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y Nuevas Tecnologías



ERICSSON

# The Pan-European IPv6 IX Backbone

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UPM

Telefonica  
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INVESTIGACIÓN Y DESARROLLO

Jordi Palet (jordi.palet@consulintel.es)



CEO/CTO - Consulintel

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TELECOM LAB  
ITALIA  
www.telecomitaliab.com

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# Euro6IX: The Concept

- How to pronounce it: forget IX and read 6 (“SIX”)
- Build a large, scalable and native IPv6 Backbone of Traffic Exchanges, with connectivity across Europe and other IPv4/v6 Exchangers
- In order to promote and allow other players to trial v6 and port/develop key applications and services
- In order to break the chicken and egg issue !
- Gain REAL IPv6 experience, in a real world with not just research users, involving Telcos/ISPs/ASPs, among others: Allow new players into our trials
- Bring IPv6 into a production transit service



# Euro6IX Goal

- Support the fast introduction of IPv6 in Europe.
- Main Steps:
  - Network design & deployment
  - Research on network advanced services
  - Development of applications validated by user groups & international trials
  - Active dissemination:
    - participation in events/conferences/papers
    - contributions to standards
    - project web site

# Objectives

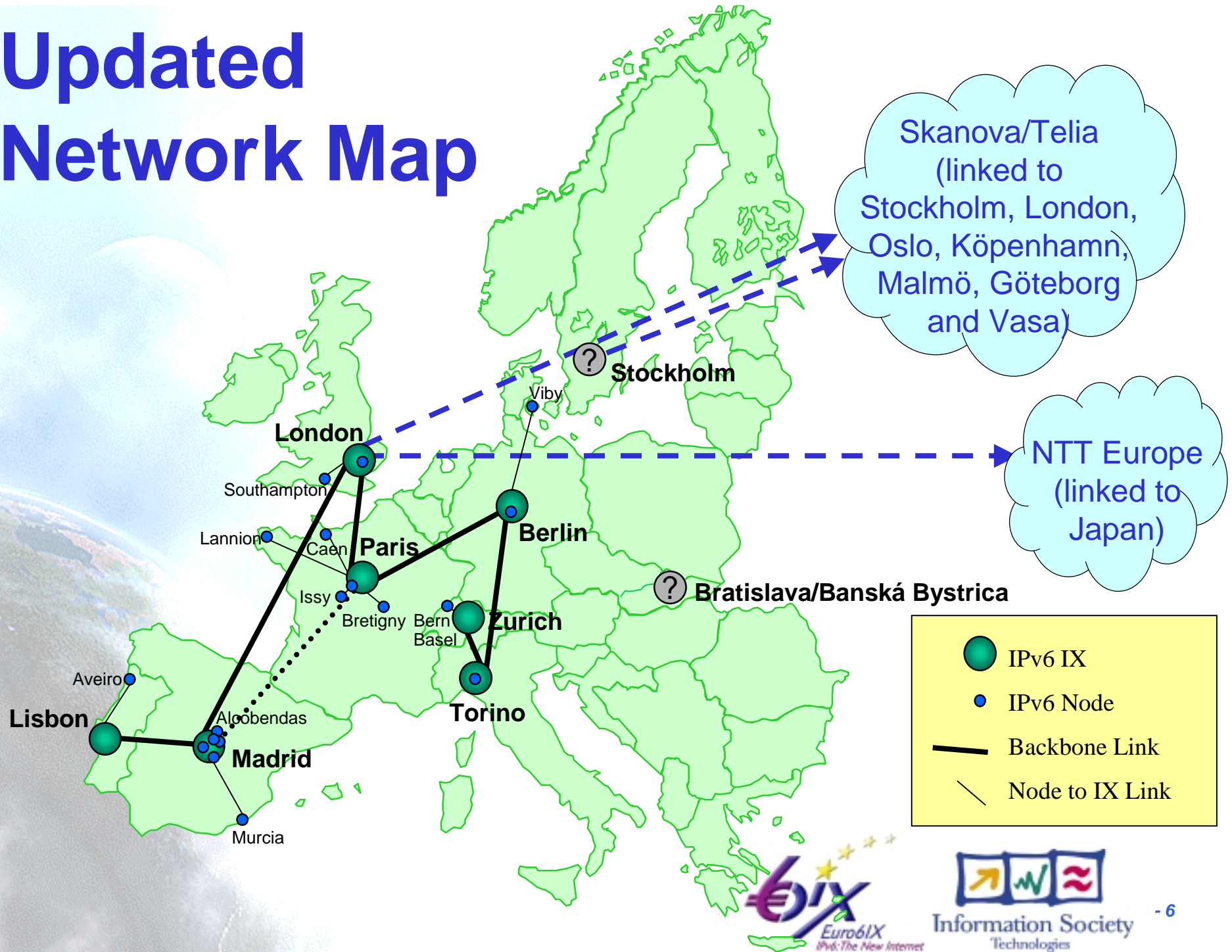
1. Research an appropriate architecture, to design and deploy the first Pan-European non-commercial IPv6 Internet Exchange Network.
2. Use this infrastructure to research, test and validate IPv6-based applications & services.
3. Open the network to specific User Groups for its validation in trials.
4. Dissemination, liaison and coordination with clusters, fora, standards organizations (e.g. IETF, RIPE) and third parties.

