

Sustained access for all to the Internet

- Swedish initiatives
for IPv6 deployment

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Scope

- PTS in brief
- Why we should deploy IPv4/IPv6 dual stack
- Obstacles
- Experiments for increased IPv6 deployment incentives



Swedish Post & Telecom agency (PTS) in brief

- Supervises the electronic communications (telecommunication, IT, radio spectrum) and postal sectors
- Founded in 1992
- Approximately 260 employees
- Financial model:
 - By direct charges from the operators, approximately EUR 24 million
 - Appropriations from the national budget for security measures and services for people with disability, approximately EUR 60 million



Organisation of PTS

Ministry of Enterprise, Energy and Communications

Director-General

Office of the Director-General

Administration

Human Resources

**Communication/
Strategic affairs**

Legal Affairs

Network Security + SITIC

Consumers Affairs

Spectrum market Management

Competition

Frequency management

Postal Affairs

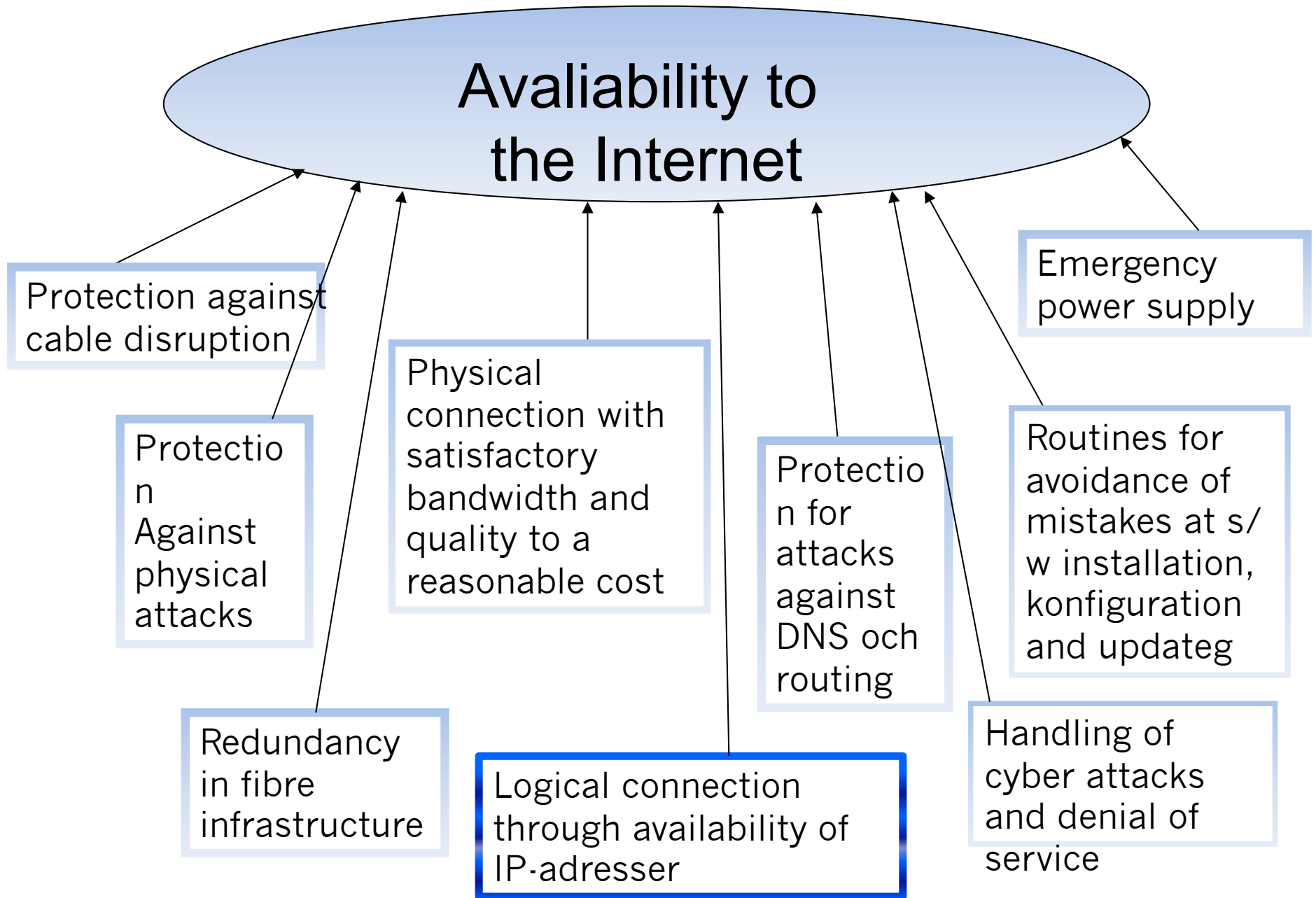


PTS overall objectives

