

6DEPLOY: IPv6 Deployment Support

Why IPv6?

Telephony

- Wireless (Wi-Fi, GSM, GPRS)
- Fixed (VoIP)

Toll or Gas Stations

Sensors: GPS, Climate Sensor, Exhaust Sensor, Wheel Sensors, Engine Sensor, Collision Sensor, Electronics Sensor

Music

- Subscription
- Per Download

Environment Sensors

Gaming

- Online
- Network

Utilities

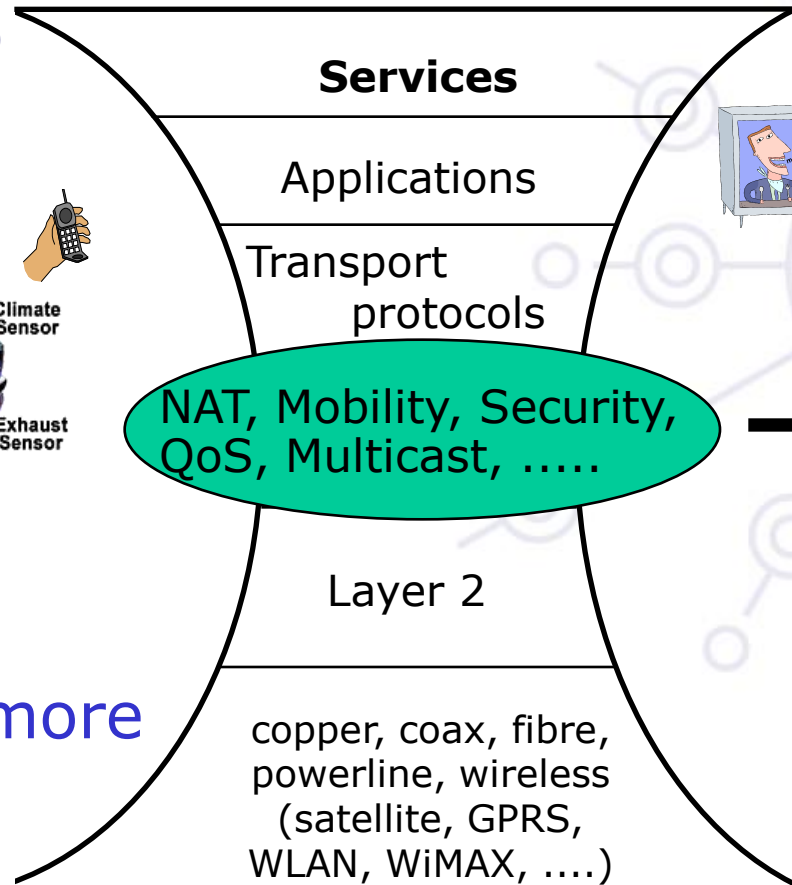
- Monitoring
- Reporting

Data

- Always On
- Secure

TV/Video

- Subscription
- On Demand



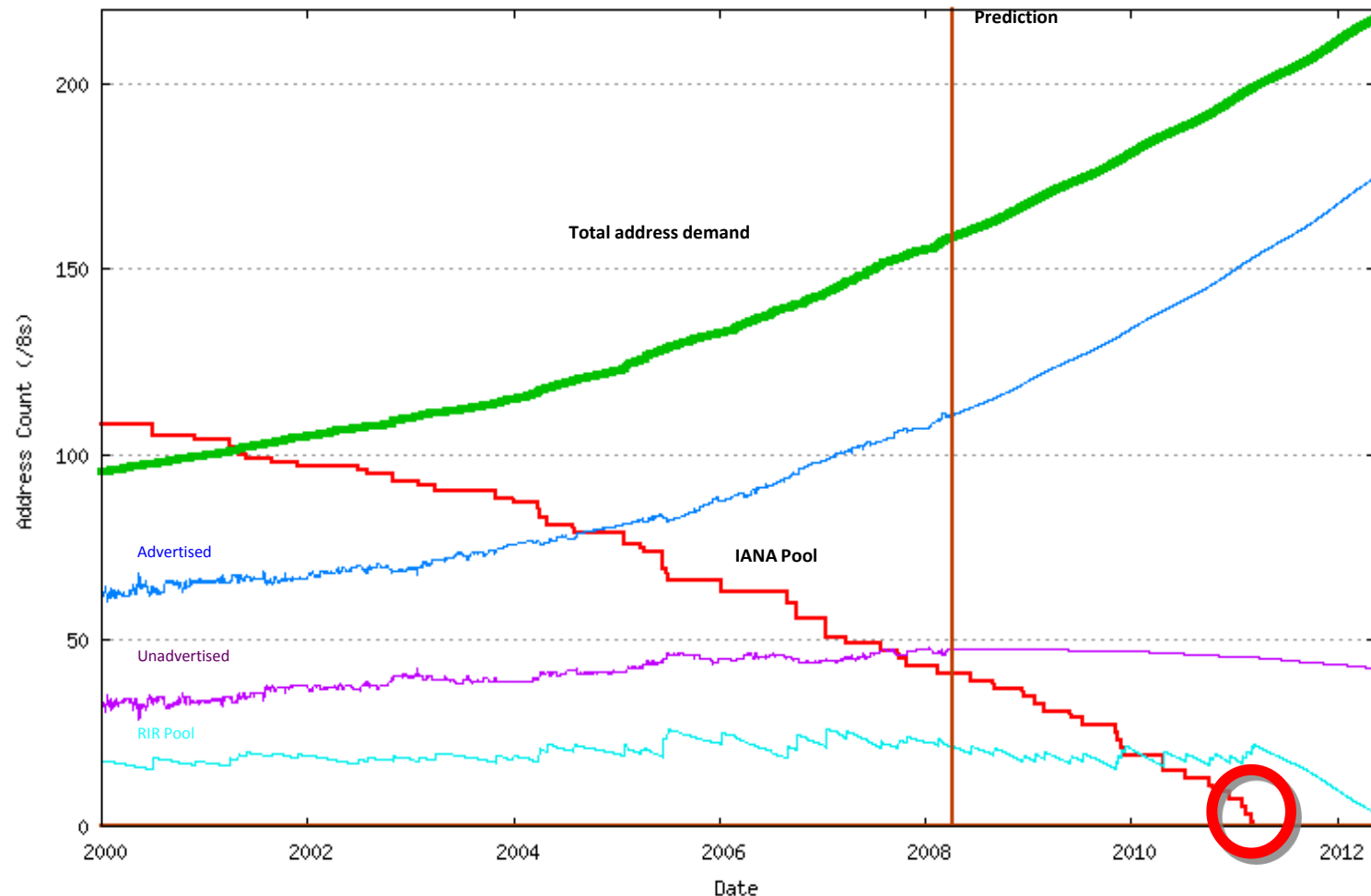
Next Generation Internet Protocol (IPv6)

