



**Happy Birthday LHCOPN!**

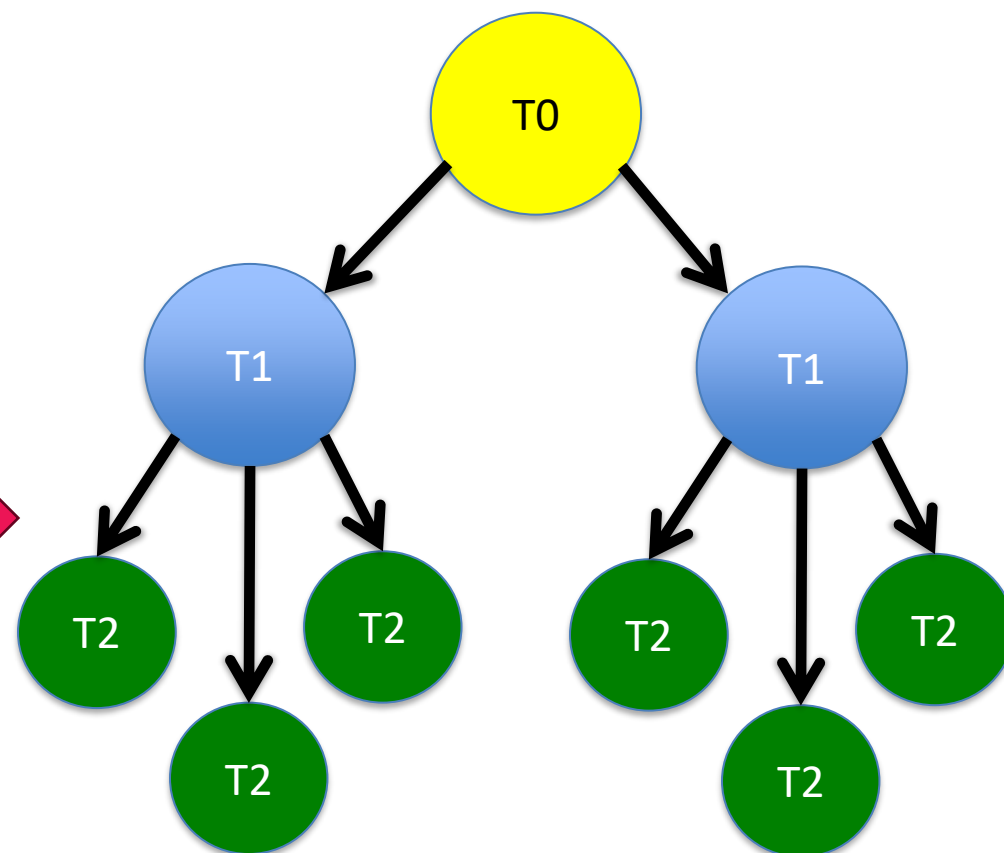