Consumer interests in focus:

- Access for all
- Efficient competition
- Efficient utilisation of resources
- Secure communications





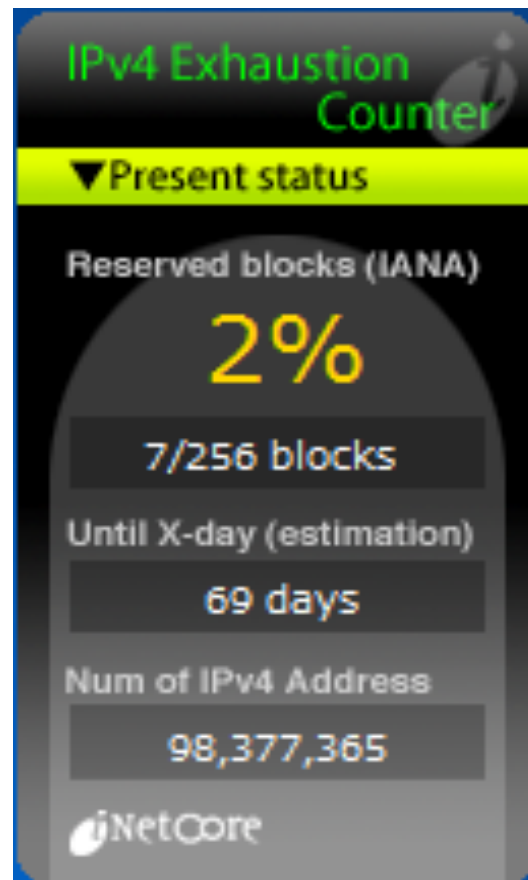
Information in this site may be cited, giving the due credit to www.internetworldstats.com

WORLD INTERNET USAGE AND POPULATION STATISTICS

World Regions	Population (2010 Est.)	Internet Users Dec. 31, 2000	Internet Users Latest Data	Penetration (% Population)	Growth 2000-2010	Users % of Table
Africa	1,013,779,050	4,514,400	110,931,700	10.9 %	2,357.3 %	5.6 %
Asia	3,834,792,852	114,304,000	825,094,396	21.5 %	621.8 %	42.0 %
Europe	813,319,511	105,096,093	475,069,448	58.4 %	352.0 %	24.2 %
Middle East	212,336,924	3,284,800	63,240,946	29.8 %	1,825.3 %	3.2 %
North America	344,124,450	108,096,800	266,224,500	77.4 %	146.3 %	13.5 %
Latin America/Caribbean	592,556,972	18,068,919	204,689,836	34.5 %	1,032.8 %	10.4 %
Oceania / Australia	34,700,201	7,620,480	21,263,990	61.3 %	179.0 %	1.1 %
WORLD TOTAL	6,845,609,960	360,985,492	1,966,514,816	28.7 %	444.8 %	100.0 %

NOTES: Internet Usage and World Population Statistics are for June 30, 2010.