... Over many more infrastructures

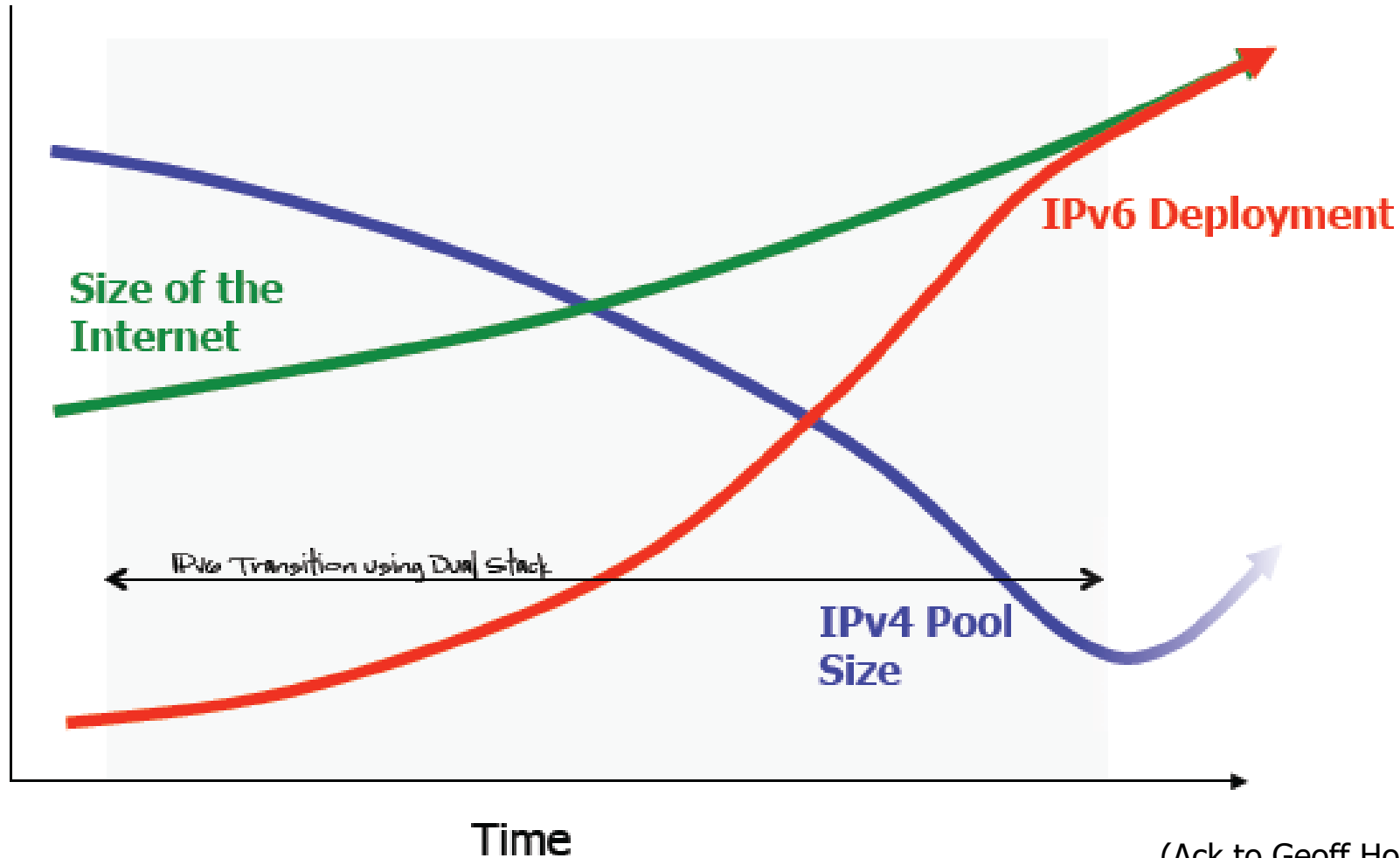
IPv6:

- **Resolves the shortage of IPv4 addresses**
- **Restores the “end-to-end” philosophy of the Internet (benefits for applications, maintenance of remote equipment, MobileIP)**
- **Whilst re-designing the protocol, improvements have been made for streamlining/future-proofing the header, auto-configuration, multicast**
- **Security (IPsec) has been mandated**

IPv4 addresses will run out in less than 2 years!