# Consortium Members (17)

- Telcos/ISPs (7):
  - Telecom Italia LAB (WP2 leader), Telefónica I+D (WP3 leader and project coordinator), Airtel-Vodafone, British Telecom Exact, T-Nova (Deutsche Telecom), France Telecom RD, Portugal Telecom Inovação
- Industrial (2):
  - 6Wind, Ericsson Telebit
- Universities (3):
  - Technical University of Madrid (WP4 leader), University of Southampton, University of Murcia
- Research, System Integrators and Consultancy (3):
  - Consulintel (WP1 leader and project coordinator), Telscom (WP5 leader), novaGnet systems
- Others (2):
  - Écija & Asociados Abogados, Eurocontrol



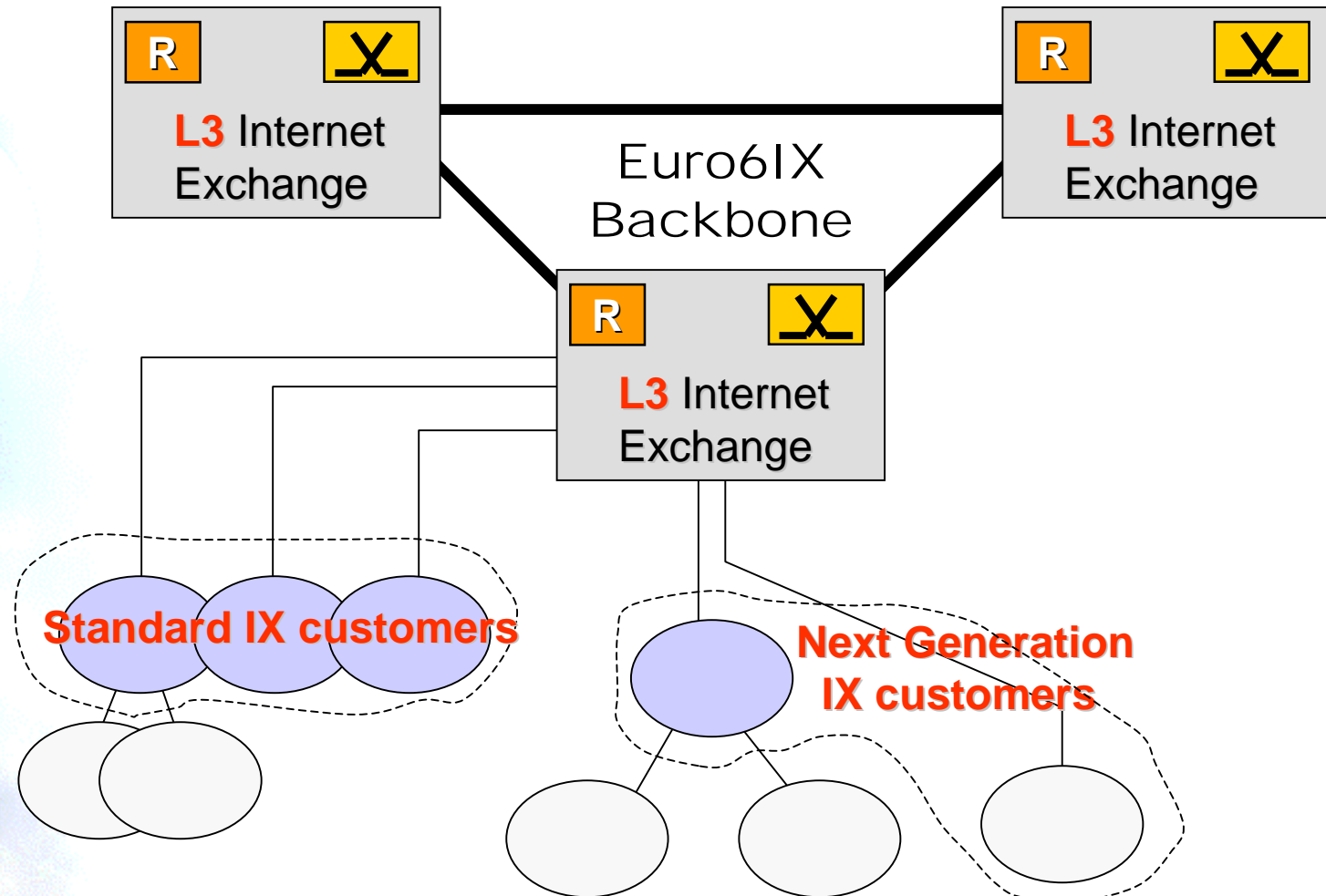
# Updated Network Map



# Layer 3 IX

- Infrastructure providing both layer 2 and layer 3 interconnection service.
- Several IXs can make direct peering offering also Wide Area Layer 3 transport as an Internet Service Provider. Every IXs will use an assigned xTLA prefix (x=p or s) to assign NLA prefixes to ISPs or customers connecting to the IX.
- Project partners will use their xTLA prefix to assign NAL to customers and regional ISP connecting to IX.

