

# Status of computing for T2K and HK

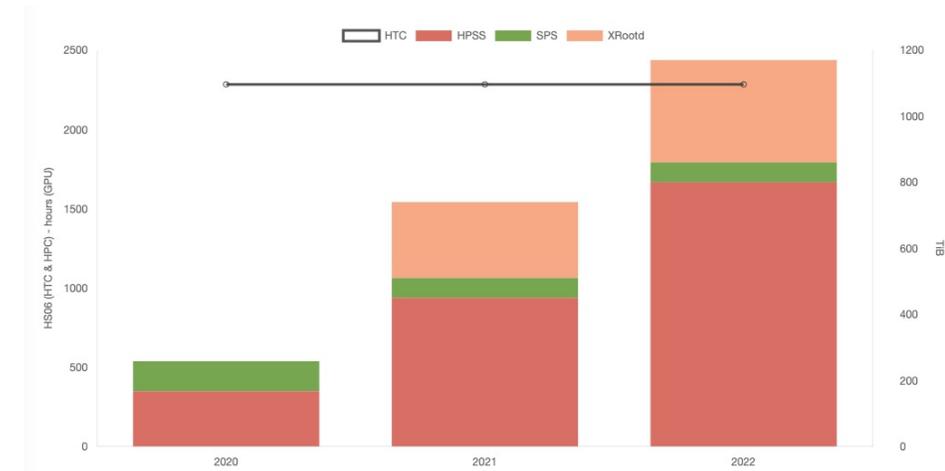
DIRAC GridPP instance in the UK

Resources and data management in UK and IN2P3



## LPNHE & IN2P3 contributions to T2K/HK:

- Hosting ND280 data to CC as T1
  - Transfer to disk and tape in progress 
- T2K offline database hosted at CC
  - Setting machines and parameters in progress 
- Software containerization for ND280 (LPNHE)
  - Deployment of Docker & Singularity images 
  - Ready for production 7 this year! 
  - Getting ready for Supernovae production for HK this year 
- R&D database for HK hosted at CC-IN2P3 (with INFN) 



Log on <https://hkdbweb.in2p3.fr>



HyperK

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# Near and long-term plans for computing

~Linear increase of resources allocated started in 2020

Finish replication of raw data and old productions to tape and disk over 2022



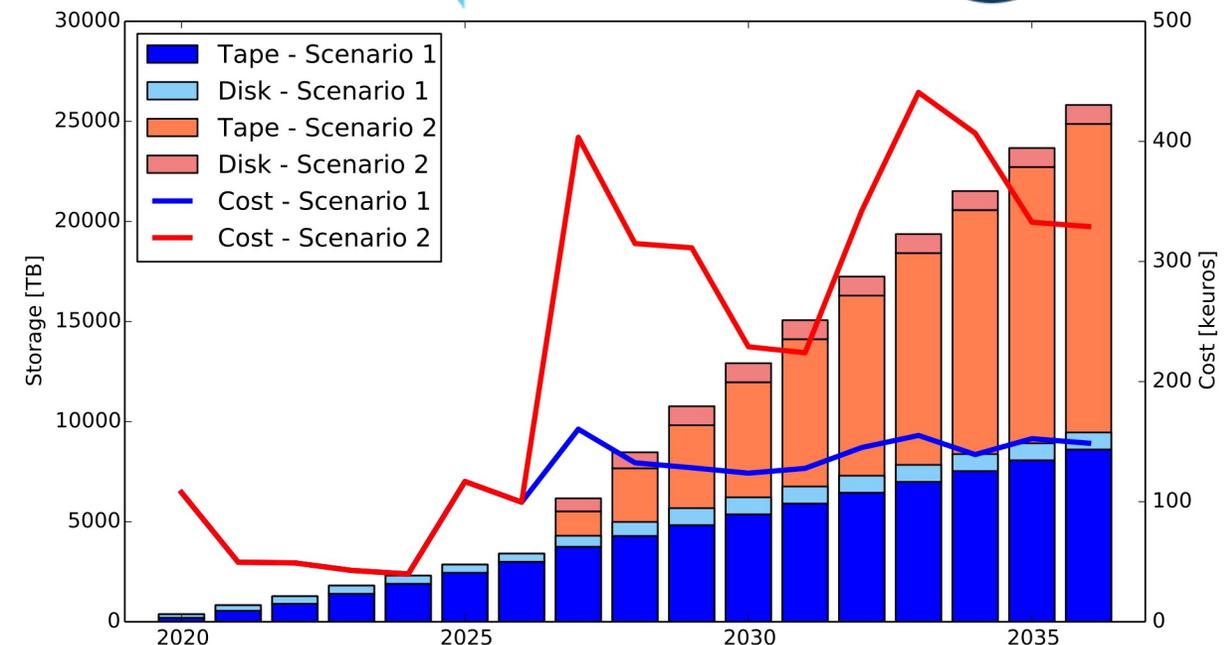
## ND280/HK databases at CC-IN2P3:

