MGM Resorts International commits IT to innovation by dedicating its resources to partnering with Dell to create an Efficient Enterprise to run its business.

- Consolidation
- Virtualization
- Power & Cooling
- Services
- Green Computing

“We have the capabilities to dial up, dial down, predict performance, contain costs and reduce power consumption.”

Chris Gebelin, Executive Director of Enterprise Management, MGM Resorts International

Customer Profile
- Company: MGM Resorts International
- Industry: Travel, Hospitality and Tourism
- Country: United States
- Employees: 62,000
- Web: www.mgmresorts.com

Business Need
MGM Resorts International sought to consolidate the data centers from its latest acquisitions, in order to contain IT costs, increase availability, improve agility and focus on innovation. The goal was to be able to compete in the Las Vegas market with an agile, affordable IT structure that would help reduce capital expenditures.

Solution
The company chose Dell™ Services to perform a Virtualization Assessment with partners Intel® and VMware®. Dell targeted 55% of MGM Resorts’ servers for virtualization, and Dell Services designed and implemented a new data center with Dell PowerEdge™ servers virtualized with VMware.

Benefits
- 88% less floor space used than previous 8 data centers
- 2x greater compute power
- Time reduction to merely one hour to obtain virtual servers from automated catalog
- 50-85% reduction of test cycles for faster time-to-market
- Stronger customer loyalty due to faster BI test cycles and ability to perform 5X more tests than previously
- Automated workload management through virtualization decreases customer wait during peak times
- 75% of IT time freed from manual tasks to spend on innovation
- 68% cost savings for virtual server vs. physical server
- 81% savings in cost of power for virtual server vs. physical server
- 82% less carbon footprint for virtual server vs. physical server
- 33% more cost effective Microsoft software licensing
- Increased manageability through embedded management features in Dell servers
Following several acquisitions during the past decade MGM Resorts International (MGM Resorts) now owns 15 resort casinos in Las Vegas, including the world-famous Bellagio, The Mirage and Luxor. It is the half owner of CityCenter, an urban metropolis on 76 acres of the Las Vegas Strip between Bellagio and Monte Carlo. Consisting of hotels, condominiums, a casino and retail, CityCenter was the largest privately-financed construction project in the history of the United States.

Just a few years ago, MGM Resorts was wrapping up two large-scale mergers and had not yet begun an IT consolidation. At the time, the company had eight data centers, with some of them handling just one IT function, creating an IT jigsaw puzzle that was costly, complex and difficult to manage efficiently. The merged companies had competing enterprise resource planning (ERP) systems and many overlapping applications. “There was a huge opportunity to consolidate data centers to lower costs, increase availability and improve agility,” says Chris Gebelin, executive director of Enterprise Management, MGM Resorts International. “We didn’t have a lot of flexibility in what we were putting in place, so we asked Dell to help us put together a multi-year data center consolidation strategy.”

Partnering with IT to realize the business value of virtualization

In a six-week engagement, Dell Services performed a Virtualization Assessment assisted by its partners, Intel and VMware. “Dell and its partners identified opportunities to consolidate about 55 percent of our physical servers into a virtual environment,” says Gebelin. “They put together a 60-page ROI analysis and executive summary and helped us champion that to our CIO and CFO. With that business case, we were able to sign an Enterprise License Agreement with VMware, and we built a next-generation VM farm—a kind of a precursor to what people commonly refer to now as a ‘private cloud.’ We’re still executing on the original vision without too many changes, and we’ve virtualized about 60 percent of the servers the Dell consultants targeted. We plan to address the remaining 40 percent in the very near future.”

“We reduced our licensing costs by more than one-third because Dell moved all our Microsoft licensing in the VM environment to Windows Datacenter Edition.”

Chris Gebelin, Executive Director of Enterprise Management, MGM Resorts International

The Virtualization Assessment results and recommendations provided by Dell, Intel and VMware were instrumental in putting MGM Resorts on the right path, according to Gebelin. “It’s been helpful not having to realign ourselves in the past few years,” he says. “Dell went on to help us do all the planning and the financial analysis, as well as the implementation and execution.”

