



IPv6: a real opportunity for ISPs

Patrick COCQUET, 6WIND CEO, IPv6 Forum VP



www.6wind.com



6WIND Briefly

6WIND, The IPv6 Company!

- ✓ **Starting date: September 2000**
- ✓ **Spin-off from Thales**
- ✓ **Leverage experience of 6 years on IP R&D activities**
- ✓ **Founding member of the IPv6 Forum (VP)**
- ✓ **Staff including 25 high level engineers, experts in IP protocol design and equipment architecture design**

6WIND Positioning

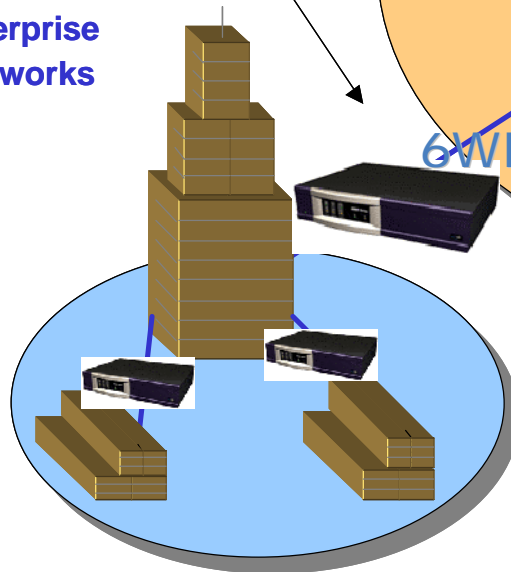
**Products
& Technology**

**IP Service Creation: migration
functions, QoS, Security,
Mobility, Multicast**

1/ at the Operator PoP

2/ at the customer access (CPE)

**Enterprise
Networks**



**Access
Network**

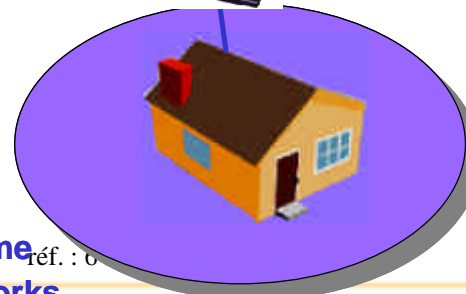
6WINDGate

**Edge
Point of
Presence**

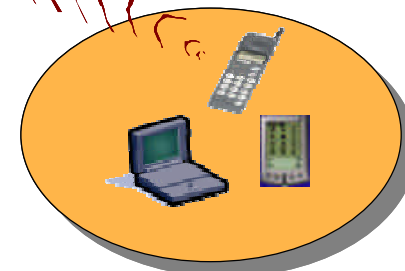
**Core
Network
IPv4/v6 coexistence**

6WINDEdge

**Home
Networks**



**Mobile
Users**





IPv6, what is this ?

- *Today the IP networks run the version 4 of the Internet Protocol (IPv4)*
- *IPv4 was designed in the 1970s for the purpose of data transfers between computing machines*
 - ✓ Packets, IP addresses on 32 bits, « Best effort »
- *IPv6 is an evolution taking into account the market explosion for IP connectivity and the new communication requirements*