- Move to HK production DB at CC-IN2P3 in April
- Storage of official information afterwards
- Need to confirm long-term support soon

## CC-IN2P3 as Tier1 for ND280/HK:

- Production for T2K this year
- **Replication of first ND280 Upgrade data to CC-IN2P3**
- New production for HK this Spring (4MCPU.h)
- Store results on disk and tape at CC-IN2P3

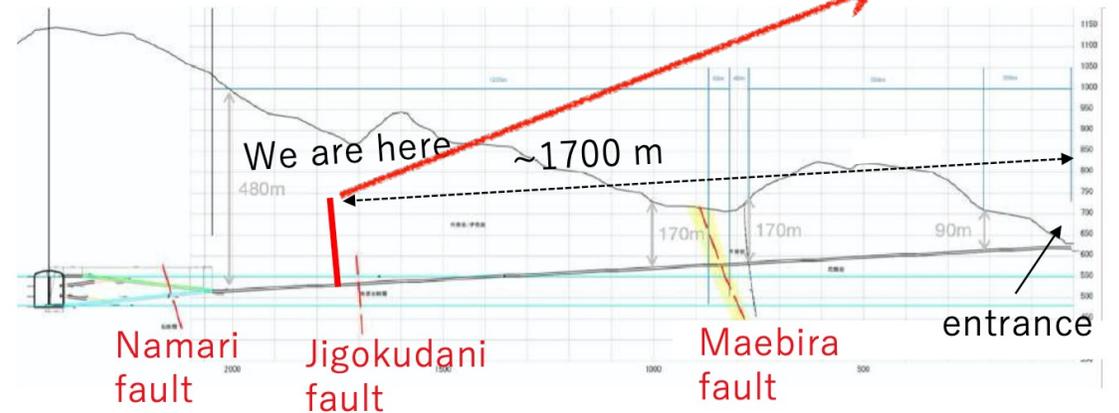
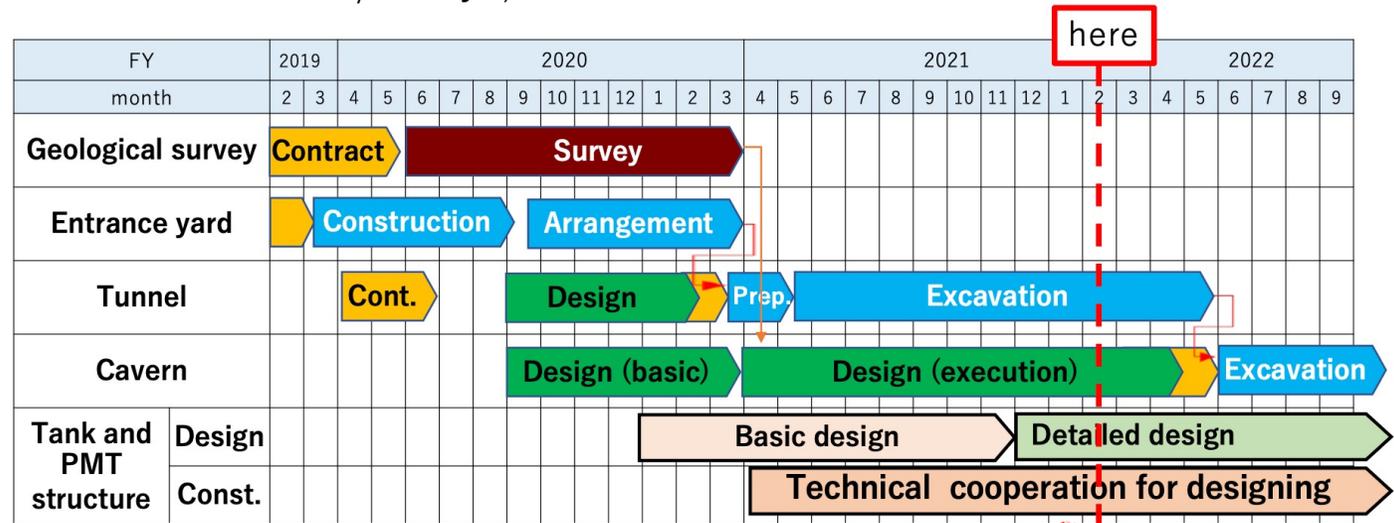
Lot of efforts and time being invested!



