

## IPv6 Deployment and Support



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**Presenting:**  
**János Mohácsi, NIIF/Hungarnet**



# Programme

- Outline of the 6DEPLOY project
- Why 6DEPLOY is needed
- The 6DEPLOY Services

## Outline - Objectives

6DEPLOY is an EU-funded project to support the deployment of IPv6 in:

- Countries such as Africa, Latin America, Asia and E. Europe, where there is/will be a huge demand for addresses
- Research infrastructures ... which support all fields of science and technology
- Other EU projects
- Commercial organisations

Started in 2008 (“6DEPLOY”) and will continue until 2013 (“6DEPLOY-2”)

## Outline - Services

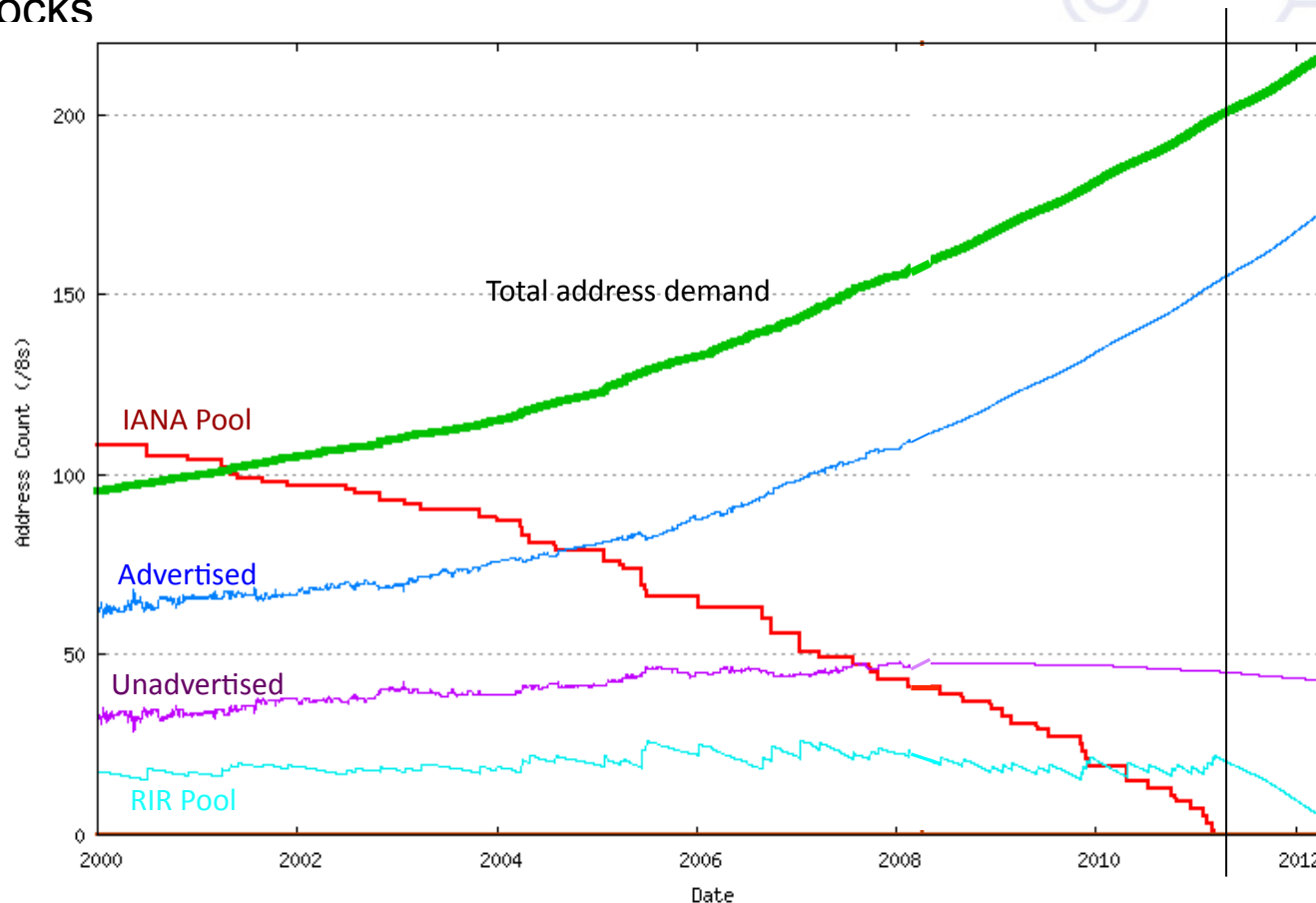
- Training:
  - Workshops
  - Tutorials
  - On-line e-learning package
  - Modules
- IPv6 Labs
- Deployment Use Cases (Schools, Campus Networks, ISPs)
- The IPv6 Cluster
- Helpdesk

## Outline - Partners

Martel GmbH	2 SMEs
Cisco Systems International B.V.	
Consultores Integrales en Telecomunicaciones "Consulintel", S.L.	
University College London	1 University
Réseau National de Télécommunications pour la Technologie, l'Enseignement et la Recherche	6 NRENs
Greek Research and Technology Network	
Fundação para a Computação Científica Nacional	
NIIF/Hungarnet	
UNINETT AS	
Bulgarian Research and Education Network	
The African Regional Network Information Center	3 RIRs
The Latin America and Caribbean Regional Network Information Center	
The Asia-Pacific Regional Network Information Center	

## Why 6DEPLOY is needed

The pool of IPv4 addresses is now exhausted. Regional Internet Registries (AfriNIC, LACNIC, APNIC, RIPE, ARIN) cannot get any more IPv4 address blocks