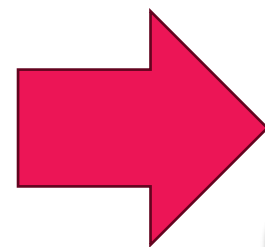
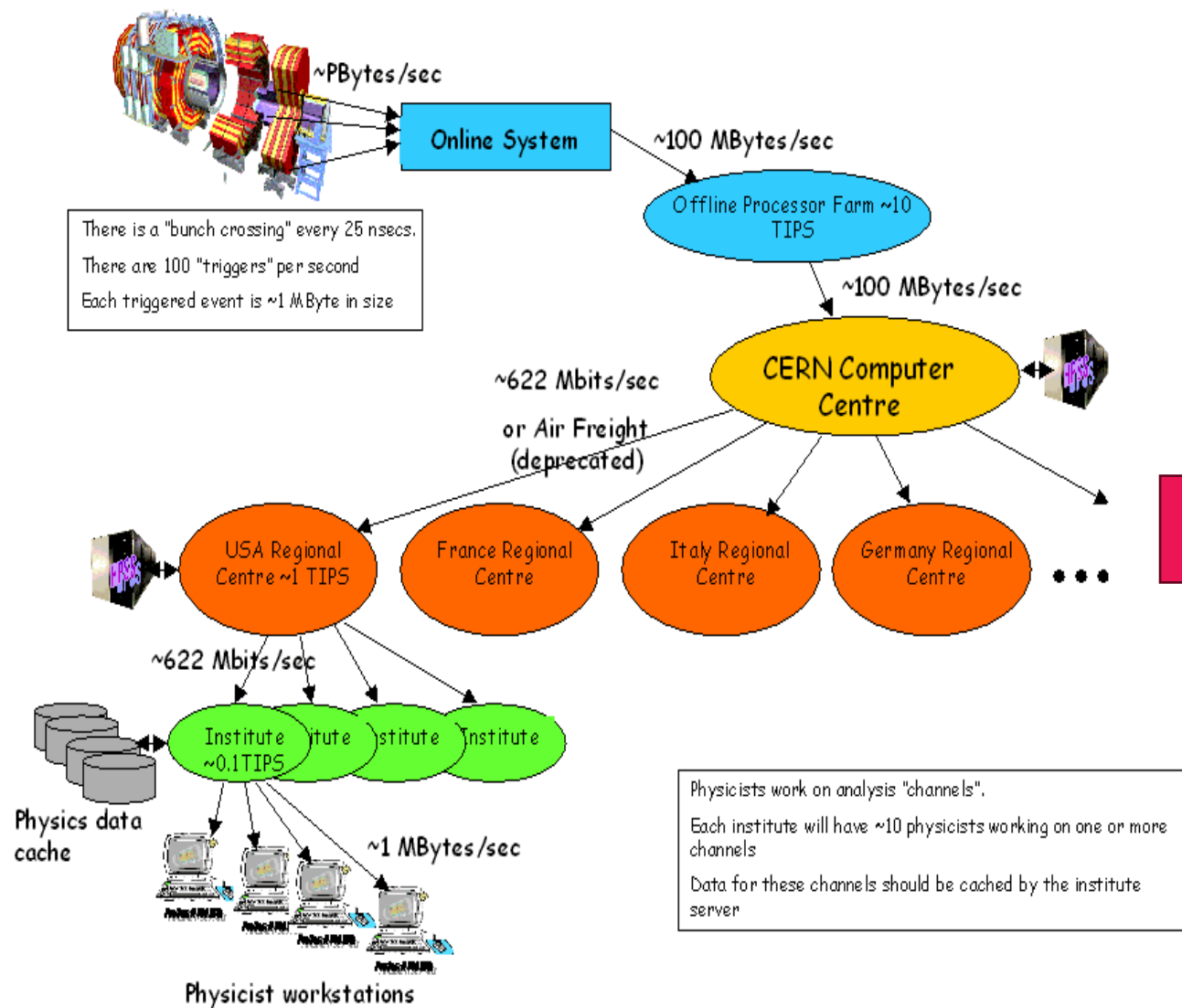
**Enzo Capone**