# Layer 3 IXs Network Architecture

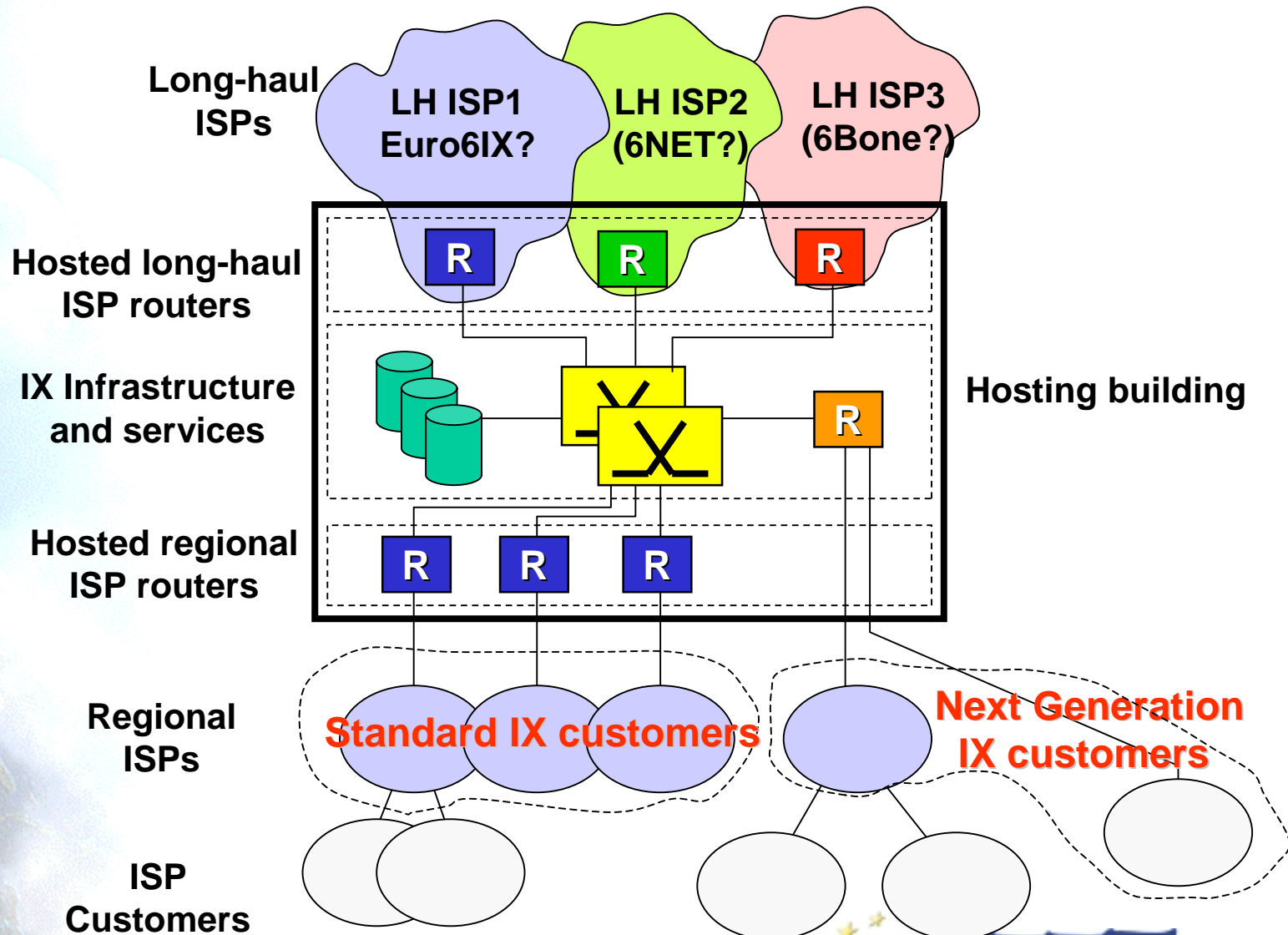




# Next generation IX services

- Assignment of provider independent IPv6 addresses to the IX customers (i.e. regional ISPs or companies)
- Provision of a L3 “mediation function”:
  - the customer uses the addresses assigned by the IX and establishes a BGP4+ peering with the IX
  - the customer buys the long-haul service from one (or more) of the long-haul providers connected to the IX
  - the IX forwards the traffic generated by the customer only to the long-haul ISPs it subscribed with
  - the return path is unpredictable (it is important?)
  - proven (but to be better understood) advantages are
    - the possibility to change long-haul ISP without changing addresses
    - easier support for multihoming