Source: Geoff Hosten  
<http://www.potaroo.net/presentations/index.html>

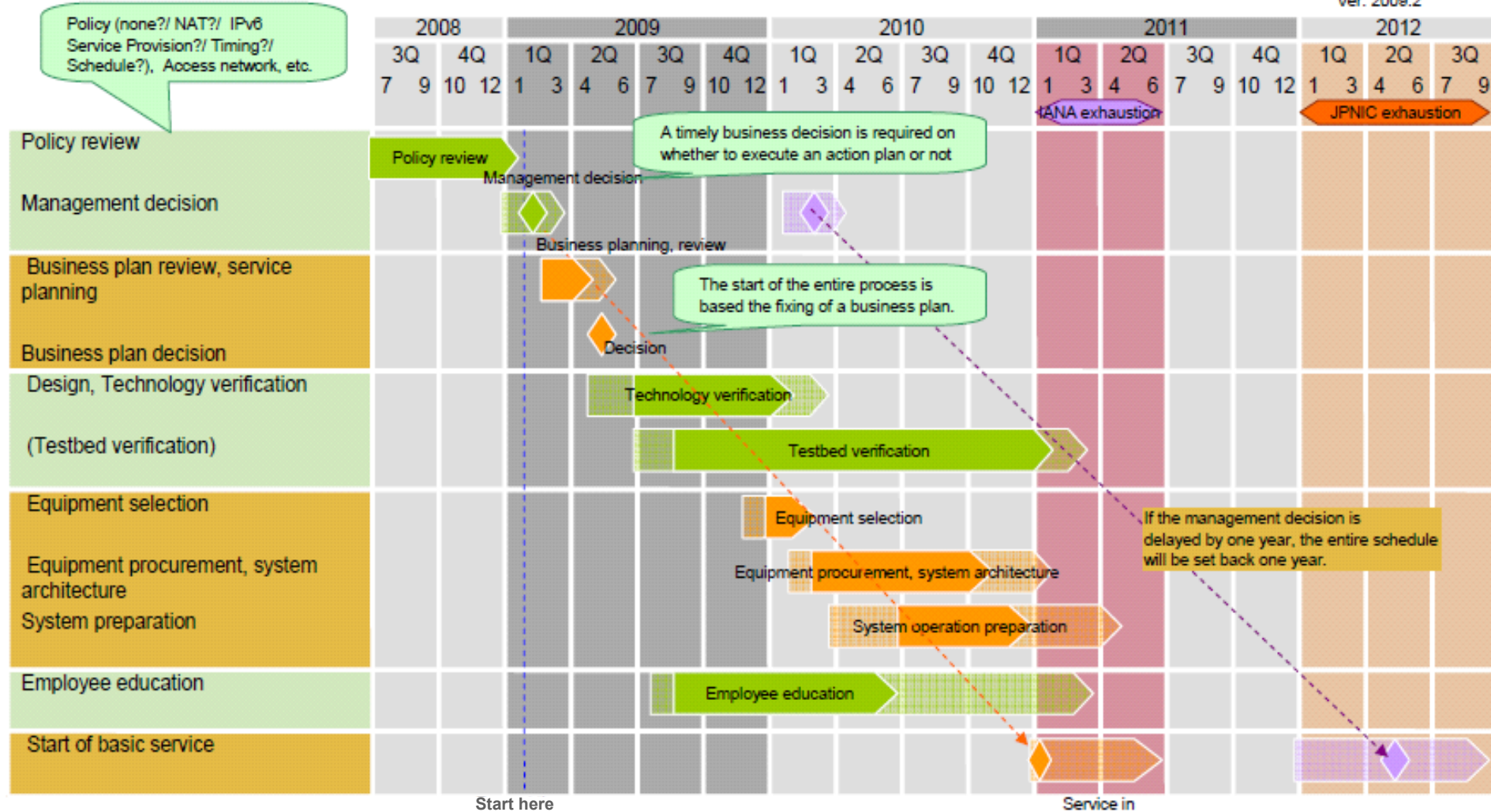


From the IPv4 Address Exhaustion Task Force ...

