

# Ethernet for Data Centre Interconnect

## Next-Gen Data Centre I/O Connectivity

Nicolas Fischbach, Director Network Architecture  
nico@colt.net

**colt**

smarter / faster / further



Carrier Ethernet World Congress 2010

© 2010 Colt Telecom Group Limited. All rights reserved.

*The information delivery  
platform for European business*

# Contents

- 0** Colt
- 1** Data Center connectivity
- 2** Data Centers: Where all the flavors of Ethernet meet
- 3** How to pick the right Inter-Data Center Connectivity ?
- 4** Conclusion
- 5** Q&A

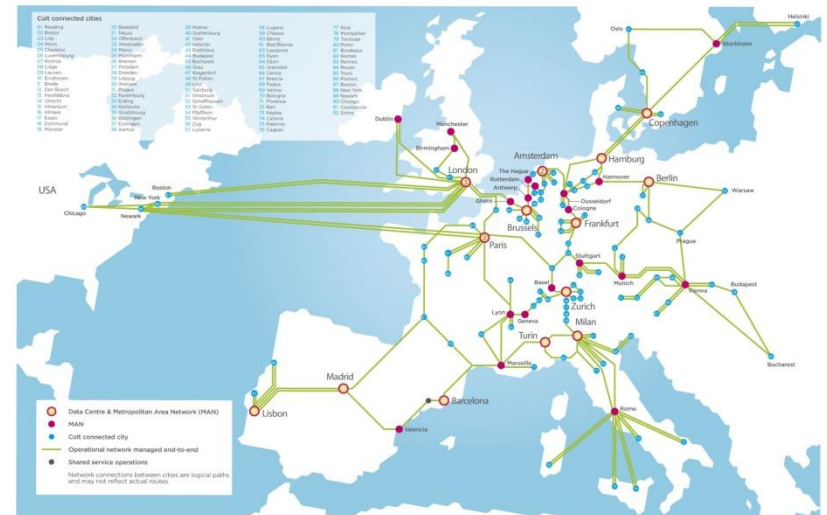
# Introduction

## Colt

- 13 countries, 34 EU MANs and 24 EU/USA/CEE POPs
- 19 datacentres and 16000 on-net building
- Served by a 25000km operated fiber network

## Next-Generation Networks & Services

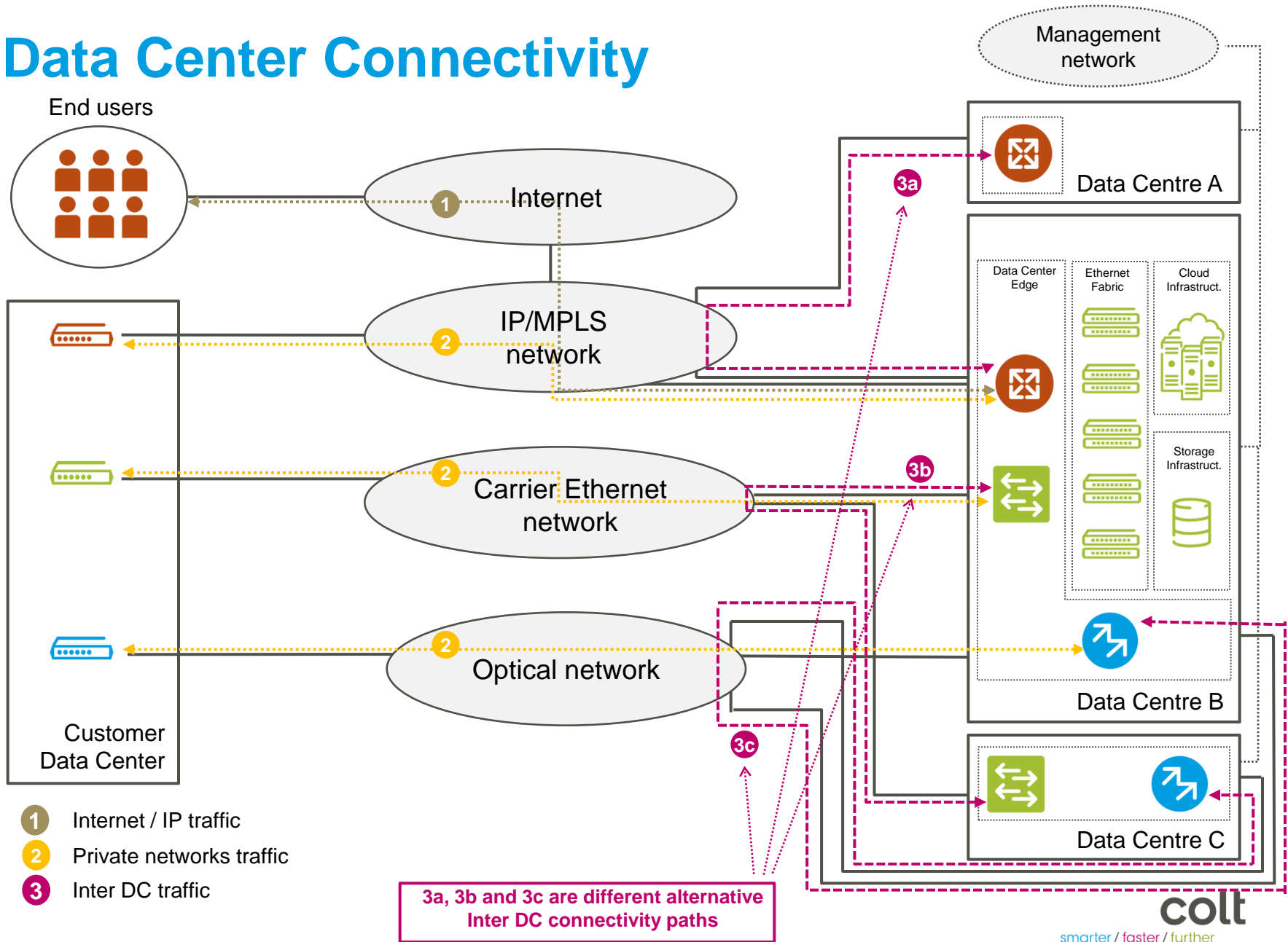
- Optical Transport
- Carrier Ethernet
- IP/MPLS (Internet and IPVPN)
- IMS/VoIP
- Cloud/XaaS



