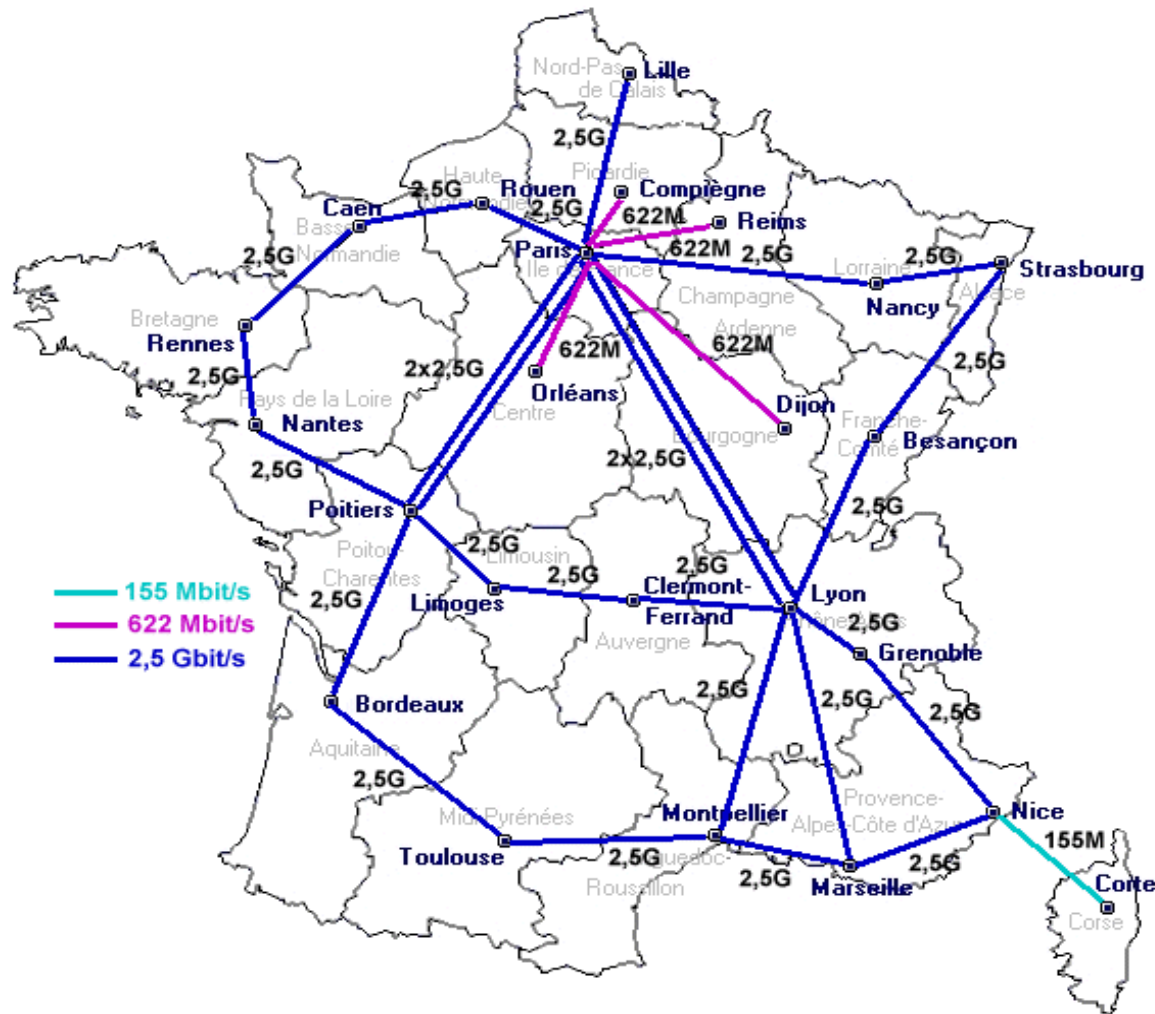




# IPv6 Addressing case study