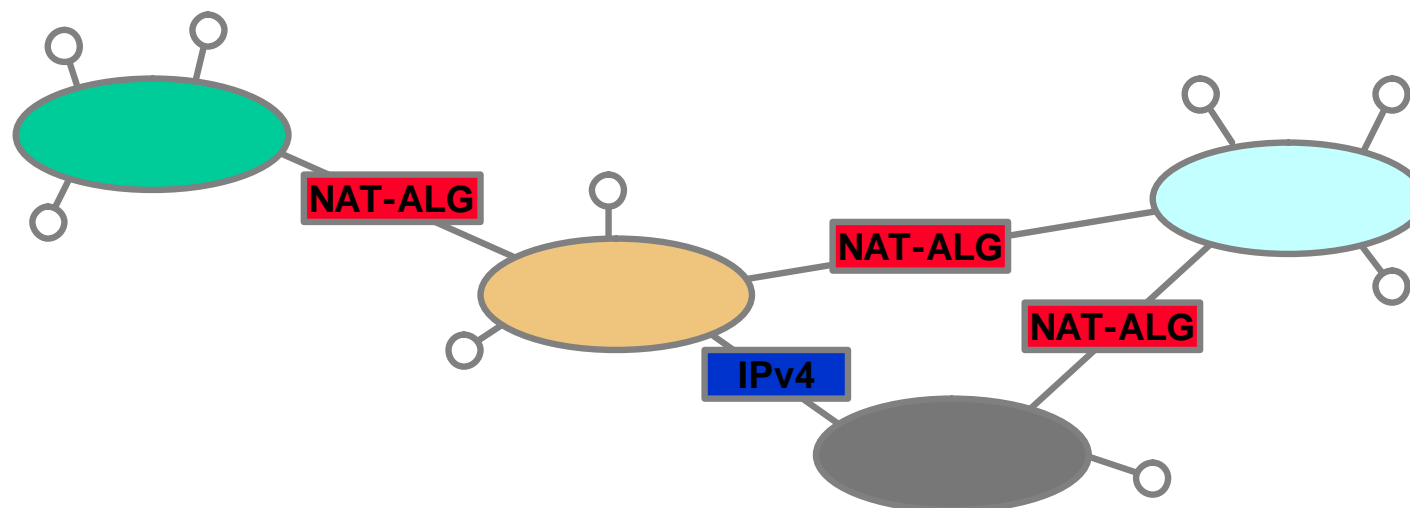


IPv6, why we need it ?

- *New applications are arriving*
 - ✓ **The new wireless technologies will allow to interconnect all electronic equipment**
 - ✓ **The high speed local loop offers permanent connectivity**
 - ✓ **We are living a real integration of the different medias (voice, video, data) and the indexation techniques will amplify this phenomenon**
- *32 bits IPv4 ddresses allow no more than 200 millions of connected machines (efficiency 5%)*
 - ✓ **We estimate to billions the number of IP machines in the future**
- *QoS, Security, Mobility... must be natively integrated with the IP protocol*

IPv4, the complexity !

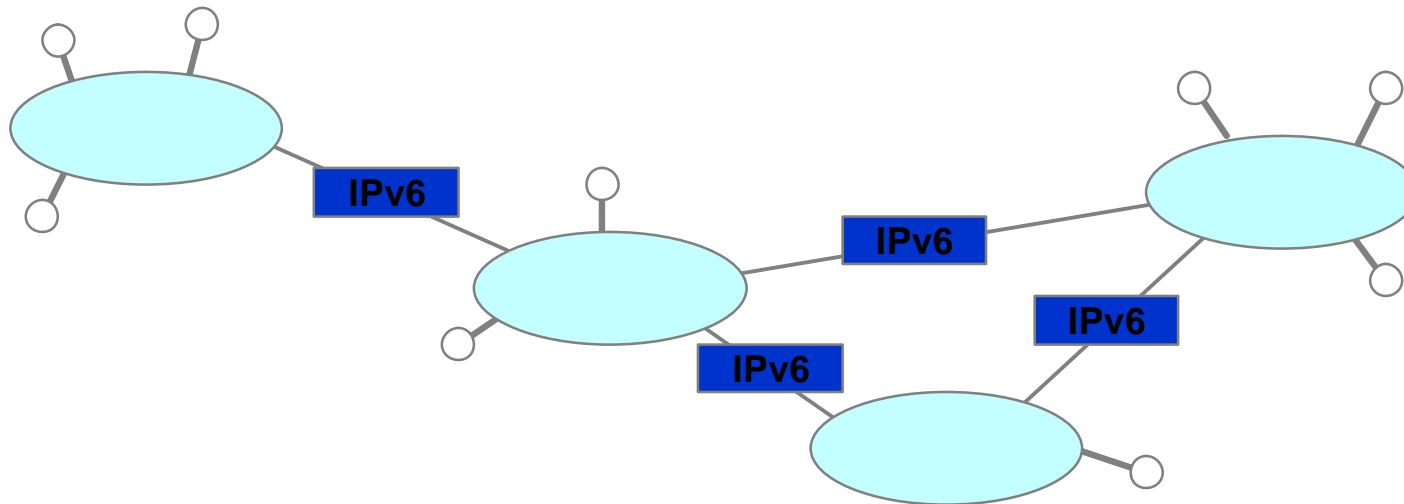
- continued degradation of the Internet model with IPv4



- more complex and volatile network service
=> lower performance, less robust, less secure, less manageable
- more centralized control over new applications and services
=> significant barrier to innovation and growth

IPv6, a chance for the Internet !