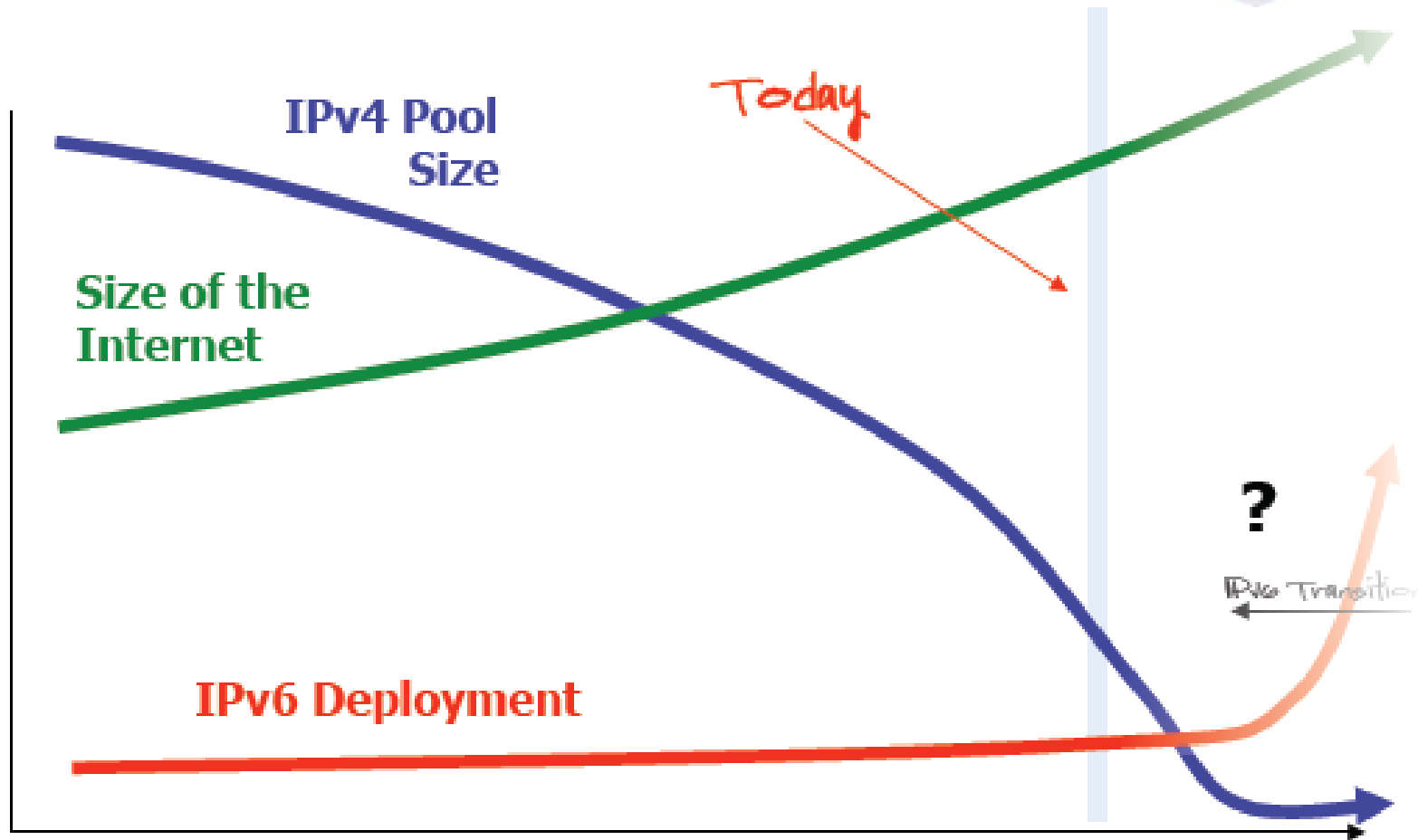


IPv6 is the answer



(Ack to Geoff Housten)

but now there's not much time left



Time

(Ack to Geoff Housten)

So, what are you going to do?



It depends who you are - end user?

- **Your end device probably already supports IPv6**
- **Do you still want to stay with IPv4?**
This will get increasingly painful if you have a network with an increasing number of end devices, and as your counterparts - especially in developing countries - upgrade to IPv6
- **Use a tunnel broker to cross an ISP who doesn't offer IPv6? (=> possibly degraded service)**
- **Try to use 6to4?**
- **Change to an ISP that offers native IPv6 and enjoy the benefits of end-to-end transparency?**

It depends who you are - ISP?

- **Dual Stack? (probably, initially)**
- **Install carrier-grade NATs?**
Theoretically 1 billion users can be behind a /8), but how will you maintain a record of the real user? NATs behind NATs, behind NATs, don't scale forever, and what about the cost of the complexity?
- **Ignore the problem? (and lose customers and IPv6 transit traffic)**
- **Offer native IPv6 and restore the original end-to-end transparency of the Internet?**

If you are an ISP?

- **Do you still think it's too expensive to offer IPv6?**
- **The alternative will be more costly to your business if your customers experience:**
 - Escalating costs
 - Escalating application complexity and fragility
 - Reduced flexibility
 - Increased risks of failure

The later you leave the deployment, the more costly it will be

- **Inventorise your network and determine what needs to be upgraded**
- **Get training** (fundamentals, deployment, operation, maintenance)
- **Plan your transition strategy**
- **Purchase IPv6-capable equipment in accordance with normal replacement cycles**

This takes 3 years ... and the IPv4 addresses run out in 2!

