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Case Studies Home

Browse Case Studies By:

Product

Industry

Solution

Country/Region

Customer Name

Partner Name

Case Studies

MGM MIRAGE

For MGM MIRAGE, Microsoft Terminal Services Enabled Faster Deployment, Lower TCO, Better Tech Support, and \$2 Million Annually in Reduced Acquisition and Support Costs


CASE STUDY

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In 1998, Bellagio, Las Vegas' newest casino-hotel was preparing to open. The scale of the resort-casino presented new challenges to IT both in resource management and deployment issues. End users experiencing technical difficulties would need to wait as much as 20 minutes for IT staff to travel from the computer center to front-line positions, which inconvenienced customers and wasted employee time. In addition, the limited timeframe for deploying the 2,600-computer network prior to opening the property created other challenges. In an effort to meet the deadline and improve efficiencies throughout the system, IT

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Solution Overview

Company

[MGM MIRAGE](#)

Customer Profile

Headquartered in Las Vegas, MGM MIRAGE is an entertainment, hotel, and gaming company with 15 casino and resort properties worldwide. MGM MIRAGE employs some 40,000 people, serving

turned to Microsoft® Terminal Services, part of Microsoft Windows® 2000 Server. Terminal Services enabled Bellagio's parent company, MGM MIRAGE, to save U.S.\$2 million in acquisition and support costs while streamlining the delivery of technical support and software administration. When Bellagio opened later that year, its terminal server architecture became a model for the company's other resort-casinos, which quickly began to follow suit.

Situation

In 1998, MGM MIRAGE¹ was preparing to open Las Vegas' newest resort-casino, the Bellagio. With 3,000-plus guest rooms and suites, 100,000 square feet of gaming area, 20 restaurants, six pools, and extensive meeting and convention facilities, the U.S.\$1.6 billion property was to be one of the largest and most lavish resorts ever to grace the Las Vegas Strip. As the grand opening of October 15 approached, however, the limited timeframe for deploying the network of 2,600 PCs throughout the property became a challenging concern to the company's Information Systems Division.

Compounding this challenge was the scale of the property itself. Because it would take from 15 to

millions of guests each day. In 2001, the company generated total revenues of more than U.S.\$4 billion.

Business Situation

MGM MIRAGE needed to streamline delivery of technical support to front-line positions throughout Bellagio, one of its largest resort-casinos.

Solution Description

By deploying Microsoft® Terminal Services, a key technology in Microsoft Windows® 2000 Server, the company was able to reduce hardware costs, centralize software administration, and trouble-shoot problems from its IT center, virtually eliminating the need for on-site support.

Benefits

- Returned \$2 million in savings on hardware, software, and tech support
- Fast deployment—installed 2,600 computers in time for Bellagio opening
- Enabled better resource allocation, reducing trips to desktop devices by as much as two-thirds
- Dramatically reduced downtime at customer service positions
- Centralized deployment of software, enabling recent OS upgrade with almost no interruption to end users

Software and Services

- [Microsoft Terminal Services](#)
- [Microsoft Windows 2000 Server](#)

20 minutes for IT staff to travel from the computer center to front-room customer service positions, the company would be losing as much as an hour in employee resources every time a computer went down or experienced serious technical difficulties. More importantly, the inconvenience that this caused for guests who were waiting for information or assistance was unacceptable in a hotel established on the principle of providing the highest levels of service.

Vertical Industries

Hospitality

Country/Region

United States

Audiences

Business Decision Makers

Facing this combined challenge, Chief Technology Officer Laura Fucci realized that a new resort like Bellagio required a new way of delivering technology to the front lines. In short, the company needed a way to decrease the time spent deploying the network while streamlining the way technical support would be provided on a daily basis.

Solution

The challenges Fucci faced in preparation for the opening were almost custom-made for a terminal server solution. Terminal server (or thin client) computing centralizes deployment and management of software applications by hosting the software on a central server rather than on the PCs or terminals themselves. This dramatically reduces the amount of time needed to install an application—one server can support hundreds of terminals—and practically eliminates the need for on-site support at the PC. According to Fucci, terminal server architecture was appealing because it offered speedy deployment and the ability to fix problems at the computer center rather than the desktop.