Geoff Huston IPv4 address report: www.potaroo.net/tools/ipv4/index.html

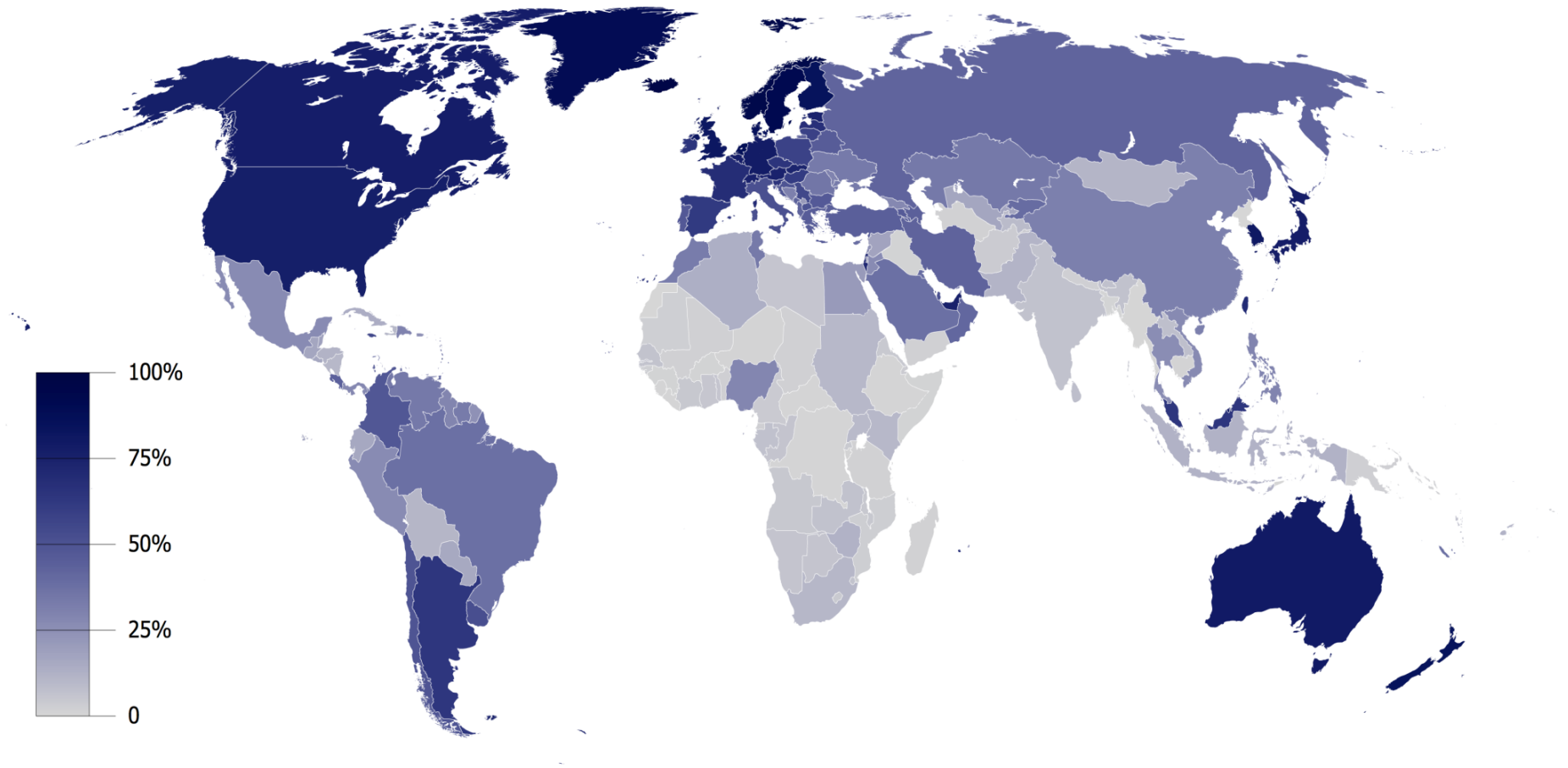


14 Dec 2010

