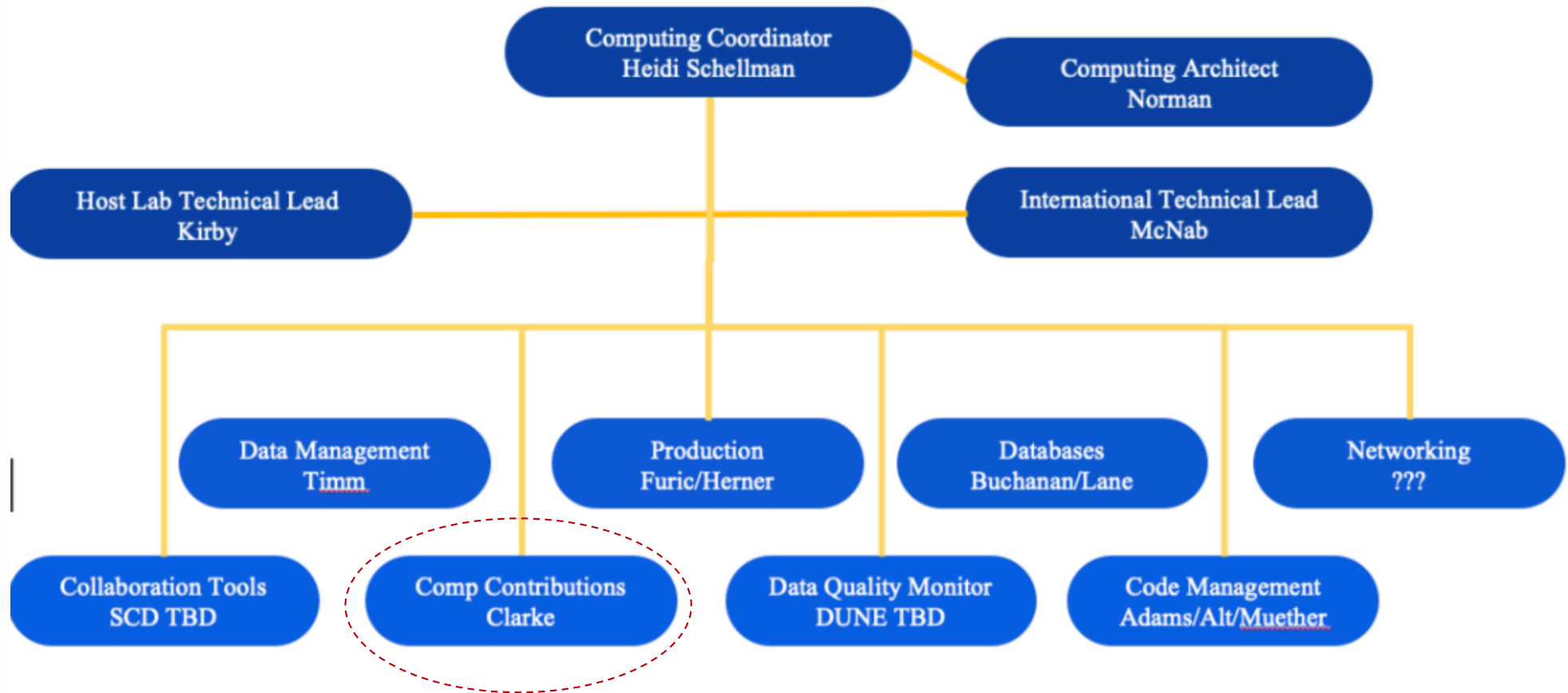


Computing Contributions Board

First meeting

Agenda: <https://indico.fnal.gov/event/22922/>

Computing Contributions Board



Introductions

Country	Rep	Alternate (not mandatory)
BR	Ernesto Kemp	Hélio da Motta
CH	Michelle Webber	
CZ	Milos Lokajicek	
ES	Ines Gil Botella	Gonzales Merino
FR	Elisabetta Pennacchio	
IT	Sergio Bertolucci	Marco Pallavicini
NL	Jeff Templon	Paul De Jong
UK	Andrew McNab	Pete Clarke
USA	Heidi Schellman	
FNAL	Stu Fuess	
CERN	Andrea Dell'Acqua	