Others are already moving to IPv6

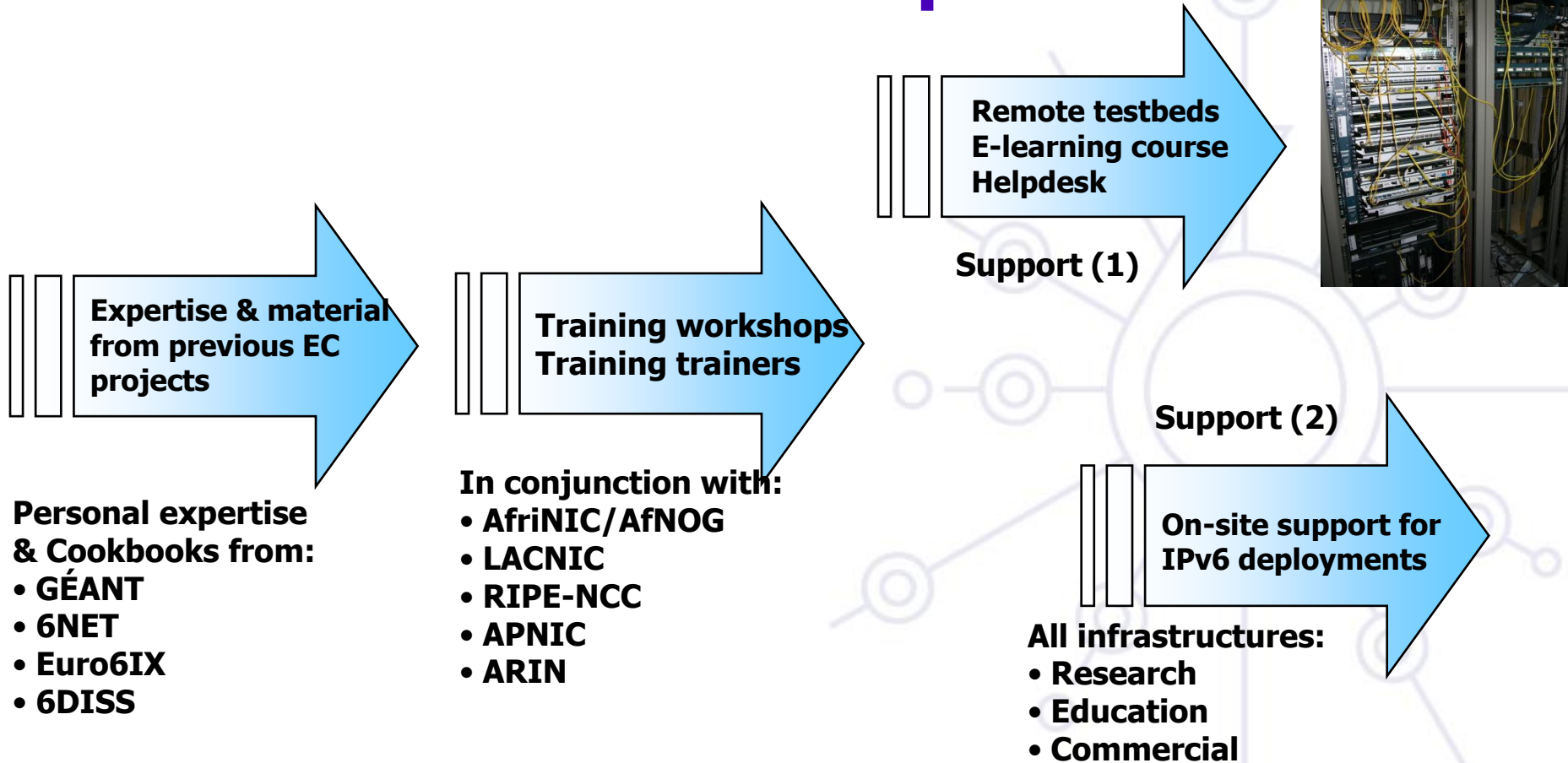
- **Africa**
- **China**
- **Korea**
- **Japan**
- **Latin America**

Many of these are the developing countries ... so it is Europe (and the US) who will have the interworking problems in the future

IPv6 represents the lowest risk option

... as has been recognised by (for example) the Department of Defense (US, 2006) and the EC (Communiqué, May 2008)