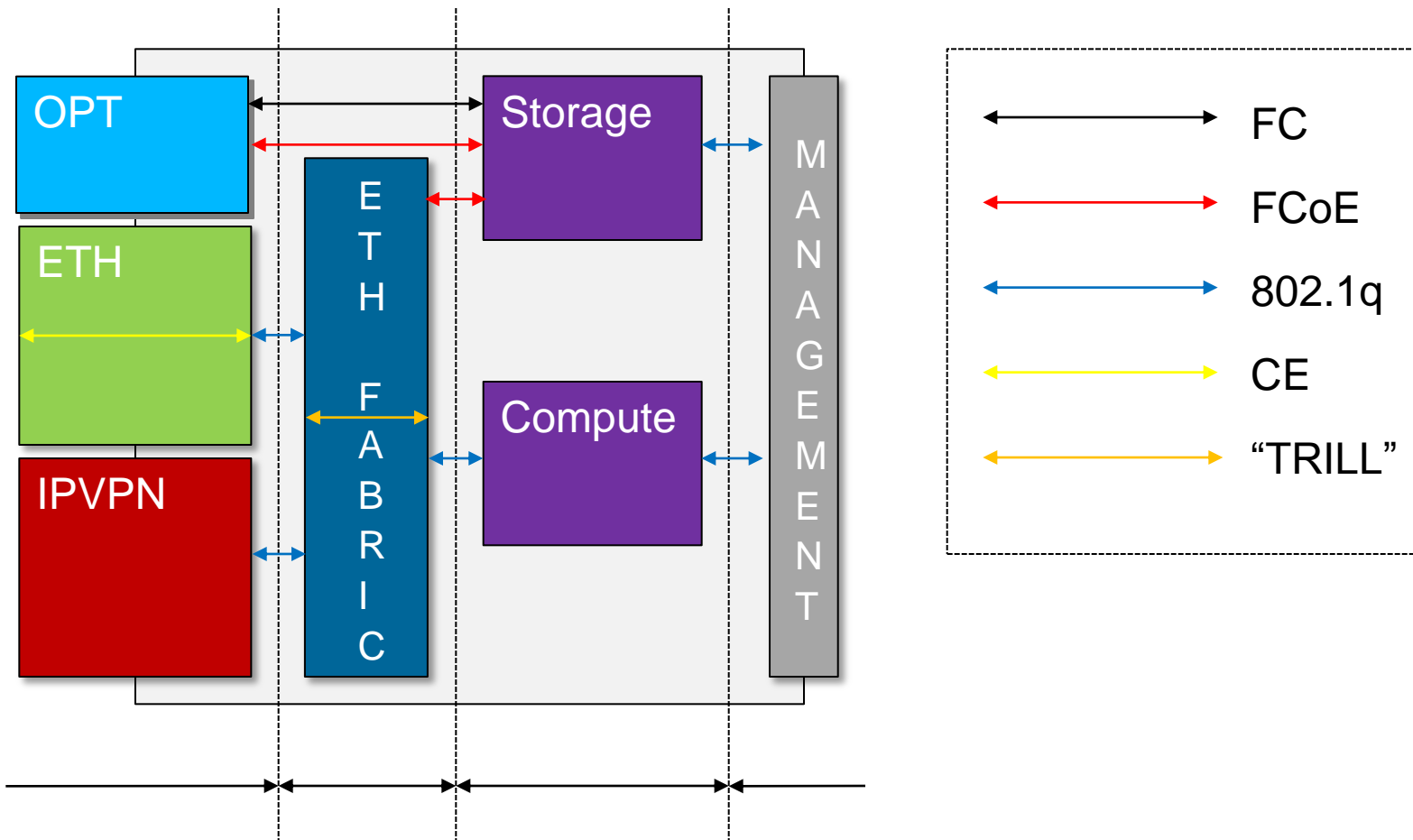
# Next-Generation Data Centres

- Most SPs went thru multiple generations of DCs
  - We are at gen4 now and rolling out gen5
  - What has changed over the years ?
    - Colocation w/ basic private-wire connectivity
    - IP services
    - Site-to-site high-speed services
    - IPVPN services
    - Carrier Ethernet
    - Multi-Data Center Cloud services
- Need for proper inter-DC connectivity**