CCB

ToR

Ways of working

❑ The CCB purpose

- To receive reports and requests from DUNE computing management
- To receive the annual DUNE computing capacity requirements
- To satisfy capacity requirements through DUNE partners
- To respond to any other requests in respect of computing resources from the computing management or DUNE management
- To provide official expectation requests where needed
- To seek contributions of software engineering staff effort for the creation of the computing software infrastructure (NOT analysis);

❑ The CCB function will be similar to that of Computing Boards in LHC experiments

Computing Contributions Board

□ The CCB composition:

- Chair
- One national representative from each of the larger partner countries + FNAL + CERN
 - Deemed to be able to report on and communicate with, all computing provision in their country
 - Have knowledge of, and connections to, the relevant national computing funding mechanisms
- Observer status for all of the smaller partner countries
 - See notes below
- Ex officio
 - DUNE Computing Management

Notes:

1. Larger partner countries are those with more than ~10 members in the DB, plus those who have a track record of large-scale computing and have indicated interest to contribute substantive resources.

Currently : USA, UK, FR, ES, CH, IT, NL, CZ, BR + FNAL, CERN

2. Smaller partner countries are all other countries, generally those with <~10 members in DB (<1% of collabn.)

These are not expected to find computing resources yet, nor to staff CCB. They may choose to do so.

They will be kept informed. They can “upgrade” at any time. This is already the case for NL and CZ

Formality in its place

□ Formality

- Formal requests to countries are made here
 - It must be that CCB is the official word, or there is no point in CCB
- CCB can provide official request documents (for countries who need them)

□ Informality

- However, DUNE is far too nascent to impose strict rules at this stage
 - The computing providing countries are few
 - Many institutes are willing to contribute and we do not want to put a barrier in the way of them making any suggestion.
- We do not want to inhibit common sense Out-Of-Band discussions between any country and the computing management
- Common sense says please just make anything agreed OOB with computing management is reported to the CCB.
 - This is so that we can keep a coherent picture in one place
 - So that we can produce accurate reports on international engagement for Management, FNAL, LBNC...

CCB: Metrics and Practice

- ❑ In long run DUNE needs a metric as proxy for the size of a partner nation
 - The most obvious would seem to be ~ M&O share
 - Based on PhD authors ?

- ❑ In short term (next couple of years at least) this is not very useful or meaningful. Thus we will use:
 - Common sense
 - Soft expectation on countries (not formal MOU yet)
 - CCB will provide an official “expectation request” where country wants it
 - Ask for minimum sensible significant contributions from major proven data centres
 - Discussion document from Sept 2019 is attached on Indico page

- ❑ In practice this will probably mean:
 - FNAL 25%
 - Other USA ~ 25%
 - CERN and other non-US LHC Tier1/2 sites each @ 5-20% level
[This will come to more than 100%]

- ❑discuss minimum / likely size.....

CCB: Metrics and Practice

- ❑ FNAL/DOE have an expectation that 75% of computing should be provided externally to DOE by partners
 - Obvious what this means for non-USA countries.
 - For now treat USA institutes not funded by DOE as external to DOE.
 - BNL ? Is this in the DOE 25% ?

