

Burlington Coat Factory Lowers Costs, Boosts Reliability by Consolidating Systems on Grid



Burlington Coat Factory
Warehouse Corporation
Burlington, NJ
www.burlingtoncoatfactory.com

Industry:

Retail & Distribution

Annual Revenue:

\$3.4 billion

Employees:

28,000

Oracle Products & Services:

Oracle Database
Oracle Real Application Clusters
Oracle Enterprise Manager
Oracle Grid Control
Oracle Data Guard

Key Benefits:

- Simplified IT infrastructure by consolidating multiple systems on grid architecture
- Deployed Linux-based system to provide extra capacity and flexibility at lower cost
- Gained unprecedented reliability

“We can say unequivocally that Oracle’s grid technology is the most reliable platform we’ve ever had. And in terms of scalability, we’re not even close to pushing its limits.” – Michael Prince, Chief Information Officer, Burlington Coat Factory Warehouse Corporation

As its loyal customers know—and its advertising emphasizes—Burlington Coat Factory Warehouse Corporation doesn’t just sell coats. The New Jersey-based company operates more than 350 stores in 42 states offering current, brand name clothing at discount prices. In addition to selling coats and other apparel, it also offers bath items and linens, baby products, furniture, gifts, jewelry, shoes, and more.

Since the 1990s, Burlington Coat Factory has made technological innovation a pivotal element of its business strategy for containing costs and boosting efficiency—an approach that has earned it widespread respect and recognition. In 2001, *RIS News*, a leading publication for the retail industry, named Burlington Coat Factory one of the Top 50 retailers “best at fusing technology with its corporate vision.” In addition, *ComputerWorld* magazine named Burlington Coat Factory one of the Top 10 Companies to Work for in IT for five consecutive years.

As an innovator, the company has been quick to embrace beneficial new technologies. In one of its latest projects, completed in 2006, Burlington Coat Factory adopted a grid computing solution based on Oracle Database 10g and Oracle Real Application Clusters. The company adopted the platform because it saw it as the best and simplest way to manage the huge volume of data generated by its sales activities and the best way to shore up the system for the future.

“From a systems management standpoint, our production environments just kept getting bigger and bigger,” said Michael Prince, chief technology officer of Burlington Coat Factory and a 2002 recipient of *CI Magazine*’s “20 Who Made It Happen” award for successfully adopting unconventional technologies.

“We wanted to be proactive and avoid a situation in which it became difficult to keep all the components of our IT environment running smoothly.”

The Case for Change

With more than \$3 billion in annual sales and multiple brands and product lines to track, Burlington Coat Factory’s IT systems are the workhorses of the company’s business processes—managing everything from inventory stock levels and sales records to evaluating merchandise performance and product and service offerings. In all, Burlington runs more than 60 Oracle instances on several different platforms and more than 30,000 employees access one or more of these systems.

By 2005, Prince acknowledged, Burlington Coat Factory’s IT department was grappling with the growing size and complexity of the systems needed to manage the company’s data and was searching for ways to reduce the pressure it was putting on the company resources and IT department.

“There has been a steady progression in the size of the systems, the amount of data we’re storing, and the amount of data we’re manipulating,” he said. “We’ve experienced exponential growth.”

The pressure to create and store more data wasn’t just coming from company brass and sales staff—it was also coming from government reporting requirements and new owners. On April 18, 2006, Bain Capital Partners, LLC acquired all the outstanding shares of the company. The company is now privately owned and no longer traded as a public company.

To manage the new environment, the company’s IT staff began reexamining its technology stack with one central question in mind: Could it be simplified?

Burlington has eight different SKU databases that are used to manage different product lines. The databases vary in size up to about 600 gigabytes along with an equal size physical standby database. Historically, as these databases were added to the enterprise, new servers were added to accommodate them. This resulted in a continually expanding and more complex environment requiring more resources to manage and maintain. “There were too many vendors in the stack,” Prince acknowledged. “And there were a lot of components to manage.”

“Something had to change,” he continued. “We needed a technology that was simpler to manage and had fewer moving parts and vendors involved in the stack. Oracle delivered on this requirement with its grid infrastructure.”

Oracle’s 10g grid computing architecture makes it possible to coordinate large numbers of servers and storage so that they operate like one giant mainframe. Furthermore, Oracle Real Application Clusters enables multiple, low-cost servers to share a single Oracle Database.

The ability to amalgamate resources means fewer vendors, lower costs, and less managerial intervention. “With Oracle’s grid infrastructure, a lot of the things that had been sources of difficulty become automated or semi-automated—with no integration issues to overcome,” Prince said.

“The grid actually lets us put extra horsepower on things that need it,” Prince said. “And a lot of that is simply because new architecture seems to be, from end to end, more efficient than older architectures. I would say that, overall, things are running about 30% to 50% faster.”

Creating the Stack

As the first step in amalgamating its resources, Burlington Coat Factory needed to consolidate eight databases that had been partitioned by its merchandise division. To do this, it built a grid for a Linux-based operating system on Oracle Database 10g, Oracle Real Application Clusters, Oracle Clusterware, and Oracle Enterprise Manager 10g Grid Control. As presently configured, the grid consists of two identical, 18-node Linux database clusters running on IBMx Series servers. The twin systems are housed in separate, but nearby, buildings.