# Why 6DEPLOY is needed

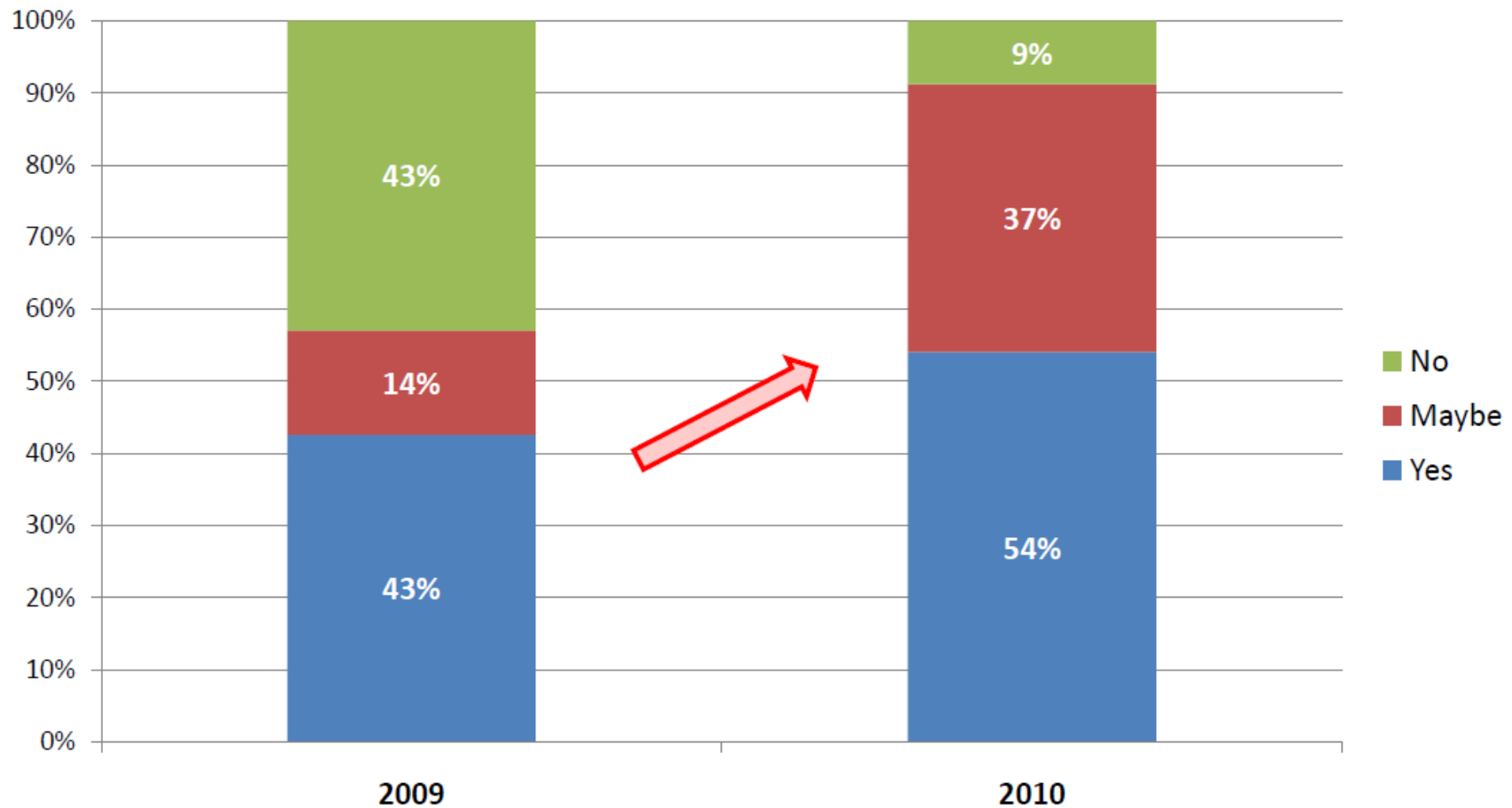


Ver. 2009.2



## Why 6DEPLOY is needed

Do you plan to promote IPv6 uptake to your customers?

