

DB2 UDB for iSeries:Autonomic Computing Frequently Asked Questions



1. What is DB2 UDB for iSeries?

DB2 Universal Database (UDB) for iSeries is the relational database management system (RDBMS) that is built into the Operating System (OS/400) for the IBM eServer iSeries. It is an open, extensible, high performance, scalable database that adheres to many industry standards while leveraging the iSeries architecture to maintain its value proposition of lower total costs to own. See <http://www.ibm.com/servers/eserver/series/db2>.

2. What is Autonomic Computing

Autonomic Computing refers to IBM's cross brand initiative to make e-Business infrastructure, in particular eServer and related software, to be self managing. It covers a broad range of concepts, including:

- Self Configuring
- Self Healing
- Self Tuning
- Self Protecting

3. How does DB2 UDB for iSeries address Autonomic Computing?

DB2 UDB for iSeries is uniquely positioned to leverage the self managing concepts inherent in Autonomic Computing due to the fundamental architecture of iSeries and OS/400. The following describes four key areas of autonomic computing:

- Self Configuring

Unlike many Relational Database Management Systems, DB2 UDB for iSeries requires limited configuration work prior to use. Because it is pre-loaded with OS/400, and doesn't require any specific database installation procedures, the database itself is ready to go! Because of the unique Single Level Store concepts of the system, database management tasks such as creation and monitoring of tablespaces or complex partitioning of data across disk subsystems are not required. DB2 UDB for iSeries provides automatic data spreading and automatic storage allocation.

- Self Healing

DB2 UDB for iSeries contains a number of self-healing qualities. Systems Managed Access Path Protection (SMAPP) automatically journals (logs) high risk indexes to minimize the recovery time in the case of a system failure. Self-managed journal receivers allow the system to automatically monitor the capacity of a journal receiver (database transaction log), creating a new receiver and auto switching transaction logging to it should it become close to maximum capacity. Index rebalancing, a common DBA task on other systems (because indexes can become unbalanced over time), is handled automatically by DB2 UDB for iSeries.

- Self Tuning

While OS/400 comes with an "auto-tuner" that adjusts resources based on predictive analysis, DB2 UDB for iSeries also contains several self tuning attributes. One key component of DB2 UDB for iSeries is the cost-based optimizer. This component processes all SQL/Query database activity and automatically recognizes resource changes on the system and without user intervention rebuilds access plans (if desirable) to optimize the available resources.

Statistics are used by the optimizer to assist in determining the least cost method of accessing the data. Statistics are collected and maintained automatically by DB2 UDB for iSeries during normal database processing. An Automatic Index Advisor, provided through the iSeries Navigator component (included with

OS/400), dramatically simplifies enablement of an indexing strategy for improved performance.

- Self Protecting

DB2 UDB for iSeries is very well positioned in this area because of the object based structure of OS/400, which DB2 leverages. In addition to the high degree of security that is made possible by the object based kernel, other self protecting attributes that are built into the operating system and available to use include:

- ◆ Digital signing of objects to help prevent unauthorized access
- ◆ 128 bit data encryption and SSL
- ◆ US Government C2 security compliance including object auditing

4. Does DB2 UDB for iSeries support V7.2 or V8.1 of DB2 UDB?

The version/release naming convention for DB2 UDB for iSeries is linked to the iSeries Operating System version and release convention. DB2 UDB for Linux/Unix/Windows follows a different version/release naming scheme. Refer to question #5 for more detail.

5. How does DB2 UDB for iSeries compare to DB2 UDB on Linux/Unix/Windows?

All the DB2 UDB family members (DB2 UDB runs on over twenty platforms) share common attributes, but also differ in their optimization for the specific platform and operating environments. For instance, DB2 UDB for iSeries shares common SQL standard support and common database related products with the other family members. All DB2 UDB family members leverage the significant database research conducted by IBM labs. IBM continues to lead the industry in number of technology patents awarded each year.

For example, sophisticated SQL Optimization techniques developed by IBM are leveraged across the entire family. Utilities like Data Propagator, Query Management Facility (QMF), DB2 UDB Extenders and DB2 OLAP are available across multiple DB2 UDB environments.

Where the products differ are in packaging (function built in vs. delivered as an add-on feature), administrative facilities (many database administrative functions are either not needed or part of the OS with DB2 UDB for iSeries), and timing in delivering specific database function.

A document describing common SQL constructs across the DB2 family can be found at:
<http://www-919.ibm.com/developer/db2/downloads/cpsqlref.pdf>

6. Are Health Center and Configuration Advisor (DB2 UDB V8.1 components) available for DB2 UDB for iSeries?

No, these functions are either not required on iSeries or provided through other tools. This is a good example of administrative facility differences pointed out in question #5. These utilities are specific to DB2 UDB V8.1. Health Center is unique to the Linux/Unix/Windows operating environment and provides functionality to address issues that generally do not exist with DB2 UDB for iSeries. OS/400 tools that allow for collection of performance data and capacity planning/sizing guidance provide functions found in Configuration Advisor.

7. Where can I find more education on DB2 UDB for iSeries

There is a wealth of information available via the web, at the DB2 UDB for iSeries home page:
<http://www.ibm.com/servers/eserver/series/db2>.