RENATER

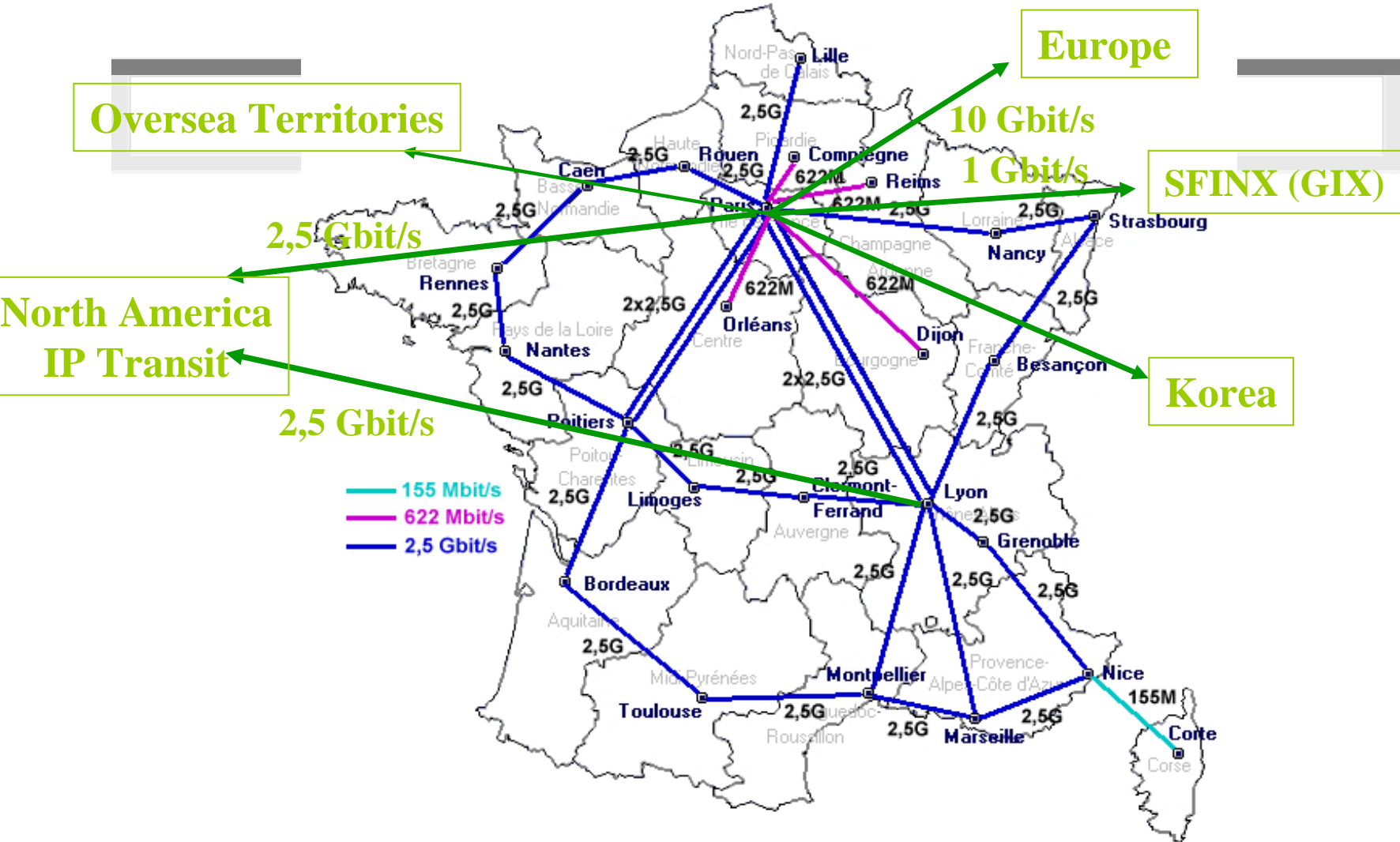


# Renater : national