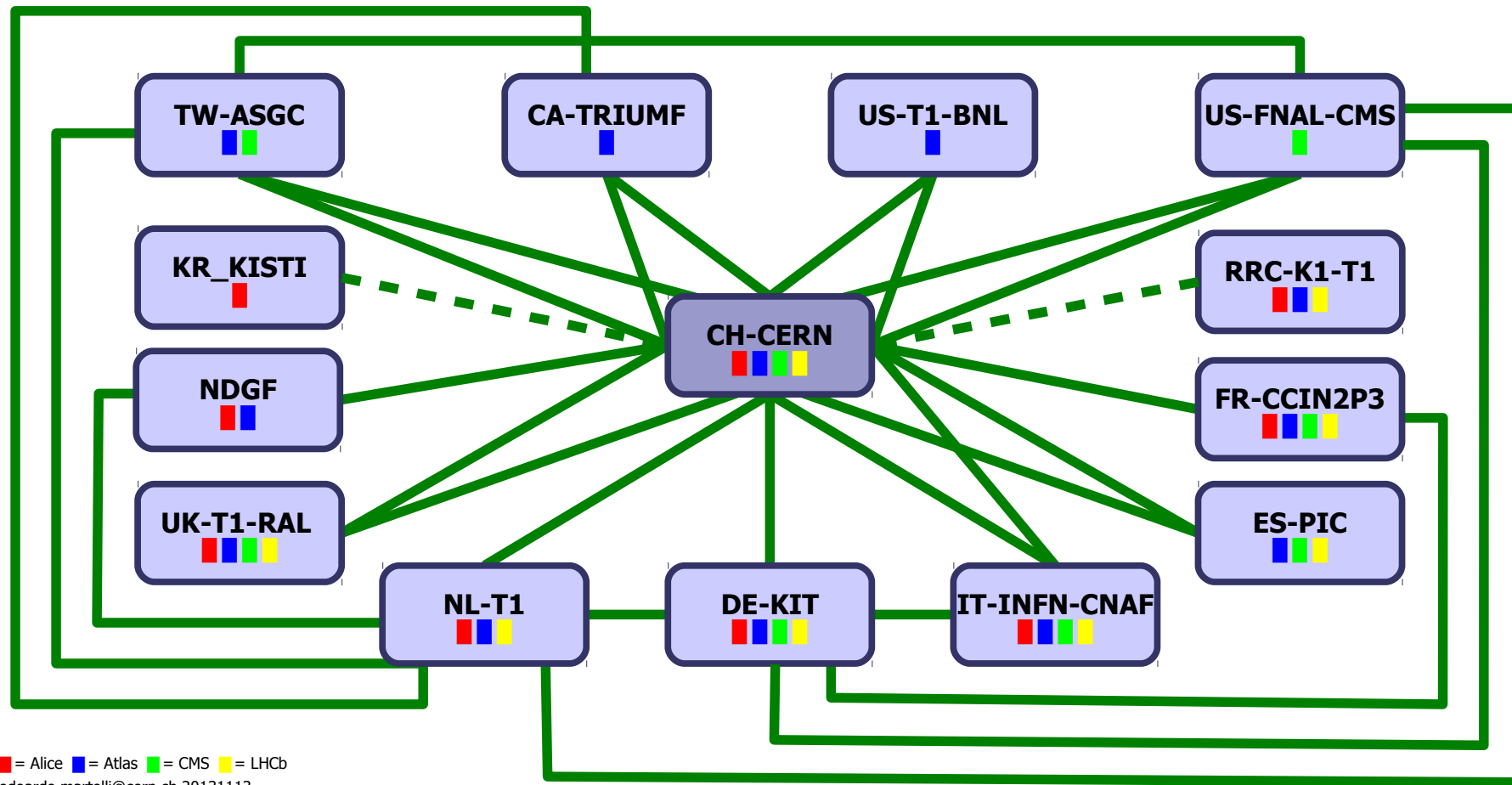


LHCOPN evolution

Pasadena, 3rd of December 2013
edoardo.martelli@cern.ch

LHCOPN today: only Tier1s



LHCOPN today



LHCOPN principles:

- every Tier1 is connected to the Tier0
- every Tier1 decides who to reach via the OPN and who get transit over the links it pays
- by default a Tier1 don't get transit over other Tier1s' links

LHCOPN's pros:

- strict control on who can use what (bandwidth)
- few routing incidents
- routing incidents have reduced impact
- better security

LHCOPN's cons:

- adding prefixes requires some effort in configuration and coordination
- little mesh, not optimal geographical routing

