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High availability through full redundancy of the CMS detector controls system

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The CMS detector control system (DCS) is responsible for controlling and monitoring the detector status and for the operation of all CMS sub detectors and infrastructure. This is required to ensure safe and efficient data taking, so that high quality physics data can be recorded. The current system architecture is composed of more than 100 servers, in order to provide the required processing resources. An optimization of the system software and hardware architecture is under development to ensure redundancy of all the controlled sub-systems and to reduce any downtime due to hardware or software failures. The new optimized structure is based mainly on powerful and highly reliable blade servers and makes use of a fully redundant approach, guaranteeing high availability and reliability. The analysis of the requirements, the challenges, the improvements and the optimized system architecture as well as its specific hardware and software solutions are presented.

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