# Progresses on the HK far detector construction



Moriyama-san's talk, HK CM last week



~300 PMTs are delivered per month  
 ~3000 PMTs were already delivered

50.4 oku-yen newly allocated budget for next FY

- **The excavation of the access tunnel is going well and will complete on time!!**  
 Subsequent excavation (cavern) will start in March

# Time and clock for HK: context

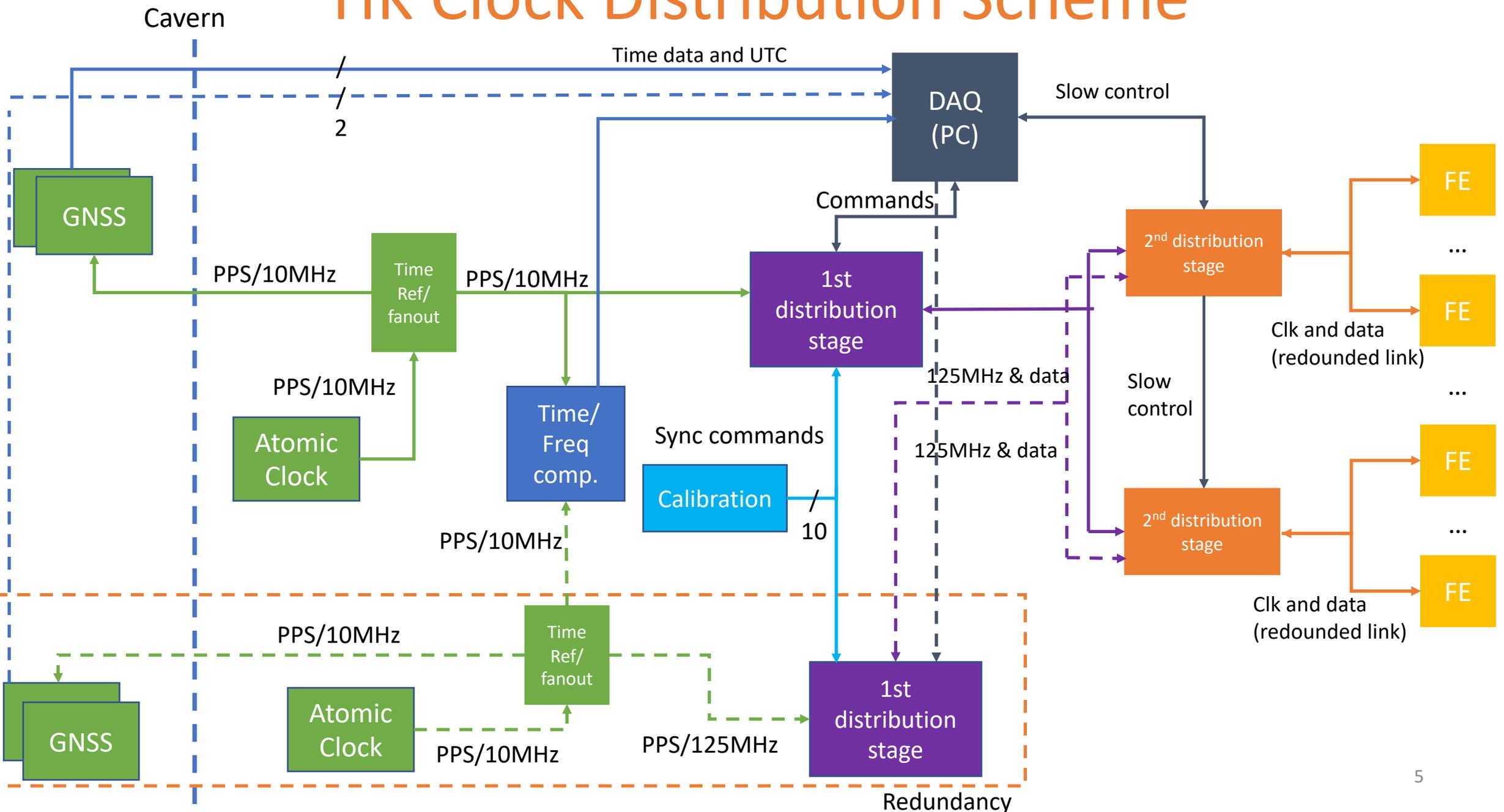
LPNHE, CEA and INFN have joint forces to design a complete time distribution scheme that will be submitted to the international collaboration this spring. If approved the group will be in charge of the construction and commissioning. Together with the LLR digitizer it will give IN2P3 a central role in HK!