“We needed a better way to fix technical glitches than sending our IT people on long walks through the casino,” says Fucci. “That’s when we decided to move to a thin client. Microsoft was about to release Terminal Server 4.0, which we saw as an opportunity to speed up deployment and significantly reduce the amount of time it would take to resolve a

problem.”

In her cost/benefit analysis comparing a terminal server solution with a client/server architecture, Fucci calculated that terminals would offer substantial savings in total cost of ownership (TCO) over their desktop counterparts: Acquisition and support costs per terminal with server costs factored in would run only \$1,952 per machine, versus the \$2,852 projected per PC—a savings of \$900. That meant that not only would the solution enable her team to deploy the network in time for Bellagio’s opening, but it also would yield cost savings property-wide of more than \$2 million, as shown below:

Device	Costs Per Device			Property-wide
	Acquisition Costs	Annual Support Costs	TCO	TCO x 2,600 Devices
PC	1,700	1,152	2,852	7,415,200
Terminal (incl. server costs)	1,376	576	1,952	5,075,200
Savings	324	576	900	2,340,000

In March 1998, with only seven months to go, the Systems Engineering Department began planning the network based on a mixed environment combining existing PCs with new terminals (the PCs would be run as terminals, taking advantage of the support savings offered by the terminal server architecture). By May, the first server farm was in place at the property’s IT center. By July, Fucci’s team began loading Terminal Server 4.0 client software onto the hotel’s 2,600 desktop and terminal machines. In October, when the Bellagio opened to wide acclaim, customer service positions were up and running throughout the property.

The rewarding results of deploying Microsoft Terminal Server technology at Bellagio encouraged the company to implement the solution at its other properties as well. More recently, the company's Information Systems division completed a companywide upgrade to the Microsoft® Windows® 2000 Server operating system (OS) with Terminal Services technology, providing every end user with a fully functional Windows 2000 Virtual Desktop. According to Fucci, the upgrade underscored the kind of savings that the company was realizing as a result of Terminal Services.

"When we upgraded to the Windows 2000 OS, all of the changes were made quickly and easily from a central IT center on each property," she says. "The entire process was completed in the space of a two-hour downtime for end users and without having to visit or reconfigure a single client device."

Today, MGM MIRAGE supports 5,600 terminals and desktops using Microsoft Terminal Services technology. Users working at the terminals access everything from mainstream applications like Microsoft Office to proprietary industry software such as hotel reservation and casino management applications. The company also supports 4,750 PCs on client/server architecture. Fucci points out that the difference in maintenance and support costs is apparent when comparing how these environments are staffed.

"We have two full-time employees supporting our 5,600 terminal users, but 25 full-time employees supporting an environment of only 4,750 PCs," she says. "That's a dramatic difference in resource allocation. And the terminal environment enables us to enforce tighter controls on the end-user's machine, since we're able to prevent folks from loading unnecessary software or reconfiguring their desktops. That eliminates a high percentage of issues just by locking down the environment."

Fucci accounts for the difference in the number of support personnel needed — one tech for every 2,800 terminals versus one for every 190 PCs — based on several factors. MGM MIRAGE's help desk can provide a higher level of service to terminal users by using

shadowing and session control rather than having to visit the user in person to resolve technical issues. In addition, thin client terminals are field-replaceable units. This means that hardware issues can be resolved by simply swapping machines, rather than troubleshooting on-site and tying up customer service positions as hotel guests wait for the problem to be worked out. Add to this reduced set up times, simplified application and OS installations, centralized software administration, and tighter control of the virtual desktop environment itself and it's easy to see why Microsoft Terminal Services was a good bet for all of the company's properties.

"Terminal Services has enabled us to manage a 50,000-employee company in a 24/7 environment with an IT staff of only 220 engineers," says Fucci. "No other solution would have delivered so much."

“ We needed a better way to fix technical glitches than sending our IT people on long walks through the casino. We saw [the release of Microsoft Terminal Server] as an opportunity to speed up deployment and significantly reduce the amount of time it would take to resolve a problem. ”

Benefits

By taking advantage of Microsoft Terminal Services technology, MGM MIRAGE was able to achieve a substantial reduction in total cost of ownership — substantial enough, in fact, to want to bring the Terminal Services environment to all of the company's casino-hotel properties. The company now enjoys lower TCO on an enterprisewide scale, reduced down-time at desktop positions, streamlined delivery of technical support, better resource allocation, a centralized software environment, and a platform that will continue to provide significant return on investment (ROI) for years to come.

