

# TOP-IX

TOrino Piemonte Internet eXchange



# who we are and what we do



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No-profit consortium founded in 2002

Geographically Distributed IXP for North West Italy

12 People

70+ affiliated members

Integrated within WI-PIE Local Gov. program



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## Internet eXchange (IX)

Develop and manage the network infrastructure to provide IXP services to ISPs, Carriers, Content Providers and anyone that has an ASN.



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### Development Program (DP)

Make available an open innovation environment to foster new business creation by providing infrastructural support to Internet ventures



# IX model



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Distributed IXP open to ISPs,  
Carriers, **Content&App**  
Providers, **CDNs**, etc.



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Distributed IXP open to ISPs,  
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Open Environment

Integrated with  
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TOP-IX DP supplier

High availability  
infrastructure



# IX – Access & Housing



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- ACCESS: 10 Mbps to 10 Gbps Ethernet
  - Your own infrastructure (Fiber)
  - Leased Connectivity from carriers
    - National: Telecom Italia, Fastweb, Wind,.....
    - International: Level3, Tinet, Interoute, Colt
  - Wireless (Hyperlan, WI-MAX): PoPs prepared for antennas and cabling available

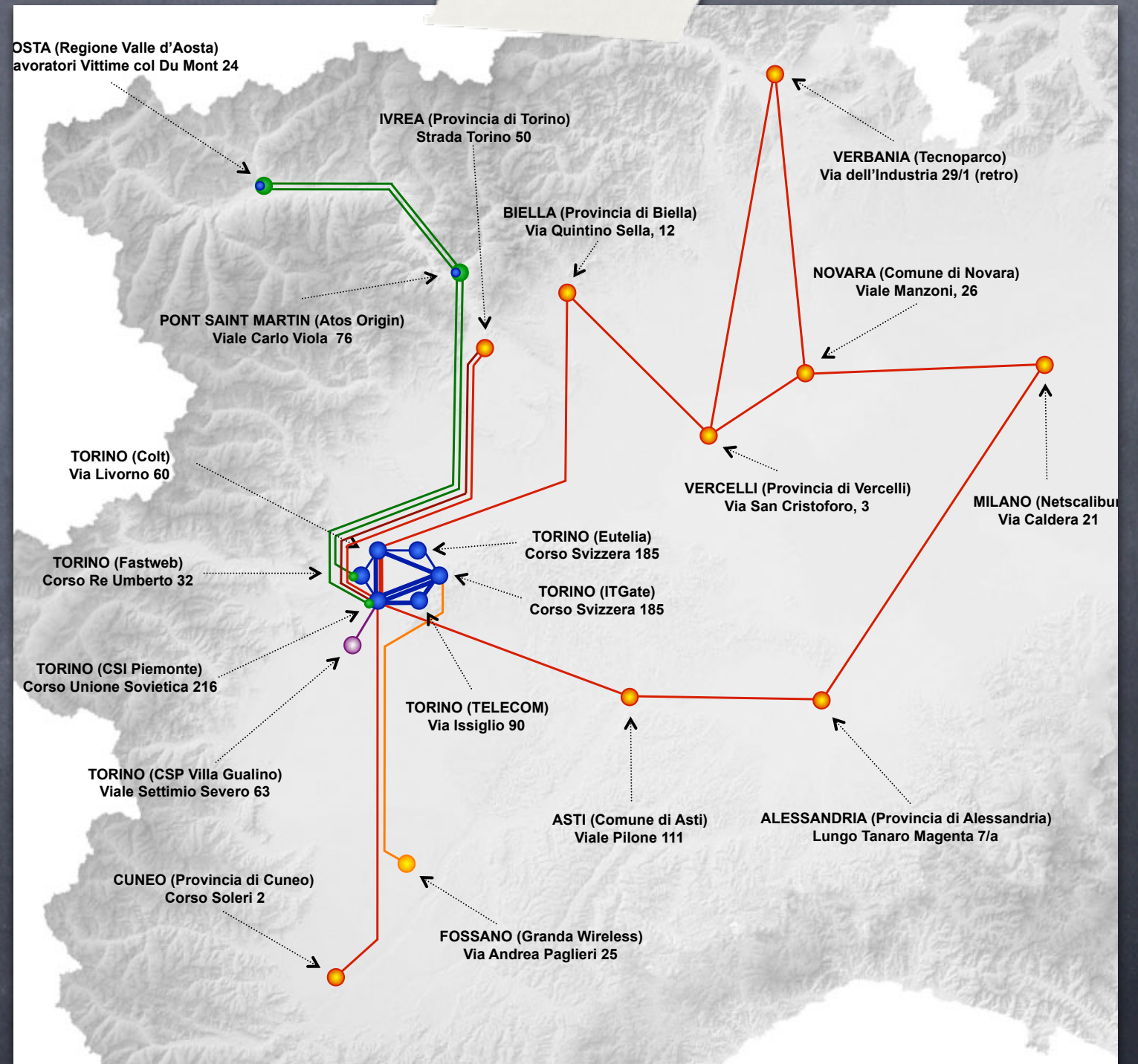


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- HOUSING available on each PoP – different housing locators



# IX - Network





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## Core (4)

