



"I love Reorg While Active! It allows me to reorganize massive files, with large numbers of deleted records, without any hit to system performance."

Cyndi Denny, gaming systems administrator at Barona

Business Profile

Company Name:
Barona Resort & Casino

Headquarters:
Lakeside, California, USA

Industry:
Gaming

Business Size:
Located 30 minutes east of downtown San Diego, California, Barona Resort & Casino includes a 400-room hotel, 11 restaurants, a golf course, a spa, 2,000 slot and video poker machines and 70 gaming tables. For the second year in a row, J.D. Powers and Associates ranked Barona Resort & Casino as offering the "Highest in Satisfaction in the Southern California Indian Casino Gaming Experience."

Business Environment:

- Casino and resort.
- Key systems include casino management, hotel management, human resources and payroll.
- Casino information systems log considerable data that must be purged regularly.

Vision Solutions Product:
Reorganize While Active

Implementation Team:
Vision Solutions

Critical issue

The nature of casino information systems is such that very high volumes of records are continually inserted, updated and deleted. Yet, deleted records continue to consume space until the database is reorganized.

A few years ago, this was a problem. Barona's resort and casino operate 24 hours a day, seven days a week, but traditional file reorganization tools required that applications be shut down while the files they used were being reorganized. Barona needed a way to perform database reorganizations without affecting ongoing business operations.

Results

- Barona reorganizes files without impacting application performance.
- Files that can grow to as large as almost 200 gigabytes are often reduced to less than 100 gigabytes using Reorganize While Active.
- Only a few seconds of downtime are required to complete a database reorganization.
- Reorganizations are performed only on Barona's production system. The synchronization processes of iTERA HA automatically reproduce the reorganization on the backup system.

Technologies

- Reorganize While Active
- IBM i
- IBM DB2 for i
- 2 x IBM Power 525 – (one primary, one backup)

Business Challenge

Databases that contain many deleted records can be very large, consuming ever-greater quantities of storage because, despite being logically deleted, the records aren't physically deleted until the file is reorganized.

What's more, logically deleted records hamper system performance. Even though the records don't exist as far as the database and applications are concerned, they still take up physical space. And when a query is executed, the "deleted" records are loaded into buffers and then ignored. This consumes processor and disk I/O resources.

One of the reasons why Barona accumulates a large quantity of deleted records is that its systems log many triggers. Those logs need to be purged regularly, thereby deleting a massive number of records. As a result, these files grow rapidly between database reorganizations.

Traditional reorganization tools require that all object locks be removed before reorganizing the files. "That in itself is a nightmare," exclaimed Cyndi Denny, gaming systems administrator at Barona. "And if users are using the files then you're toast because you'd have to kick them off. It would be ugly."

Barona needs a less obstructive way to perform file reorganizations.



Solution

Barona solves its file reorganization challenge with Reorganize While Active, from Vision Solutions.

As the name implies, Reorganize While Active allows Barona to reorganize its files while applications and users remain fully active. In fact, the reorganization process is almost entirely transparent to users.

To perform its work, Reorganize While Active first creates a mirror copy of Barona's files. It then physically deletes logically deleted records, freeing up the space they consume. The whole time, Reorganize While Active maintains synchronization between the production files and the mirrored copies, ensuring that no ongoing transactions are lost.

When the work is complete, only a few seconds are needed for Reorganize While Active to swap the reorganized mirror files with the production files. If appropriate, this file swap can be deferred until a convenient time rather than being performed as soon as the reorganization processes are finished. In the meantime, Reorganize While Active continues to keep the production and mirror files fully synchronized.

(Note: Reorganize While Active can also perform in-place reorganizations if that better suits a company's needs. However, the mirrored file method is more appropriate if database triggers are used, referential integrity constraints are defined, journaling is used for data warehousing purposes, or you want to reorganize all members in a file at the same time.)

Reorganize While Active does not have any noticeable impact on application performance. As a result, while Denny avoids running reorganizations during busy month-ends, she can run them during the day at other times, without affecting operations.

"Our files just constantly grow and it eats up disk space," explained Denny. "I try to do a purge every quarter, which frees up a lot of space."

Barona has two identical Power System 525 servers that run IBM i. It uses iTERA HA to mirror the two servers, thereby ensuring high availability for the systems that run the resort and casino operations. Denny runs Reorganize While Active only on the server that is acting as the production system at the time. Then, when the reorganization is complete and the reorganized mirror files are swapped for the production files, iTERA HA automatically synchronizes them with the backup system, thereby recreating the reorganization there.

Summing up, Denny was quite succinct when describing what she thought about Reorganize While Active. "I love Reorg While Active," she exclaimed.



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