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Grid Computing at GSI (ALICE and FAIR) - present and future

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The future FAIR experiments CBM and PANDA have computing requirements that fall in a category that could currently not be satisfied by one single computing centre. One needs a larger, distributed computing infrastructure to cope with the amount of data to be simulated and analysed.

Since 2002, GSI operates a Tier2 center for ALICE@CERN. The central component of the GSI computing facility and hence the core of the ALICE Tier2 centre is a LSF/SGE batch farm of 4200+ CPU cores shared by the participating experiments, and accessible both locally and via Grid. In terms of data storage, a 2.5 PB Lustre file system, directly accessible from all worker nodes is maintained, as well as a 400 TB xrootd-based Grid storage element.

Based on this existing expertise, and utilising ALICE's middleware 'AliEn', the Grid infrastructure for PANDA and CBM is being built. Besides a Tier0 centre at GSI, the computing Grids of the two FAIR collaborations encompass now more than 17 sites in 11 countries and are constantly expanding.

The operation of the distributed FAIR computing infrastructure benefits significantly from the experience gained with the ALICE Tier2 centre. A close collaboration between ALICE Offline and FAIR provides mutual advantages. The employment of a common Grid middleware as well as compatible simulation and analysis software frameworks ensure significant synergy effects.

However, there are certain distinctions in usage and deployment between ALICE, CBM and PANDA. Starting from the common attributes, this talk goes on to explore the particularities of the three Grids and the dynamics of knowledge transfer between them.

Summary

GSI operates an ALICE T2 centre since 2002. Based on the corresponding experiences and in close collaboration with ALICE Offline the distributed computing infrastructure for the FAIR experiments is being set up.

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