2% remaining of 4.3 billions = 86 millions

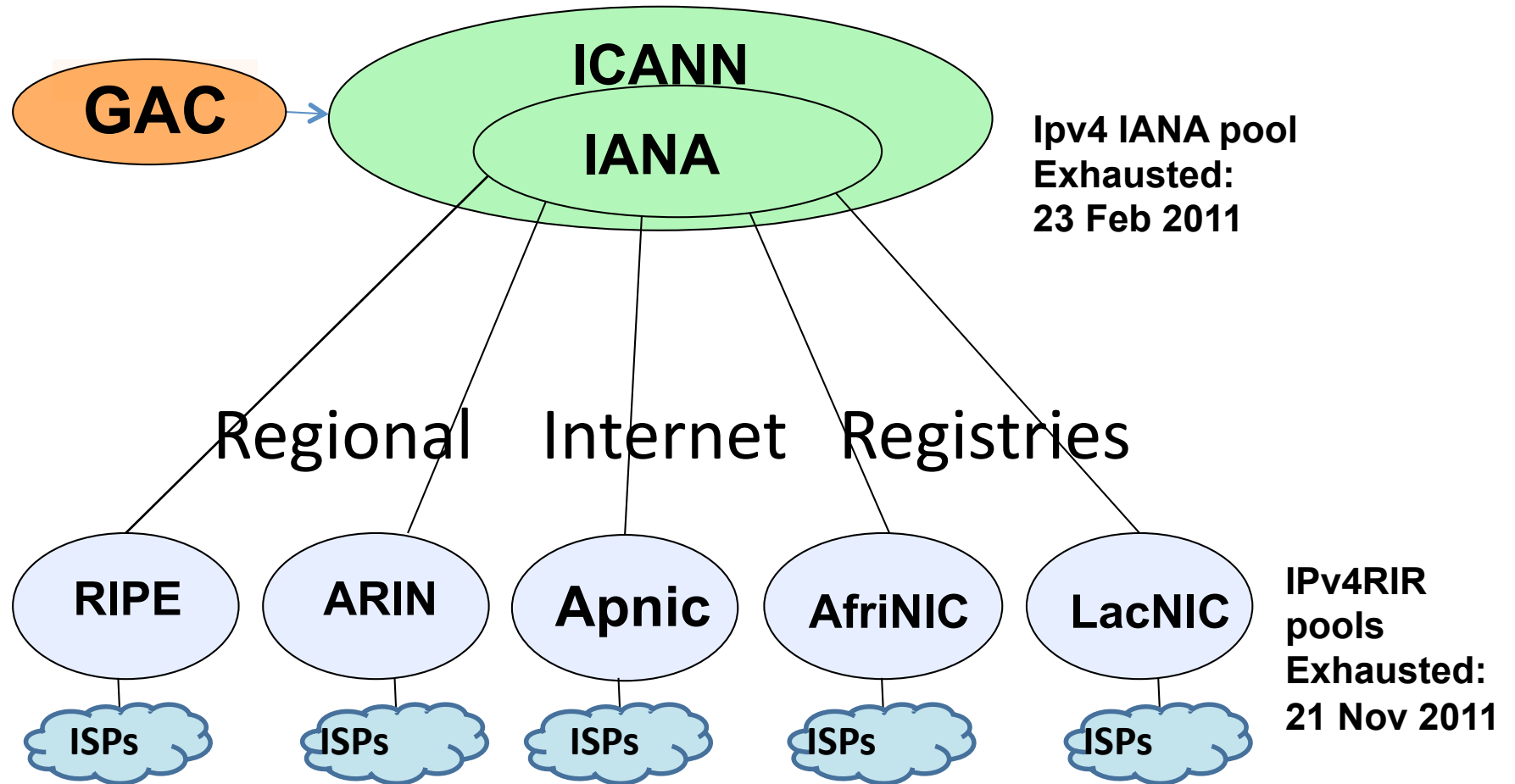
Future Internet, Swedish initiatives for promotion of IPv6

