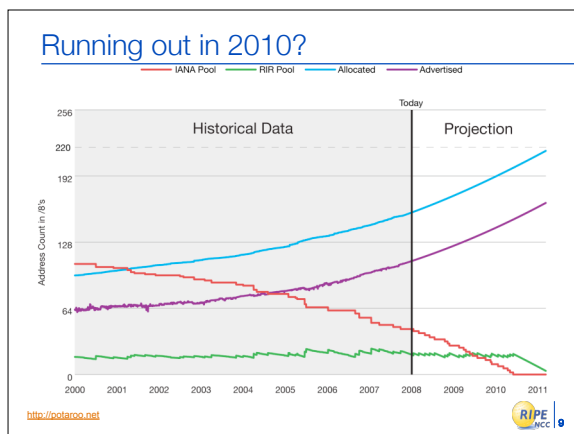
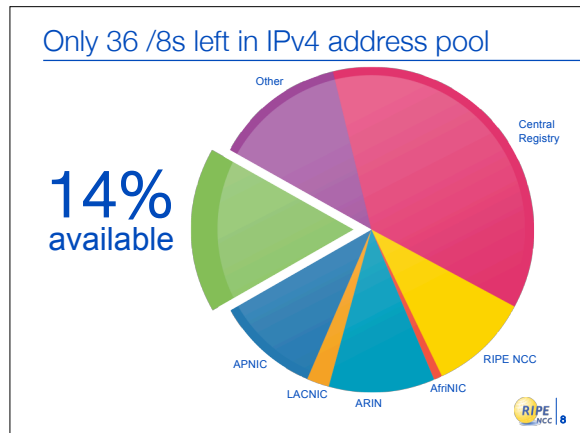
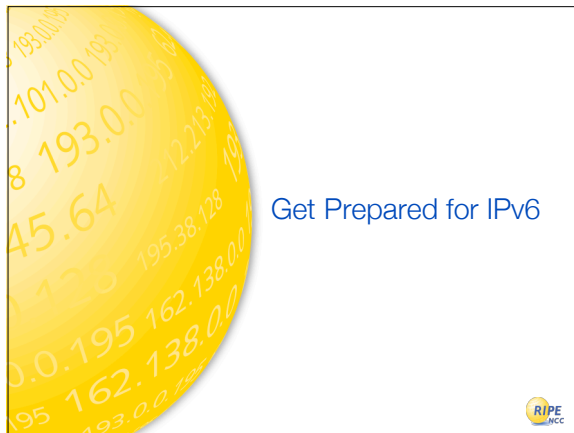


Hostcount



DNS Monitoring Service (DNSMON)



IPv6: more addresses available

IPv6 address: 128 bits
– 32 bits in IPv4

Huge subnets

Huge allocations

Extra levels or hierarchy

Are IPv6 and IPv4 compatible?

IPv6 is a different protocol from IPv4
IPv6 hosts cannot talk to IPv4 hosts directly

Tools like 6to4 and other tunneling options only let IPv6 hosts talk to each other

IPv6 deployment challenges

Legacy devices

Firewalls

IPv6 / IPv4 priority

Challenges for staying with IPv4

Finding "available" addresses

- redeploying?
- buying?

Network Address Translation (NAT)

- management overhead
- lower class Internet hosts

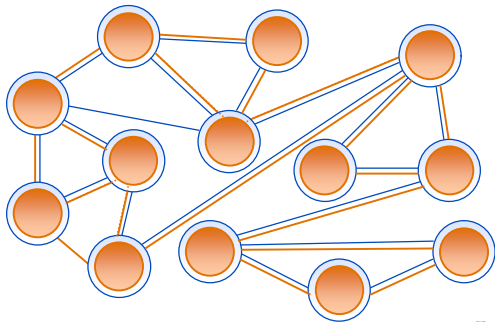
Three views

Who needs IPv6? We have NAT!

We'll move when staying with IPv4 hurts too much

We'll move before IPv4 runs out, smoothly

IPv6 transition in steps



How can **you** make the transition

Give priority to IPv6 deployment

Get IPv6 addresses

Train your staff

Make your services available over IPv6 and IPv4
("dualstacking")

It's easy to get an IPv6 allocation

Be an LIR

Advertise the allocation as a single prefix

Have a plan for making assignments within two years

Minimum size: /32

For further allocations

- allocation should be used by HD ratio of 0.94
- the unit of measurement is /56

Getting IPv6 if you are not LIR

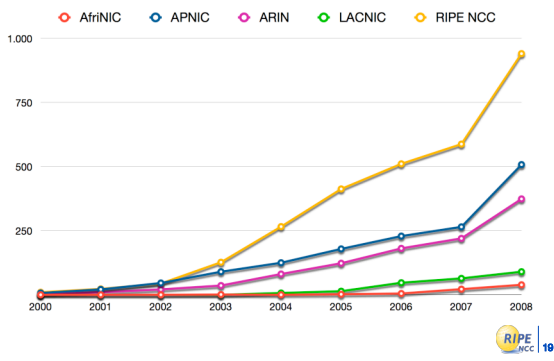
Get sub-allocation from an LIR

Get an assignment from an LIR

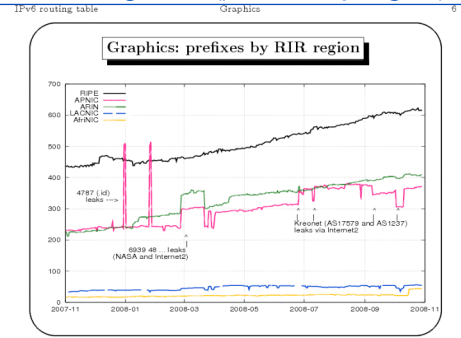
- /48 or /56 for the End User sites
- /64 for one subnet
- /128 for hosts

