A Free Newsletter for Unisys Users from

KMSYS WORLDWIDE, INC

Q-Tips

In This Issue:

Discovering Time Critical Savings

A Case Study in Unisys DMS 2200 Database Management

We have long advocated the use of I-QU PLUS-1 as today's preeminent database reorganization tool. Recently, we had a chance to show our mettle and prove that our words were not hollow.

A customer in Portugal had an extremely large, time critical database application in need of reorganization. The on-site Unisys personnel had determined that reorganization by conventional means (DRU/REORG) would result in costly downtime that the customer could ill afford. KMSYS Worldwide, Inc. was contracted to propose an alternate solution.

The following is an accounting of the events and considerations involved in that ultimately successful solution.

Objective

The object of concern was a database area containing more than 17 million records with links (sets) spanning ten areas. It was projected that a conventional reorg would exceed the allowable 36-hour weekend period set aside for such an endeavor. In addition to the actual time required to perform the reorg, a block had to be reserved for company personnel to verify the success, or failure, of the effort.

The singular goal for the customer was to improve transaction performance through a reorganization of the area. At the same time, the area would be expanded to allow for anticipated growth.

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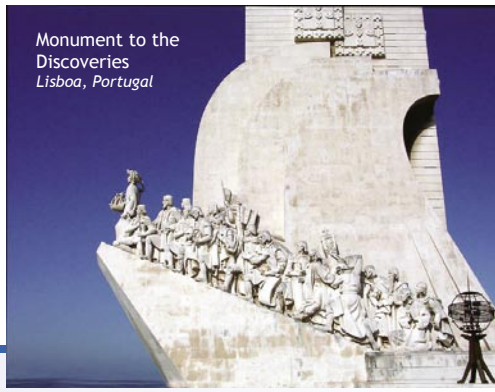


Monument to the Discoveries
Lisboa, Portugal

KMSYS Worldwide Goes to Europe

For a few years now, Unisys has been supporting a European user base with a series of conferences called Future Matters. We were pleased to participate in two of this year's events, as we sent a delegation to conferences in Manchester, UK and Antwerp, Belgium.

This was our first time as an exhibing partner for Unisys Future Matters after being a part of many of the European UUA (Unisys Users Association) events in the past. In addition to learning about the direction in which Unisys is going in respect to the world market, Future Matters provides an excellent opportunity for clients to interact, meet new users and discuss their concerns with Unisys representatives and their partners. As a dedicated partner, KMSYS Worldwide is proud to participate in these gatherings.

Chris Moffa and April Huskins were at the Manchester conference, which was held at the stadium of the world-famous Manchester United football (soccer) team. Chris states, "As a company from the United States, we've learned about the needs of our fellow countrymen, but rarely get the same face-to-face time with our foreign markets. This show has given us that chance."

Our own Lew Holley was joined in Antwerp by KMSYS Worldwide's European reseller, Luca Lagattolla of Inegrators of Complex Systems (ICS). According to Lew, "It was very satisfying to see how much interest there was in the burgeoning offerings of Unisys, KMSYS and our mutual partners."

If you have never attended a Unisys user conference, we strongly recommend you give it a shot. Whether it is a UNITE conference in the USA, a Future Matters show in Europe or elsewhere, get-togethers such as these gives everyone a chance to mingle, exchange ideas and have a glimpse into the future.

For more information, visit www.kmsys.com/MoreInfo/links.htm.

Current Release Levels

eQuate	3.0
eQuate Web	3.0
Host Gateway Server	1.0
InfoQuest	5R6
I-QU PLUS-1	11R6
I-QU ReorgComposer	3R1
Q-LINK	6R6
QPlex Client	4.0
QPlex Server	1.0
QPlexView	4.0
T27 eXpress Family *(IT, Plus, Net and Pro)*	4.0
UTS eXpress Family *(IT, Plus, Net and Pro)*	4.0

Contact KMSYS Worldwide, Inc. if you need an upgrade.

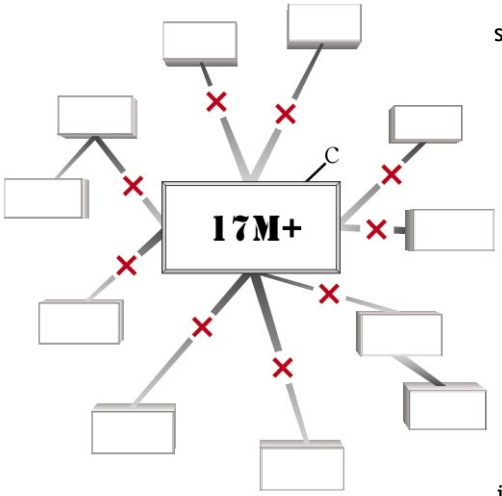
I-QU - Continued

The I-QU PLUS-1 Advantage

The traditional approach would require unloading and reloading, not only the object area, but also all associated areas linked to it by sets (either directly or indirectly). In a dedicated single-thread environment, I-QU PLUS-1 has the unique ability to isolate the target area from associated areas by temporarily ignoring the links to and from those areas during reload. Eliminating the inter-area set dependencies allows only those records residing in the object area to be unloaded and reloaded. Subsequent pointer replacements takes place through area sweeps rather than costly set chaining. Accordingly, reorgs are more manageable and require less time overall. Some sites claim a savings of as much as 80% in downtime.

The I-QU PLUS-1 Technique

There are four basic steps in the reorganization process: Unload, sort, reload and pointer fix.



