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# Virtualisation and Clouds: Future directions as seen by CERN's T0

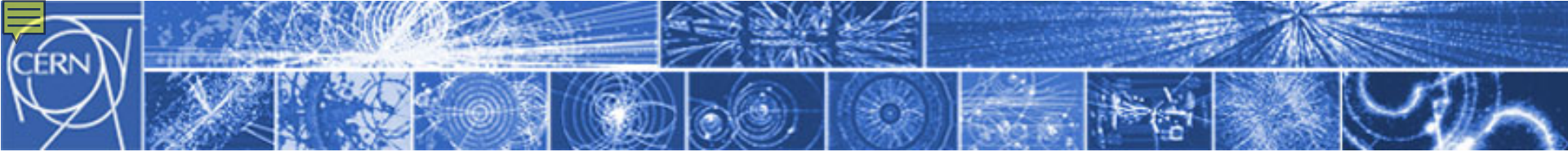
CERN T0

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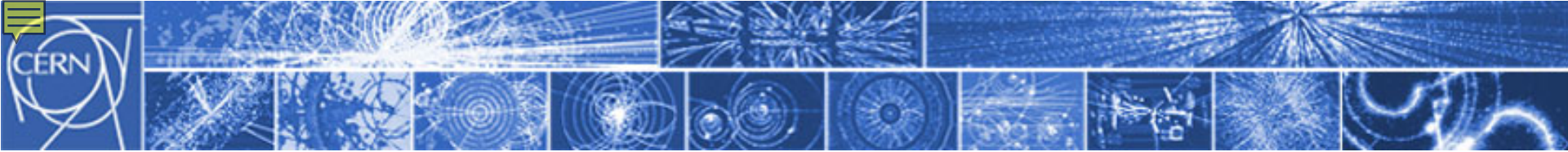
16<sup>th</sup> January 2013





## Clouds are a fact:

- Experiment pilot factories running workload on public clouds
  - Helix Nebula
- (future) Site clouds:
  - BNL, CNAF, IN2P3, UViC
  - T0 HLT farms, CERN IT OpenStack
- How many of the assumptions made in the past are still valid?
- Need to address different issues than the previous Hepix Virtualisation Working Group
- Stay, as much as possible, realistic and consistent with industry directions



# What is missing for HEP community

- Accounting
  - Strategy (wall clock instead of CPU)
  - Multi-tenant accounting
  - Integration with APEL (some suggestions in pre-GDB)
- Scheduling
  - How to deal with limited resources? How to claim resources back?
  - Is a fair share mechanism needed for clouds?.....
- Federated Identity Management
  - Authentication process across multiple IT systems and Organisations
  - Authorisation process for implementing and enforcing policies
  - Identity Provisioning, De-Provisioning,... convergence with WLCG ?
- Need to restrict the variety of different cloud access methods?