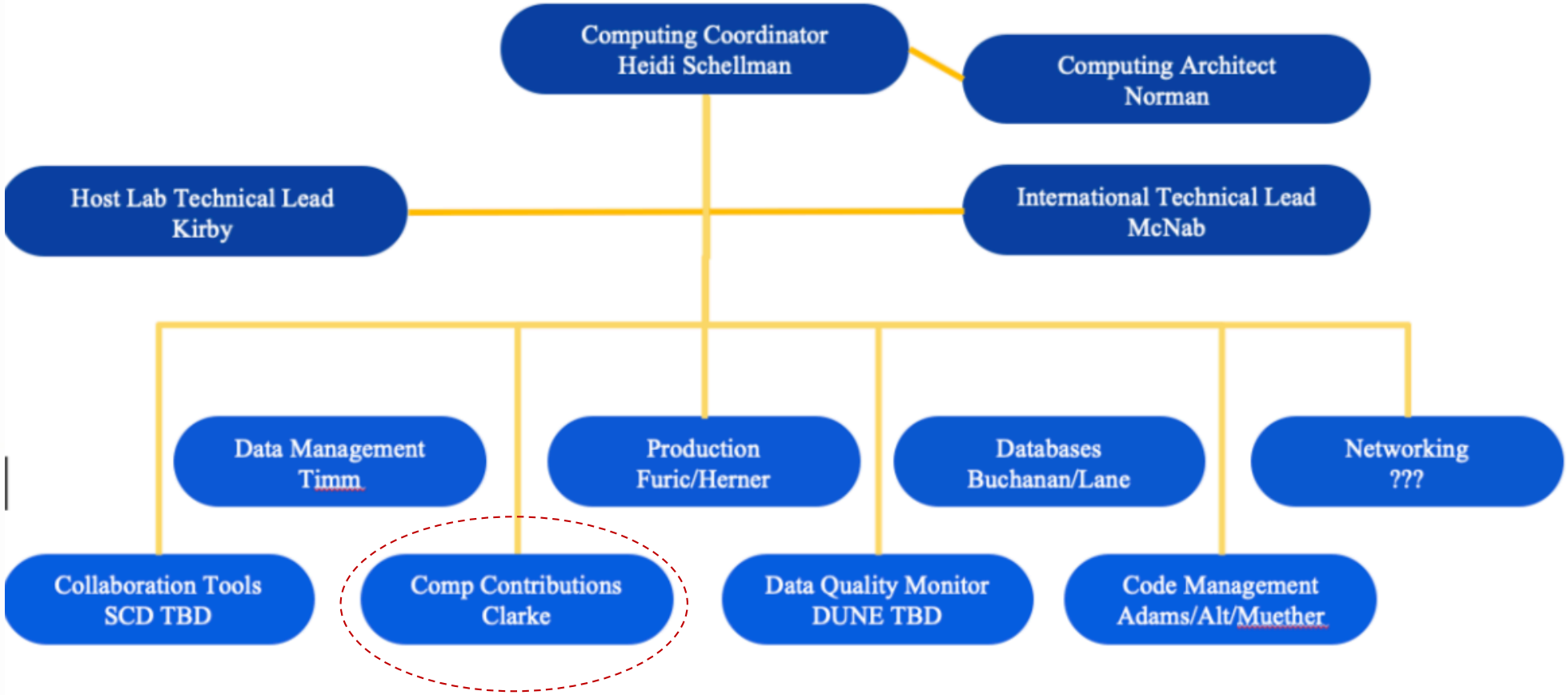
Computing Contributions Board

DEEP UNDERGROUND NEUTRINO EXPERIMENT



Pete Clarke / LBNC / CERN / 6th Dec 2019

Computing Contributions Board

DUNE DEEP UNDERGROUND NEUTRINO EXPERIMENT

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

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The CCB composition (in development)

- A 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
  - Need to define exactly what this means
- Ex officio: DUNE Computing management
  - DUNE Computing Management

The CCB status

- Chair : Pete Clarke
- Most representatives now identified
- First formative meeting to be held by zoom before DUNE week in Jan

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, Brazil + 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

CCB: Metrics and Practice

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- 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 + official expectation where country wants it
  - Ask for significant contributions from major proven data centres
  - This is all in a document being iterated withn CCB

- In practice this will probably mean:
  - FNAL 25%
  - USA > 25%
  - CERN and other LHC Tier1/2 sites each @ 5-20% level

Note: most countries with large Tier1/2 centres provide computing on an aggregated basis. Often HEP+Astroparticle+some Astronomy like LSST,SKA.

This is a good thing - DUNE is a part of an aggregate in most cases.