Head of Research Engagement and Support

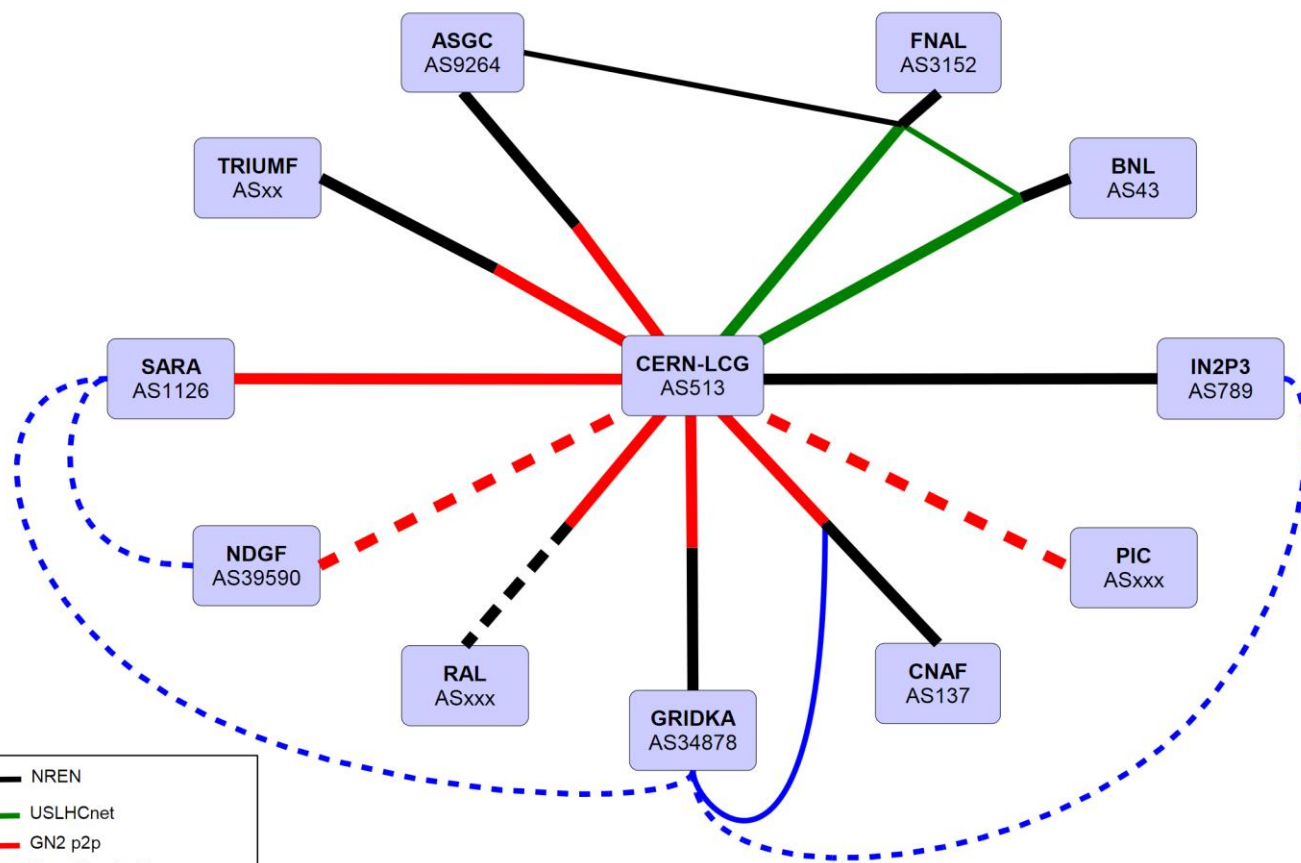
LHCOPN-LHCONE meeting – University of Manchester (UK)

18 March 2025

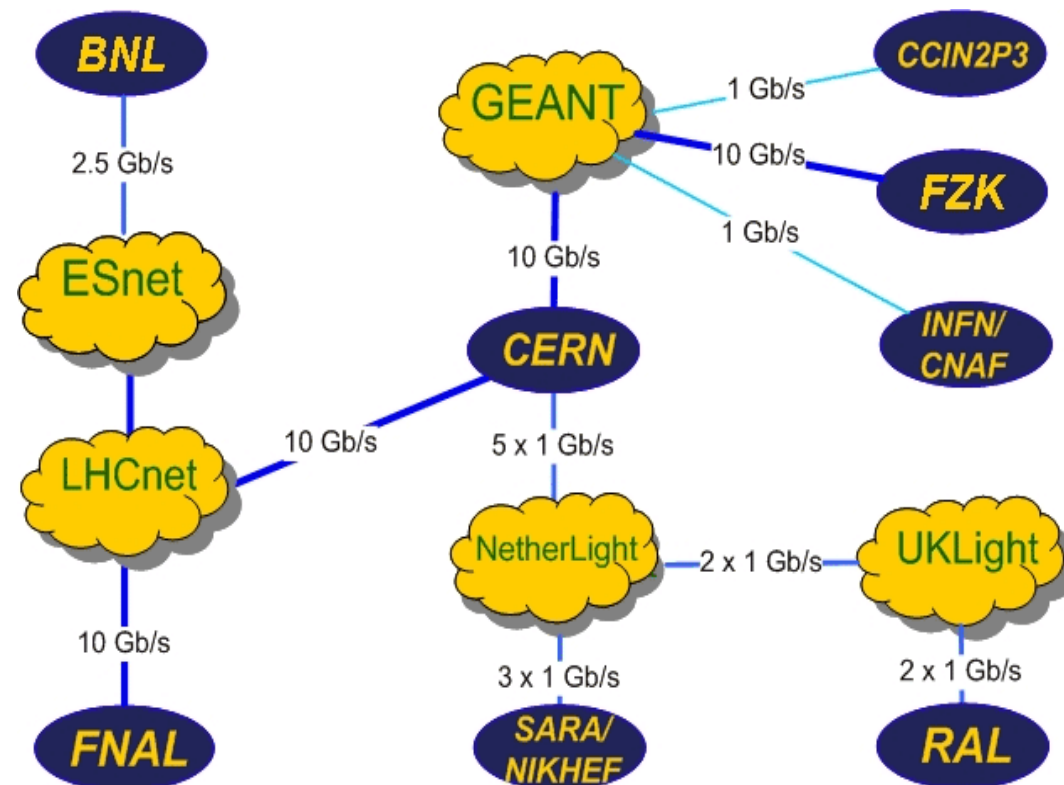
## In the beginning, there was MONARC...



