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JINR Multifunctional Information and Computing Complex: Status and Perspectives

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JINR possesses a complex informational-computational infrastructure. The uninterrupted functioning of all its elements at the right level is mandatory for the fulfillment of the JINR scientific research programmes. The support of this infrastructure fully functional is a major task of the Laboratory of Information Technologies. Follows from the noticeable diversity of the scientific targets defined by the JINR research the Multifunctional Information and Computing Complex (MICC) was developed as distributed computing infrastructure fulfilling all the needs. The MICC should meet the requirements for a modern highly performing scientific computing complex: multi-functionality, high performance, task adapted data storage system, high reliability and availability, information security, scalability, customized software environment for different existing user groups, high performance telecommunications and modern local network. Dedicated MICC components are: the CMS Tier1 grid site; JINR Tier2 grid site providing support to the virtual organizations (VOs) concerning the JINR participation in the LHC experiments (ATLAS, ALICE, CMS, LHCb), other VOs within large-scale international collaborations with the JINR groups and, traditionally, the sequential computing tasks of non-grid JINR; cloud computing structure aimed at expanding the range of services provided to the users and at creating an integrated cloud environment of the JINR Member States; high performance heterogeneous computing platform HybriLIT, the main part of which is supercomputer "Govorun". A brief status overview of each component is presented. Particular attention is given to the development of distributed computations performed in collaboration with CERN, BNL, FNAL, FAIR, China, and JINR Member States. We present our plans to further develop MICC as a center for scientific computing within the multidisciplinary research environment of JINR and JINR Member States, and particularly for megascience projects, such as NICA.

Summary

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