Computing Contributions so far

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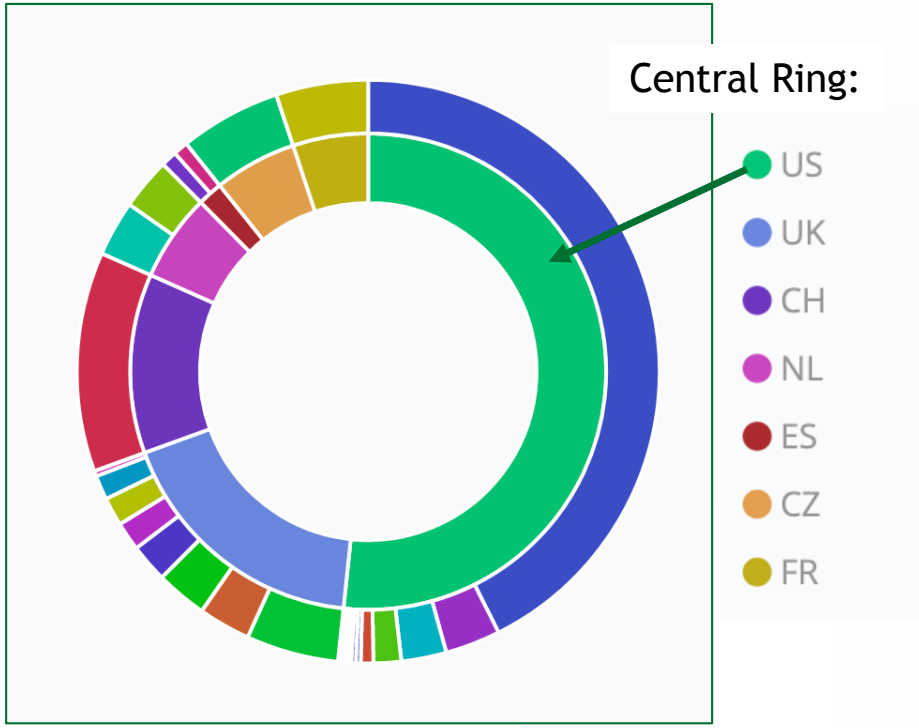
Percentage of successful production jobs over last year

- 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)

Computing Contributions so far

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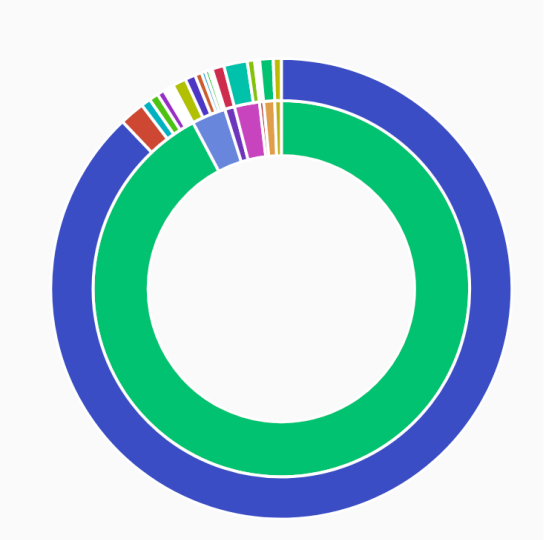
Percentage of successful user analysis jobs

- Central ring shows countries
- Outer ring shows sites

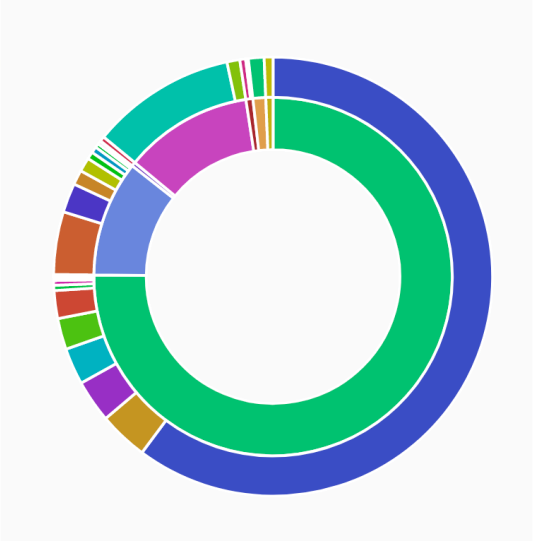
Need to encourage analysis jobs to migrate to the world