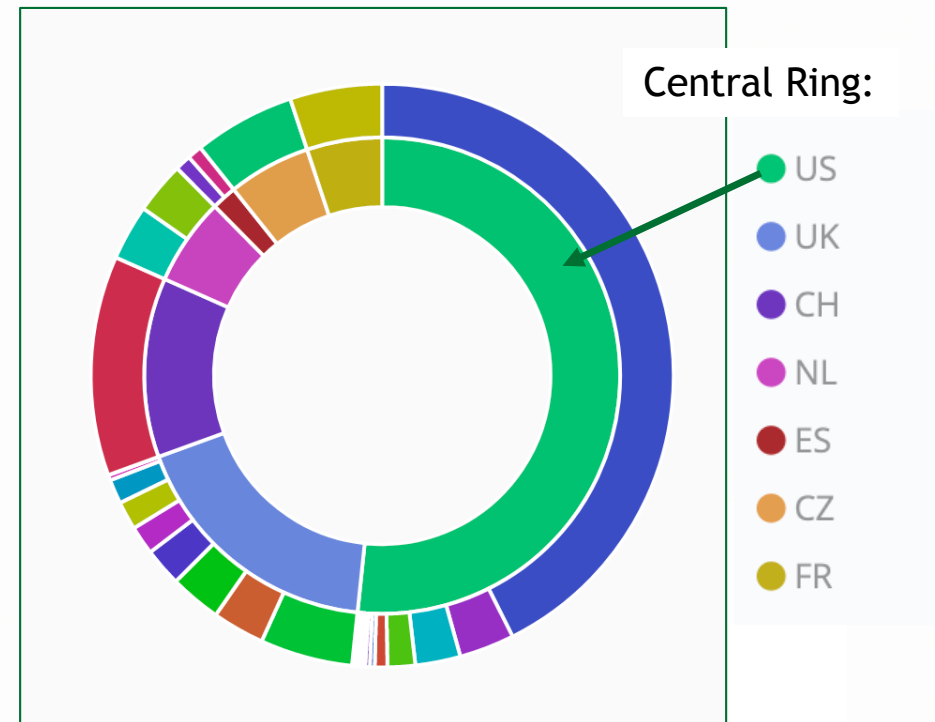
Computing Contributions so far

Percentage of successful production jobs over last year

- Central ring shows countries
- Outer ring shows sites

This shows a good trend

Country	% prod. jobs
USA	52
UK	18
CH	12
NL	6
ES	2
CZ	6
FR	5



Resources provided by:

- OSG sites
- WLCG sites
- FNAL
- CERN (part of WLCG)

Pragmatic suggestion for 2020

% are all in terms of official DUNE request as presented to CCB from time to time

FNAL

- 25%

Non-USA partner Countries

- Please provide a minimum of 5%
- If you are a large major LHC Tier-1 country please consider making this minimum of ~10%
- All are free to provide more than this is they wish

CERN

- CERN may chose to provide as it deems fit in the ProtoDUNE period

Other USA

- 25%

...discuss....

Software effort for computing infrastructure

A note on Software Infrastructure

- ❑ **Production Software Infrastructure (staff effort to construct this)**
 - This is NOT a common federal responsibility, but is treated like a detector, i.e. institutes sign up. This is what the CSC (Computing and Software Consortium) is for.
 - The problem (well known in HEP) is that traditionally Institutes will not contribute to CSC in same way as a detector as (i) there is less benefit to the Institute (ii) it is hard for institutes to get funding for software engineers. This will have to be managed.
 - Nevertheless, proactive effort will take place to “encourage” Institutes /Countries ? To contribute some sort of share. This subject is quite nascent at this stage.
 - Expect to report on this more and more as time goes on.

- ❑ **Software Engineering Staff in lieu**
 - Possibly there may be some countries that find it difficult to contribute their fair share of physical resource
 - In this case we may consider that they might provide additional software engineering staff in lieu
 - May be useful for the smaller member countries.

