



[↓ Products & Services](#)

[→ Support & Training](#)

[Home](#) > [Products & Services](#) > [Hardware](#) >

SERVERS Success Story

Servers

- » [Entry-Level Servers](#)
- » [Midframe & Midrange Servers](#)
- » [High-End Servers](#)
- » [Server Appliances](#)
- » [NEBS-Certified Servers](#)

Servers Related:

- » [Server Comparison](#)
- » [Success Stories](#)
- » [Solutions](#)
- » [Documentation](#)
- » [White Papers](#)
- » [Support & Service](#)
- » [Server Upgrades](#)
- » [Awards & Reviews](#)

See Also:

- » [Storage](#)
- » [Sun BluePrints](#)
- » [Press Releases](#)



[Print](#)

Major Resort Chain Deploys Solaris PC Netlink Software For Reliable NT Services

"I'd recommend this solution to anyone who needs a stable NT platform or a better NT server."

Craig Bender,
Systems Engineering Manager
Mirage Resorts, Incorporated

In 1989, the opening of Las Vegas's first theme mega-resort, the Mirage Hotel, changed the look of the strip forever. In the decade since, Mirage Resorts, Incorporated has expanded to include six properties including Bellagio, Beau Rivage, The Mirage, Treasure Island, the Golden Nugget, and corporate headquarters, over 13,000 guest rooms, and over 31,000 employees.

Mirage Resorts' information systems needs have exploded as well. Currently running the biggest thin-client implementation in the West, Mirage Resorts' MIS department manages over Intel-based 300 servers, including 110 thin-client servers, which support between 4000-5000 nodes with over 2000 thin-client devices, and over 6000 user accounts. Mid-range servers include a mixture of machines running Microsoft Windows NT and UNIX®, as well as Tandem and AS/400 systems linked via an gigabit backbone. Every hotel's computer room is run lights-out, and is remotely monitored from headquarters. With systems designed to handle mission-critical 24x7 applications such as casino marketing (player tracking, customer credit packages, and the tracking of markers), slot systems, claims risk management, reservations, uniform tracking, and food and beverage services, the MIS department faces continually increasing demands for file storage and user connectivity. In the past two years alone, backup has swollen from 550 gigabytes to over 4 terabytes of data per week.

This explosive growth has put a strain on Mirage Resorts' network of NT servers. Faced with the need to add and maintain an ever increasing number of machines, Mirage Resorts has looked to Sun's Solaris PC NetLink software, coupled with Sun's line of scalable servers, to provide native high performance, reliable, and scalable NT services. Transparent to clients, Solaris PC NetLink software provides seamless access to key Windows NT network services, including directory, authentication, administration, file and print services on servers running the Solaris Operating Environment.

HIGHLIGHTS:

Company:

Mirage Resorts, Incorporated

Industry:

Casino-Based Resorts

Hardware/Software:

Sun Enterprise 6000 Server.

Sun Enterprise 450 Server.

Solaris PC Netlink Software.

Key Business Challenges:

Obtaining fast and reliable print services on Windows NT.

Reduce server downtime.

Decrease maintenance costs.

Reduce backup time.

Key Business Results:

Maximum server uptime.

Server consolidation.

Transparent NT

Improved Customer Care and Other Business Challenges

services.

Focus on engineering rather than maintenance.

"Our biggest challenge is to improve customer care and customer management with better service via technology" said Craig Bender, Systems Engineering Manager. "With the addition of two new properties this last year, we've doubled our staff. We have more and more users demanding connectivity to tools like Microsoft Office and to email, as well as intranet access."

With a majority of users using roaming profiles on thin clients, a down server means lost employee productivity and an impaired ability to serve customers: unplanned downtime can quickly cost hundreds of thousands of dollars. Lost or damaged data can mean lost reservations, and data restoration is subject to the possibility of 23+ hours-old data since the last backup. Bender explains, "There's more and more data out there that people want to get to. With roaming profiles, a down server locks users out of the system, and many employees are unable to perform their jobs."