- restoration of the Internet model with IPv6

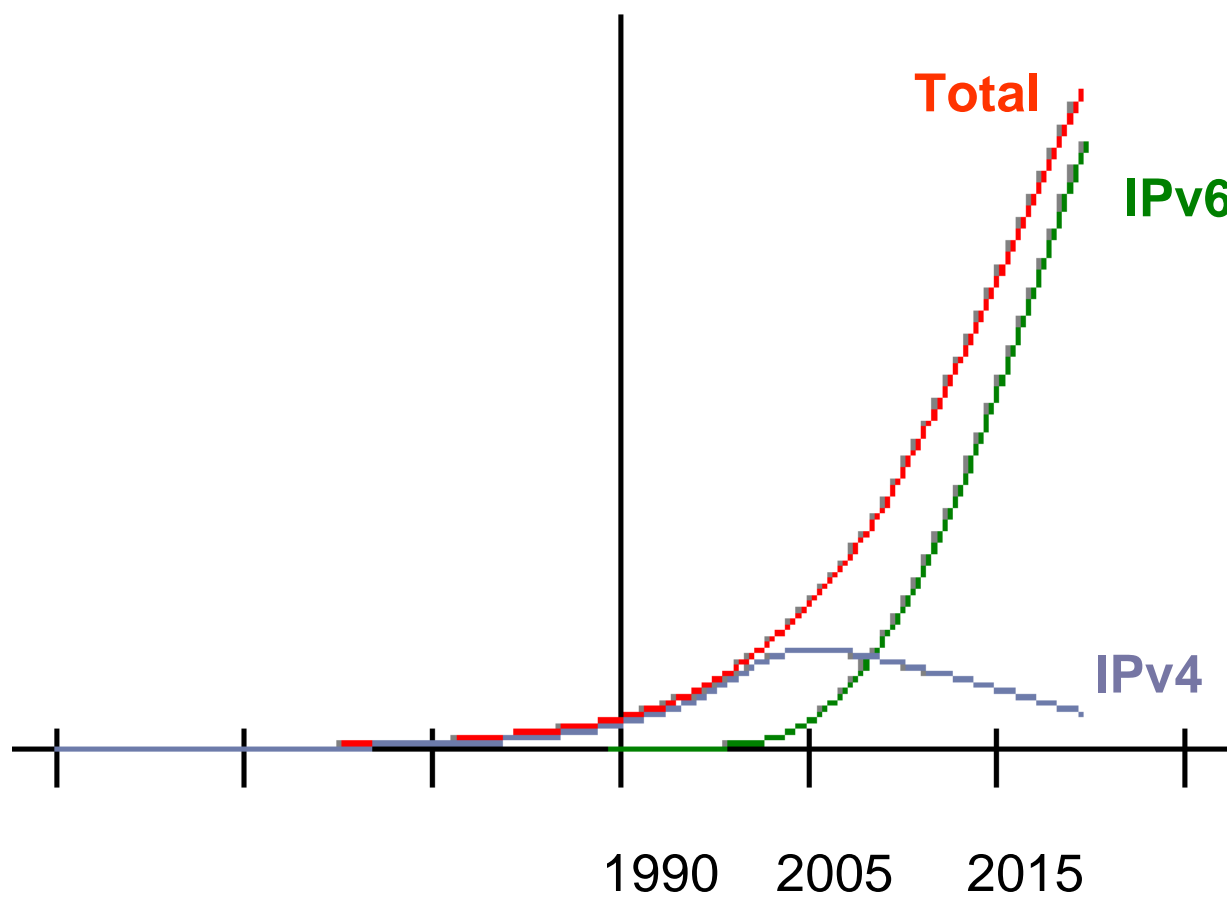


- **simple, stable network service**
 - => higher performance, more robust, more secure, more manageable
- **enabling anyone to provide new applications and services**
 - => allowing rapid innovation and growth