The object of concern was a database area containing more than 17 million records with links (sets) spanning ten areas.

The unload process starts with an area sweep that unloads record data, each record's current location and set pointers. If records need to be sorted prior to reload, a sort key may be appended to each record. For example, a "new" prime page number can be obtained for CALC records.

Records are sorted to minimize load time by guaranteeing that records are stored in page number sequence whenever possible.

As each record is stored during the reload, no attempt is made to link the record into non-primary sets. Prior to reload, a supplied utility alters the reload schema to ignore those sets during the store. Set pointers, saved during unload, are then returned to each newly stored record. In addition, a cross-reference record written to a sideline file that contains the record's old and new location.

Upon completion of the reload phase, area sweeps take place by other supplied utilities that match the cross-reference file to the original set pointers and to set pointers in records in adjoining areas. When a match occurs on the old location, the set pointer is replaced with the new location.

Planning

It was agreed that since customer data was privileged and all involvement with actual data must be on-site only, KMSYS would prototype the reorganization on KMSYS hardware using customer-supplied information prior to traveling to the customer site.

In Lisbon, the customer would provide a production and test system, but required that the production system could only be used on the weekend, close of work Friday (roughly midnight) through early Monday morning. This time would be reserved for performing the reorganization on the production database.

At the customer's insistence, a reorganization would be performed on a test system prior to inaugurating one on the production machine. Business week hours could be used for this test; however, the development staff should be inconvenienced as little as possible. For this reason, it would be necessary to segment the reorganization and schedule around daily IT testing.

As is typical, the test system hardware was only a shadow of the production system, and yet, the test database was an exact mirror (same volume) of the production database. It would be necessary to not only segment the jobs, but also do the majority of processing at night and possibly overlap some of the test and production reorg efforts.

Prototyping – January-February 2006

Upon receiving a schema, CALC distribution algorithm and performance changes, KMSYS personnel began compiling and generating the scaled down environment that would be used to provide confidence studies for the customer. A simulated customer database was produced and secured on KMSYS equipment. Unload, reload and supporting utilities were generated utilizing a companion product of I-QU PLUS-1, I-QU ReorgComposer. Following customer guidelines, changes were made to the schema and CALC algorithm to model the proposed new database environment. It was also necessary to generate and install a separate mode of I-QU PLUS-1 to allow for the user written CALC algorithms being employed.

A reorganization was performed on the slimmed down mockup. After verifying database structural integrity, the customer was presented with the final confidence study and a detailed plan for the upcoming implementation.

The customer agreed that the effort should commence on-site.

Implementation Timeline – March 2006

Wednesday, March 1:

KMSYS technician arrived at the customer location in Lisbon. I-QU PLUS-1 was installed and configured on both customer systems: test and production.

Customer site personnel altered the runstreams generated by I-QU ReorgComposer to make the most of hardware resources.

Late in the afternoon, unload was started on the test system and left to run overnight.

I-QU - Continued

Thursday, March 2:

Unloaded 17M+ records sorted in "new" CALC page number sequence in preparation of loading the CALC area in the least time consuming manner possible. Pre-sorting was possible because the new distribution algorithm was included in the unload as a simulator.

Upon completion of the sort, reload started on the test system followed by pointer replacement phase.

Friday, March 3:

Due to unforeseen circumstances, reload restarted on the test system.

Late in the evening, unload and sort started on the production system.

Saturday, March 4:

Unload and sort completed on the production machine.

During the reload process on the test system, an incompatibility in software levels was discovered resulting in an unexpected CALC result. A workaround was formulated and as a result, it was necessary to generate, install and configure I-QU PLUS-1 on both systems in order to implement the workaround.

Reload process started on both the test and production systems and the staff adjourned for the night.

Sunday, March 5:

Reload and pointer fix completed on the production system.

Customer verification begun and completed on production system. Customer and Unisys personnel met to evaluate verification.

Reload and pointer fix remained running on test machine at end of day.

Monday, March 6:

Reload and pointer fix completed on test system.

Production system opened for retrieval-only to continue evaluation/verification process.

Customer signed off on reorganization and production system opened to normal processing.

Conclusion

The execution time on the customer's test system took in excess of 26 hours, while less than 15 hours on the faster production system; however, time constraints, site schedules, data volume and other events forced the utilization of the entire six-day period allotted for the effort. All in all, the I-QU Suite, I-QU PLUS-1 and I-QU ReorgComposer, proved worthy of the task. The diligence of the skillful Unisys support staff in Portugal was greatly appreciated by the KMSYS Worldwide technical team. We look forward to other such endeavors in the future. ■

Golf Sponsorships

Hitting the Links for a Good Cause

We recently had the pleasure being a sponsor of the Unisys 3rd Annual Spring Golf Tournament in Montgomery, Al. This outing raised $2,500 for AFCEA, the Air Force Communications Electronics Association. This money goes toward a scholarship for graduating high school seniors that wish to pursue a degree in computers.

KMSYS Worldwide sponsored the Closest to the Pin and Longest Drive holes. This was a worthwhile event and we were happy to have been there.

Disney World was our next stop on the amatuer sponsorship circuit. We were a full sponsor for this meet-and-greet event where Disney's IT department met with their vendors.

KMSYS Worldwide was on the links with other companies such as ACS/Nike, HP and Microsoft.

Chris Moffa and April Huskins along with teammates Lee Stanford and Johnny Gilbreath.

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Q-Tips

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