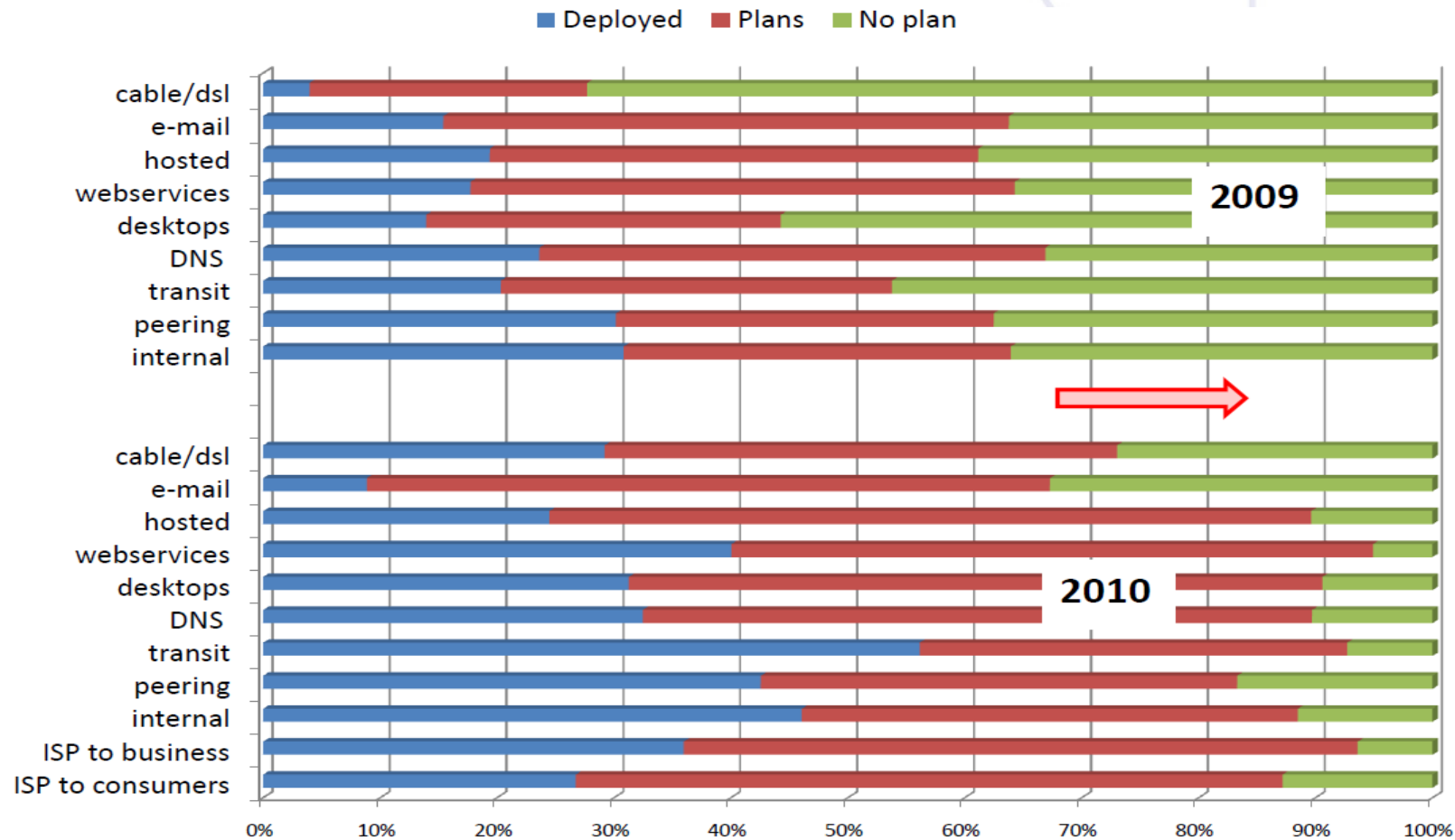


RIPE IPv6 Deployment Survey of ISPs



# Why 6DEPLOY is needed

More ISPs have IPv6 implementation plans

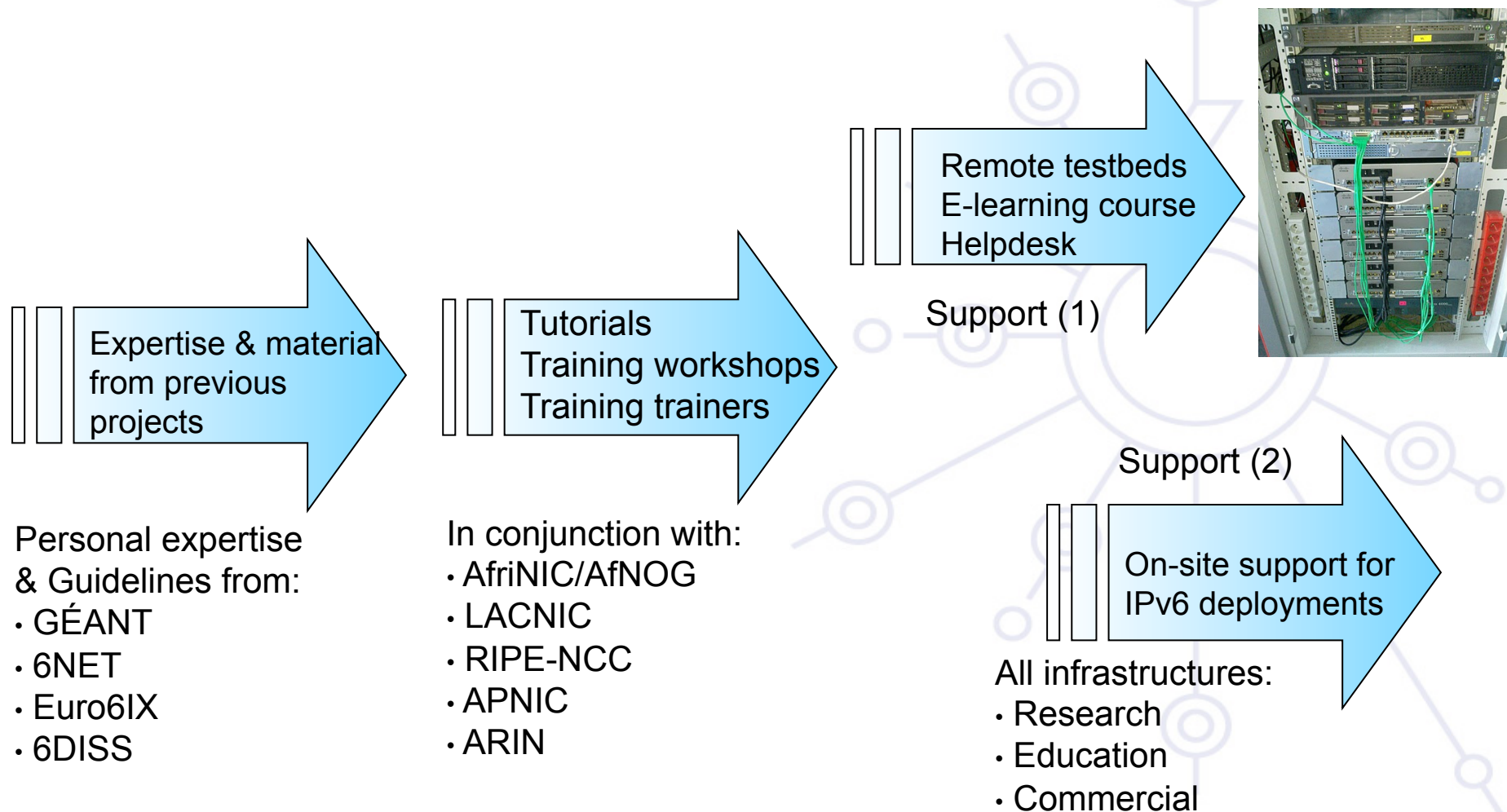


RIPE IPv6 Deployment Survey of ISPs

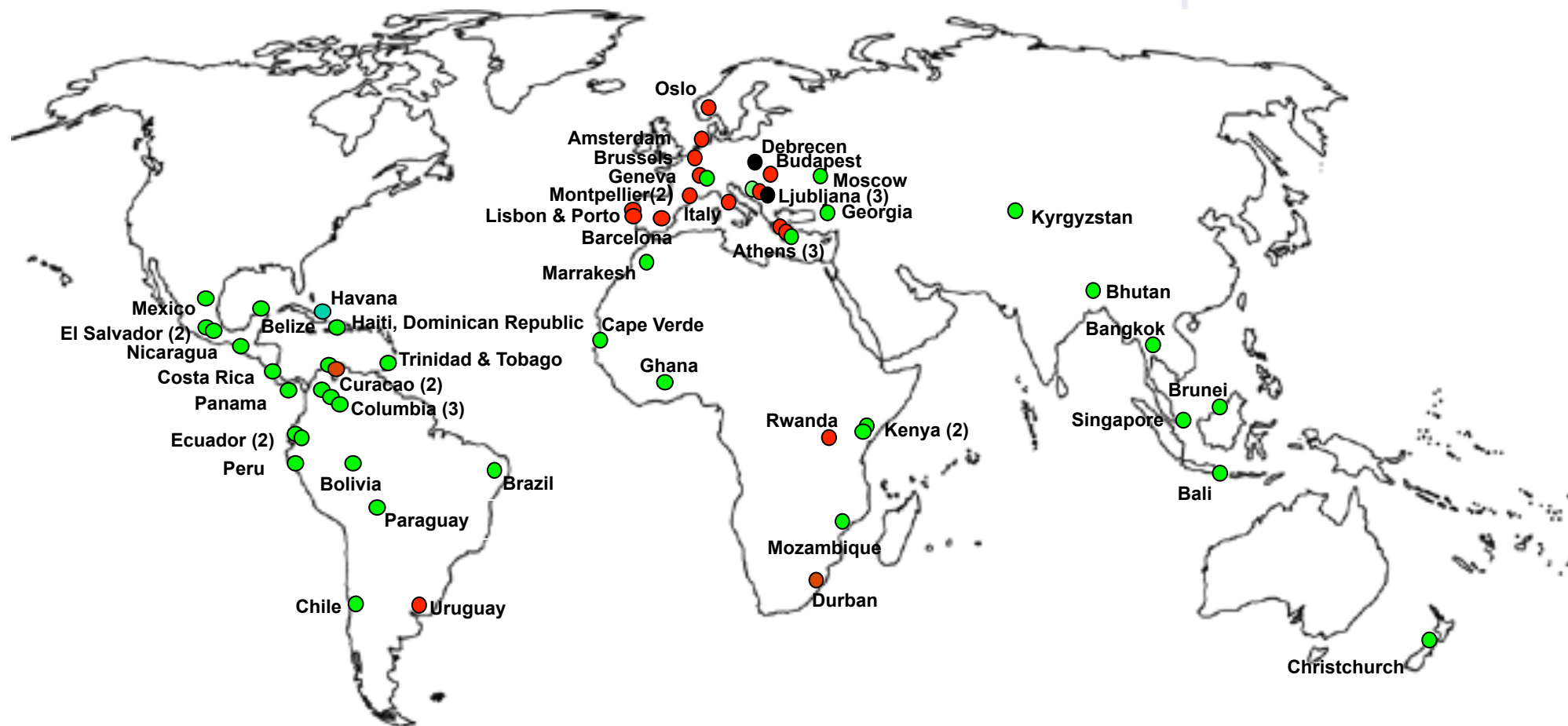
## The 6DEPLOY Services

- **Training:**
  - Workshops
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# 6DEPLOY - Training