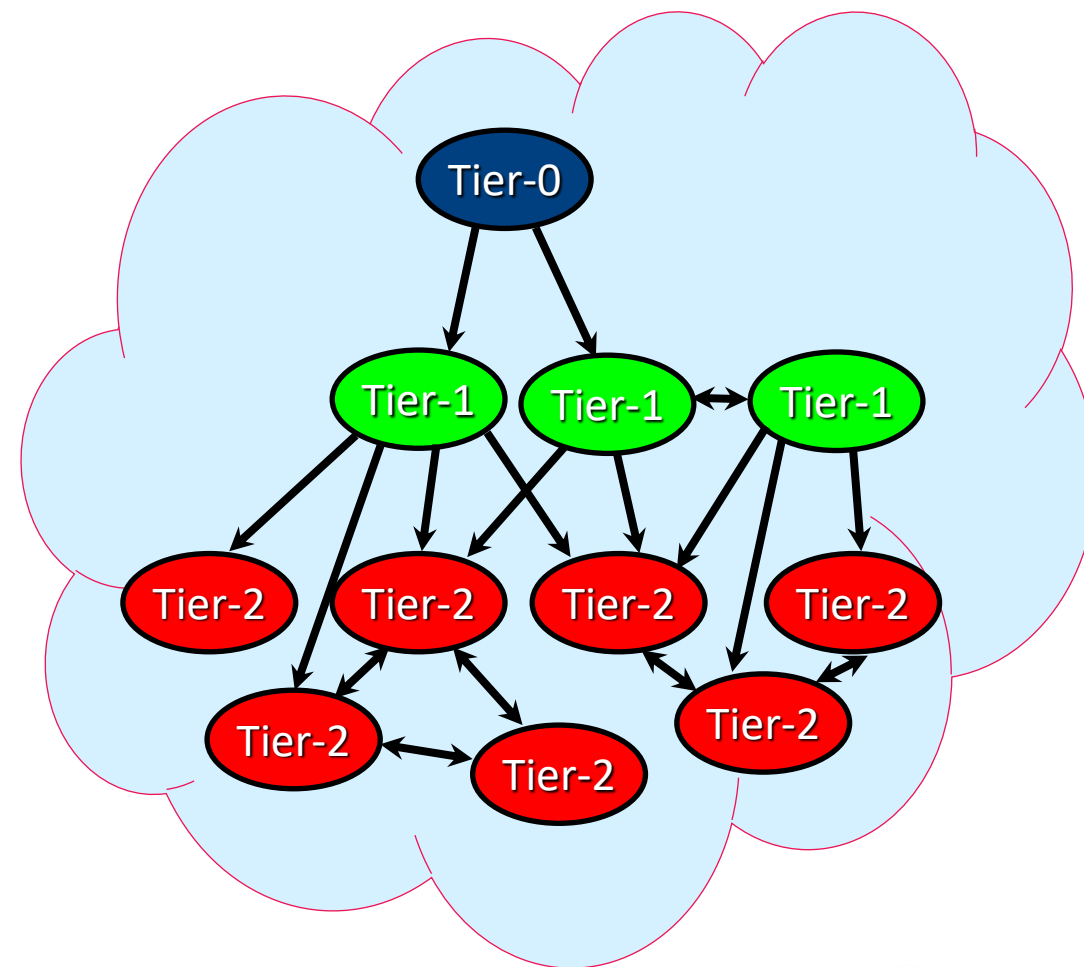