The proposal envisions to provide a system that fulfil the needs of both HK far and intermediate detector. Possible synergies can be found with the future T2K upgrades (when integrated in HK).

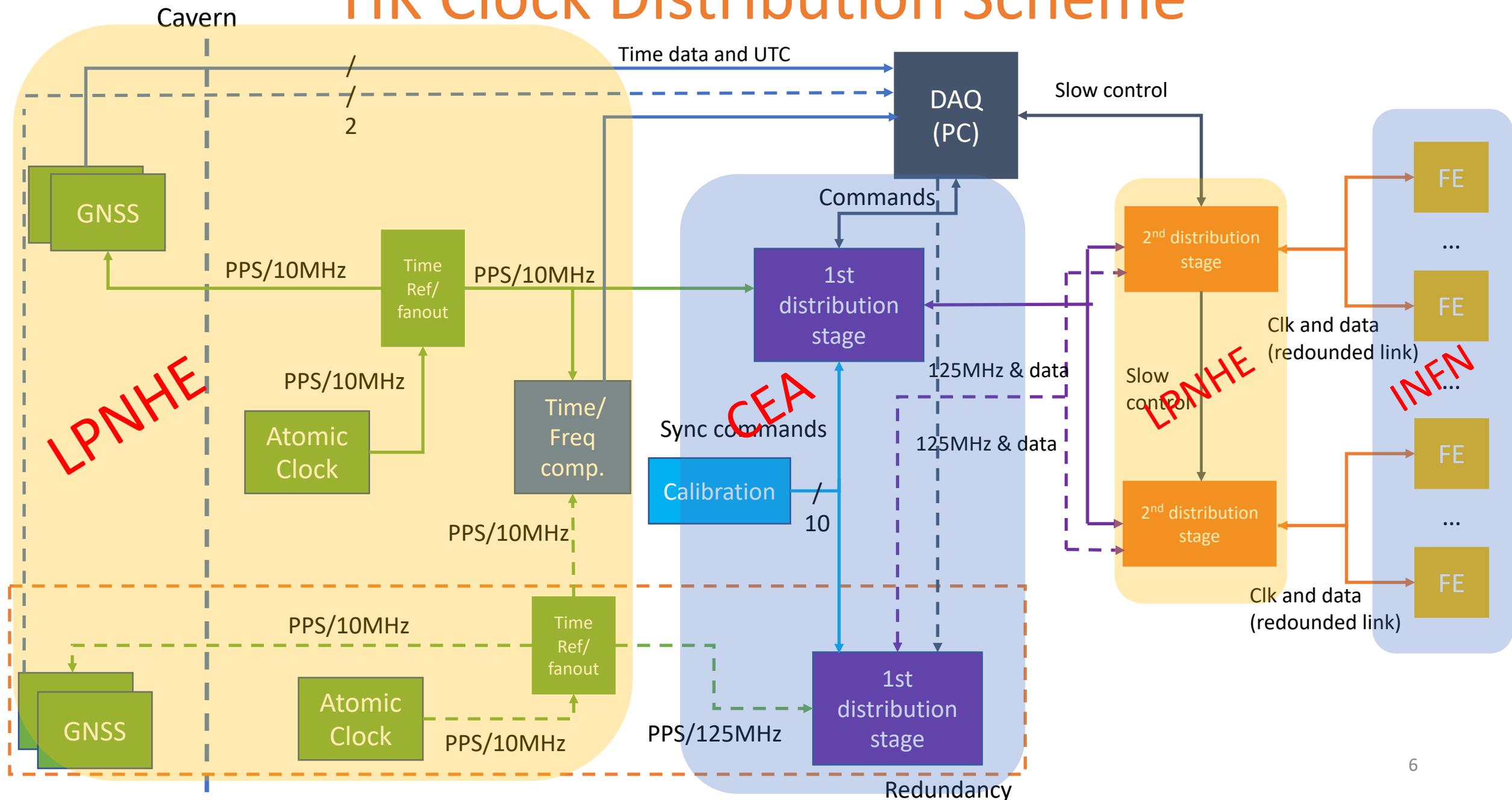
To conceive this proposal, an intense and fruitful R&D campaign is being carried out. Its results will be available for other IN2P3 experiments. This group believes that the time distribution system will be a strategic assets for future experiments due to the constant size increase of particle detectors.

