



Db2 z/OS Application and Database Modernization and Optimization

Db2 z/OS applications are expected to perform at increasingly high volumes against very large data stores. Often performance becomes an issue due to the fact that most legacy applications/databases were never designed to deliver high performance against the ever-increasing performance requirements of today's environment. Now these applications are being required to migrate to a cloud computing environment and if the current issues are not being addressed, this migration effort can lead to further magnification of problems and potential showstoppers. A Db2 z/OS Application/Database Stabilization and Optimization consultancy identifies and fixes potential issues in order to make the current application/database optimal for a smooth migration without delays in current processing.

Challenges Addressed:

- Lack of knowledge/experience with Db2 z/OS best practices and exploitation of current features, and application coding techniques, and database design/indexing performance tuning
- Lack of resources and workload backlog impeding migration and modernization/migration efforts
- Resource availability for performance tuning/optimization and regression testing
- Need to perform mainframe application modernization to cloud based services but existing application still experience performance issues and not meeting SLAs (batch/online)
- Not meeting current SLA for workloads causing issues with cloud migration efforts

Approach:

- Review current application/SQL code of application(s) experiencing performance challenges
- Review subsystem opportunities to help with better application performance (memory/dynamic SQL caching, optimization, DBAT performance, etc)
- Review Db2 database structures for best usage and possible restructuring or indexing opportunities
- Identify repetitive errors (i.e locking (deadlock/timeouts), insert duplication, etc) and provide resolutions
- Define issues, remediation, test plans and perform/measure results
- Rollout in test environment(s) and perform comparison testing

Deliverables:

- Findings, opportunities, and recommendations for improved application performance and SQL optimization
- Recommendations and test plan for application/SQL changes
 - Identification of long running SQL statements and heavy CPU consumers
 - Recommendations and testing of statements to utilize available indexes properly, or changes needed, or additional indexes needed

- Identification of poorly coded applications not properly using Db2 SQL
 - Number of statements, poor use of current Db2 optimizations
- Identification of improper use of dynamic SQL or stored procedures
 - Recommendations for tuning and optimization of usage
- Recommendations for
 - Db2 z/OS system changes
 - Identification and testing of system parameters possibly effecting SQL query performance, memory usage (dynamic SQL cache, RID pool, sort work files)
 - Db2 z/OS table space and indexes changes
 - Building and testing of indexes added/changed to improve performance
 - Benchmark testing performed for each change and SQL performance results obtained via tools, Explains and accounting reports
 - Application/SQL changes for top performance problem statements
 - Identification of proper statistics collection
 - Recommendations and testing of collection of distribution statistics (frequency/histogram) based on data and SQL predicts both for filtering and joins
 - Identification and performance testing of proposed SQL changes
 - Performance measurements for before/after changes using available tools, Explain and accounting reports
 - Test plan and test system design
 - Iterative testing for recommended changes such as index change/addition or revised SQL
 - Document all results and considerations for future/other applications/SQL