IPv6 : The Solution

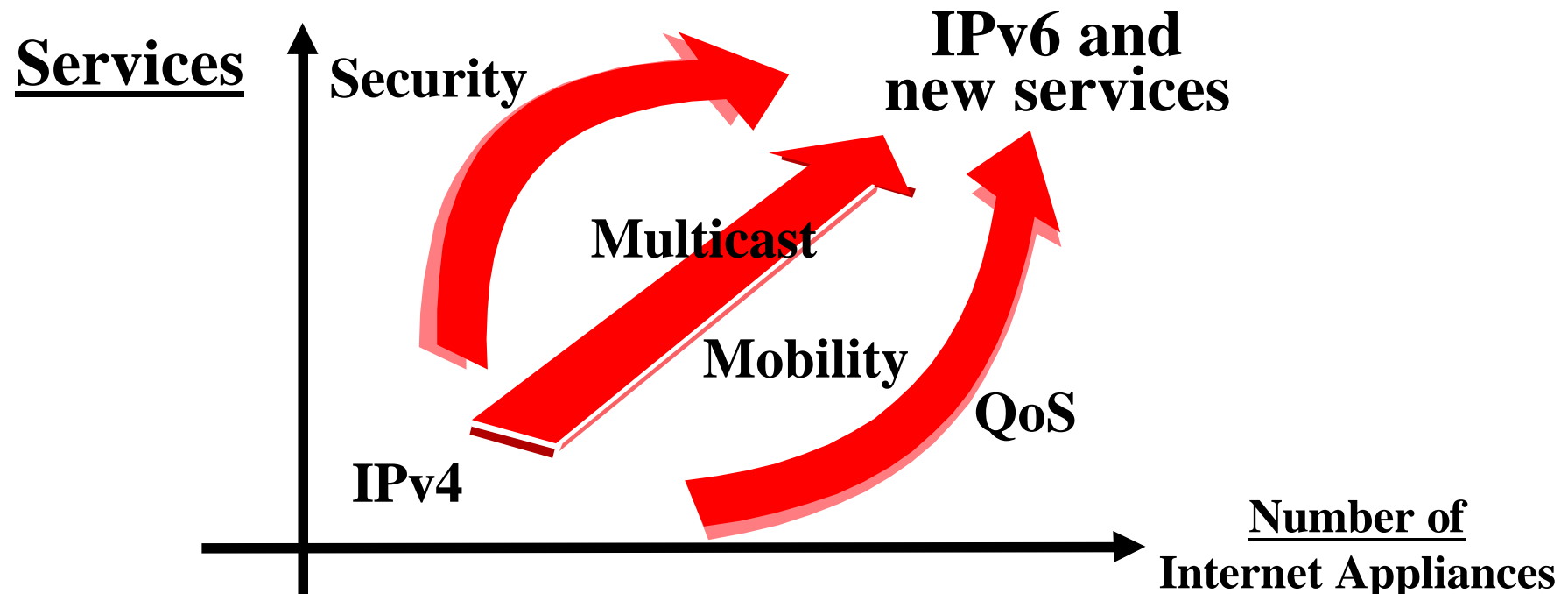
	IPv4	IPv6
Mobility	Limited support	Built-in (auto configuration)
Multimedia	Added features	Designed for QoS and security
Everywhere	32 bit address format	128 bit address format
	200 millions addresses 3/4 in the US	A thousand addresses per Earth square meter
Manageability	Complicated	Designed to ease the network management

IPv6 Deployment



Source: British Telecom¹

Business Driven Migration



Migration Benefits

- New services
- Gain market share

Migration Constraints

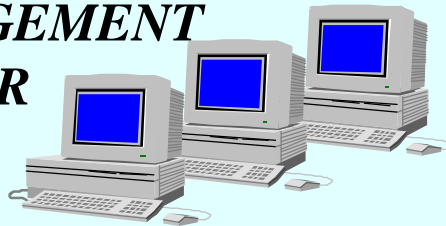
- No D Day
- Be seamless
- No service interruption



