



Success Story: Open Source Relational Database Services Tier

Summary:

TerpSys created a multi-level services tier structure to provide a standardized platform for deploying Open Source databases; specifically, MySQL and Postgres.

Client: National Cancer Institute Center for Bioinformatics (NCICB)

The client, an IT division of the National Cancer Institute, creates customized applications to house and analyze national and international medical research data.

Objectives:

- Create a robust MySQL and Postgres Open Source database infrastructure.
- Establish client-wide standards for both the systems and database versions of MySQL and Postgres.
- Deliver a 4-tier structure with automated backup and maintenance features.
- Ensure 24x7 availability of the MySQL and Postgres production tier.



Challenge

NCICB, following the lead of its parent agency, stressed that its new database infrastructure system, to the extent possible, should be Open Source compatible, as many of the custom applications it produces are shared with medical centers around the world.

TerpSys was informed that both MySQL and Postgres Open Source databases were to be supported. The choice of database would be determined by developer and/or front-end application requirements. At the time of the project's inception, no architecture standards were in place for MySQL or Postgres, nor was there any existing infrastructure to support it. The TerpSys team would have to leverage its collective experience with managing Oracle databases in order to design a support structure for MySQL and Postgres.

Solution

TerpSys pooled internal resources to address and map out the multi-tier structure for Open Source databases. Planning focused on identifying needed hardware, setting architecture standards, ascertaining then-current requirements for MySQL and Postgres, and quantifying the probable long and short term increases in NCICB's use of these databases.

Until the recommended hardware arrived for all four tiers - Development, Quality Assurance, Staging, and Production - TerpSys devised a temporary solution using Virtual Machine (VM) technology, which allowed work to proceed unimpeded until the new equipment was in place.

Ultimately, technical guidance for managing the new databases was supplied by diligent research of Postgres and TerpSys personnel possessing newly-acquired MySQL Certifications. Issues successfully resolved included directory structure standardization, database naming conventions, automated backup scripts, and proactive monitoring of MySQL and Postgres databases via SiteScope.

Results

- Provided NCICB with the ability to develop Open Source applications with MySQL or Postgres databases for worldwide use by medical research centers.
- Developed stable, robust platform that supports 7 existing production applications: 4 using MySQL databases, and 3 using Postres databases.
- Standardized NCICB processes and procedures, thus accelerating development cycles for new applications, as well as updates for existing applications.