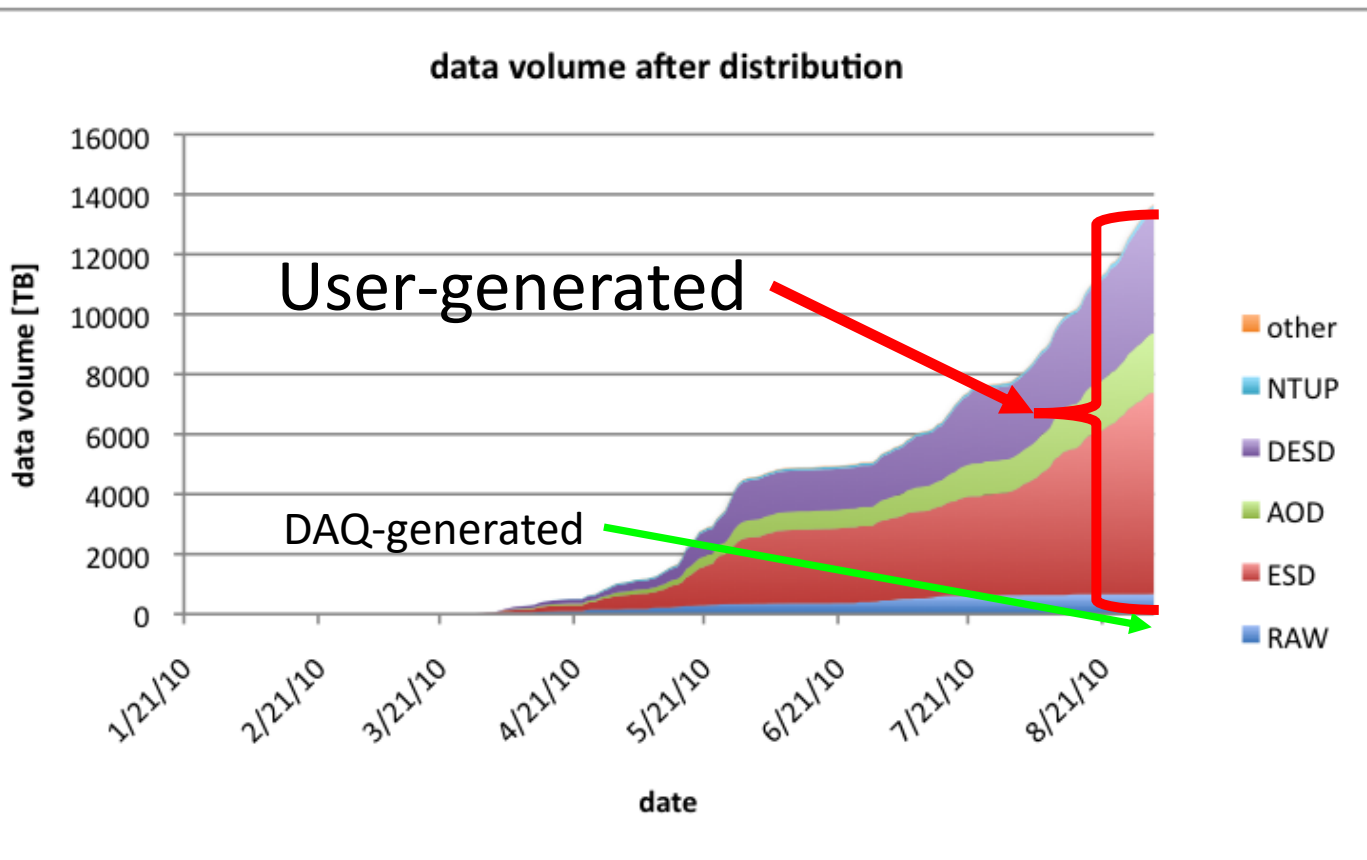
# ...and LHCOPN was the solution.



