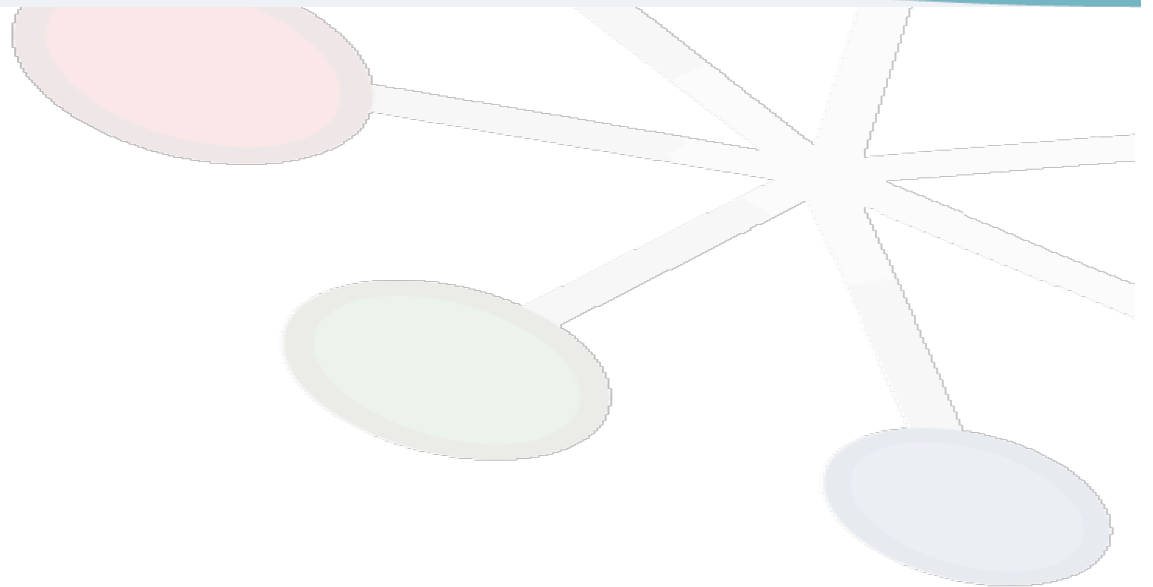




# LHCb usage of Tier2s





- **Guidelines**
  - Evaluate computing needs for all activities
    - ☆ Simulation
    - ☆ Real data processing
    - ☆ Analysis
  - Map it to expected resources at Tier0, Tier1s (6) and Tier2s (including non MoU)
  - Large needs for simulation (precision experiment)
    - ☆ Use full power of Tier2s (and others) for simulation
  - Minimize potential file access problems
    - ☆ For processing and analysis
- **TDR baseline**
  - Run processing applications at Tier0/CAF and Tier1s
    - ☆ For reprocessing, largely use also the Online HLT farm
      - \* Estimated ~50% of needs, but needs developments
  - Run simulation primarily at Tier2s
    - ☆ Use any opportunistic site



- **Batch analysis**
  - **Using Grid facilities at Tier0 and Tier1s**
    - ☆ All stripped DSTs available at all sites
    - ☆ MC DSTs at 3 sites (CERN + 2)
  - **Storage of output (microDST, Ntuple...) on Grid SE**
    - ☆ TxD1 storage (LHCb\_USER token)
  - **Expected number of selected events is small ( $<10^7$   $\sim$ 1 TB)**
- **End user analysis**
  - **Well feasible on desktop / laptop**
  - **Assume Tier3/4: not part of Grid activities**
    - ☆ **Under institute responsibility to set up:**
      - \* Storage and dataset replication
      - \* Software installation
    - ☆ **Develop multi-core/processor interactive programming (GaudiParallel, in collaboration with LCG-AA/PH-SFT)**



## LHCb Analysis on Tier2 ?

- First goal is to get it running reliably on Tier1s
  - Experience a lot of file access problems
    - ☆ Only 2 flavors (Castor and dCache)
    - ☆ Full time job to follow up on 7 sites
    - ☆ No central manpower for supporting more sites / flavors
- How could a Tier2 be used for analysis?
  - Grid resources are shared
    - ☆ LHCb does not want to support "national computing"
  - Our CPU requests are balanced between Tier1 and Tier2
    - ☆ Therefore analysis should come from additional resources
  - Local LHCb group(s) should be involved in the support
    - ☆ Dataset assignment
    - ☆ Problem resolution (data access, software installation...)
- Proposal
  - Investigate feasibility with a few selected sites (1-2)
  - Define a model that doesn't increase the load on central support