# 6DEPLOY - Training



- Workshops
- Extra events



#### Introduction to the e-learning package

Introduction to IPv6

IPv6 Addressing

The IPv6 Header

IPv6 Basic Services

Security in IPv6

IPv6 Routing, Mobility and Management

Co-existence with IPv4

- E-learning package
- Workshops
- Training the Trainers
- IPv6 Training Courses
- Tiger Team



next →

00:50 / 07:30

go back pause

# 6DEPLOY - Training

## Material

Slideset 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

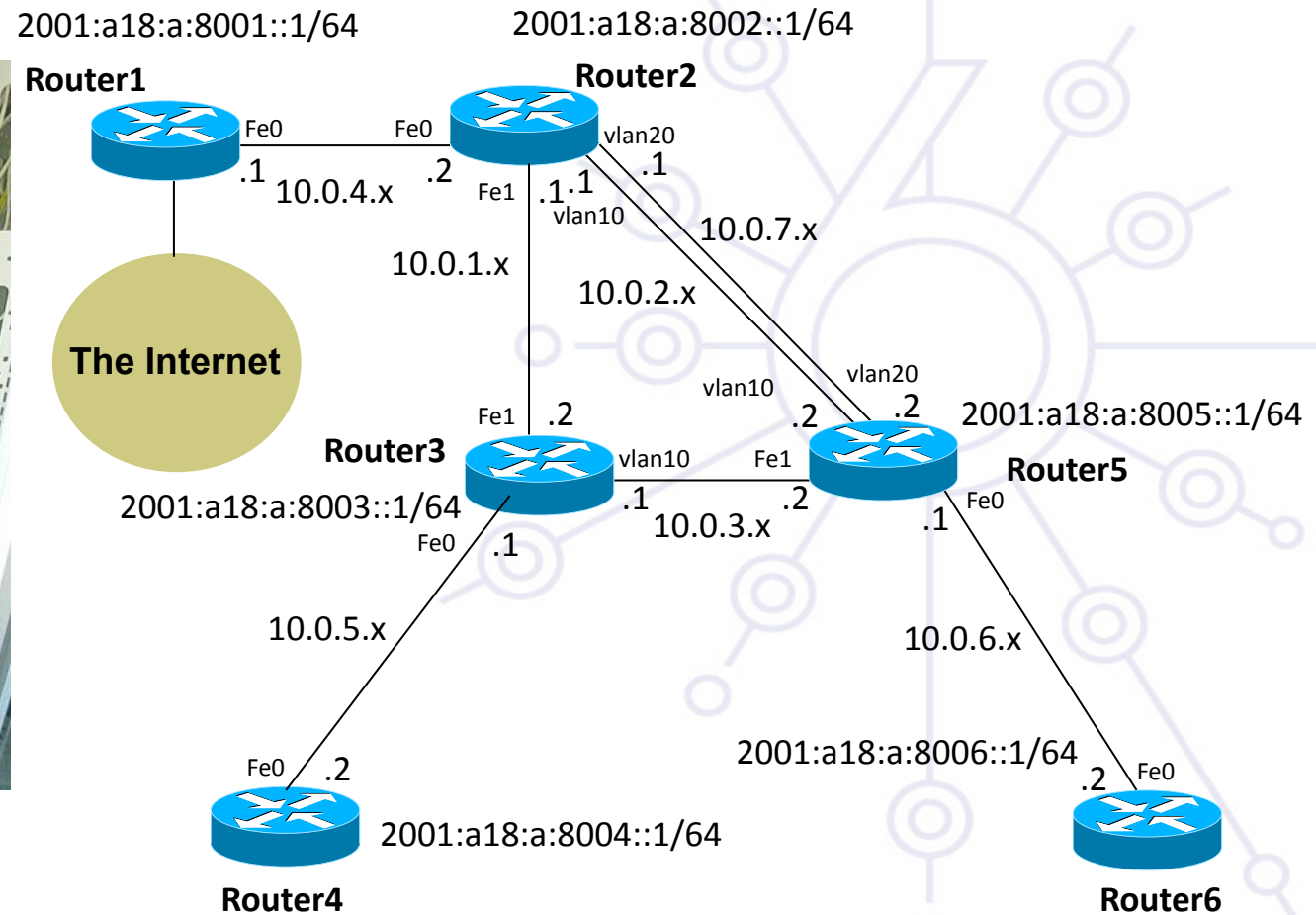
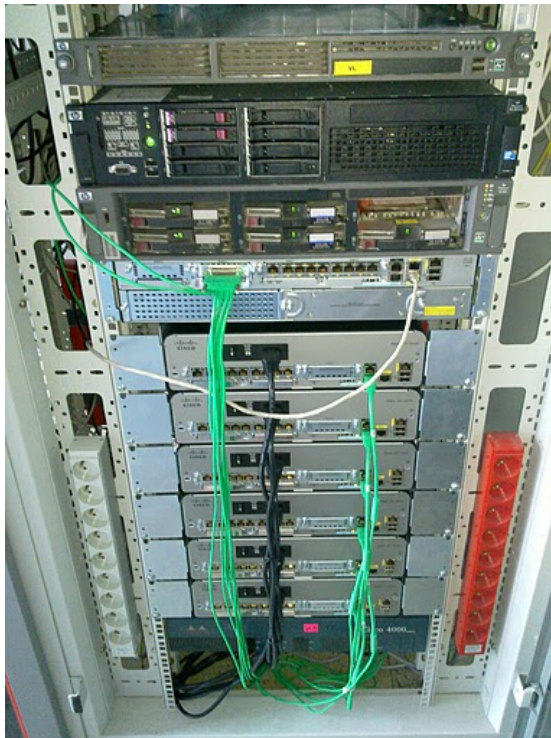