backbone



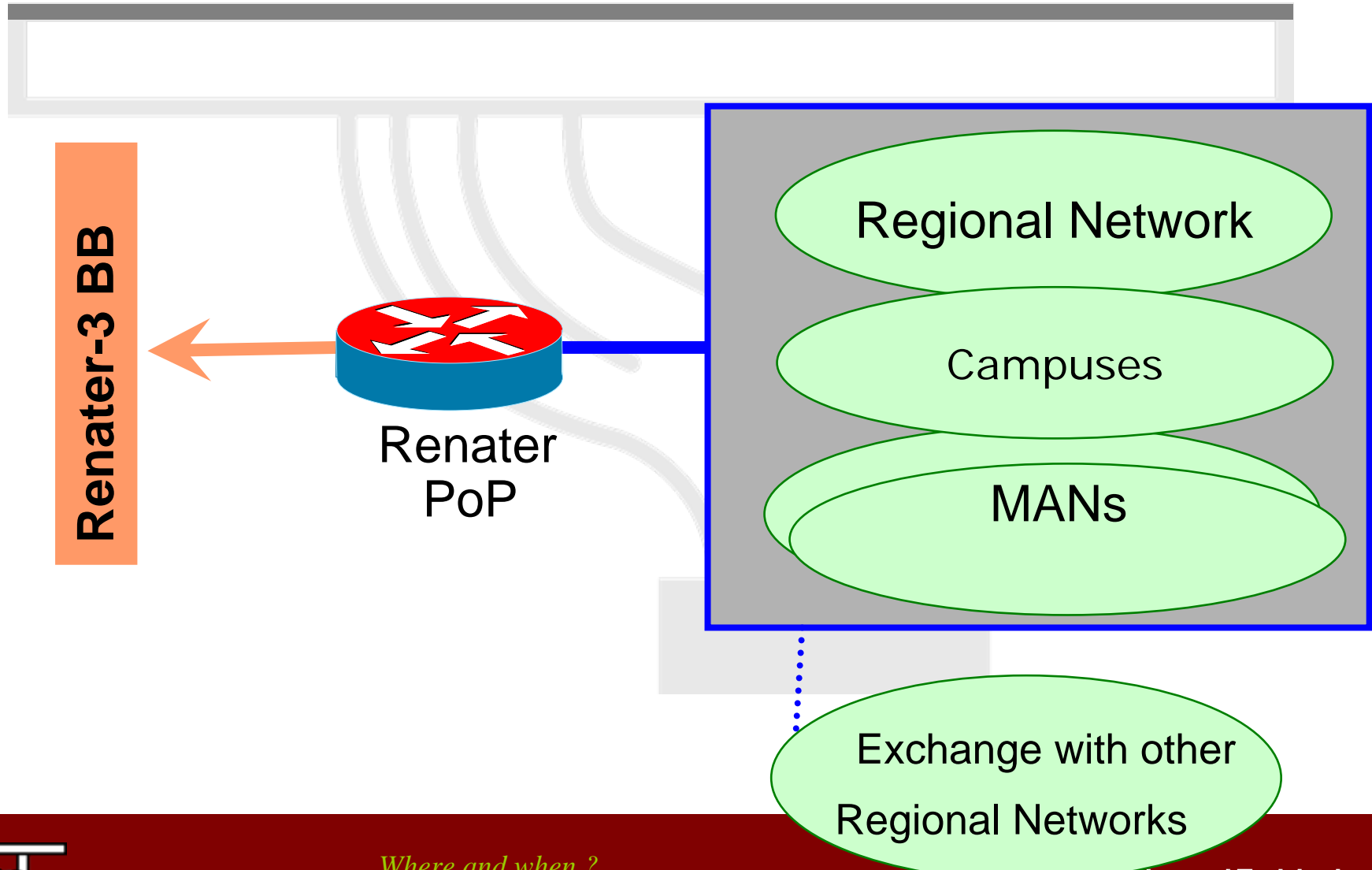
Where and when ?