Internet user in the world



<http://www.internetworldstats.com/stats.htm>

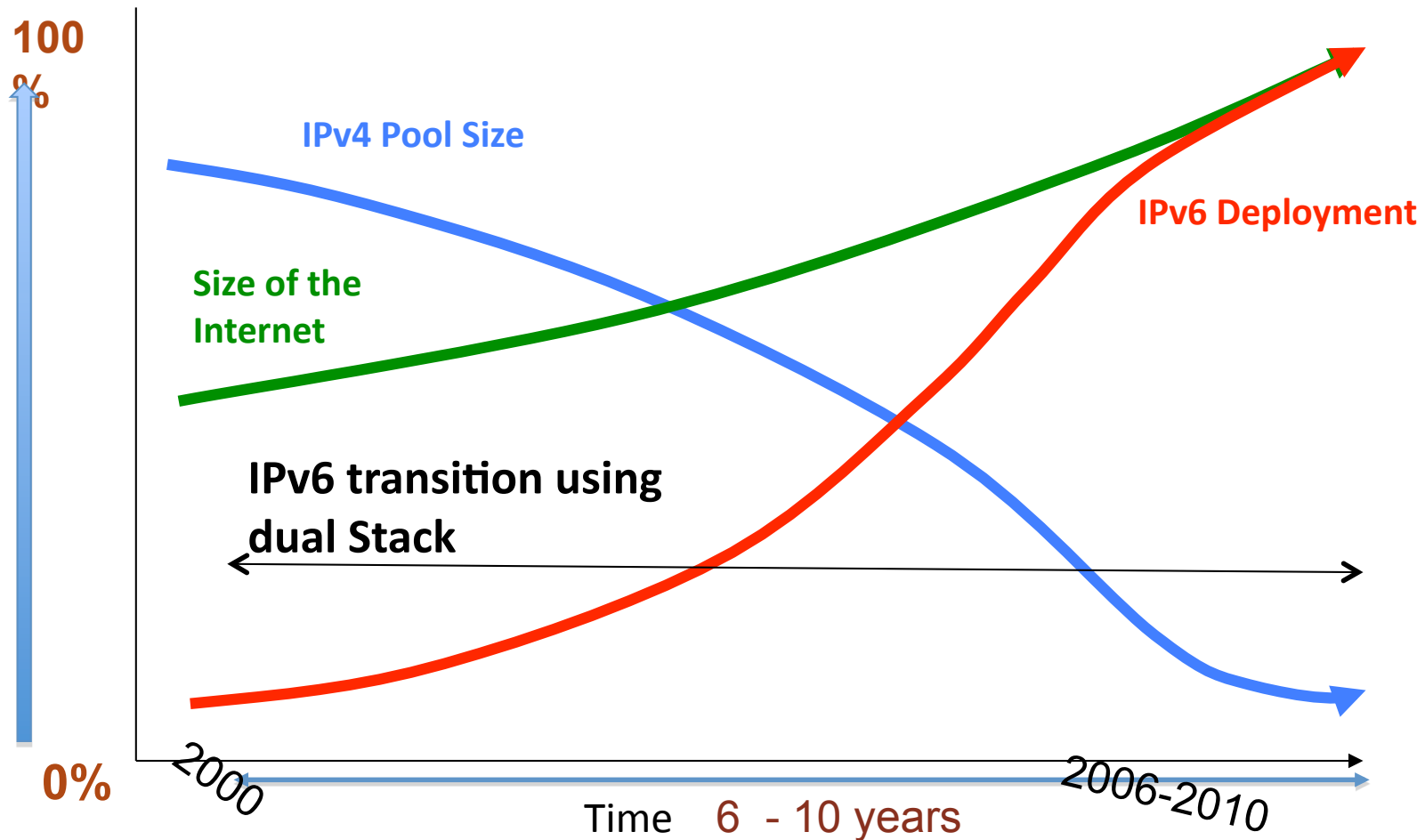
Global management of IP-adresses



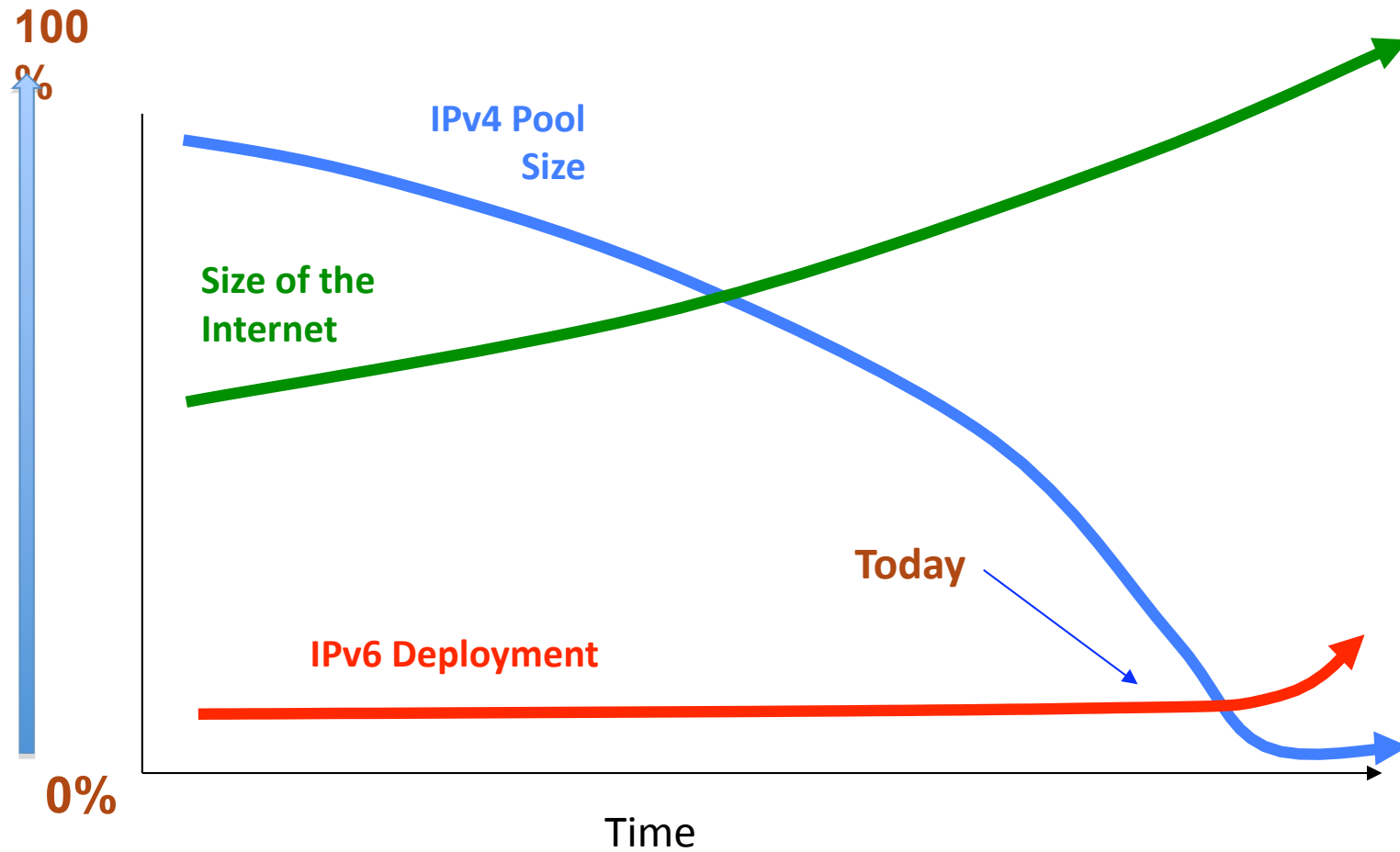
Future Internet, Swedish initiatives for promotion of IPv6

Internet Corporation for Assigned Names and Numbers=ICANN
Internet Assigned Numbers Authority=IANA
Governmental Advisory Committee=GAC

This is where we ought to be today:



But today it looks merely like this:

