CREST: Databases

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Very Brief Summary from the Last talk.

- Continued growth in Use of databases.
  - New databases requests will continue to occur.
  - No certain knowledge of when to close a DB down.
- Continued growth in the standard size of databases.
  - 200GB expected by year end.
- Increased need for better database performance.
  - In general, as grid analysis increases so does DB access.
- Expected growth of noSQL databases, graph databases (AI) , and what else?

- Hardware & software maintenance is expected to continue under ITD.

Development

- Provide a firmer structure within which databases are designed and accepted for support.
    - Currently we accept databases built with no oversight by us. Then we are asked to figure out why their databases don't scale.
- Provide a standard acceptance model or review of the schema and its usage.
    - More rigid standards on proper DB design.
    - Review of the schema to be supported.
    - Review of the queries expected to be used.

Database Usage

- Establish standards for how a database is used in automated high-use environments.
  - High use databases must have a standard manner in how they are accessed. Otherwise they will fail as the load increases. Simply increasing connections is not scalable.
    - Push for cacheable queries.
  - Investigate primary/primary databases allowing us to split the load.
    - Supported by MariaDb but not yet by PostgreSQL.
    - 3rd party software claims to support PostgreSQL.

Shared Resource usage

Many experiment databases reside on lab provided shared resources.
- Better understanding of the utilization of system resources by each DB on shared resources.
  - to evaluate its effect on shared resources and other experiments.
- Not just an FNAL issue.
  - Effort is going on, in the DB world, for tools to help understand the COST of specific types of queries on a DB.
  - We should be looking into/at these tools.

Non-Relational Databases

- Need a better level of experience with non-relational databases.
  - We do not have development experience in this area.
- Develop test projects.
  - Acquire training in noSQL and possibly graph database.