

# City Government Consolidates Servers and Delivers Enterprise Application Services with Sun Virtualization Technology

City of San Antonio

## Industry:

Global Government

## Oracle Products & Services:

Sun Fire X4600 M2 Server  
Sun Blade 6000 Modular System  
Sun Blade T6320 Server Modules  
Sun SPARC Enterprise M5000 Server  
Sun SPARC Enterprise M4000 Server  
Sun SPARC Enterprise T2000 Server  
Solaris 10 Operating System  
SunSpectrum Support

## Customer Challenges:

- Reduce datacenter costs
- Simplify management
- Ensure availability of services
- Provide room for growth

## Key Benefits:

- Achieved rapid return on investment
- Cut energy consumption by more than 15%
- Improved performance and reliability
- Reduced server footprint by over 85%
- Gained more time for projects that enhance service delivery and availability

The City of San Antonio, Texas, provides multiple online services, including bill payment, career assistance, licensing and permits, and public safety information. San Antonio has 12,000 employees and is home to more than 1.5 million people.

## Solution

To streamline management, the City of San Antonio replaced approximately 115 legacy servers with 26 Sun servers. It used virtualization technology, including Solaris Containers, to consolidate servers and ensure the availability of mission-critical applications used by the City's employees and residents.

## Story Details

Residents of the City of San Antonio (CoSA) can go online to pay a traffic ticket, apply for a job, or find information about the dozens of activities that affect their community. CoSA employees also rely on access to applications and data used in daily work activities, including financial systems, human resources software, and public safety applications used by the police and fire departments. Over the years, the City's server infrastructure had sprawled to keep pace with its service delivery, and CoSA was running out of room in its datacenter. The City's Information Technology Services Department (ITSD) needed to develop a plan to upgrade its IT infrastructure to reduce maintenance costs and enhance service. It planned to replace dozens of under-utilized servers with fewer higher performance systems, and it also decided to implement a second datacenter to ensure business continuity.

In mid-2008, CoSA considered several options for datacenter optimization. The City had a long relationship with Sun, using many of its legacy servers to run mission-critical Oracle databases and SAP applications. In the end, it felt that leveraging Sun's SPARC servers as a platform for the Solaris 10 Operating System and Solaris Zones provided the best roadmap for return on investment (ROI) with its virtualization technologies and energy-efficient, mainframe-class servers. Lumenate — a Texas-based technical consulting firm and systems reseller — also provided valuable insight into designing a virtual environment optimized for SAP applications.

The City manages several separate environments, including one based on SAP and Oracle solutions, and another with applications and core services running on Windows. CoSA decided to consolidate its SAP NetWeaver systems — including SAP ERP 6.0 applications and Business Warehouse 3.5 — and other N-Tier Oracle 10g database applications on Sun SPARC Enterprise M5000 and M4000 servers. The SPARC Enterprise M5000 servers provide up to four dynamic domains with assignment flexibility. CoSA also migrated from the Solaris 9 Operating System to the Solaris 10 OS to take advantage of Solaris Zones, so multiple applications can run in isolation from one another on the same physical hardware.

The solution also includes Sun Blade 6000 Modular Systems, and multiple Sun Fire T2000 servers with energy-efficient CoolThreads technology. CoSA also replaced 80 physical Windows servers with 12 Sun Fire X4600 M2 servers as a VMWare virtual infrastructure platform in its Windows environment. Altogether, the City consolidated or replaced approximately 115 servers with 26 compact, energy-efficient servers from Sun.

**"Sun's enterprise-class virtualization technologies have served the City of San Antonio well. They're a critical component of our overall IT transformation and optimization strategy, allowing us to rapidly deploy highly available server capacity to meet the City's changing business needs while saving money in the process."**

Kevin Goodwin,  
Assistant Director  
City of San Antonio Information  
Technology Services Department

CoSA believes that the speed and high throughput of the servers running on the Solaris 10 OS is the ideal combination for running its SAP and Oracle systems. "We're very happy with our solution," says Cathryn Major, administrator on the City of San Antonio UNIX team. "If our database administrators have a choice, they want an Oracle database and they want it to run on Sun technology."

By using Sun servers and virtualization technology, CoSA has consolidated from 16 to 4 racks of servers and reduced the datacenter footprint for these workloads by over 85%. This footprint is distributed across two geographically diverse datacenters to ensure business continuity. Although it has dramatically increased its server infrastructure capacity by implementing virtualization technology and higher performing hardware, CoSA has also reduced maintenance overhead. Administrators now have more time available for deploying new systems that benefit the City. Major points out it could previously take a week or more to deploy a physical server, but now it takes half an hour to set up a Solaris Zone. "We've been able to set up a lot more projects for people by using Sun's virtualization technology," she says.

The efficiencies gained from the server modernization effort extend beyond the boundaries of the IT organization. Since the City deployed SAP's ERP suite in 2004, application response times had been steadily increasing to the extent that the user experience was negatively impacted and productivity was beginning to suffer. Once the SAP application and database workloads were redistributed across the M4000 and M5000 servers, the City immediately realized a nearly three-fold performance improvement, and the SAP system response time fell well below the threshold of negatively impacting end-user effectiveness. This translates into increased productivity and a higher ROI for the City's SAP solution.

But consolidation has affected more than productivity — the City has realized considerable cost savings as well. CoSA expects to realize a full ROI within two and a half years based on reduced support costs alone. It has also dropped its overall datacenter energy consumption by approximately 15% by using fewer and more energy-efficient systems while increasing workload count by over 30%. Most importantly, CoSA has gained control of its server infrastructure while continuing to grow services for the people of San Antonio.

The City of San Antonio (CoSA) wanted to cut energy consumption and streamline management. For example, it ran over 300 under-utilized physical Windows servers to support core services, departmental applications, databases, and web servers on the Microsoft Windows platform. "We wanted to reduce the amount of hardware, support costs, and maintenance downtimes," says Rick Barnds, manager of the City of San Antonio Windows infrastructure team. "We also wanted to consolidate workloads."

To consolidate, CoSA opted to accelerate its server virtualization strategy by replacing 80 of the Windows servers with six Sun Fire X4600 M2 servers with VMware ESXi virtualization technology. It also deployed six additional Sun Fire servers to support over 30 new critical public safety application workloads in an N+1 configuration. "We chose the Sun Fire X4600 servers because we needed a system that could accommodate multiple processors and large amounts of memory," says Barnds. "The servers have a very high I/O capability ideal for handling a lot of workloads. We also wanted hardware that was going to be stable and well-constructed — we wanted enterprise-class hardware."

By deploying mission-critical resources such as a fuel management system and

public safety applications on Sun Fire servers, CoSA has improved service availability and met its administration goals as well. The reliability of the Sun servers combined with virtualization technology also helps CoSA keep critical services online. Barnds says, “If we have any kind of emergency with a server, we can stand up another one in a matter of minutes and we’re back in business.”