"If a roaming profile server goes away while a user is trying to log on, that's the end of it. You just don't log on. So our file and print servers have become mission critical. Additionally, there are numerous back-of-house departments that need to do their work: hotel and casino accounting, food and beverage services, human resources. The file and print services need to stay up for those departments to be able to operate."

[Back to Top](#)

The Challenge: Fast and Reliable File and Print Services On NT

Mirage Resorts' primary goal was straightforward: fast and reliable file and print servers that reduced server downtime, both planned and unplanned. Numerous small servers were becoming too costly to maintain and manage, and it was becoming increasingly difficult to know which servers impacted which applications or departments. But with little UNIX platform expertise in house, retraining costs were also a consideration. Craig Bender explains, "Most of our organization is dedicated to Wintel support. It's been a great platform, but there are better platforms for certain applications like file and print services."

"We tried Microsoft's Cluster Server and it has been okay for us, but we have had some downtime and lost data. That's why we looked to a Solaris PC NetLink server to fill a very specific need for a fast and reliable file and print server."

With the help of Sun Professional Services, Mirage Resorts installed a Sun Enterprise 450 server, with four 400 MHz UltraSPARC CPUs, 1 GB of RAM, a Sun StorEdge A1000 storage array with 45 GB of storage, and a 100 Mbps Ethernet connection, running Solaris PC NetLink 1.0. This server supports over 500 clients and applications servers, including Microsoft Terminal Servers, Citrix servers running WinFrame, and Java technology clients.

[Back to Top](#)

Reduced Time to Backup

Due to the sheer amount of data under management, Mirage Resorts was also trying to reduce the time required for server backups. Craig Bender explains, "Another problem we've had is that the Wintel servers don't pump the data out fast enough for a backup."

The server we replaced on this project, although an older box, took sixteen hours to do the backup for the same amount of data that takes the Sun Enterprise 450 four hours."

[Back to Top](#)

Data Migration and Server Consolidation

Mirage Resorts was also looking to solve another problem. With numerous small servers consolidated to one large server, availability and reliability of the larger server is crucial. Craig Bender explains, "We wanted to have one big server which is highly redundant, with a mature operating system, that is highly available, and that doesn't go down. Additionally, we wanted to consolidate the servers without visiting the desktop."

"Touching 500 desktop machines in the act of consolidating the servers would have delayed the project immensely." For example, "We had about 50 machines running DLC, an old protocol which does not support routing. We had planned to upgrade these machines in any case — but it took us weeks. The Solaris PC NetLink software enabled us to support multiple server names on one box, so we were able to leave all the old server names that users are accustomed to connecting to, and did not have to touch their workstations. We only have to manage one box and one data store. We will get rid of the multiple server names as we visit users' machines and replace their workstations."

In the process of moving to the new Solaris PC NetLink server, over 39 gigabytes of data was transferred, consisting of 280,000 files and 15,000 directories. Craig Bender describes the migration process. "We used NT's built-in scopy to transfer files, which copied over the file security information as well. It was a real painless migration to the Sun server. The only limitations were on bandwidth and time, because we were moving a live server."

"It's so transparent, nobody says anything. We get it backed up faster, we don't have to manage it, and we don't have downtime. No news is good news."

Craig Bender,
Systems Engineering Manager
Mirage Resorts, Incorporated

[Back to Top](#)

Choosing Sun's Solaris PC NetLink Software Solution

Mirage Resorts was first introduced to the dependability of Sun servers when it added a StorageTek tape silo in 1997. According to Bender, "We do all our backups through a Sun server. It has been phenomenally reliable. The backup machine, a Sun Enterprise 6000, is the busiest server in the corporation from a volume standpoint, and it has never had a hardware failure."

Mirage Resorts looked at other NT packages, but found they were too expensive for the functionality offered. Additionally, Mirage Resorts had experienced problems with third party applications running under NT, including programs as simple as a NIC driver. Bender said that turning to Sun was a natural: "From our experience with the backup system, we knew Sun had a stable OS and reliable hardware offerings. We asked what Sun was doing in the NT space, and they proposed the Solaris PC NetLink software."