This program has already created synergies across CNRS institutes thanks to a very fruitful collaboration with the SYRTE lab (Observatoire de Paris).

# HK Clock Distribution Scheme

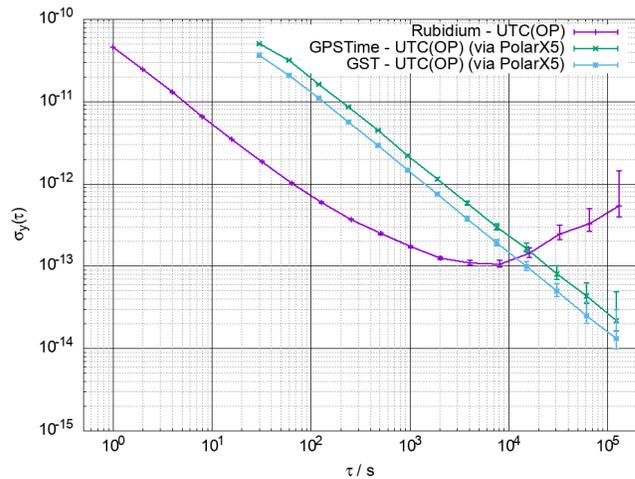


# HK Clock Distribution Scheme

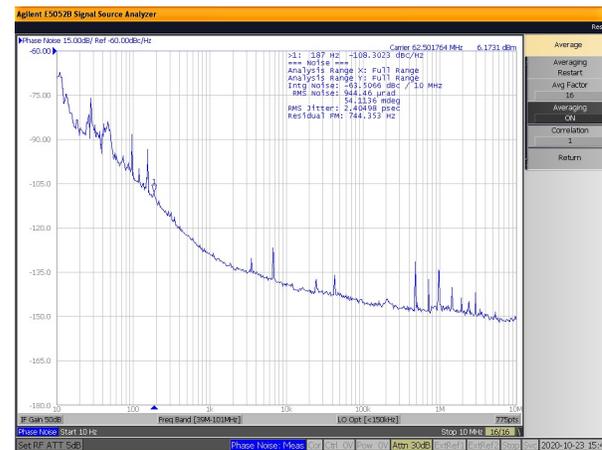


# Status

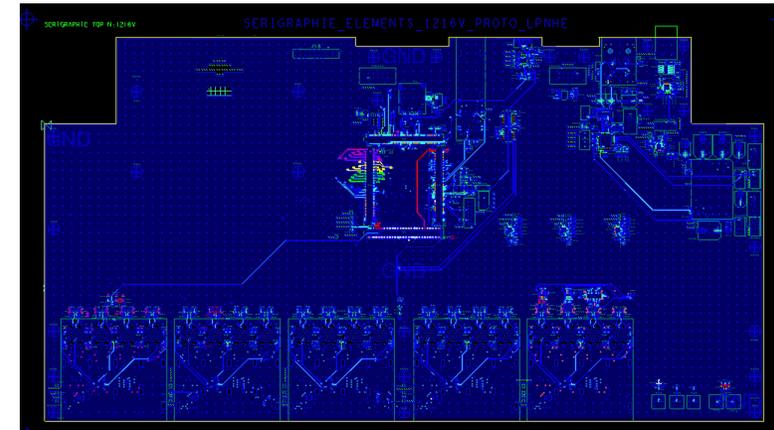
- Lucile is contributing to the clock and GNSS antenna characterization.
- The final conceptual scheme has been conceived.
- Test and characterization campaigns have been carried out.
- First prototypes have been designed (great synergy with CEA)
- The technical note (include precise cost estimation) for the final review is being prepared



GNSS and atomic clock  
characterization



Clock Jitter at endpoint (FE)  
characterization



Second distribution stage  
prototype board

We look forward to share our material with the IN2P3 management to prepare the financial proposal for the final commitment