It is an unusual set-up, according to Prince, but it provides 100% recovery and fault tolerance in the event of hardware failures or planned outages. “We could treat the two data centers as one, but we don’t,” Prince said. “Instead we have two data centers and they are both live.”

“If you asked, ‘What’s the biggest win you got out of moving to Oracle 10g?’ I’d probably say it was Oracle Automatic Storage Management.”

Michael Prince
Chief Information Officer
Burlington Coat Factory
Warehouse Corporation

“We’re a heavy user of Oracle’s Data Guard capability,” he continued. Oracle Data Guard, a feature of Oracle Database 10g, is the management, monitoring, and automation software infrastructure that creates, maintains, and monitors one or more standby databases to protect enterprise data from failures, disasters, errors, and corruptions. If the production database becomes unavailable because of a planned or an unplanned outage, Oracle Data Guard can switch any standby database to the production role, minimizing the downtime associated with the outage and preventing data loss.

“I just cannot imagine not having Data Guard,” Prince said. “The fact that you can lose a computer and not lose your database is a huge win. We have set up Oracle Data Guard so that each data center maintains a copy of the production databases running in the other data center. This makes disaster recovery a transparent attribute of our Grid infrastructure while achieving the most efficient use of computing resources at both centers.”

An End to Worst-Case Mentality

As Burlington Coat Factory’s systems got bigger, they also became more expensive and less efficient. Redundancy was common, and much of the capacity was unused. “Everything had a reserve for the worst case, as opposed having pooled resources that could be deployed on demand,” Prince said. “From a utilization standpoint, it was very difficult to get high utilization yet have the flexibility to deal with unanticipated—or even anticipated—spikes in load.”

The approach also drove up costs, a situation the new Linux-based grid infrastructure has eliminated. “Leveraging commodity Linux hardware to build the infrastructure drove the cost per unit of computing way down,” said George Wright, manager of database services. “We were able to take commodity boxes—they no longer had to be incredibly sophisticated proprietary boxes—and put them together in a way in which each box was a relatively small computer but the aggregate was very large.

“We have not yet quantified the savings of this approach, but I can tell you it’s been very cost effective,” Wright said.

More Efficient Maintenance

The grid architecture also has taken pressure off the administrative staff, which used to put in long hours managing downtime, upgrades, and maintenance. “A lot of things that used to go on in the middle of the night now go on from 9 a.m. to 5 p.m.,” Prince said. “One reason for this is that you can take a node offline easily and work on it and bring it back on line, without the whole system going down. You can also do rolling upgrades, which make it easier for our database administrators [DBAs] to manage.”

Storage Issues Resolved

Burlington Coat Factory is also making extensive use of Oracle Automatic Storage Management, a feature of Oracle Database 10g that provides simple, consistent storage management across all server and storage platforms.

“What we like is that it’s not Oracle storage management, it’s automatic storage management. It covers everything,” Prince said.

“Basically, you’ve got all those storage management aspects that you used to have to go out and buy—and they are automated in a way that provides functionality without the old complexity and obstacles associated with the fluid dispersal of data onto disk drives,” Prince said.

Prince singled out one automated distribution feature—striping—as particularly beneficial. “You give Oracle Automatic Storage Management a chunk of storage and it magically reallocates the data across the storage environment, and then scatters it in a way that is usually called striping,” Prince said. “It stripes the data across the available pool of storage so that even the most intensive activities don’t cause excessive activity on any one of the physical storage devices.”

The new functionality has generated noticeable savings, Wright added. “If you look at the total cost of administering the databases, we cut 40% of it just with Oracle Automatic Storage Management,” he said.

Why Oracle?

Burlington Coat Factory had built its system on Oracle Database and various modules from Oracle E-Business Suite and was comfortable with its applications and technology. “We were an Oracle shop,” Prince said. “The central technology we built around was Oracle.”

The introduction of grid architecture was the kind of technological advance for which Burlington Coat Factory had been waiting.

“There was no need to look at other vendors,” Prince said. “There was nobody close in my mind. Granted, there are strides being made by other vendors, but the Oracle technology is so strong and so mature that for an Oracle shop there’s no real reason to look elsewhere.”

Implementation Process

With multiple databases and applications to migrate, Burlington Coat Factory chose a staged implementation approach that started with the cash register transaction data that feed the company’s merchandising systems. The team had to ensure that the implementation would neither strain resources nor interfere with business operations.

It succeeded. “Without question, the implementation has gone smoothly,” Prince said.

“We have a lot of Oracle instances—some that we’re going to consolidate now, and some that we’ll consolidate later,” he explained. “The good news is the quality of the software is strong enough, and the documentation and training are extensive enough, that we can—in the midst of our other business and activities—make continuous progress toward getting the rest of our databases on the grid.

“We also have to acknowledge the reliability and scalability of the things we’ve moved,” he continued. “We can say unequivocally that Oracle’s grid technology is the most reliable platform we’ve ever had.”

Advice from Burlington Coat Factory

- Invest in training. Make sure you take time to go through all the learning curves before you start doing it live.
- If you have made the case for change, don't scrap the plan. Do it—but be very rigorous in your migration planning and execution.
- Use expert resources. That's what they are there for. "If you can't do it yourself, get help."

Burlington Coat Factory Warehouse Corporation operates more than 350 retail stores in 42 states, offering current, brand name clothing and other merchandise at discount prices.