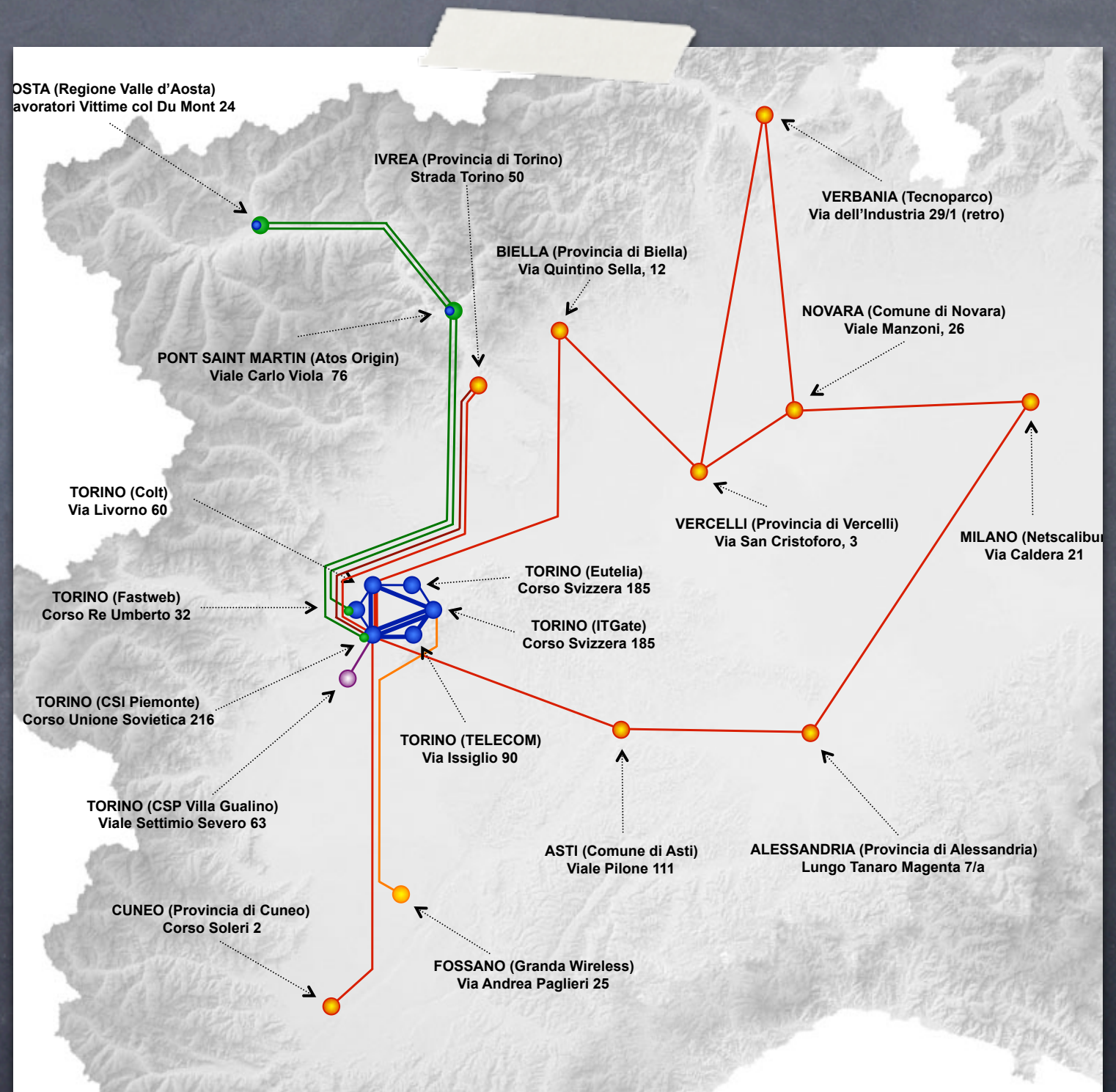
- Cisco 6509E
- Force10 C150

## Backbone (9)

- Cisco 4900M
- Cisco 3750G

## Edge (5)

- Cisco 3750G



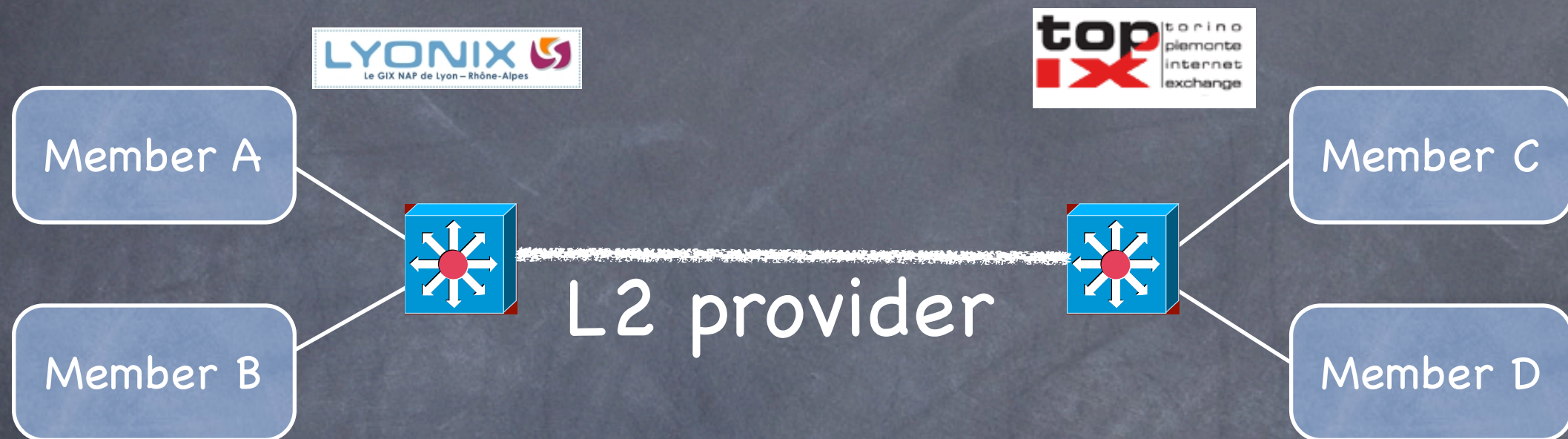