6DEPLOY is here to help



+ the “IPv6 Cluster”

6DEPLOY Services (1)

Workshops for direct training, and for „training other trainers“

Practical configuration exercises

Professional e-learning package:

www.6diss.org/e-learning

Remote testbeds in Paris, Sofia and Mauritius for use inside and outside the workshops

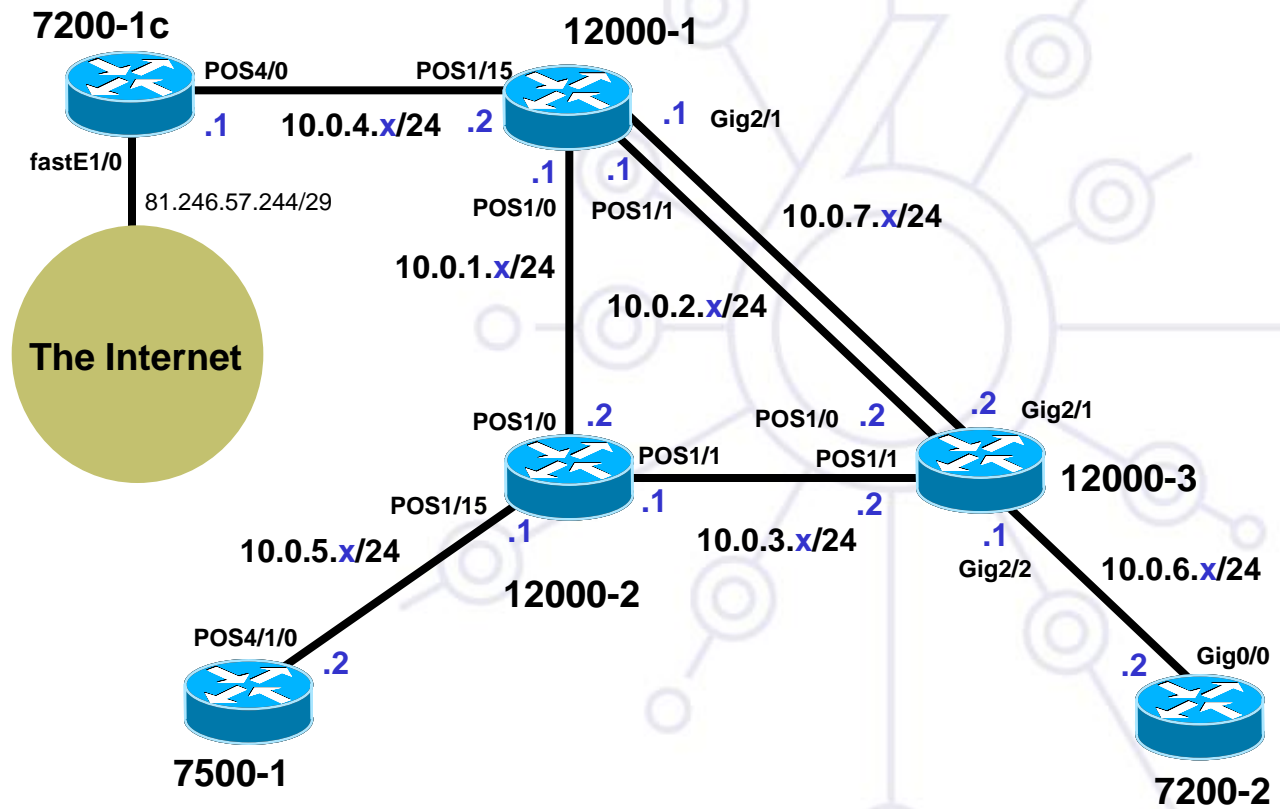
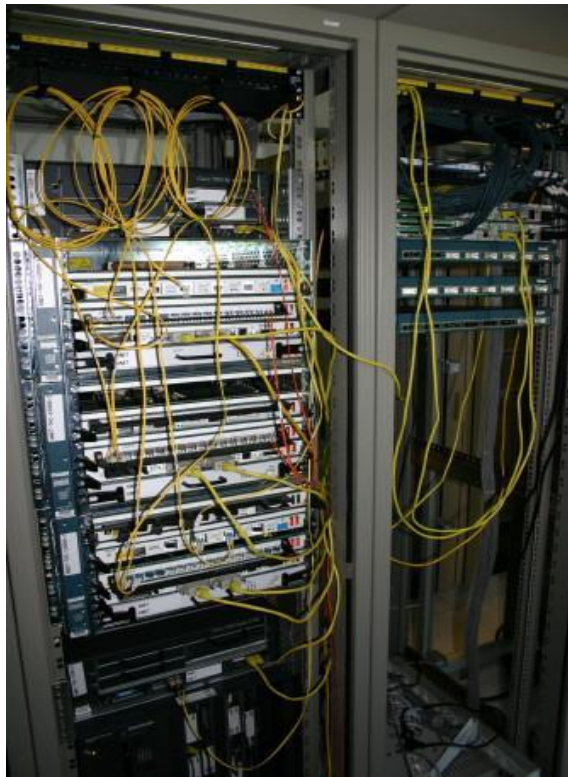
6DEPLOY Services (2)