Extras

Computing Contributions so far

Percentage of successful user analysis jobs

- Central ring shows countries
- Outer ring shows sites

Need to encourage analysis jobs to migrate to the world

- Education/culture change

● US

● UK

● CH

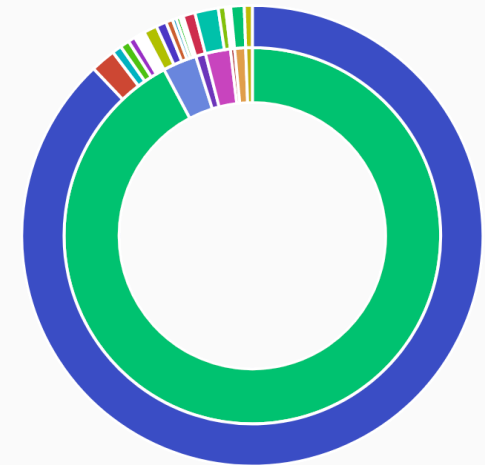
● NL

● ES

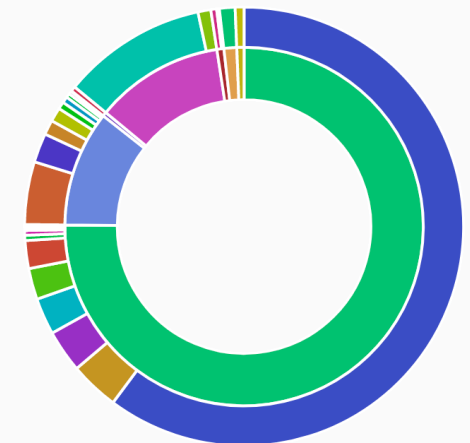
● CZ

● FR

Last 6 months



Last week



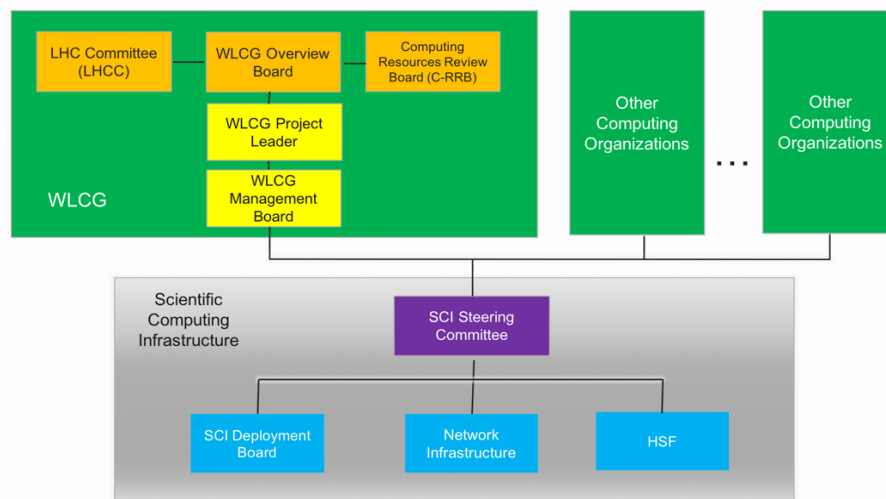
FNAL and International context

FNAL Computing has set a context:

- Expectation of internationalisation of computing → DOE 25%
- FNAL has set up the ICAC (International Computing Advisory Committee)
- FNAL will put in place a computing requests scrutiny process
- DUNE will provide annual capacity requests for scrutiny