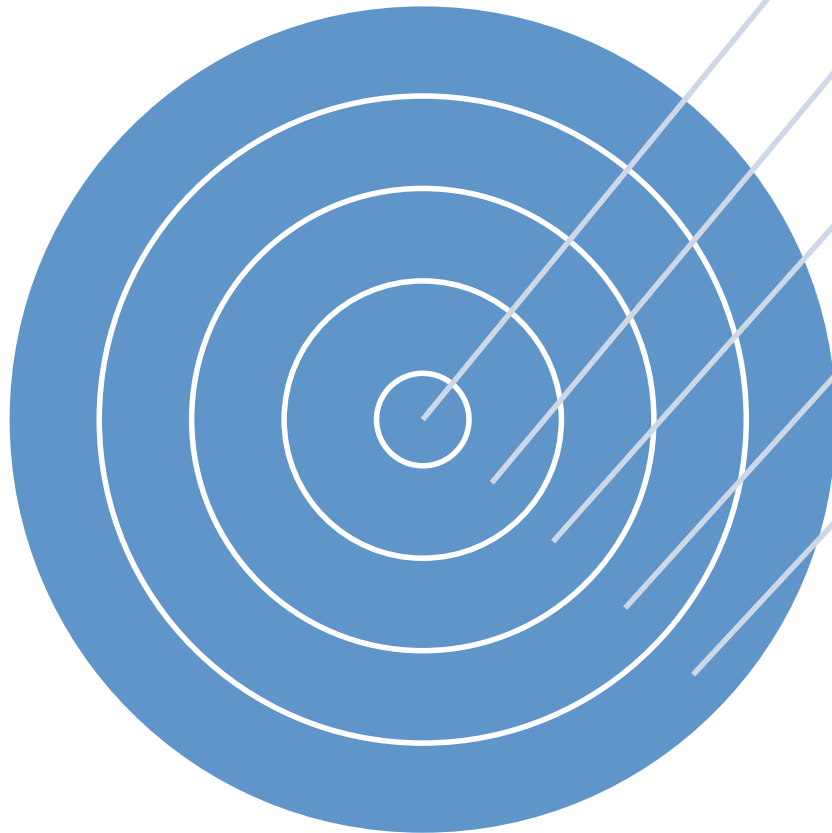


It's urgent to start deploying IPv6 early. What if we wait even more?



- Lack of IPv6 expert consultants
- Less time for testing and obtain experience
- Less time for application adaptation to IPv6
- The IPv6 connection has to function properly from day one
- End up in a state of stress with risk for mistakes and bad solutions
- Less time for IT staff to give day-to-day support as IPv6 must be deployed at the same time
- Risk of losing a business opportunity

Ipv6 deployment is too slow - involved parties say:



Manufacturers: Are IPv6 ready to a large extent but lacks for much CPE

ISPs: Our backbones OK, poor demand, costs

DNS op.: can handle IPv6 addresses, weak IPv6 transport – too few requests

Content providers: No consumers, have enough IP-addresses, no knowledge, costs

Consumers/end users: are unaware, don't care

Which IPv6 advantages can be identified –
except for the abundance of addresses?

More
efficient
routing

Easier
administration

Improved
mobility

Built-in
Ipsec

Secure
address
resolution

What the government and PTS has done and are going to do

Awareness raising activities:
IPv6-website info, dialogue, conferences, courses

Public sector deploy Ipv6 proactively as good examples for example PTS

Assignment from government on providing an IPv6 deployment guide with consequence analysis

PTS is funding IPv6 conferences and courses for municipalities

Government's strategy for e-services says that IPv6 *ought to be* deployed for all external communication by end of 2011