[Back to Top](#)

Quick Success With Help From Sun's Professional Services

With three weeks of planning and the

A Solaris PC NetLink server replaced existing Window NT servers, providing seamless NT file and print services to client machines.

support of Sun Professional Services, Craig Bender described the installation and migration process. "We were the biggest production site in beta, as far as number of nodes and the number of users getting authenticated. We caught some bugs, but we had a good working relationship with Sun. We have MCSE expertise in house, but it was nice to have someone dedicated to the project. Our staff is torn in a million different directions, and we're lucky if we're not paged a million times during a meeting. We devoted few internal resources to this project. Sun Professional Services did most of the testing."

Glenn Bonner, CIO, adds, "It is crucial to have a good team, consisting of both vendor and customer, when putting a new technology into place. When a vendor works as hard as Sun, you have an excellent team."

Craig Bender continues, "We never would have done it on our own. We're so busy. We never could have got it to the level of success it has achieved. It's been a huge plus for us. Sun's team worked real well unsupervised. They had a good knowledge of the platform, and knew how the two products meshed. They knew exactly how it should look, and got it there, with very little guesswork as to what should be happening."

"It's so transparent, nobody says anything. We get it backed up faster, we don't have to manage it, and we don't have downtime. No news is good news in this case. If I'm not hearing anything about the Solaris PC NetLink server, I know its up. It's like the water. You don't hear about your water service until you don't get it. That's the best thing: we've heard nothing about it. People have faith in the box, so they keep shoving data onto it. We're already at 90% disk full."

"Nobody today knows they're on a Sun server. It's mostly transparent to people who manage it except when they have to do a restore, and then they realize that the domain administration password they are accustomed to using on NT doesn't work on the UNIX box."

Glenn Bonner, CIO, summarizes, "As we like to say, when you're at play, we're at work. Adding the complexity of casino systems that have to run 24x7 to a heterogeneous environment that supports a 31,000-employee organization takes both hardware and software capabilities quite a bit. One reason we looked at a Solaris PC NetLink server was its industrial strength. The resultant aggregation of servers and economies of scale have translated into the Systems Engineering team being able to perform engineering work instead of maintenance."

[Back to Top](#)

Unexpected Gains

With its StorageTek tape silos, Mirage Resorts manages over 400 terabytes of archived data. Prior to the installation of the Solaris PC NetLink server, Mirage Resorts used third party middleware to emulate UNIX file services for StorageTek's Application Storage Manager (ASM) software. According to Bender "We were able to trick FileNET, which only runs on NT, to think we were dumping data on an NT server. This is a huge plus — we don't have to worry about third party middleware, StorageTek now has a great solution to provide its customers, and we have a seamless solution with FileNET, StorageTek, and Sun."

[Back to Top](#)

Choosing Sun's Solaris PC NetLink Software Solution

Bender concludes, "We've standardized on Sun and Solaris, especially where UNIX touches the StorageTek space. I'm looking to expand their use in the corporation."

Mirage Resorts is now planning its next steps, including adding StorageTek's Snapshot software product to the hotel servers for hourly copies. By using the Solaris PC NetLink server as the disaster recovery machine along with Snapshot, Mirage Resorts can reduce time between backups, and have better disaster recovery.

Mirage Resorts is also looking for supported high availability with a Solaris PC NetLink server, which will be available in the next version. The following step is to then implement geographic segmentation through SAN (Storage Area Network) technology.

Meanwhile, Bender is pleased that the Solaris PC NetLink server has not had any unscheduled down-time. "The other server, an older NT box, was going down once every couple of weeks. The Solaris PC NetLink server has had way above average uptime for us. I'd recommend this solution to anyone who needs a stable NT platform, or a better NT server than what's out there."

"Wintel servers don't pump the data out fast enough for a backup. The server we replaced on this project took sixteen hours to do the backup for the same amount of data that takes the Sun Enterprise 450 four hours."

Craig Bender,
Systems Engineering Manager
Mirage Resorts, Incorporated

[Back to Top](#)

1. This page meets my need. disagree agree

2. This page was easy to find. disagree agree

[Submit](#)

[Company Info](#) | [Contact](#) | [Terms of Use](#) | [Privacy](#) | [Trademarks](#) | Copyright 1994-2003 Sun Microsystems, Inc.