

UPDATES



DATA WAREHOUSING/ STORAGE

A dream come true

Tropicana, a division of PepsiCo, is to fruit juice what sun is to the oranges, grapes, and pineapples that produce its drinks. Founded in 1947, the company represents Italian immigrant Anthony Rossi's dream of sharing the bounty of Florida's citrus trees with Americans living outside the state. Today, Rossi's vision extends to Europe, Latin America, and the Asia-Pacific region since Tropicana is the world's leading producer and marketer of branded fruit juices.

But, without the smooth operation of Tropicana's logistics facility in Jersey City, N. J., huge quantities of fruit juice—1.3 million cases per week—wouldn't flow on schedule. Every day, a 40-car rail train loads between 250 to 300 trucks at this site. The logistics information systems (IS) department tracks the movement of this juice, along with running the automated warehouse and material system and the business operation. The logistics IS system functions as a repository for moving pertinent data in and out rapidly. The designers provided for storing one week's worth of data so the system wouldn't have a huge amount of information—which worked very well for several years until IS was asked to extend the records on the system for three months.

After looking at the IS department's storage requirements, Bernie O'Callaghan, manager of systems, chose Winchester Systems and its FlashDisk open system RAID (redundant array of independent disks) storage device. Since 1993, FlashDisk, along

with three of its upgrades, has been the department's sole storage resource which, O'Callaghan says, had a dramatic effect on the entire operation:

"Our bandwidth usage went way up to near max. With most hardware upgrades, you're always first going to have an I/O bottleneck and then a CPU bottleneck. However, with the FlashDisks, we could get two more years out of the Alpha CPU by removing the I/O bottleneck or at least moving it up to a higher level. That's the number one benefit we've gotten out of the FlashDisks."

The Alpha computers are attached to a 10Base-T to 100-Mbps Ethernet network via an ultra-wide SCSI interface. Each one of two Digital Alpha computers has a FlashDisk. The Alphas run Oracle RDB, Digital's database program (which Oracle bought from Digital).

The five Ultra SCSI disks provide each FlashDisk with 44 GB of individual storage capacity and function as one big disk. Data, spread across a number of individual disks, arises from the redundant manner in which data is stored. If any disk in the array fails, the unit continues to function without loss of data. The redundant information can be a copy or a mathematical model of the data that was stored on the failed disk. The RAID 5 configuration stores individual records entirely on a single-array member rotating error checking through the array. That procedure allows multiple transaction-processing retrieval to occur independently.

O'Callaghan says, "The FlashDisks have also prolonged the life of our software, which is highly tailored to our requirements. If you asked me eight years ago how long I'd be using the hardware and software I had at that time, I would have told you five or six years. This system is going on nine years. We will keep it as long as it meets the needs of our business and doesn't have any I/O bottlenecks."

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