Provider Independent IPv6 assignment - policy pending

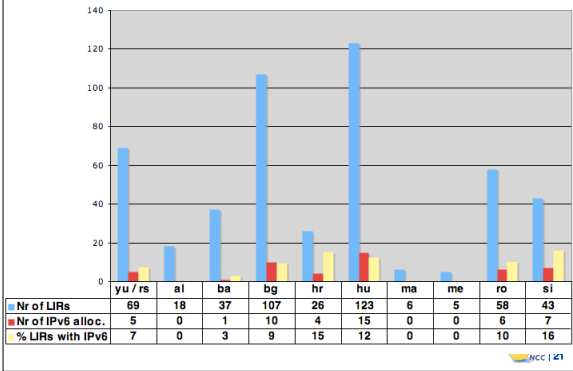
IPv6 allocations by region, cumulative



IPv6 routing table (prefixes by region)

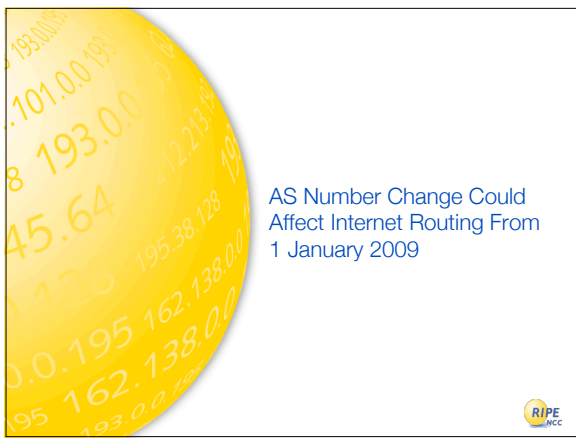


IPv6 deployment on the Balkans

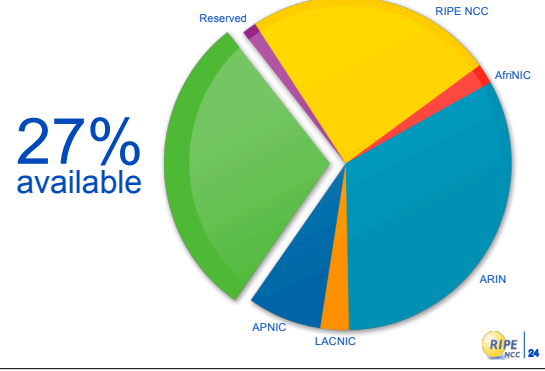


IPv6 deployment at the RIPE NCC

External online service	IPv6 transport	IPv6 content
E-mail (ripe.net, nro.net, aso.icann.org)	No	N/A
ftp.ripe.net	Yes	N/A
www.ripe.net	Yes	N/A
LIR Portal	No	N/A
RIPE DB (whois)		Resource DB, IRR
Queries (whois)	Yes	Yes
Updates	No	Yes
DBConstat	No	No
RRCC	No	No
DNSMON	Yes	Yes
Hostcount	Yes	Yes
RIS	No	Yes
MyASN	No	No
TTM	Yes	Yes
Auth DNS	Yes	Yes
Rev DNS provisioning system	No	Yes
K-root	Yes	Yes



16-Bit AS Number pool



32-bit AS Numbers

Global policy on 32-bit ASN deployment schedule:

- 1 Jan 2008: 16-bit default, 32-bit on request
- 1 Jan 2009: 32-bit default, 16-bit on request
- 1 Jan 2010: Only 32-bit AS Numbers

Can you handle the new formats: "AS 1.10"? And 65546?

Prepare in your organisation:

- ask your hardware vendor for support
- encourage your upstream provider to upgrade



Take Part in
Developing Policies

Policy development cycle



Policy development process (PDP)

Open
Transparent
Developed bottom-up
Documented

Proposal
Discussion phase
Review phase
Concluding phase

Questions?



LIR course slogans... about IPv4

Will work for /24

RIPE NCC - absolutely classless

You're too late - we have a /8

Soon it will be all too late, no space to allocate

You have reached the end of the Internet



IPV4 - eats, shoots and leaves!

LIR course slogans... about IPv6

I will miss IPv4

2011: make a date with a /48

Get your IPv6, because the clock ticks

IPv6 is the fix

Ignoring IPv6 since 1996



Links

IPv6 info, news, education, fun

<http://www.ripe.net/ipv6/> | <http://www.getipv6.info/> | <http://www.6diss.org/e-learning>
<http://yapc.tv/2008/ye/lt/lt2-15-kane-fck/> | "The day that routers died"

32-bit AS numbers

<http://www.ripe.net/news/asn-32-pr2008.html>

RIPE Policy Development Process

<http://www.ripe.net/ripe/policies/>

<http://www.ripe.net/meetings/roundtable/sept2008/presentations/Filiz-whats-happen>

RIR Comparative Policy Overview

<http://www.nro.net/documents/comp-pol.htm>

RIPE NCC Member Update

<http://www.ripe.net/membership/newsletter/2008/newsletter14.pdf>