Book on technical deployment guidelines

Helpdesk service (helpdesk@6deploy.eu) **run by experienced persons**

Website (www.6deploy.eu) **with links to 6DEPLOY documents and external sources**

6DEPLOY Testbeds





Rechercher

6DEPLOY

6DEPLOY project web site

IPv6 Helpdesk

RENATER Testbed availability

Testbed deployment



Offres d'emplois
Appels d'offres

Accès à l'ancien site web

Charte déontologique

RENATER Testbed availability

Testbed is already booked for the following dates and events :

Dates :	Events :
September 12th - 24th 2005	CITREN IP multicast tutorial
Dec Oct 23th - Oct 26th 2007	PIP provisioning system (AMPS) : GN2 SA3 & PSNC
Jan Nov 9th 2007	IPv6 Hands-on : RTBF - Belgium (training made by ULB)
Jan Dec 4th 2007	IPv6 Hands-on : RTBF - Belgium (training made by ULB)
Jan Dec 13th 2007	IPv6 Hands-on : RTBF - Belgium (training made by ULB)
Jan Dec 17th - 21st 2007	PIP provisioning system (AMPS) : GN2 SA3 & PSNC
Feb Jan 28th - Feb 15th 2008	PIP provisioning system (AMPS) : GN2 SA3 & PSNC
Feb March 17th - March 21st 2008	Internal training : RENATER
Mar March 28th 2008	UREC/CNRS
Mar April 1st - April 12th 2008	BGP and IPv6 training in Cameroon
Apr April 15th - April 16th 2008	IPv6 training preparation

In order to book the testbed, please, send an email to durand@renater.fr

Annonces

Première ph. déploiement de GEANT2

Projet TEIN2

Nouvelle sol. de connectivité J

Ouverture du domaine interne

Appels d'offres

Fourniture d liaisons et achat d'équipements e de France et à Cadarache

Formations

Manifestations

Journée Mob IPv6

6DEPLOY Training Modules

Module Topics		
IPv6 Introduction	IPv6 Mobility	IPv6 Routing protocols
IPv6 Protocol	IPv6 Multicast	IPv6 - IPv4 Co-existence
IPv6 Addressing	IPv6 DNS	IPv6 DHCP
IPv6 Addressing case studies	IPv6 Associated protocols	Equipment configuration
IPv6 Network Management	IPv6 and cellular networks	IPv6 and DSL
IPv6 Autoconfiguration	IPv6 Security	Deployment scenarios
IPv6 and sensor networks	IPv6 QoS	"How to" guide for developers

Workshops

Already held:

- **Brazil**
- **Kenya**
- **Mozambique**
- **Moscow**
- **Caribbean: Haiti, Cuba, Trinidad & Tobago**

Planned for 2009:

- **E. Europe**
- **Berlin**



Workshop Objectives

To introduce IPv6 concepts and differences from IPv4

The contents include:

- Basic IPv6 protocol operation
- Core IPv6 services and IPv4/IPv6 co-existence mechanisms
- IPv6 routing
- IPv6 deployment – getting up and running