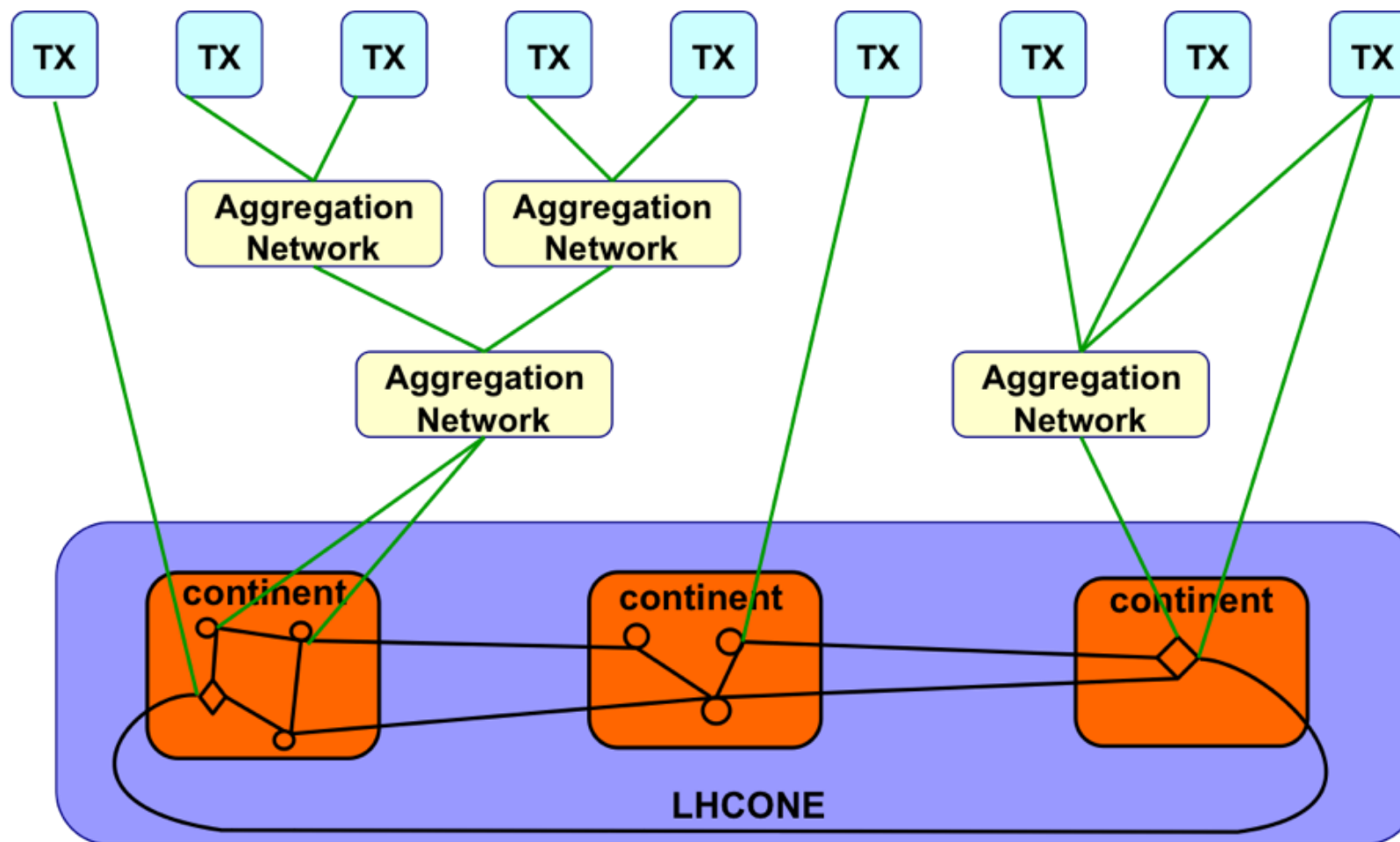
- NREN
- USLHCnet
- GN2 p2p
- Cross Border fiber
- - - Not deployed yet
- (thick) Primary path
- (thin) Backup path