Proposal

LHCOPN open to major Tier2s

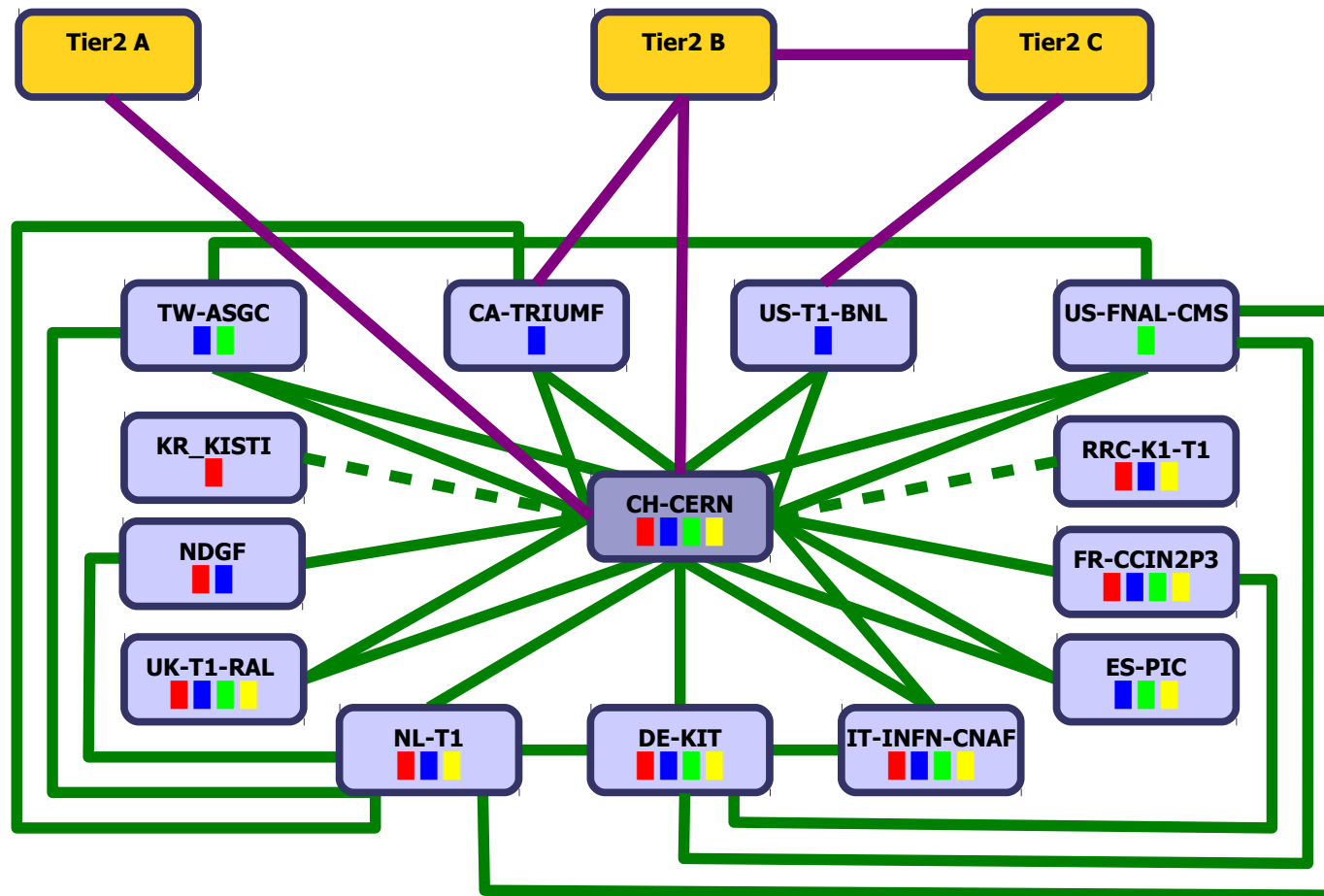


Proposal:

Tier2s that need to exchange large amount of traffic with few defined Tier0/1s can connect to the LHCOPN.

The LHCOPN is not a transit backbone like the LHCONE: new sites will have to purchase the necessary links. They can also make agreements with other TierXs for getting transit, if it brings mutual benefit. Or can federate together, like NDGF or NLT1.

No differences between T1s and T2s



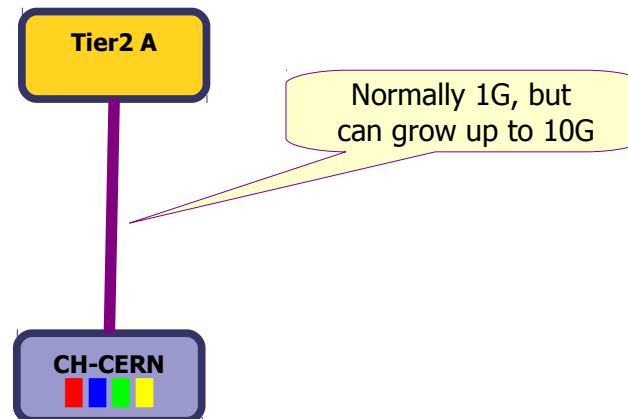
LHCONE P2P as dynamic link provider



The LHCONE P2P service could serve the LHCOPN with point-to-point links that are:

- permanently established
- whose bandwidth can be dynamically increased

Interface for the dynamic bandwidth adjustments to be defined.



LHCOPN next generation



NHCOPNng's pros:

- larger scope
- better use of expensive bandwidth
- clear responsibility distinction between layer2 (connectivity, NSPs) and layer3 (routing, TierXs)

LHCOPNng's cons:

- can become unmanageable if too many sites want to join

Open questions

- Should it be kept small (to avoid transit routing issues)?
- Requirements to enter?
 - 10G link? More than one?
 - Every TierX must be connected to the Tier0?
 - BGP capable router, public AS and addresses, symmetric routing.

Opinions?