To give you hands-on (Cisco, XP, Linux, ...) experience

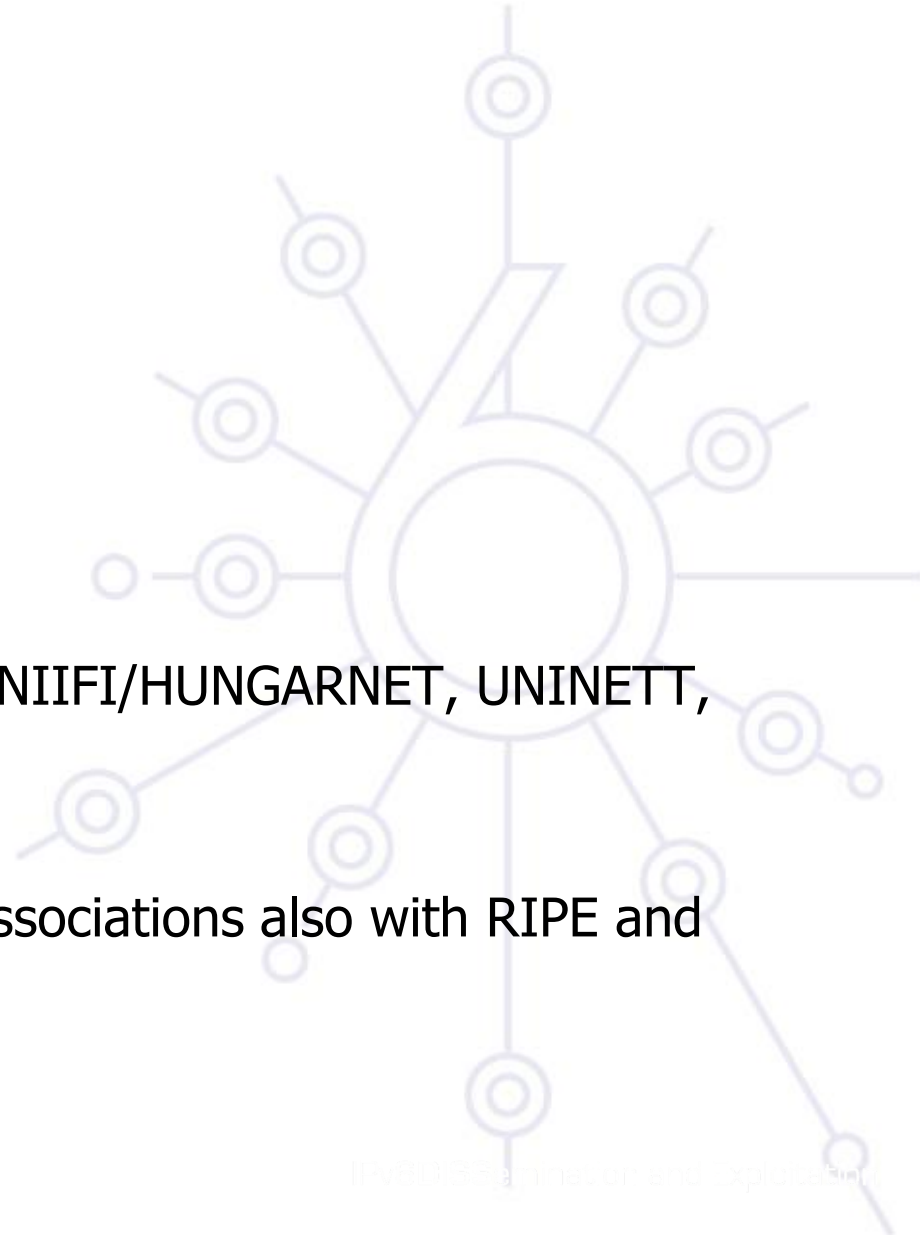
To enable you to go home and get IPv6-connected!

6DEPLOY is here to help!

6DEPLOY

13 Partners:

- Martel (Co-ordinator)
- Industry/Commercial:
 - Cisco, Consulintel
- NRENs:
 - RENATER, GRNET, FCCN, NIIFI/HUNGARNET, UNINETT, BREN
- RIRs:
 - AfriNIC, LACNIC (strong associations also with RIPE and APNIC)
- Universities:
 - UCL, Soton-ECS





Contact : helpdesk@6deploy.eu