## From MONARC to Anarch(y)



## The birth of a new idea



- ◇ distributed exchange point
- single node exchange point



## LHCONE in 2014

### Summary

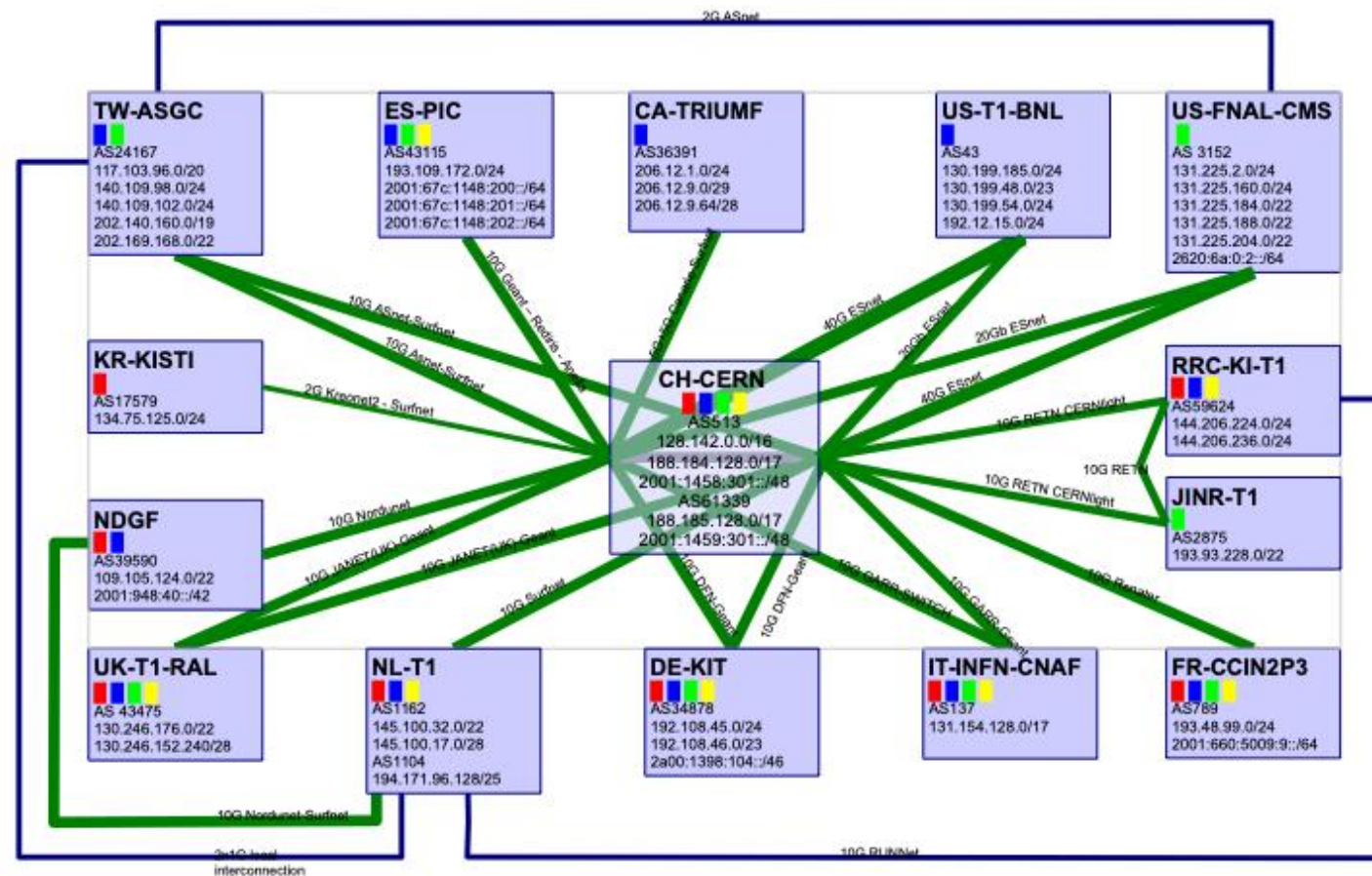


- LHCONE backbone supported by
  - Over 15 national and international RENs
  - Several Open Exchange Points including NetherLight, StarLight, MANLAN and others
  - Trans-Atlantic connectivity provided by ACE, GEANT, NORDUNET and USLHCNET
- Over 50 end sites connected to LHCONE
  - 45 Tier 2s
  - 10 Tier 1s

[https://twiki.cern.ch/twiki/bin/view/LHCONE/LhcOneVRF#Connected\\_sites](https://twiki.cern.ch/twiki/bin/view/LHCONE/LhcOneVRF#Connected_sites)



# A new LHCOPN Map



— T0-T1 and T1-T1 traffic  
— T1-T1 traffic only  
- - - Not deployed yet  
— (thick) >= 10Gbps  
— (thin) < 10Gbps

■ = Alice ■ = Atlas  
■ = CMS ■ = LHCb

p2p prefix: 192.16.168.0/24 - 2001.1458.302::/48  
 edoardo.martelli@cern.ch 20151022





# Thank You

Any questions?

[www.geant.org](http://www.geant.org)



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