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Distributed Database Services - a Fundamental Component of the WLCG Service for the LHC Experiments - Experience and Outlook

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Originally deployed at CERN for the construction of LEP, relational databases now play a key role in the experiments' production chains, from online acquisition through to offline production, data distribution, reprocessing and analysis. They are also a fundamental building block for the Tier0 and Tier1 data management services. We summarize the key requirements in terms of availability, performance and scalability and explain the primary solutions that have been deployed both on- and off-line, at CERN and outside, to meet these requirements.

We describe how the distributed database services deployed in the Worldwide LHC Computing Grid have met the challenges of 2008 - the two phases of CCRC'08, together with data taking from cosmic rays and the short period of LHC operation.

Finally, we list the areas - both in terms of the baseline services as well as key applications and data life cycle - where enhancements have been required for 2009 and summarize the experience gained from 2009 data taking readiness testing - aka "CCRC'09" - together with a prognosis for 2009 data taking.

Summary

Keywords: online and offline databases, Real Application Clusters (RAC), Data Guard, Streams, data life cycle, security, backups and recovery

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