# IX - TOP-IX & Lyonix



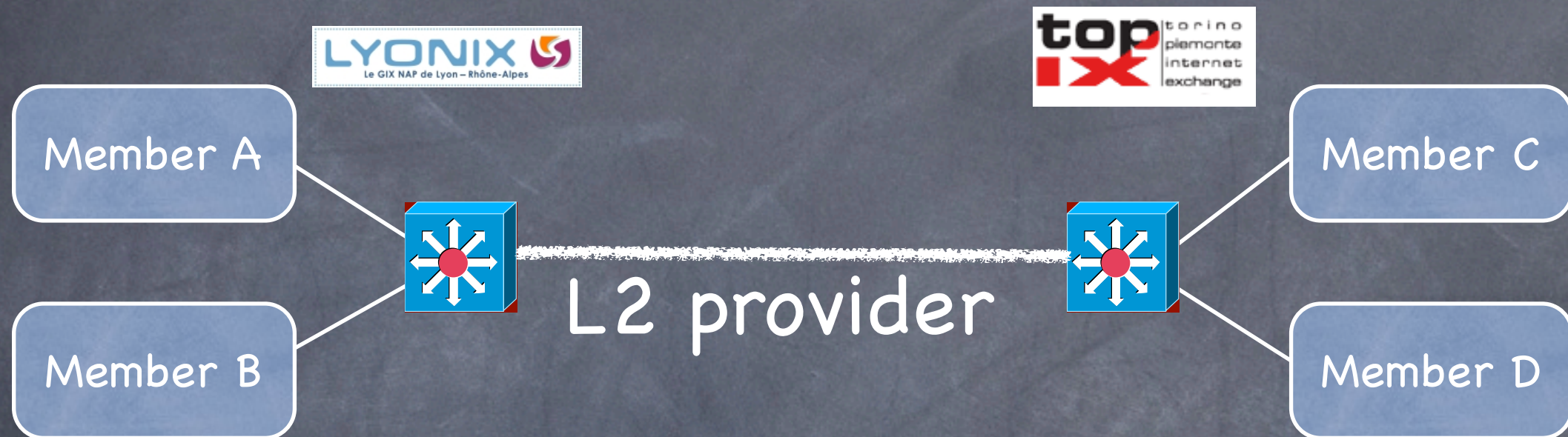


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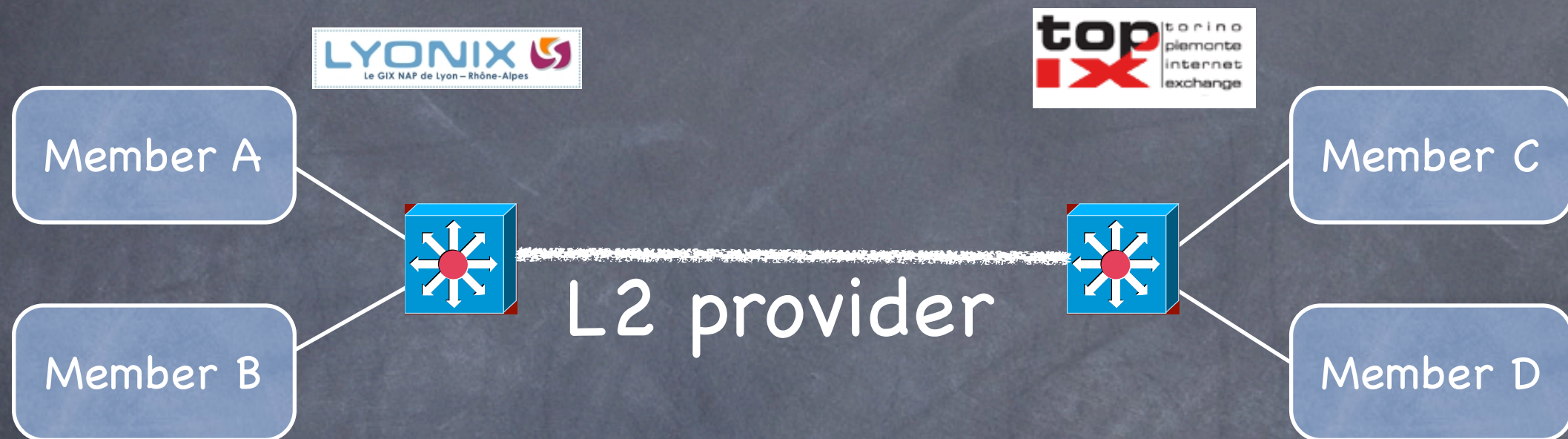
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  - Lyonix public peering VLAN extended to TOP-IX