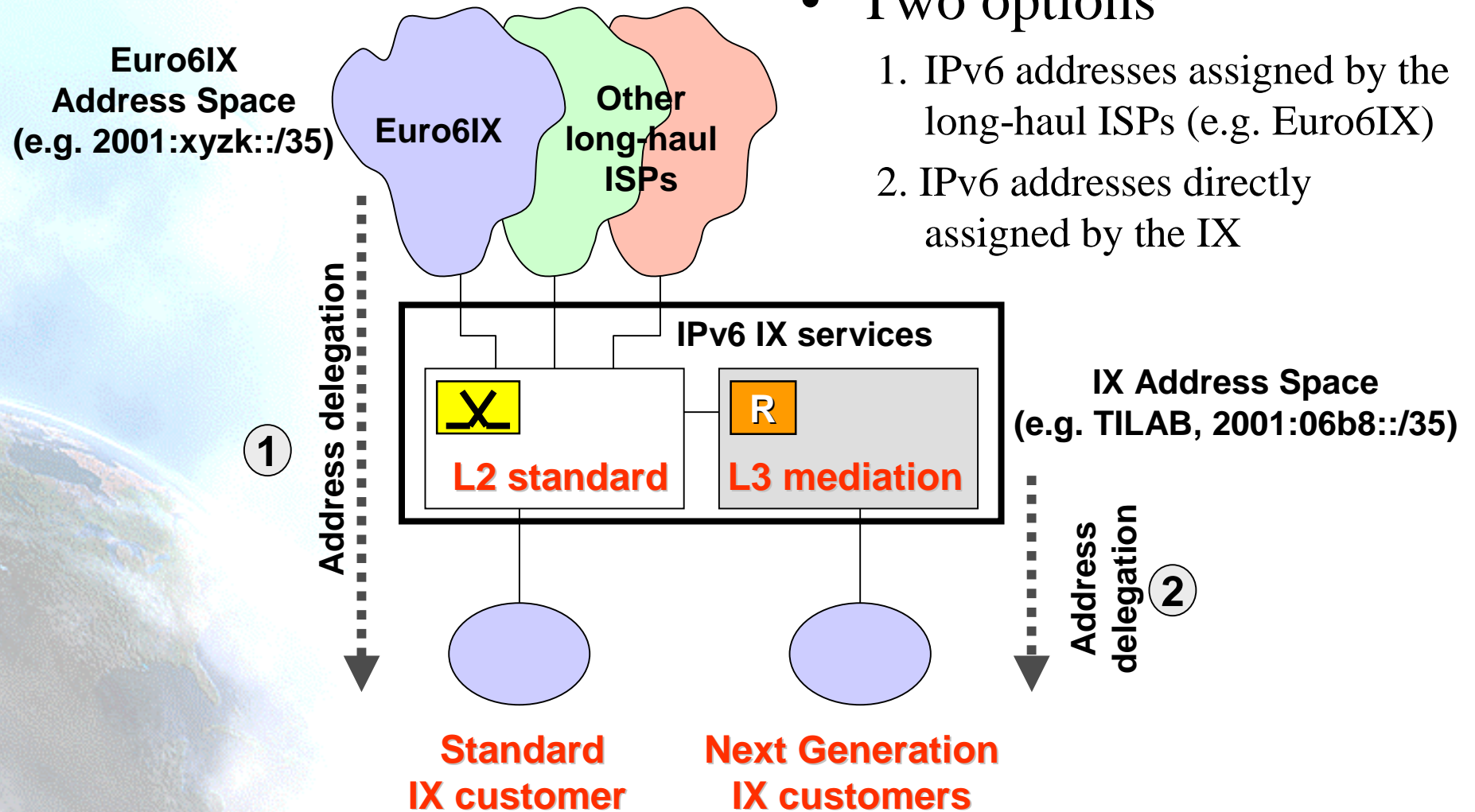
# Internet Exchange Architecture



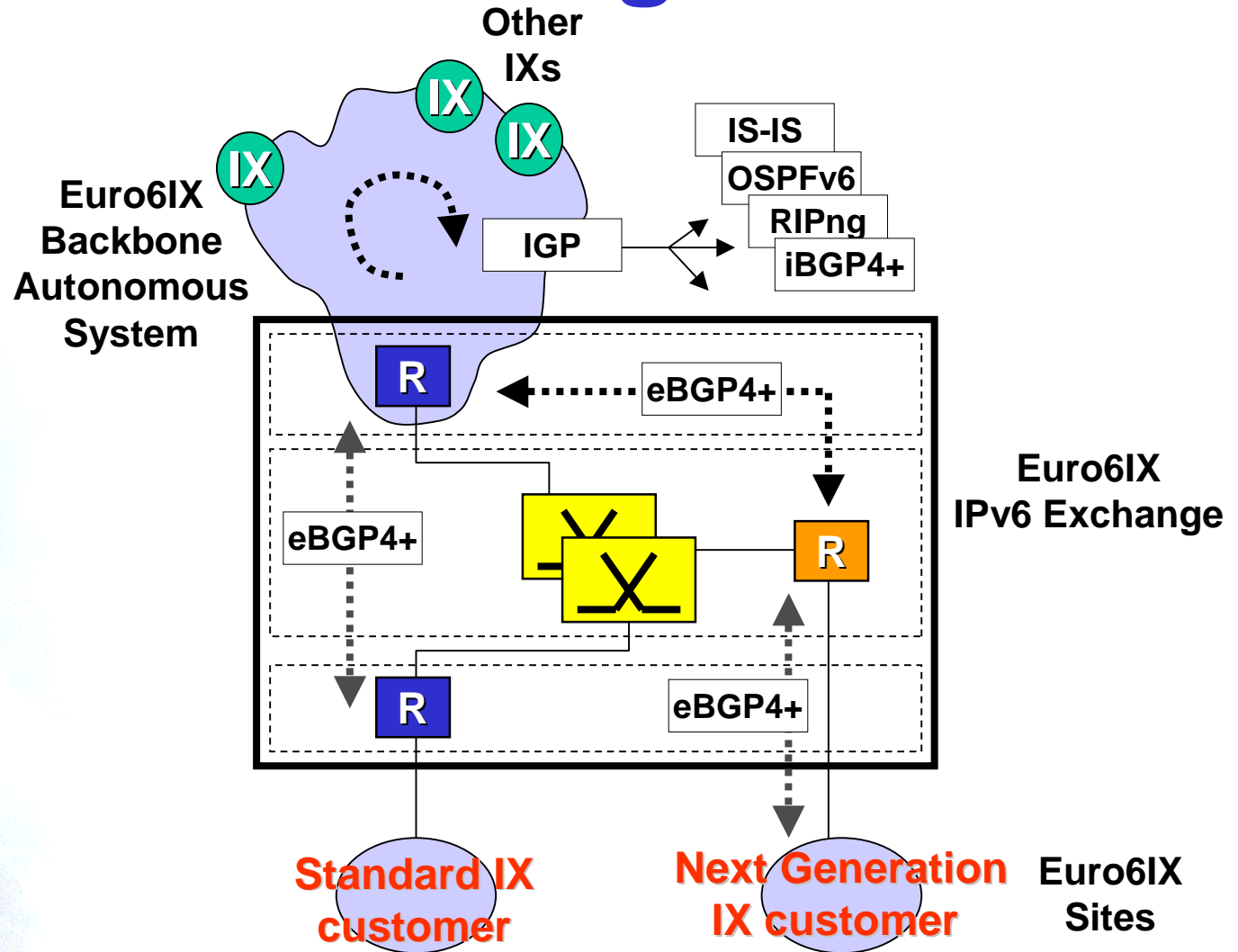
# Address Assignment

- Two options

1. IPv6 addresses assigned by the long-haul ISPs (e.g. Euro6IX)
2. IPv6 addresses directly assigned by the IX



# Routing



# Mobility

- Definition of mobility scenarios for IPv6
- Identification of macro-mobility technologies to be used in the test-beds
- First Identification and evaluation of available implementations for macro-mobility for a common platform
- Selection of access technologies to be used in the test-beds
- Every participant will design their own access network based on the available implementations identified before.

# Static VPNs with IPv6

- To evaluate the current status of the main open source IPsec/IKE implementations and some commercial IPsec/IKE solutions
- To deploy of a static VPN service in the Euro6IX test-bed
- Configuration and installations guides for IPsec/IKE
- Test reports of interoperability and conformance

# Network Management

- IPv6 Network Management Tool (Magalia)
- Intrusion Detection System
- Route Server

# Thanks !

## Contact:

- **Jordi Palet (Consulintel): [jordi.palet@consulintel.es](mailto:jordi.palet@consulintel.es)**
- **Euro6IX Project Coordinators ([coordinators@euro6ix.org](mailto:coordinators@euro6ix.org)):**
  - **Jordi Palet Martínez (Consulintel):** [jordi.palet@consulintel.es](mailto:jordi.palet@consulintel.es)
  - **Carlos Ralli Ucendo (Telefónica I+D):** [ralli@tid.es](mailto:ralli@tid.es)