**Technology at Work**

<table>
<thead>
<tr>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell™ Consulting Services</td>
</tr>
<tr>
<td>– Dell Virtualization Assessment Services</td>
</tr>
<tr>
<td>– Design and Implementation Services</td>
</tr>
<tr>
<td>Dell Support Services with 4-hour on-site response</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell PowerEdge™ M610 blade servers with Intel® Xeon® processors 5500 series</td>
</tr>
<tr>
<td>Dell PowerEdge M1000e modular blade enclosures</td>
</tr>
<tr>
<td>Dell PowerEdge 2950 servers with Intel Xeon processors</td>
</tr>
<tr>
<td>Integrated Dell Remote Access Card (iDRAC)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell OpenManage™ Server Administrator and Dell IT Assistant</td>
</tr>
<tr>
<td>VMware® vSphere® 4.0</td>
</tr>
<tr>
<td>VMware View</td>
</tr>
</tbody>
</table>
88% reduction in floor space requirements
With Dell’s help, MGM Resorts consolidated its eight data centers onto one co-location facility, reducing 6,000 square feet to approximately 720—an 88 percent reduction in floor space. A second site serves as a disaster recovery facility. Dell was given 12 weeks to perform the implementation and delivered in less than nine weeks.

The company’s first-generation VM farm ran on Dell PowerEdge 2950 servers, and more recently MGM Resorts began implementing a second-generation VM farm on Dell PowerEdge M610 blade servers with Intel Xeon 5500 series processors virtualized with VMware vSphere. Four fully populated Dell PowerEdge M1000e modular blade enclosures run across the two data centers. “We run with VMware HA across the two data centers, so everything is fully redundant,” says Gebelin.

Enabling the Efficient Enterprise
“We have a simplified service delivery model based on standardized Dell, Microsoft and VMware technologies,” says Gebelin. “We’ve got three different server products based on availability, replication, number of virtual CPUs, amount of RAM. This gives us a fixed environment with a very predictable cost structure and a very predictable performance structure. We can handle requests almost immediately.”

MGM Resorts deploys its server models into an automated service catalog front end, so users are able to provision VMs with no manual intervention. “They go to a Web page, enter their information and an hour later a fully certified VM is sent to them and they’re ready to go,” says Gebelin.

MGM Resorts has two major business segments: its gaming business, which peaks on Thursday, Friday and Saturday nights, and its hotel segment, which peaks on Saturday, Sunday and Monday mornings. With the virtual environment, Gebelin’s team can automatically shift workloads around those peak times.

“We spin up casino systems at night and then spin them down in the morning,” says Gebelin. “Then we spin up hotel systems in the morning because they can scale horizontally. The result is that customers don’t have to wait because a system is slow, and no one working on a computer has to stare at an hourglass. It’s really important to make the automation piece work to maximize efficiency.”

50-80% reduction in test cycles, faster time-to-market
With competition fierce on the Strip, MGM Resorts relies heavily on its business intelligence (BI) operations to identify its top customers, develop marketing campaigns and adjust those marketing campaigns on the fly. Offerings such as loyalty programs are key to competing successfully, but BI operations and the testing required to bring new products to market can be a slow process.

“BI is not just build-it-and-go,” says Gebelin. “It’s build it, try it and see if it works. Building, testing and evaluating had to be accelerated in order for us to compete effectively against our largest competitor. We had to be able to reduce the time to market and enable our test teams to spin up environments in the middle of the night. We use 24x7 testing because we have offshore resources. If they run into something, they can spin up a new environment by themselves with nobody else here. As a result, we have cut down testing cycle time by 50 to 80 percent.”

MGM Resorts recently rolled out new enhancements to its guest loyalty programs. The CEO set a firm deadline for the project and made a major announcement. The company went with a new BI vendor which was new to the market, and Gebelin’s team had two months’ testing time prior to deployment. They planned to have two full test cycles, but because of the business requirements, that turned into 10 cycles. “We were able to collapse 10 test cycles within the timeframe we had planned for two,” says Gebelin. “The project was a success.”