## The 6DEPLOY Services

- Training:
  - Workshops
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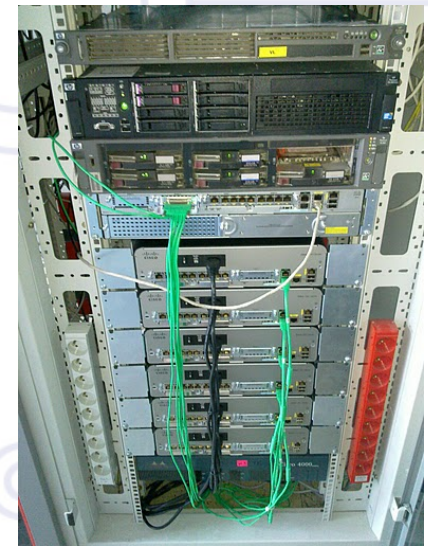
# 6DEPLOY - Labs

## Testbeds



## 6DEPLOY - Labs

- Similar configurations and reservation procedures
- Available for workshop training on (e.g.) IPv6 routing
- Can be used also for non-6DEPLOY training
- Multi-vendor
- Located in:
  - Paris, Sofia, Ljubljana, Madrid, Prague, Slovakia
  - Mauritius
  - Bangalore
  - Tbilisi
  - Bishkek
  - Accra
  - Planned: Kenya, Bogota, Buenos Aires, Mexico



# 6DEPLOY - Labs



- Operational Lab
- To be installed

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 :
October 12 <sup>th</sup> - 15 <sup>th</sup> 2010	IPv6 workshop in Santa Cruz - Bolivia
November 1 <sup>st</sup> - 4 <sup>th</sup> 2010	IPv6 workshop in Sudan
November 11 <sup>th</sup> - 12 <sup>th</sup> 2010	ESNOG – IPv6 training in Madrid - Spain
November 19 <sup>th</sup> -22 <sup>nd</sup> 2010	IPv6 Training in Johannesburg – South Africa
Dec 6 <sup>th</sup> - 10 <sup>th</sup> 2010	IPv6 training preparation – CNRS, RENATER community
Jan 24 <sup>th</sup> - Feb 11 <sup>th</sup> 2011	PIP provisioning system (AMPS) : GN3 SA3 & PSNC
March 14 <sup>th</sup> - March 18 <sup>th</sup> 2011	Internal training : RENATER
March 28 <sup>th</sup> 2011	UREC/CNRS
April 4 <sup>th</sup> - April 15 <sup>th</sup> 2011	BGP and IPv6 training in Cameroon
April 18 <sup>th</sup> - April 19 <sup>th</sup> 2011	IPv6 training preparation

In order to book the testbed, please, send an email to [durand@renater.fr](mailto:durand@renater.fr)

## Annonces

## Première phase : déploiement de GEANT2

 **Projet TEIN2**

 **Nouvelle solution de connectivité**

 **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

## The 6DEPLOY Services

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# Deployment Use Cases

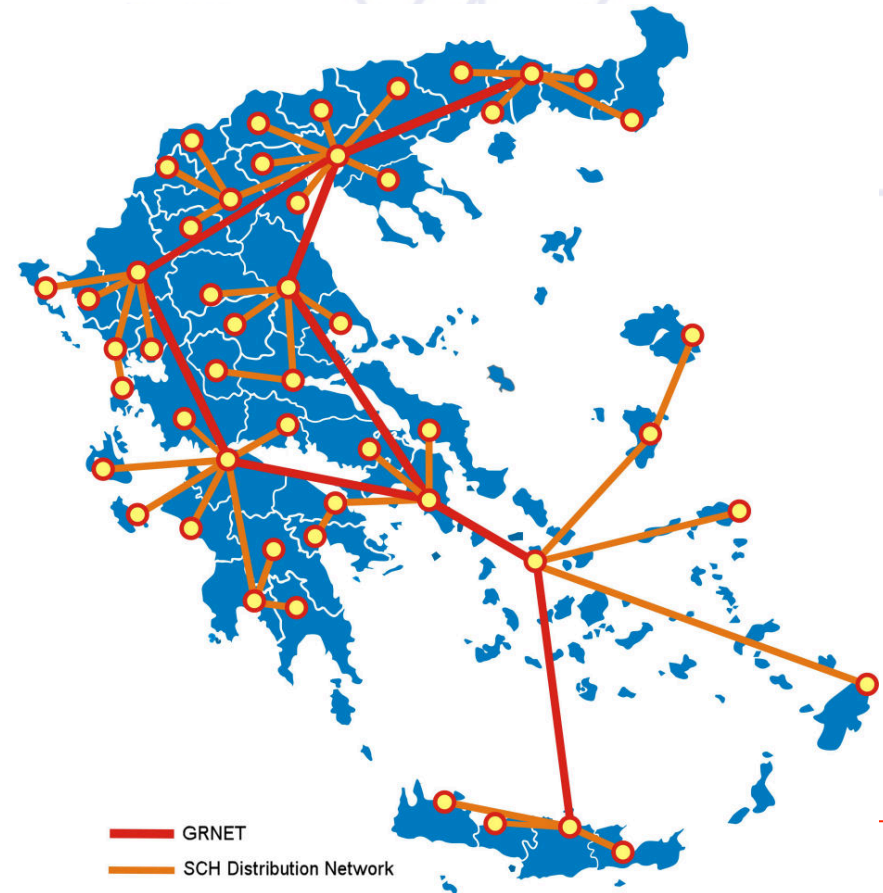
Step-by-step deployment cases will be put on the Website