IPv6 Business in Europe

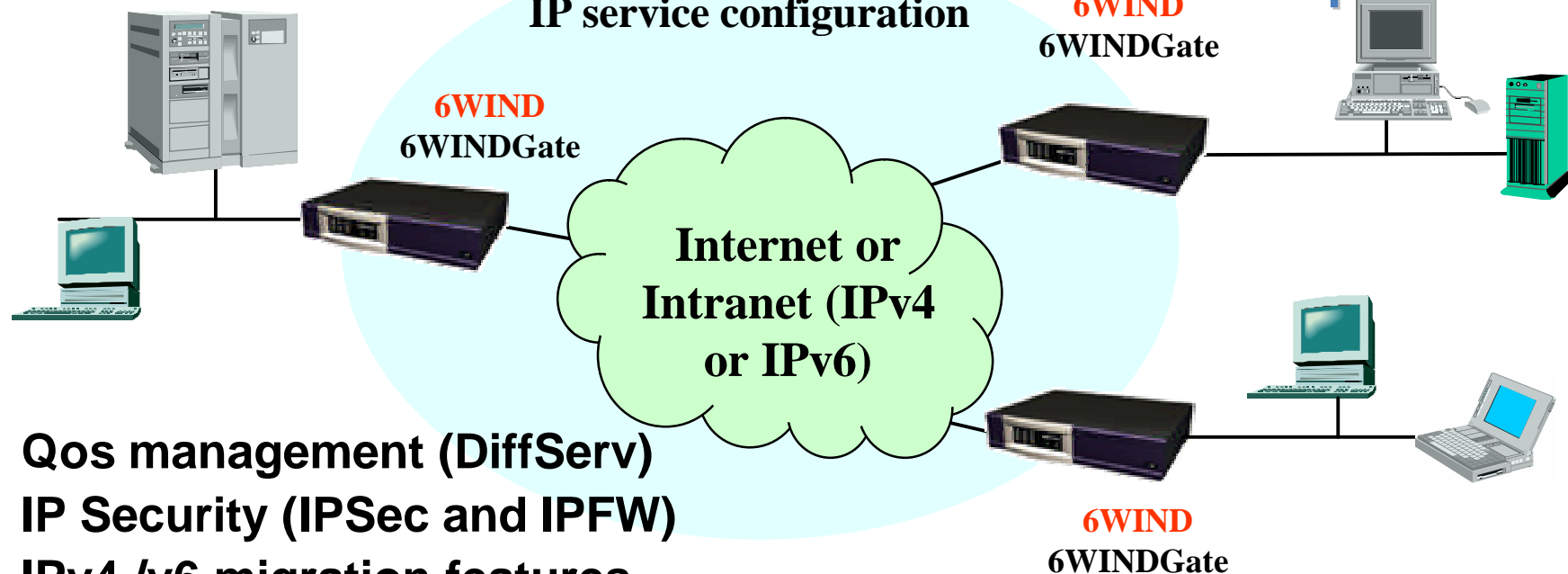
- ✓ **We are just at the beginning!**
- ✓ **In Europe IPv6 Networks will be deployed first for their new service capacities**
 - ✓ **Mobile**
 - ✓ **Push**
 - ✓ **Peer to peer**
 - ✓ **Offering QoS & Security**

MANAGEMENT CENTER



IP service configuration

Service Deployment Example



- Qos management (DiffServ)
- IP Security (IPSec and IPFW)
- IPv4 /v6 migration features
- Mobility (mobile IP)
- Routing

ARCHITECTURE Example with 6WINDGate

GRAPHICAL
MANAGEMENT
CENTER

IPv4 or/and v6
LANs

QoS features

6WINDGate

Firewall v4/v6
(IP Filtering)

IPSEC Tunnels (VPN)