75% of time spent on innovation
To continue to compete successfully, MGM Resorts must keep its focus on giving guests more of what they want. That means being able to spend more time on innovation. Gebelin’s team is positioned to do just that, due to the agility and efficiency they have gained through the Dell Efficient Enterprise solution.

“We’re now able to spend three-quarters of our day on innovation,” says Gebelin. “That’s because of the
overall efficiency of the way our data center is running. We’re focused on understanding our end customers better. We’re packaging applications for the hotel so that guests can pay for everything they purchase with one credit card slip: hotel, spa, restaurant, nightclub. For our business partners, innovation means helping them track the top customers."

Savings operational time

Standardizing with Dell servers saves MGM Resorts critical operational time. "Standardization keeps our number of images down, helps us deploy faster and facilitates fewer process variations," says Gebelin. "Because of the build quality of the Dell servers, we don’t have to deal with a lot of failures, and if we do have any issues, Dell is always here really quickly. I can’t think of the last time when we ran into a problem where we had a system failure of any significance that we weren’t able to recover from with our four-hour SLA with Dell Support."

Planned downtime is zero, because IT staff use VMware VMotion to shift virtual servers over to other physical servers to perform maintenance. "We can actually shift between data centers while servers are live," says Gebelin.

The Integrated Dell Remote Access Card (iDRAC) in the Dell M100e modular blade enclosure enables the staff to perform maintenance remotely to save significant time. "Our data center is 10 miles away," says Gebelin. "Not having to do a truck roll when there’s a problem or have someone there babysitting the servers is fantastic."

Dell OpenManage Server Administrator and Dell IT Assistant verify that the servers are built exactly the same. This prevents problems due to variances in the process if a server needs to be rebuilt.

68% less cost for green technology

With two times the compute power of previous standalone servers in 88 percent of the floor space, not only can MGM Resorts roll out applications and products faster, it can do so at far less cost.

"Physical servers cost the company around $11,337 when all costs are figured in, such as licensing and cabling," says Gebelin. "Virtual servers cost $3,643—that’s a $7,694 difference or 68 percent less. And we get a savings in power costs, $50 for a virtual servers and $268 for physical servers, which is 81 percent less."

Dell OpenManage Server Administrator provides the real-time power data on the servers to enable power monitoring. The PowerEdge M610 blade servers are designed for power efficiency, with dynamic power management technology that enables users to set high/low power thresholds to enable efficient energy management.

MGM Resorts is a green company and many of its resorts have received multiple green certifications. The U.S. Green Building Council has awarded six LEED® Gold certifications to CityCenter. So Gebelin closely watches the carbon footprint of the data center. "A physical server is 2.2 tons of CO2 annually," says Gebelin. "Our VM is .4 ton, an 82 percent drop."

33% savings on Microsoft licensing


Procuring all the components of its virtual environment through Dell has also helped MGM Resorts become more streamlined. "Procurement is a big priority here," says Gebelin. "Our sourcing team likes to see things certain ways, such as sales tax and maintenance. Dell gets it right every time. Also, Dell is a trusted advisor for us when we’re purchasing new products. They challenge us and make sure we’re not forgetting something from a technology perspective. They make sure we have a complete solution to deliver to our business."

Dell is currently working with MGM Resorts on a desktop virtualization project using VMware View. "A lot of our casino pits don’t need a full computer," says Gebelin. "So, we’ll have thin client environments there. Even in our knowledge worker-based areas, we’re continually working with Dell to keep an eye on the numbers to see when and where it makes sense to introduce virtual desktops."

Gebelin attributes the successes of the past three years to the roadmap that Dell provided to lead MGM Resorts to virtualization and the simplification, standardization and automation that has helped make the company an efficient enterprise.

“The implementation plan that Dell put together for us three years ago has kept us in the sweet spot for technology agility and functionality,” Gebelin concludes. "We have the capabilities to dial up, dial down, predict performance, contain costs and reduce power consumption."

View all Dell case studies at: dell.com/casestudies