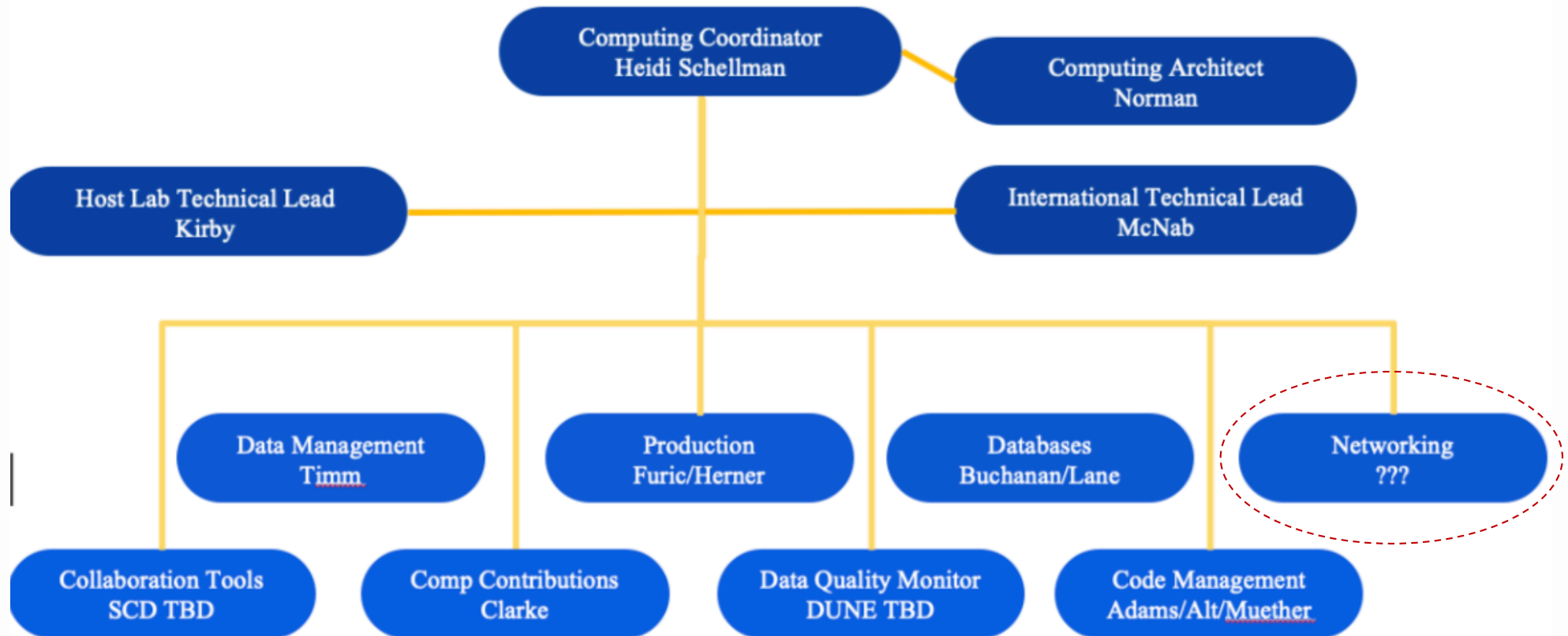
WLCG links

- FNAL CIO attends WLCG Management Board (since a long time)
- DUNE now has observer role on the WLCG Management board (Heidi Schellman) + others with double roles
- WLCG is evolving structure to adapt to LHC and non-LHC large projects
 - Presented at Grenada : Lots of non-LHC interest - APPEC, GW, DUNE, SKA, BELLE
 - In ESPP briefing book



Slide from Ian Bird

Briefest word on networking (verbal)



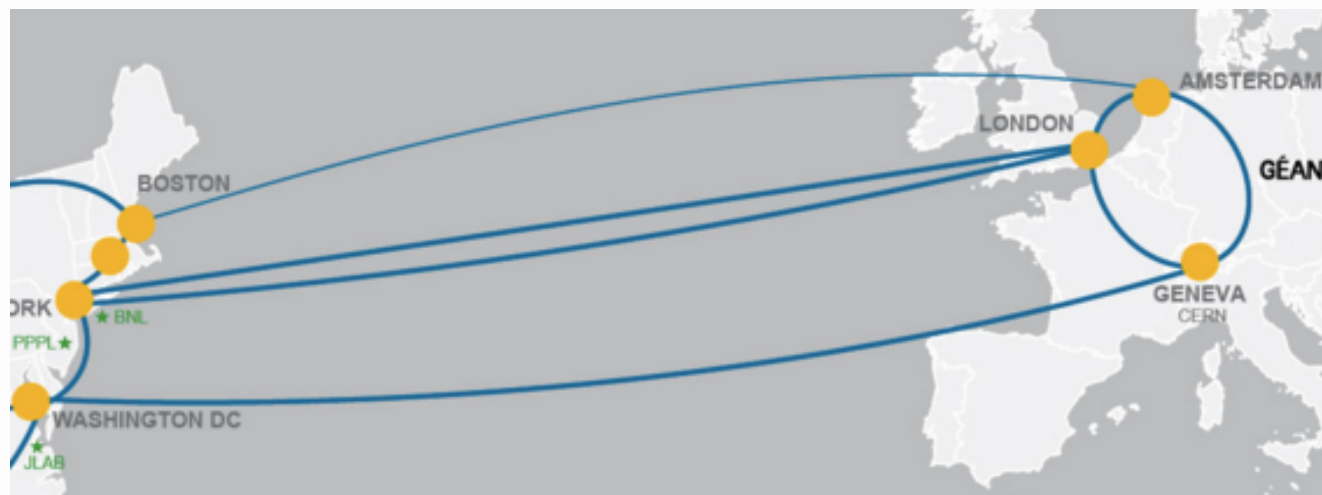
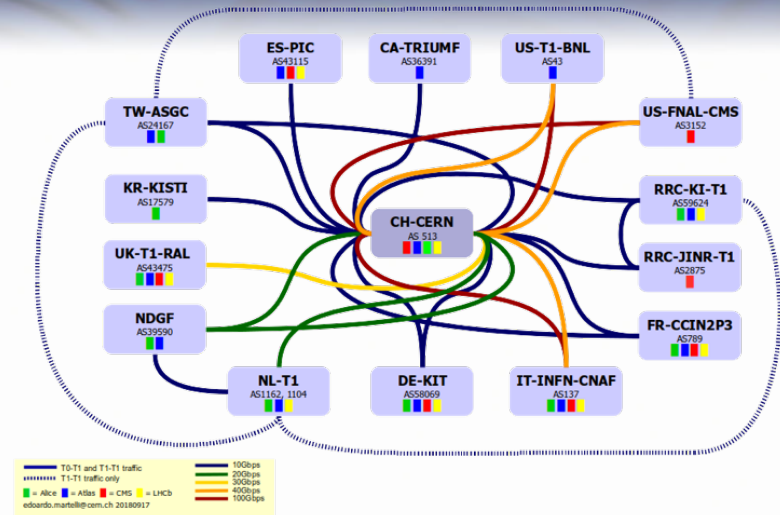
Further info: CCB Principles