Lower TCO

Laura Fucci

VP, Chief Technology Officer, MGM
MIRAGE

Although MGM MIRAGE implemented its terminal server solution to achieve quicker deployment and better customer care, one of the solution's most compelling features was lower TCO. While initial cost/benefit analyses suggested a total savings of

\$2 million annually compared with the hardware and support costs of a client/server architecture, a review of the project two years later suggested that even that number might understate the savings based on rising PC prices and decreasing costs in thin client computing. In addition, savings were found in other areas that didn't make it into the final analysis, according to Fucci.

"When we performed our review of the ROI a few years after implementation, we had 5,600 thin client users with only 1,350 of them using terminal devices," she says. "That means 4,250 users were running their PCs as terminals, providing significant savings with regard to software updates and remote troubleshooting even if the hardware costs were higher. But since our ROI projections were based only on the terminals, the savings we gained on thin client PCs were not included, despite the fact that they really bolster the ROI of the entire project."

Faster Deployment

One of the key requirements of the terminal server solution was a deployment schedule that enabled Fucci's team to install the desktop network in a shortened timeframe. That meant getting all 2,600 computers up and running in time for Bellagio's October 15 opening. According to Fucci, any concerns that team members might have had with regard to implementation were soon alleviated as they recognized key advantages of the terminal server model.

"It was clear when we decided to make the transition from client/server to terminal services that there was little room to spare in our deployment schedule," says Fucci. "But one of the primary features of the terminal model is the way it reduces workload, both in

initial deployment and ongoing support. You almost never need to visit individual devices when something's not working, since changes can be quickly accommodated at the server end."

Reduced Downtimes and Better Resource Allocation

Because of Bellagio's grand scale, IT was faced with the challenge of how to deliver technical support to desktop positions located up to 20 minutes away from the property's computer center. Round-trip travel time for tech support plus reduced capabilities for the end user meant that a computer problem could sap as much as 60 minutes of employee productivity without including the repair itself. Multiplying by the potential number of technical difficulties across a network of 2,600 PC devices every year, Fucci recognized that a better solution had to be found.

"Bellagio is one of the largest hospitality properties in Las Vegas, but the challenge of quickly delivering technical support to end-users is hardly unique to us," she says. "The scale of the problem made us look more closely at our options, but the analysis itself should be second-nature in any deployment."

MGM MIRAGE's IT team now resolves most technical problems remotely from the computer center, using shadowing and session control to observe and manipulate the user's virtual desktop. And while hardware problems still require a trip to the front room, the use of field-replaceable units means that devices can be swapped on the fly and hardware problems tackled in the computer center when time permits, without the pressure of tying up customer-service positions or inconveniencing guests.

Centralized Deployment and Administration

Following the wider deployment of Microsoft Terminal Services in its other casino-hotels, MGM MIRAGE now supports 5,600 thin client users accessing 130 servers clustered in server farms at each of its properties. Centralizing software on the servers has meant

dramatic reductions in administrative resources, especially during application upgrades and, as was recently the case, in upgrades to the OS itself.

“New applications can be loaded on a test server to see what their impact will be on the terminal environment before pushing them to the main servers,” says Fucci. “That enables us to avoid many of the problems we found in the client/server environment, in which each machine might be configured just a little differently based on the user’s preference for games or screen-savers. In fact, some of the most substantial savings we experience come during upgrades. When you don’t need to touch every machine to update the software, you’re not only saving time for the IT staff, but you’re avoiding interruptions to the end user as well.”

The Microsoft Terminal Services component of the Windows® 2000 Server operating system can deliver the Windows 2000 desktop, as well as the latest Windows-based applications, to virtually any desktop computing device including those that cannot run Windows. Terminal Services is ideal for organizations wanting to more flexibly deploy applications and control desktop management costs.

For more information about Microsoft Terminal Services technology, go to:

<http://www.microsoft.com/windows2000/technologies/terminal/default.asp>

1Bellagio was owned by Mirage Resorts, Inc. prior to the company’s acquisition by MGM Grand, Inc. In August 2000, the combined company was renamed MGM MIRAGE.

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For more information about MGM MIRAGE hotels, casinos, and resorts, call (800) 343-1162 or visit the company's Web site at: <http://www.mgmMIRAGE.com/>

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