Experiments to show benefits of IPv6 deployment

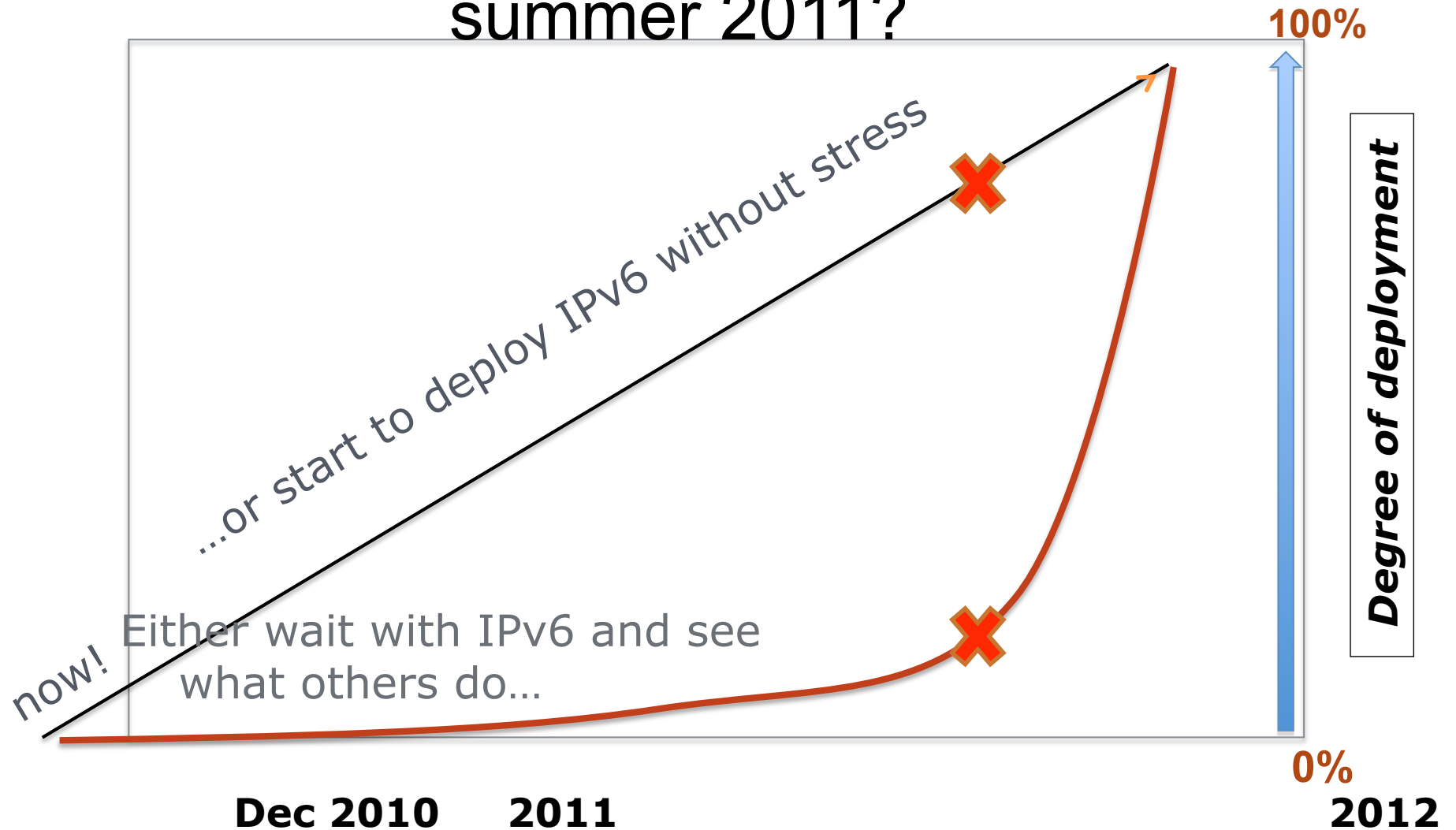
IPv6 in private sector

- SUNET (Swedish University Network) that connects university networks and a number of museums and authorities in Sweden run IPv6 since a couple of years
- Loopia – the biggest DNS (40% of all .se domains) operator has deployed IPv6 already 2008
- The Swedish Top Level domain .SE:
 - investigations on the preparedness for IPv6 in private and public sectors
 - stocktaking of what network equipment is and is not IPv6 ready
 - arranging of IPv6 workshops and courses for free for anybody

Proposed experiments to increase incentives for early IPv6 deployment:

- Prevent man-in-the-middle attacks by using SeND (Secure Neighbour Discovery) in IPv6
- Show the advantages with the faster IPv6 routing
- Try to show cases where NATs are impediments to applications
- Find an application that can make use of the improved mobility in IPv6
- Set up a test case where authorities within a MS or between two MS exchange important information via dual stack and native IPv6.
- Show the importance of being reachable also via IPv6 to be able to serve e.g. IPv6 only connected citizens abroad

What IPv6 level do you want to be at in summer 2011?



Thank you!