- Principle 1: Physical Computing resources are a Federal Responsibility
 - Computing Resources are to be considered as a federal responsibility, and hence subject to a “fair share” expectation (e.g. based upon M&O).
- Principle 2: DUNE management should encourage all DUNE members to see computing resource provision as a first-class responsibility.
 - This may seem obvious, but experience shows that groups are often more willing to contribute to a physical detector which has links to their local expertise, than to the more generic computing provision. This is particularly so for software staff effort.
- Principle 3: DUNE does not seek to formally oblige partners/nations to contribute at this stage. The matter is left as a point of good citizenship.
 - For this reason, this document only refers to *expectation of national contribution*. This is often found helpful by national contingents in order to demonstrate a “fair ask” into their respective funding processes.

LHCONE DUNEONE

Scale of computing needs today

- Global networking
 - LHCOPN: ~ 100 Gbps connections
 - Connects FNAL to many large DUNE sites
 - ESNET extends to CERN/Amsterdam/London/?
 - Peers with Geant
 - I believe all of our sites are well connected.



Scale of computing needs today

LHCOne - this is a VRF (layer-3 VPN)

Most of us are on it ?

Exceptions

- UK (only RAL and IC)
- BR
- ?

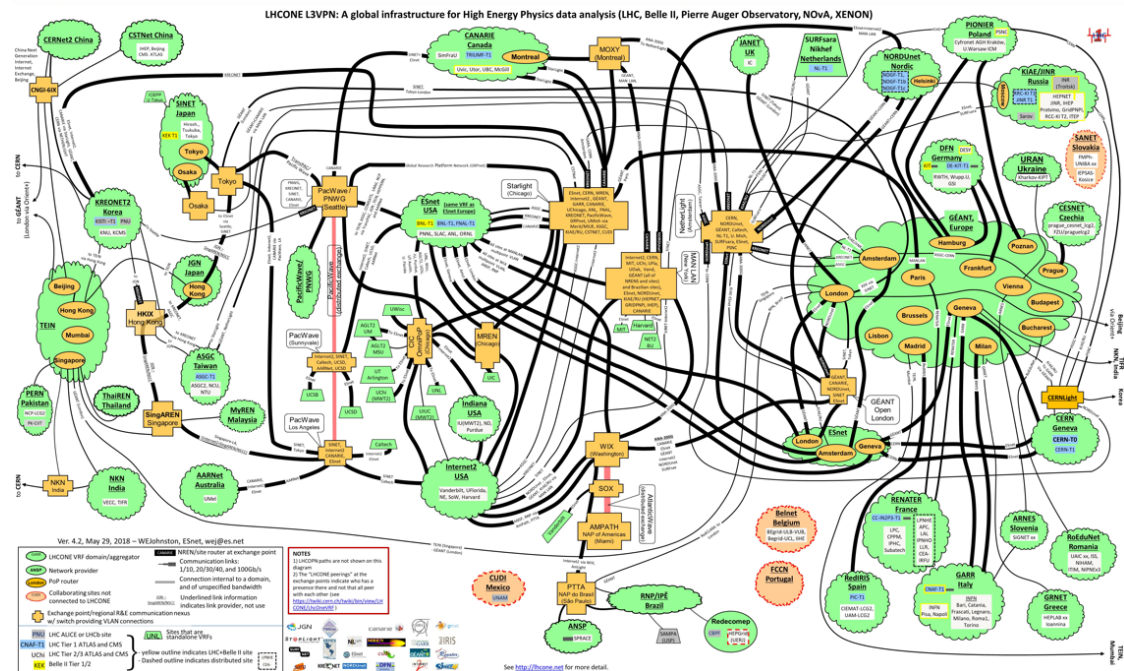
Some DUNE traffic must come over Atlantic on LHCOne I guess ? (I didn't check)

DUNE endorses the FNAL-CERN work to pilot a distinct DUNEONE to learn how to do xxxOne technically. Its hard !!!

For production DUNE does not need distinct DUNEONE. All our sites are overlapping with LHC Tier1/2 so already well connected.

This is an ongoing discussion in LHC network meeting.

- Bandwidth ? Doesn't actually do this
 - Trust ? Solve other ways
- I argued you only need xxxONE for a significantly different flow topology



DUNE has a very informal “network interest email list”
DUNE people +FNAL network people
Let me know if you want to be added.