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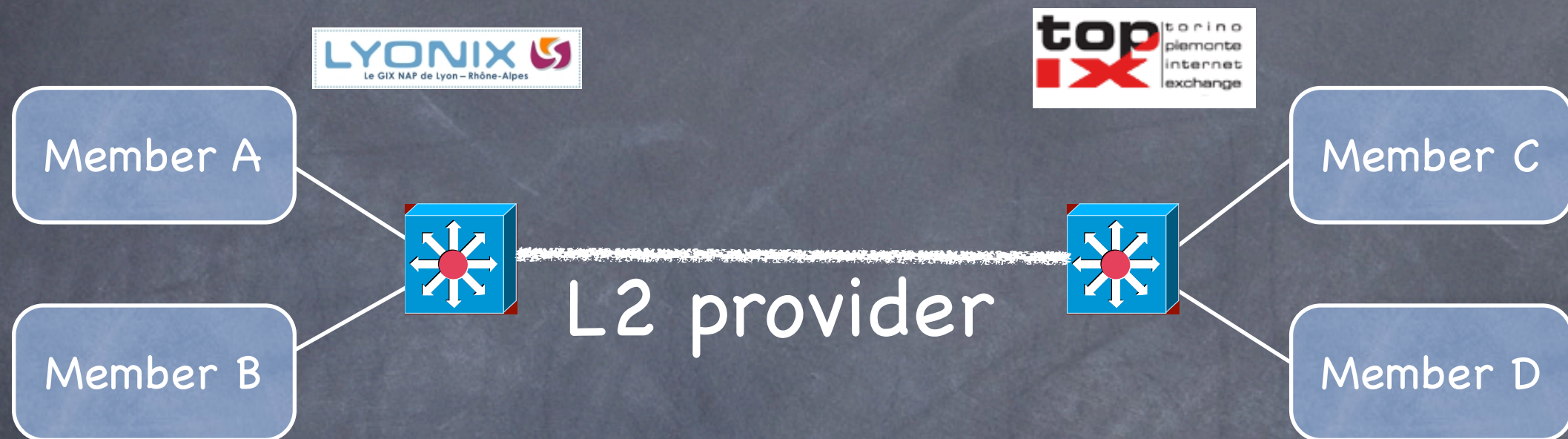
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- Each IXP maintains its independance