- **How IPv6 was deployed in 14'000 schools in the Greek School Network**

- Basic network services
- Application services

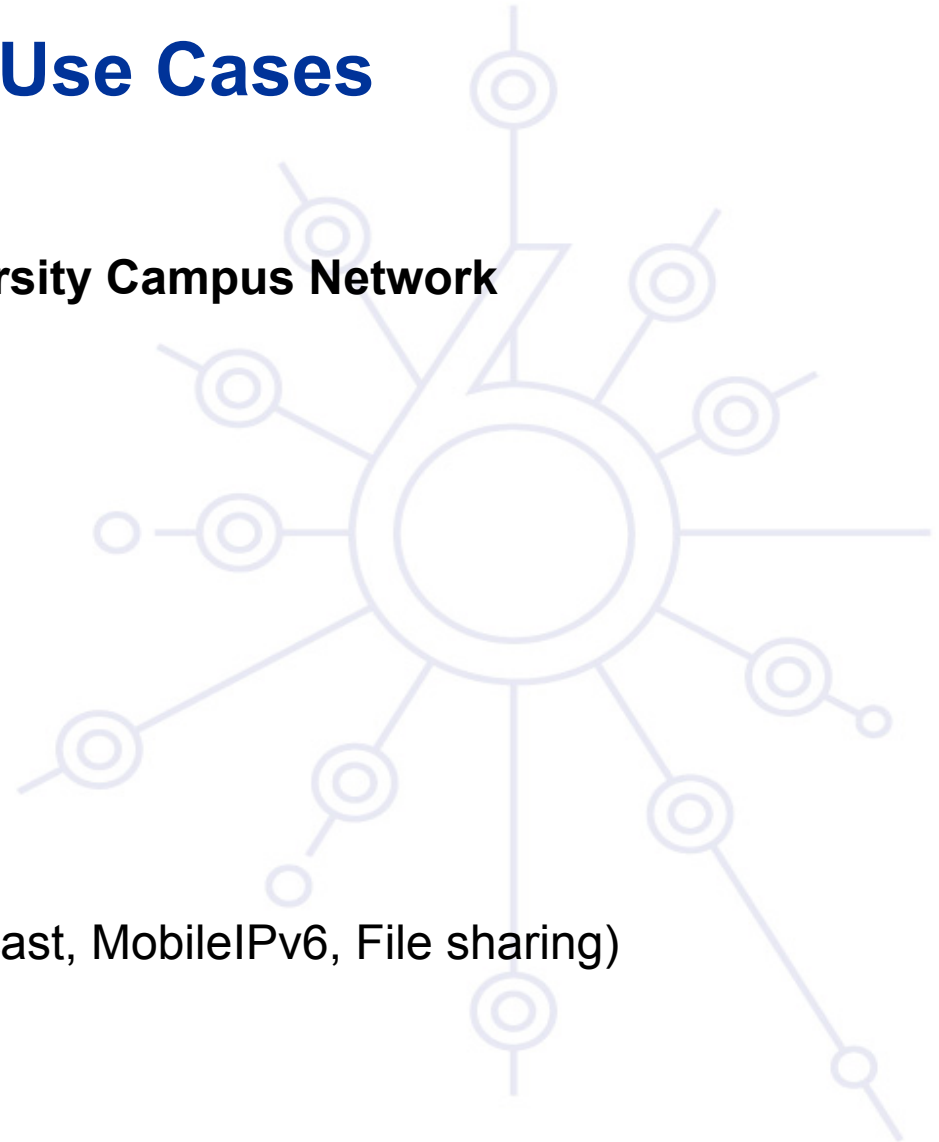
- **Drivers for deployment**

- Shortage of IPv4 addresses
- New applications
- Simplify the network management and troubleshooting
- Restore e2e connectivity – Simplify the development of peer-peer apps
- Reduce OPEX



# Deployment Use Cases

- **How IPv6 was deployed in a University Campus Network**
  - 2'000 devices, 4'000 users
  - Phase 1: Preparation
  - Phase 2: Piloting
- Applicable RFCs
- Experiences
  - What was easy / difficult
  - Monitoring and management
  - New applications/services (Multicast, MobileIPv6, File sharing)