IP v4 or v6
backbone

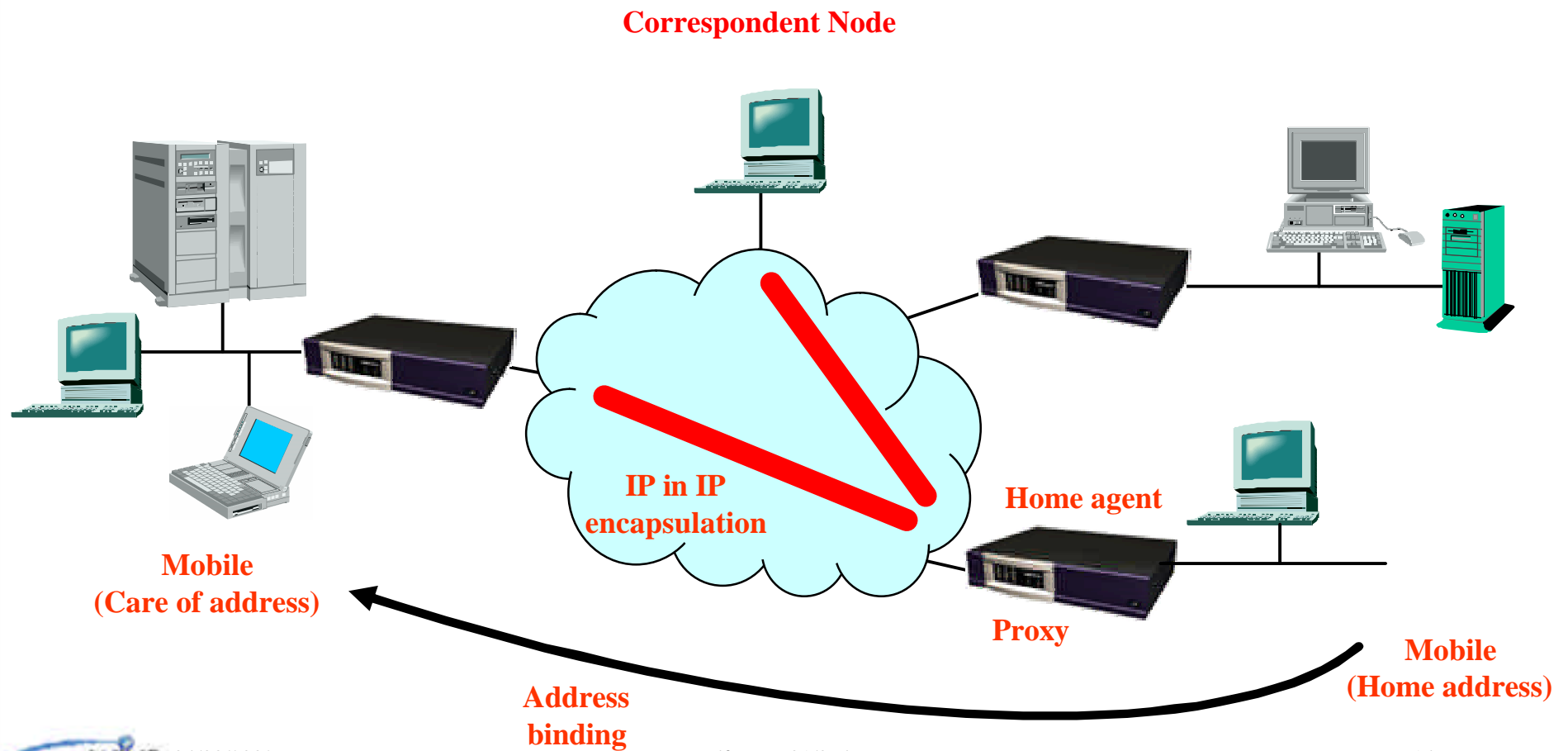
6WINDGate

6WINDGate

QoS, Security & v6 Migration
functions in one device

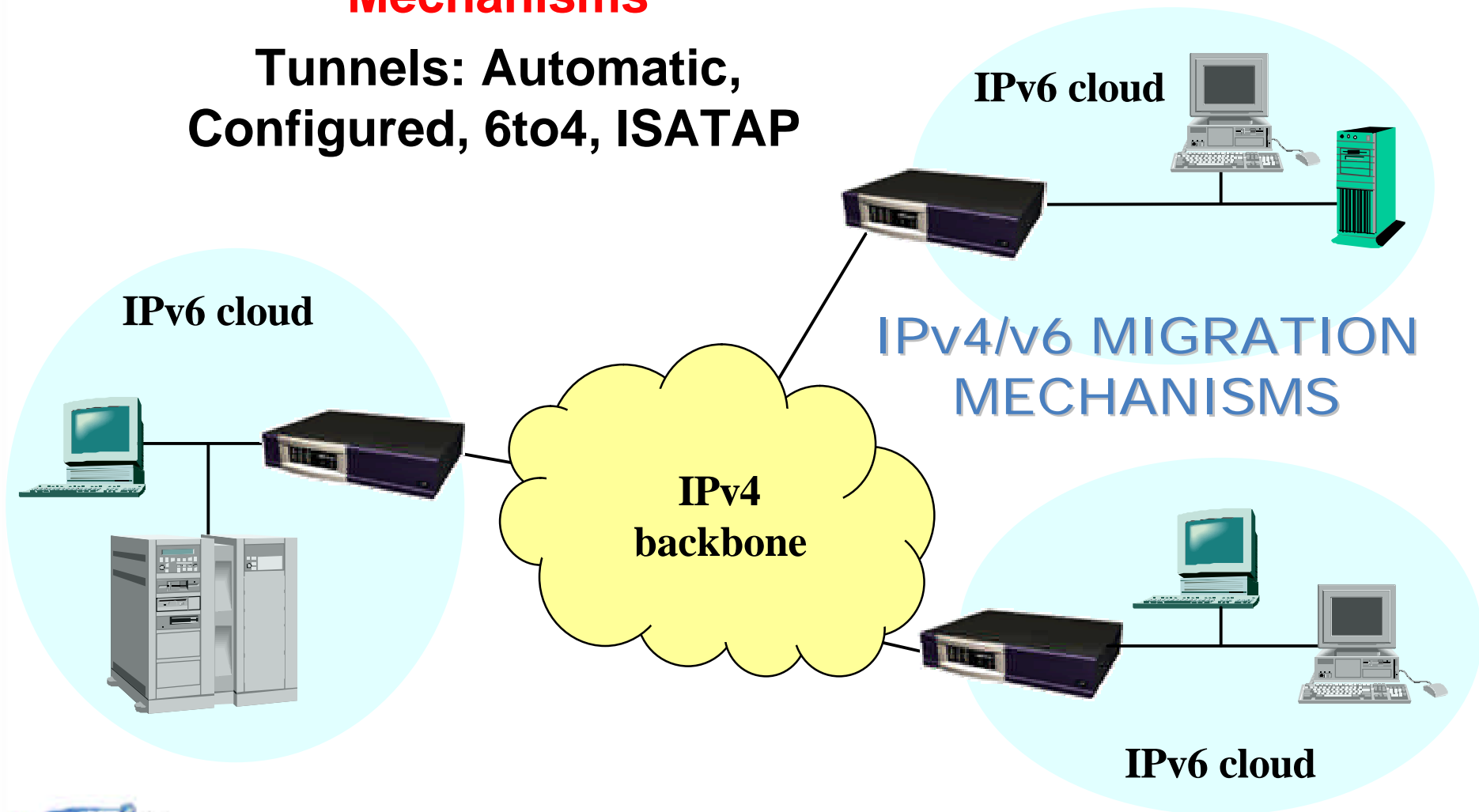
IPv6 & IPv4
transition tunnels

IPv6 MOBILITY



Mechanisms

**Tunnels: Automatic,
Configured, 6to4, ISATAP**





CONCLUSION

- ***In Europe, the shortage of addresses is not yet a problem for current networks, it will become one with always-on (DSL & wireless) deployments and new applications deployment.***
- ***ISPs need first to increase their profit and gain market shares. Investments has to be preserved!***
- ***By deploying IPv6 at the border of the networks, ISPs are able to provide value added services.***



Be ready for the next generation Internet.

Start to integrate IPv6 capable devices now!

*For more information on IPv6 products and
migration policy solutions, please contact us:*

www.6WIND.com

info@6wind.com