# Renater : international links



Where and when ?

# Renater-3 architecture



# Renater 3 : IPv6 Native support

- 2.5 Gbits/s backbone
- 30 Regional Nodes (NR)
- Native IPv6 on all regional nodes
  - Dual stack backbone → IPv4 and IPv6
- Global IP Service
  - IPv4 unicast and multicast
  - IPv6 unicast
  - IPv6 and IPv4 carried without any distinction
- Goal : achieve for both versions of IP an equal level of
  - Performance
  - Availability
  - Management
  - Support

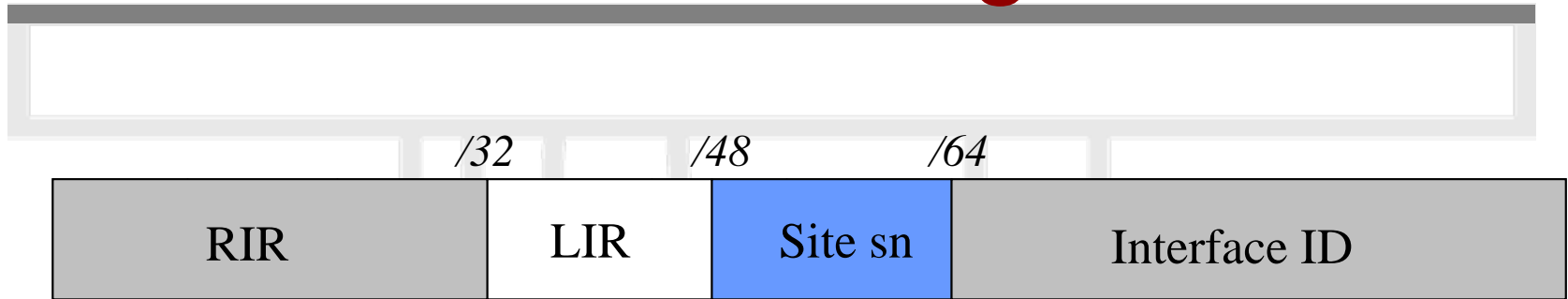


# Addressing

- Hierarchical addressing
- Renater
  - Prefix = 2001:0660::/32
  - Allocated by the RIR (RIPE NCC)
- Regional Nodes
  - POP-ID = 2001:0660:xy::/40
- Site
  - Site-ID : a /48
    - from RN's prefix (/40) it's connected to
  - Site-IDs allocated by Renater (LIR)
  - 16 bits are reserved for the site topology



# Addressing



2001:0660:



POP-ID  
8 bits

Site-ID  
8 bits

2001:0660:3000:/40	Paris NRI
2001:0660:3300:/40	Paris Jussieu RI
2001:0660:4400:/40	Lille RI
2001:0660:5400:/40	Marseille RI
(...)	

2001:0660:300x:/48



# Example

Renater's prefix	2001:0660::/32
POP-ID Strasbourg	2001:0660:4700::/40
Sites connected to Strasbourg's RI	2001:0660:4701::/48 2001:0660:4702::/48 ...



