Contribution ID: **64**   Type: **Sectional reports**

THE ALGORITHM FOR SOLVING THE PROBLEM OF SYNTHESIS OF THE OPTIMAL LOGICAL STRUCTURE OF DISTRIBUTED DATA IN ARCHITECTURE OF GRID SERVICE

Thursday 8 July 2021 14:15 (15 minutes)

Abstract. The questions of constructing optimal logical structure of a distributed database (DDB) are considered. Solving these issues will make it possible to increase the speed of processing requests in DDB in comparison with a traditional database. In particular, such tasks arise for the organization of systems for processing huge amounts of information from the Large Hadron Collider ⊠ the charged particle accelerator. In these systems various DDBs are used to store information about: the system of triggers of data collection from physical experimental installations, the geometry and the operating conditions of the detector while collecting experimental data.

It is proposed to distinguish two interrelated stages in the synthesis algorithm. The first step is to solve the problem of distribution of database clusters between the server and clients, followed by the solution of the problem of optimal distribution of data groups of each node by types of logical records. At the second stage the problem of database localization on the nodes of the computer network is solved, in addition to the results of the first stage, the characteristics of the DDB are taken into account. Optimal logical structure of DDB will ensure the efficiency of the information system on computational resources. As a result of its solution, the local network of the DDB is decomposed into a number of clusters that have minimal information connectivity with each other. Solving the problem of synthesis of the optimal logical structure are also of great practical importance for the automated design of logical structures, for the automated formation of query specifications and adjustments of the DDB.

Summary

Authors: NURMATOVA, Elena (Russia); Dr GUSEV, Viktor V. (National Research Center "Kurchatov Institute" State Research Center of Russian Federation Institute for High Energy Physics, Protvino, Russia)

Presenter: NURMATOVA, Elena (Russia)

Session Classification: Data Management, Organization and Access

Track Classification: 6. Data Management, Organisation and Access