Online Performance Monitoring of the Third ALICE Date Challenge

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Abstract

The ALICE data acquisition system has been designed for a maximum bandwidth of 2.5 GB/s for event building and of 1.25 GB/s for mass storage. In order to attain a gradual integration of the overall computing infrastructure, the present hardware components and software prototypes are tested on a regular basis (roughly once a year).

The most recent ALICE data challenge (third one, called ADC3) took place from January to March 2001 as a joint effort between the ALICE online/offline team and the CERN/IT division. The main goal of this data challenge was to achieve a stable 300 MB/s throughput in the event building network and a 100 MB/s throughput to central data recording system over a period of a few days.

Performance monitoring was another goal of this exercise, where a prototype was developed to collect and display system as well as application specific statistics. In the following we will introduce this monitoring system and report on some of the obtained results during the ADC3. It is structured in three parts:
-an overview will be given on the testbed hardware, the software running on it, and the data flow;
- the architecture of the monitoring system will be described, which consists of a set of C programs, Perl/gnuplot/CGI scripts, and a MySQL database. It allows to measure individual/aggregate data rates, collected data volumes, and CPU loads. All these values can be visualized on web pages on a run-by-run or global basis;
- various plots will be shown to illustrate the usefulness of this online monitoring system and to document the outcome of the ADC3. Finally, some ideas will be pointed out how to advance this monitoring system both in terms of functionality and implementation.