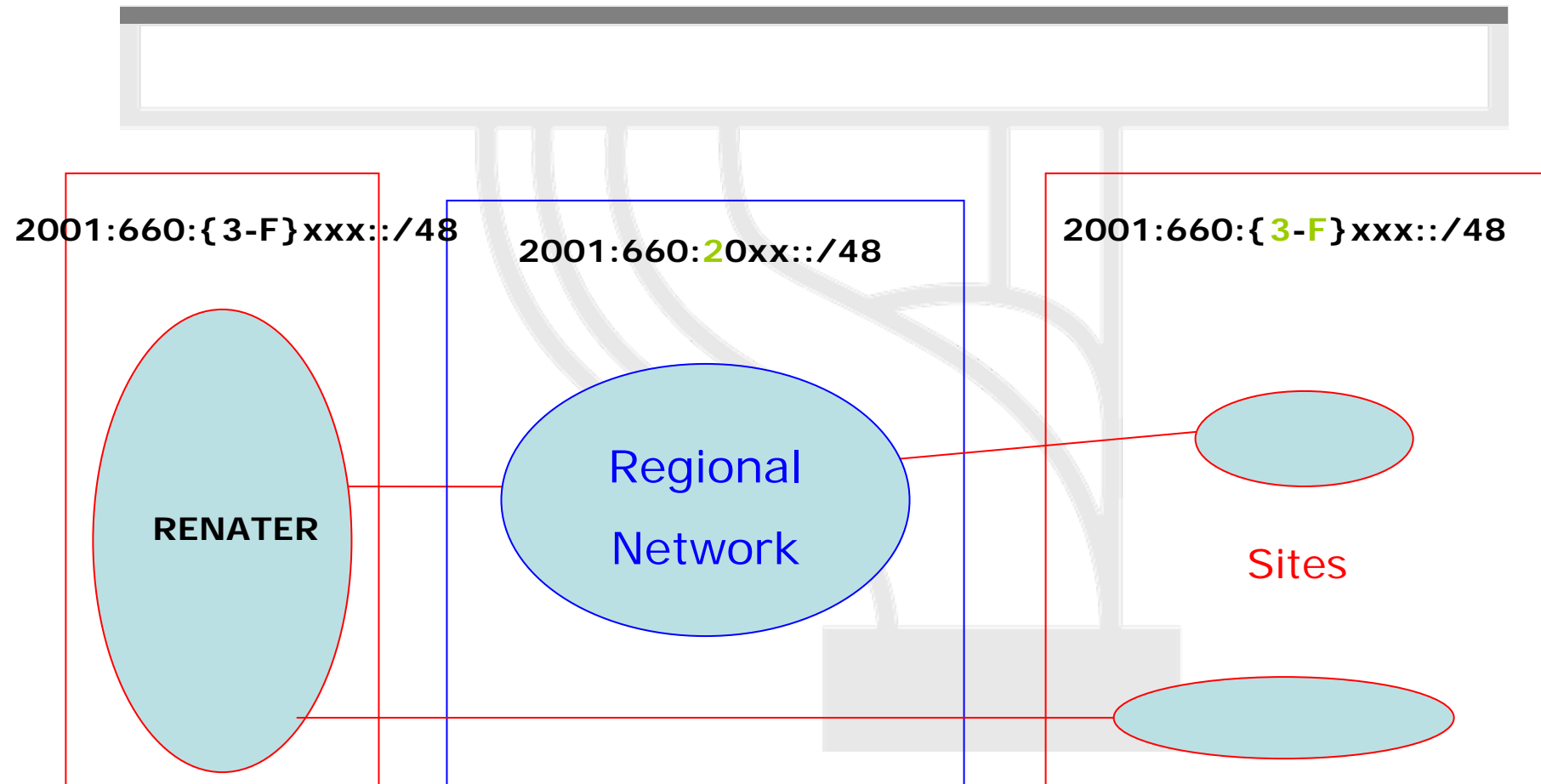


# Regional Nets Addressing

- Two possibilities
  - Uses its own prefix (Commercial ISP)
  - Uses Renater's address space
    - 2001:0660:2---::/48
  - In both cases
    - Sites are addressed in Renater's sTLA
    - 2001:0660:{3-F}---::/48
    - Interco Network (site – Regional / MAN)
      - First /64 from the NLA-ID



# Addressing scheme



# Conclusion

- Preparing an IPv6 plan is a bit complex
- Plan it in advance ...
  - Not forgetting your PoPs equipment (loopbacks, admin LANs, interconnects ...)
- Draw benefit from aggregation
  - Smaller routing tables to manage (even in the core)
  - Less prefixes to advertise to BGP peers
- Lot of people have an experience yet ...
  - Not necessary to reinvent the wheel ;)

