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## **Distributed database services in PHENIX - what it takes to support a Petabyte experiment.**

*Monday, September 3, 2007 8:00 AM (20 minutes)*

After seven years of running and collecting 2 Petabytes of physics data, PHENIX experiment at the Relativistic Heavy Ion Collider (RHIC) has gained a lot of experience with database management systems (DBMS).

Serving all of the experiment's operations - data taking, production and analysis - databases provide 24/7 access to calibrations and book-keeping information for hundreds of users at several computing centers worldwide and face the following challenges:

- Simultaneous data taking, production and analysis result in hundreds of concurrent database connections and heavy server I/O load.
- Online data production at remote sites requires a high degree of Master-Slave server synchronization.
- Database size ( presently 100GB with half of data added in the last few months ) raises scalability concerns.
- Long life of modern HENP experiments and fast development of database technologies make prediction of the best DBMS provider 5-10 years down the road difficult and require investments in design and support of good APIs.

In this talk PHENIX solutions to the above problems will be presented and the trade-offs discussed.

### **Submitted on behalf of Collaboration (ex, BaBar, ATLAS)**

PHENIX

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