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## The IPv6 Cluster

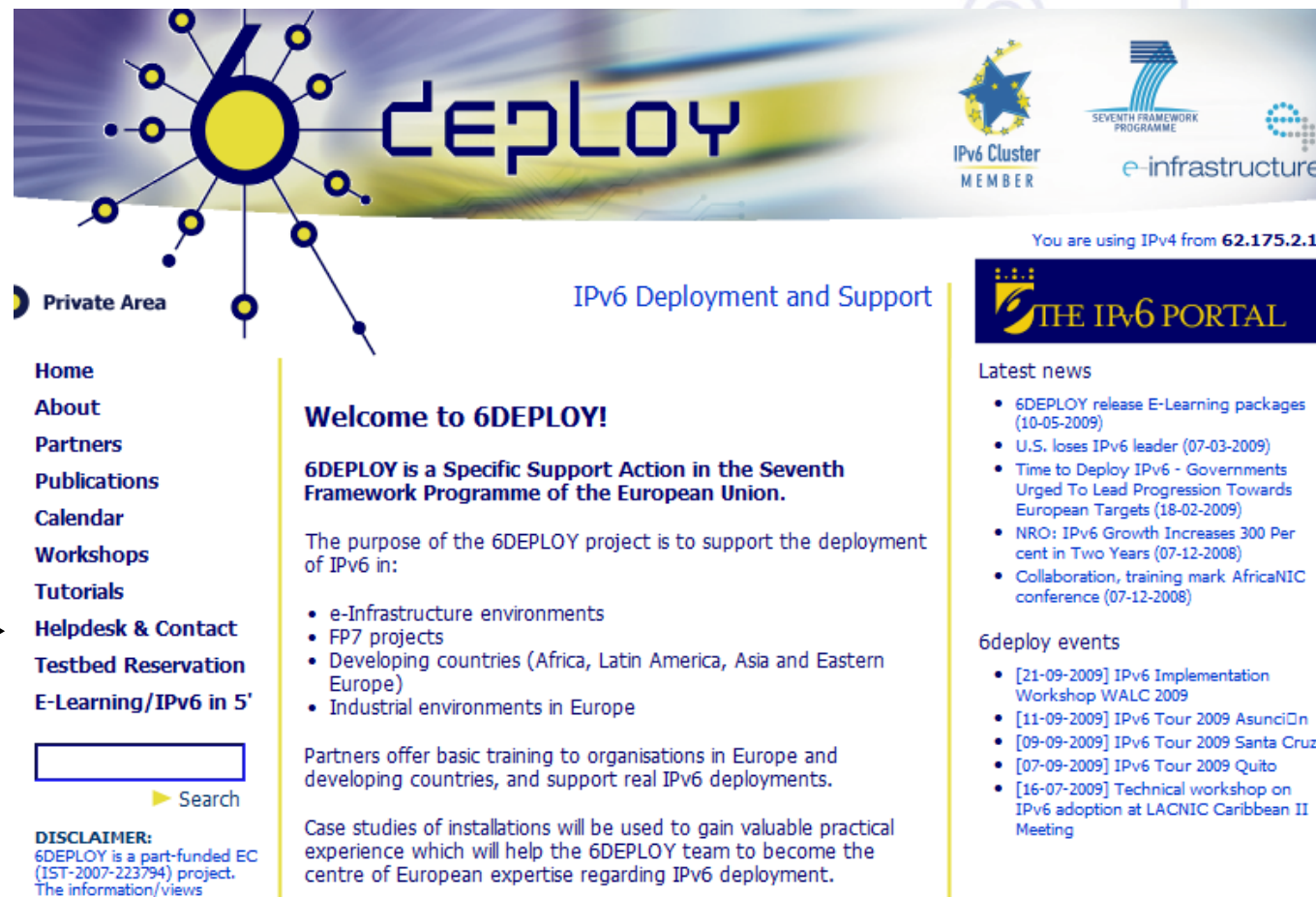
- Open information exchange (best practices, share developments, ...)
- The first meeting was held on 7<sup>th</sup> July at Cisco, Brussels (the topic was «Smart IPv6 Buildings»)
- The next meeting topic will be on «IPv6 for Smart Transport» or «IPv6 for Public Administrations»

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# The 6DEPLOY Services

Accessible from the main page of project web site -> "Helpdesk & Contact"



The screenshot shows the 6DEPLOY website interface. At the top is a banner with the 6DEPLOY logo and logos for the IPv6 Cluster Member, Seventh Framework Programme, and e-infrastructure. Below the banner, the page is divided into three main sections. On the left is a navigation menu with links: Home, About, Partners, Publications, Calendar, Workshops, Tutorials, Helpdesk & Contact (highlighted with an arrow), Testbed Reservation, and E-Learning/IPv6 in 5'. Below the menu is a search bar and a disclaimer. The central section is titled 'Welcome to 6DEPLOY!' and contains information about the project's purpose and goals. The right section is titled 'THE IPv6 PORTAL' and lists 'Latest news' and '6deploy events'.

**Private Area**

- Home
- About
- Partners
- Publications
- Calendar
- Workshops
- Tutorials
- Helpdesk & Contact**
- Testbed Reservation
- E-Learning/IPv6 in 5'

Search

**DISCLAIMER:**  
6DEPLOY is a part-funded EC (IST-2007-223794) project. The information/views

## IPv6 Deployment and Support

### Welcome to 6DEPLOY!

**6DEPLOY is a Specific Support Action in the Seventh Framework Programme of the European Union.**

The purpose of the 6DEPLOY project is to support the deployment of IPv6 in:

- e-Infrastructure environments
- FP7 projects
- Developing countries (Africa, Latin America, Asia and Eastern Europe)
- Industrial environments in Europe

Partners offer basic training to organisations in Europe and developing countries, and support real IPv6 deployments.

Case studies of installations will be used to gain valuable practical experience which will help the 6DEPLOY team to become the centre of European expertise regarding IPv6 deployment.

You are using IPv4 from **62.175.2.11**

## THE IPv6 PORTAL

### Latest news

- 6DEPLOY release E-Learning packages (10-05-2009)
- U.S. loses IPv6 leader (07-03-2009)
- Time to Deploy IPv6 - Governments Urged To Lead Progression Towards European Targets (18-02-2009)
- NRO: IPv6 Growth Increases 300 Per cent in Two Years (07-12-2008)
- Collaboration, training mark AfricaNIC conference (07-12-2008)

### 6deploy events

- [21-09-2009] IPv6 Implementation Workshop WALC 2009
- [11-09-2009] IPv6 Tour 2009 Asunci n
- [09-09-2009] IPv6 Tour 2009 Santa Cruz
- [07-09-2009] IPv6 Tour 2009 Quito
- [16-07-2009] Technical workshop on IPv6 adoption at LACNIC Caribbean II Meeting



## IPv6 workshop, Skopje

- Training:
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# The 6DEPLOY Workshop, Skopje, Agenda, Day 1

- 10:00 Welcome and introductions (host and participants)
- 10:15 Introduction to 6DEPLOY (Janos Mohacsi)
- 10:30 Introduction and awareness/IPv6 Experience in Slovenia (Jan Zorz)
- 11:00 Introduction to IPv6 (Andrew Yourtchenko)
- 11:30 IPv6 Basics: Protocol and Addressing (Andrew Yourtchenko)
- 12:30 Lunch
- 13:30 IPv6 and associated protocols (autoconfig + other config) (GRNET)
- 15:15 IPv6 DNS - theory (GRNET)
- 16:00 IPv6 addressing case studies + Deployment of IPv6 and Transition mechanisms (Janos Mohacsi)

## The 6DEPLOY Workshop, Skopje, Agenda, Day 2

09:00 Routing (theory) (Andrew Yourtchenko)

09:30 Routing (practical), Configuring routers (6deploy lab infrastructure) (All trainers)

12:00 Lunch

13:00 IPv6 on clients (practical) (All trainers)

15:15 IPv6 Security (Janos Mohacsi)

15:45 Other IPv6 services (practical) (All trainers)

16:30 IPv6 Mobility in Emergency response teams - Jan Zorz

17:00 Knowledge evaluation (assessment)



6DEPLOY is here to help!

Thank you for your  
attention