# Data Center Connectivity



# Flavors of Ethernet (not the MTV show :)

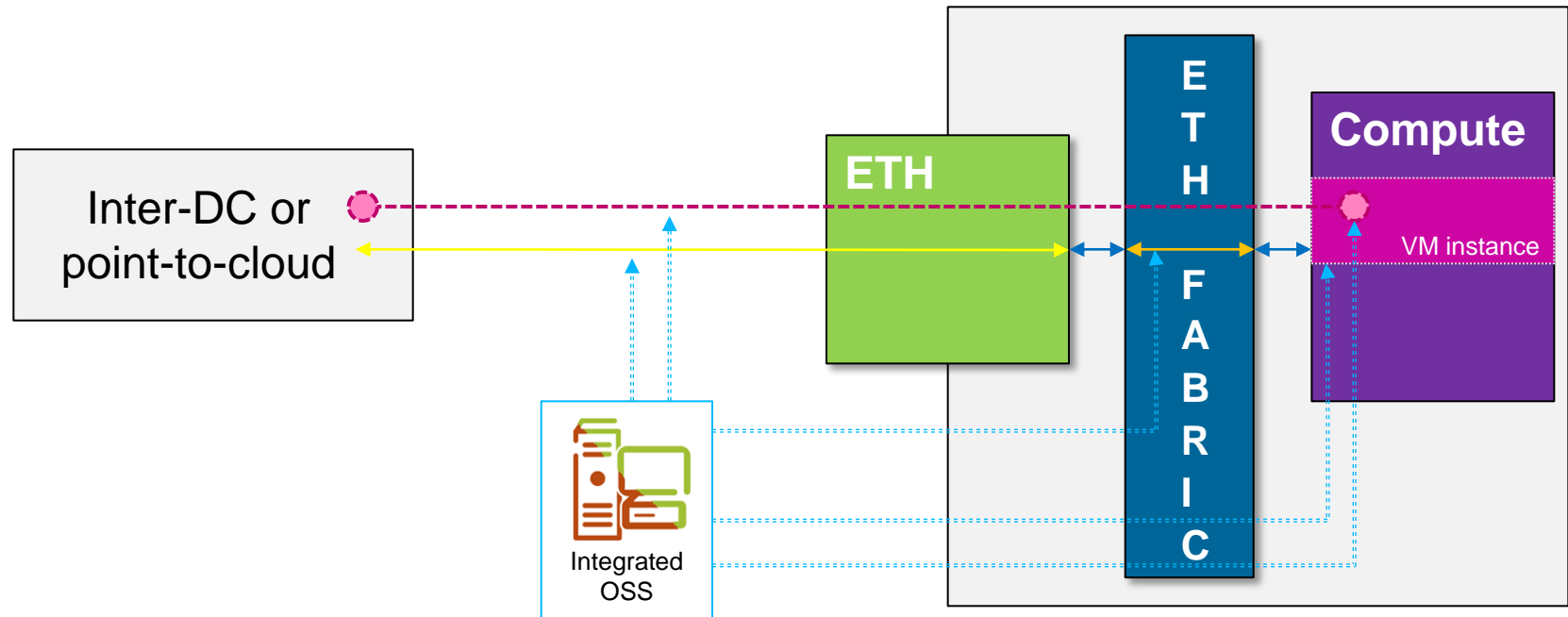


# Inter Data Centre Connectivity challenges

- Picking the right approach based on
  - Upper-layer's expectations
    - FCoE
    - Resizable and movable computing instances
    - MAC/IP addresses, need for IP routing, broadcast domain, mcast, etc.
  - Bandwidth (and jitter/latency/in-sequence) requirements
  - Impact of traffic on your network (STATMUX vs STREAM)
  - Interaction of load balancing and availability protocols/solutions
  - Security: you want domain separation
    - Public vs private clouds vs “cage” interconnects
  - Network topology (when you have 19 DCs!)

# Inter Data Centre Connectivity challenges

- End-to-end Service Delivery, Service Activation, Service Management and Service Assurance



● IP endpoint

↔ 802.1q

↔ CE

↔ "TRILL"

# Conclusion

- Inter-DC FC[oE] will likely be FC[oE]oOptical in most cases
- IPVPN will likely be used when the customer already has an IPVPN deployed and wants to add further data centres to it
- When do you best pick Ethernet (and which “flavor”) for Inter-DC connectivity ?
  - EVP-LAN between a limited number of DCs (2-3) ?
  - What are the other options and their limitations ?
- There’s no single answer, it really depends on each use case
- But all three approaches (optical, IPVPN and Carrier Ethernet) have a role to play in next-generation data centre I/O
- Future options: BGP MPLS-based MAC VPN ?

# Thank you. Questions?

Nicolas Fischbach - nico@colt.net

www.colt.net

**colt**

smarter / faster / further