- Lyonix member A DO NOT HAVE to become TOP-IX member and buy TOP-IX port
- TOP-IX member C DO NOT HAVE to become Lyonix member and buy Lyonix port



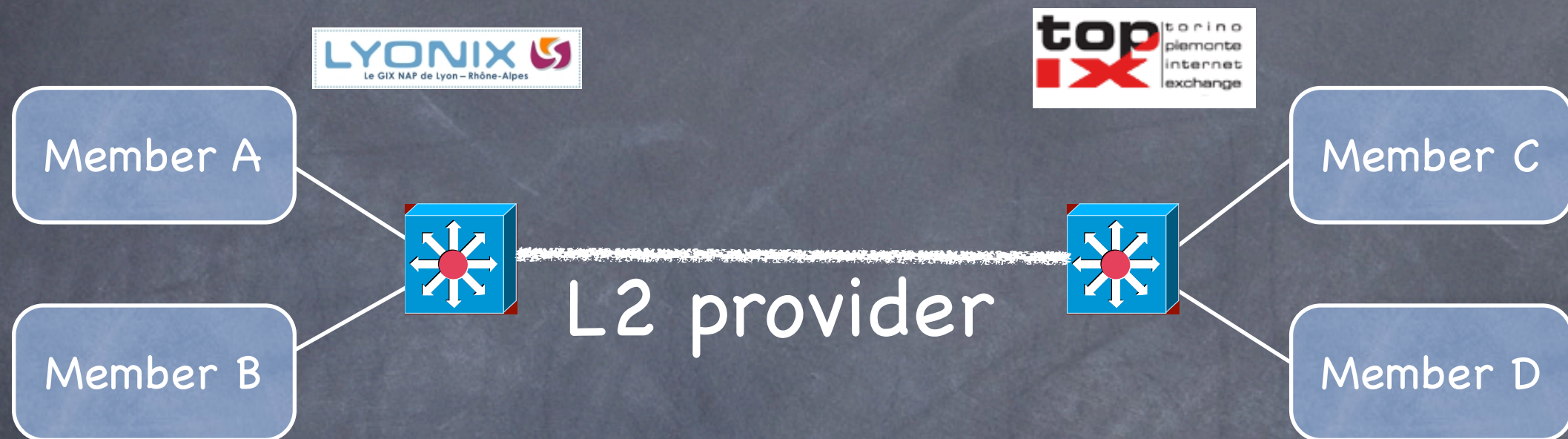
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- Peering available within members on both sides
- Soon (2011) with Quality Statements



# IX – Key Features

- Quality Statements provided & measured
- Public Peering and private VLANs available
- Up to 32 Gbps peak traffic (IPv6 < 1%)
- 59 ASN connected
- Multicast and IPv6 enabled (and IPv4)
- F-Root and J-Root Servers
- Redundant Route Server QUAGGA (IPv4 and IPv6)
- Experimenting connection with VSIX



# NEXT

## InterCloud Exchange



Internet : Internet eXchange  
=  
Cloud Computing : InterCloud eXchange

Internet  
eXchange

InterCloud  
eXchange



Internet : Internet eXchange  
=  
Cloud Computing : InterCloud eXchange

Internet  
eXchange

Flexibility
Neutrality
Interoperability
SLA management
Exchange
Trade

InterCloud  
eXchange



# ICX next steps

- Brokering of physical resources belonging to different Cloud Providers
- Policy reconciliation among different Cloud Providers
- Transparent addressing between different tiers of the same applications running on different Cloud Providers
- Efficient communication among application tiers running on different Cloud Providers
- Transparent access to storage resources



# QUESTIONS?

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