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CERN Database Services for the LHC Computing Grid

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Physics meta-data stored in relational databases play a crucial role in the Large Hadron Collider (LHC) experiments and also in the operation of the Worldwide LHC Computing Grid (WLCG) services. A large proportion of non-event data such as detector conditions, calibration, geometry and production bookkeeping relies heavily on databases. Also, the core Grid services that catalogue and distribute LHC data cannot operate without a reliable database infrastructure at CERN and elsewhere.

The Physics Services and Support group at CERN provides database services for the physics community. With an installed base of several TB-sized database clusters, the service is designed to accommodate growth for data processing generated by the LHC experiments and LCG services.

During the last year, the physics database services went through a major preparation phase for LHC start-up and are now fully based on Oracle clusters on Intel/Linux. Over 100 database server nodes are deployed today in some 15 clusters serving almost 2 million database sessions per week.

This talk will detail the architecture currently deployed in production and the results achieved in the areas of high availability, consolidation and scalability. Service evolution plans for the LHC start-up will also be discussed.

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