

The Health Check for DB2 UDB is a carefully crafted program designed to review the efficiency as well as effectiveness of a DB2 UDB-based database management system. The efficiency of the system is evaluated by determining the extent to which the DB2 UDB products have been utilized; essentially, is the system “firing on all cylinders”?

The *efficiency* of a system takes into consideration issues such as:

- Is the database and operating system properly tuned?
- Are there sufficient hardware resources for the various applications?
- Have schemas been normalized or denormalized where appropriate?
- Have the proper indexes been created?
- Are critical administrative utilities run regularly?
- Does the staff have the requisite skills needed to maintain an efficient system?

In a complex computing environment, the extent to which these and other issues are addressed will affect the overall efficiency and effectiveness of the systems in place. The DB2 UDB Health Check addresses these issues of efficiency and effectiveness by having a skilled DB2 UDB engineer assess your DB2 UDB-based computing environment over a one to five day period.

Ideal System Performance

To achieve the optimal performance for a given system one must ensure the optimal performance of each component of the system. The components addressed in this performance analysis are:

- Hardware utilization including CPU, I/O, Memory
- Operating System Configuration
- DB2 UDB Database Manager and its constituent databases
- Implementation of the physical model
- Client Communications
- Application Implementation
- Operations and Maintenance including backup, recovery, consistency checks and others.

Each of these components is critically important to the optimal performance of the overall system.

What We Do

Assess the performance, stability and availability of your IBM DB2 UDB-based systems

What You Get

Documented recommendations relating to performance, stability and availability of your database system and also, if desired, the Xtivia expertise to apply them

What You Save

Time, money and headaches

What You Achieve

Increased performance, maximized availability, boosted productivity and peace of mind

XTIVIA

Xtivia's team of IBM DB2 UDB server Specialists have helped clients of all sizes that were faced with finding qualified resources in the areas of database administration, management, performance tuning, development and maintenance services. Xtivia has been successfully providing Database Consulting and it's Virtual-DBA Remote DBA Services to clients of all sizes for several years.

The following are some of the issues related to each system component.

Hardware Resources:

The server hosting your DB2 UDB database relies primarily on three hardware subsystems for efficient performance – CPU, Memory, and I/O.

A well-architected system will show optimal CPU utilization. Excessive consumption of CPU by sessions or processes could be indicative of a larger problem.

The I/O subsystem of the server hosting your IBM DB2 UDB system is certainly critical to the performance of the database and applications. Ideally, the disks in the storage system should respond in a manner such that there will be no queues forming on those disks. Additionally, for warehouse type environments, the I/O patterns will be analyzed for bottlenecks and limitations. I/O configuration is the most flexible of the resources, since the database and system administrators can easily work together to balance the I/O load across all available resources.

A large server may contain several gigabytes of main memory. The use of that memory has to be carefully divided among the functions of the server – applications, database manager, databases, and operating system. The goal is to have ample free memory to meet the peak demands of the workload, while maintaining good cache hit rates in the database. If the database cache is performing well but there is no free memory, users may suffer from paging and swapping. Bufferpool utilizations need to be analyzed and the adequacy of other instance and database level memory parameters need to be examined as well.

Operating System:

IBM provides a list of parameter recommendations for each platform. These will be analyzed and addressed. Analysis will be performed to ensure that minimum patch level requirements for DB2 UDB to run smoothly on the platform have been met. Recommendations to install additional OS level software or make OS level configuration parameter changes, which enable DB2 UDB to take advantage of platform specific improvements, will be made.

DB2 UDB Database Server:

There are an enormous number of items that relate to database performance. However, key elements of this score will reflect the use of indexes, table fragmentation and I/O balance, optimizer statistics, parameter settings, transaction logging, database layout, session activity, cache utilizations, sorts, buffer pool utilizations, locks, deadlocks, and others. These areas will be investigated extensively based on the overall behavior of the database. Each component of the analysis will be detailed in the report, which is delivered at the completion of the service.

Client Communications:

There are several optimizations available for connecting to your IBM DB2 UDB system. These will be evaluated for appropriateness in the environment for traditional client server or n-tier connections. Additionally, if clients are connecting to DB2 UDB with older versions of software, there is tremendous opportunity for performance improvements through client library upgrades.

Application Implementation:

Database applications can often be enhanced through techniques that may have been introduced after the application was originally designed. The use of prepared SQL statements, for example, is a common way to gain performance in applications. A discussion with the application developers on-site will lead the engineer to make recommendations for improving the application, or to simply state that the application is well written.

While the above analysis strives to leverage hardware and software to its fullest potential, this area of the assessment strives to provide operational stability to the environment. Looking at batch jobs, backup and recovery strategies, logging strategies, upgrade strategies, and test platform capability will enable the engineer to provide recommendations for improving availability of the environment.

Sample workloads can be analyzed and recommendations for incorporating features such as Materialized Query Tables (MQT) or Multidimensional Clustering (MDC) can be made.

During the Performance Analysis, you will need to provide access to your systems and key personnel if this evaluation is to be thorough and meaningful. Key individuals in your environment will be the DBA, the System Administrator, the Application Team Leader, and others you identify as being able to provide insight to the design and workings of the current system.

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For more information on how Xtivia can help your organization better manage its IT services, please contact an office near you or visit our web site at www.Xtivia.com.

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