- Education/culture change

Last 6 months



Last week



FNAL and International context

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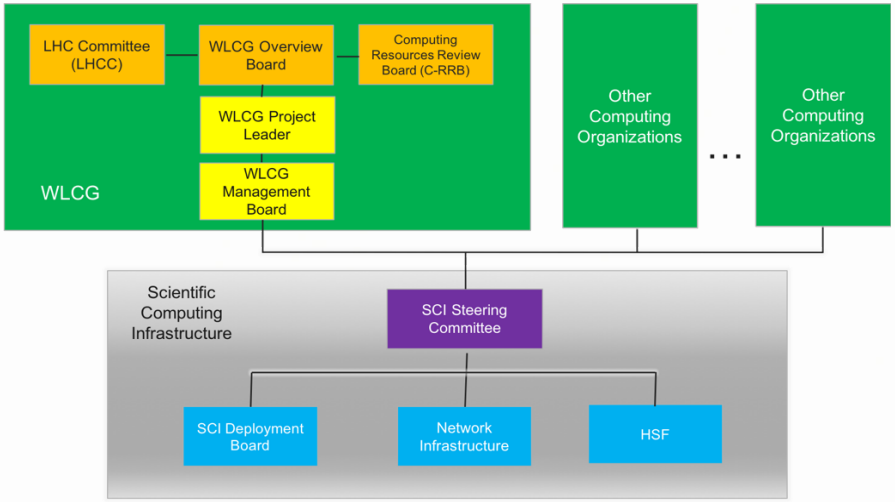
FNAL Computing has set a context:

- 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

A note on Software Infrastructure

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- 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.

Briefest word on networking (verbal)

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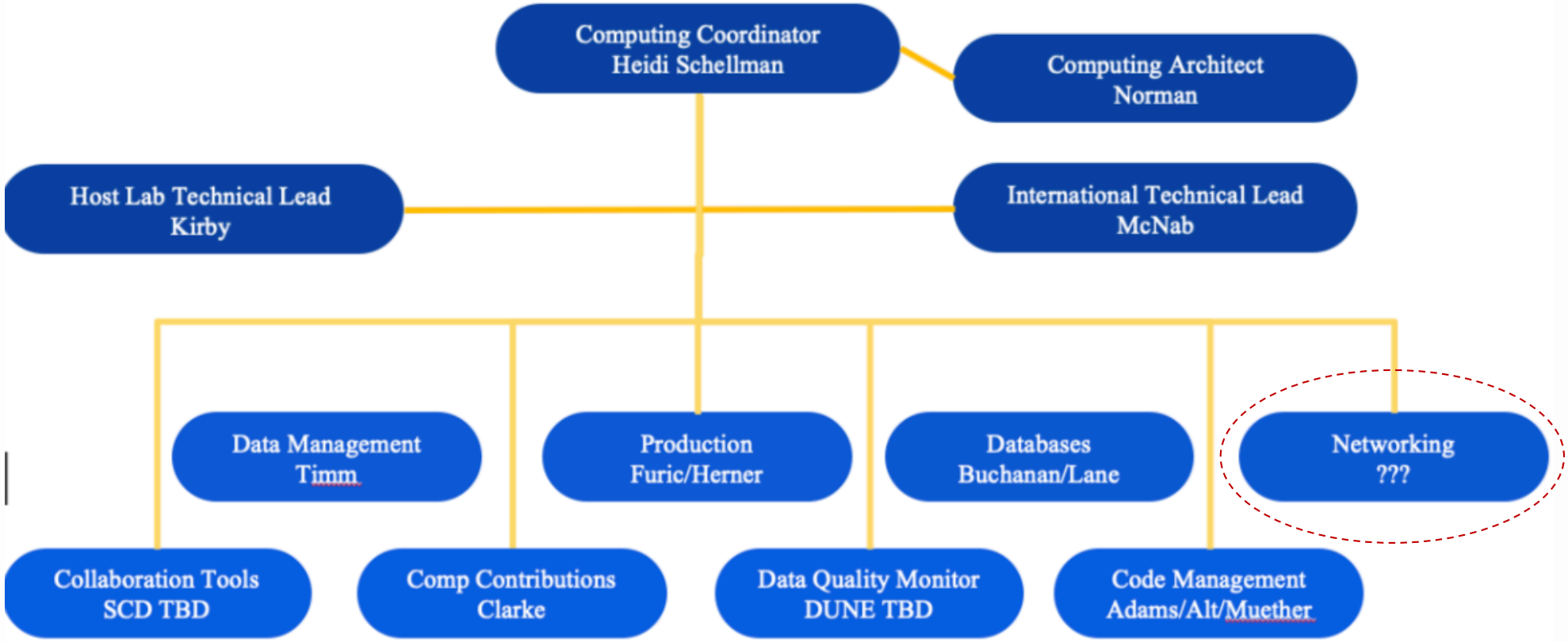

Further info: CCB Principles

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- **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.