

# The George Washington University



## Ensuring Business Continuity with Sun Fire™ Servers and Sun Software

### Company/Organization

The George Washington University  
www.gwu.edu

### Vertical Market

Education

### Key Challenges

- Sustain growth with increased flexibility and lowered costs.
- Transition from tactical disaster recovery planning to strategic business continuity IT architecture.

### Solution

- Migrated existing data centers to next-generation business continuity data center environment with increased flexibility and instant failover.

### Business Results

- Saved thousands of dollars with employee productivity gains, both in administrative and IT departments.
- Reduced data recovery time from days to hours.
- Lowered TCO.
- Eliminated data loss with a business continuity architecture that provides instant failover.
- Decreased maintenance window dramatically.

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*– Ron Bonig, Executive Director of Technology Operations, The George Washington University*

Located four blocks from the White House, The George Washington University (GW) was created by an Act of Congress in 1821. Today, GW is the largest institution of higher education in the nation's capital. The university supports more than 70 research centers and institutes in the District of Columbia and Virginia. GW offers comprehensive programs of undergraduate and graduate liberal arts study as well as degree programs in medicine, law, engineering, education, business and international affairs. Each year, GW enrolls a diverse population of undergraduate, graduate and professional students from all 50 states, the District of Columbia and more than 120 countries.

Besides its dedicated staff, exceptional students and rigorous discipline, GW's well-maintained information technology (IT) infrastructure is an important factor in its successes. The university's IT staff manages two data centers and a network as large as that of an Internet service provider. The IT department also maintains several mission-critical online business applications that enable faculty, students, administrators and parents to perform the activities that make GW an outstanding academic institution.

Building on these accomplishments, the university recently worked with Sun Microsystems Inc. (Sun) to secure another win: a new IT infrastructure to ensure business continuity and support the school's rapid growth. The solution includes two Sun Fire™ 15K servers, as well as Sun Fire 4800, V1280, V440, V240 servers, Sun StorEdge™ L700 tape library and Sun™ Cluster 3.1 software. “Essentially we changed from a reactive disaster recovery plan to a strategically designed business continuity plan,” says Ron Bonig, Executive Director of Technology Operations at The George Washington University. “Sun™ Services and the Sun servers and tape backup gave us the ability to provide a flexible compute environment with greatly improved failover capabilities, hence our confidence to manage change with ease.”

# The George Washington University enhances security, flexibility and efficiency with Sun.

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*– Bret Jones, Director of Technology Engineering, The George Washington University*

## **From Passive Disaster Recovery to Proactive Business Continuity**

As GW has grown in size and prestige, its IT infrastructure has also expanded at a phenomenal rate. This year alone saw a 300 percent growth in servers and the establishment of a second data center. More and more users were accessing the university's Critical Enterprise Systems (CES), the core business and academic applications that consist of SunGard SCT Banner for student registration and records, Oracle E-Business Suite 11i, including Oracle Financials and Oracle Human Resources Management System, and an e-mail system running on Sun Java™ System Messaging Server. As the risk of data loss grew with the expanding IT infrastructure, the IT staff added the second data center for disaster recovery purposes. There were significant flaws and inefficiencies in the expanded IT environment, however, as the two data centers were not mirrored in real time. If a disaster occurred, it would have taken days to recover the data and resume operations, leading to massive productivity losses and leaving a window for potentially dangerous security breaches. Instead of carrying on with a suboptimal disaster recovery solution, GW decided to develop a business continuity plan to fully protect its data assets and reduce its liabilities. “We need to be able to recover all data and turn everything back on in a few hours, instead of taking two to three days,” says Bonig.

Other inefficiencies stemmed from the heterogeneous nature of the server environment. The university's two-tier architecture included Sun servers for the Web tier and a mixture of IBM and Sun servers for the application and database tier. With incompatibilities among the operating systems and file systems in the application and database servers, developers and support staff had to perform time-consuming file copies rather than using the far speedier database synchronization method. Also, since the demand for computing power for application development and production fluctuated, the department needed to find a flexible processing solution to avoid having to add more servers linearly and underutilizing compute resources. Finally, maintaining two technical skill sets, one for the AIX platform and the other for Solaris™, had cost GW thousands in annual training and lost productivity. With a limited budget and staff managing all the servers and mission-critical applications, the university needed a flexible and cost-effective data center architecture that met its requirement for reliability, availability and manageability.

With business continuity and cost-effective growth in mind, the university reviewed its IT strategy and decided to refresh its data center architecture.

## **Mission-Critical Vendor**

To meet these business and technical challenges, the IT staff considered solutions from IBM and Sun, the goal being to standardize on one server platform across two mirrored data centers. GW had an excellent working relationship with Sun consultants and liked their commitment to service as well as their preemptive attitude towards potential problems. “The Sun consultants are here regularly,” says Bonig. “When we buy new equipment, they make sure things are up and running correctly. Then they look out for potential issues and deal with them before problems occur.” As Sun

supplied all the servers for the university's mission-critical applications, it understood intimately its need for business continuity and flexibility.

Sun also had just the right solution. Not only could Sun servers provide for faster and more comprehensive disaster recovery via clustering, the dynamic configuration capability of Sun Fire servers would give developers the needed flexibility to allocate compute resources on the fly, saving hard dollars and productivity. Based on the quality of the proposed services and products, the IT staff chose Sun.

#### **Built Like Fortresses**

To assist the university with its business continuity planning, Sun consultants performed an assessment of the new architecture to determine suitable server configurations. In addition, using the Sun Oracle Applications Technology Center, Sun performed an assessment to determine the sizing of the Oracle 9i database. As GW formed its vision of mirrored data centers, Sun consultants recommended two Sun Fire 15K servers for the application and database tier, one in each data center. These servers would also replace the IBM RS/6000 M80, S70 and various Sun Enterprise™ servers, reducing data center footprint and complexity.

Scalable up to 106 UltraSPARC® 1.2GHz processors, the Sun Fire 15K servers and their fifth-generation Dynamic Systems Domains feature, which dynamically configures domain space and processor power, would allow IT staff to assign separate domains and allocate compute resources on demand for the development and production of CES applications as well as for the Oracle database.

To implement the proposed solution, Sun consultants performed an Application Readiness Service for the two Sun Fire 15K servers to configure, implement and test the mission-critical applications before deploying them in the development and production data centers. Two Sun StorEdge L700 tape libraries were employed for backup purposes, and a Sun Spectrum Gold<sup>sm</sup> support agreement was put in place. Other servers to round out the application and database tier include Sun Fire V440 servers for managing the Oracle Workflow part of Oracle Financials, Sun Fire B1600 Blade platform with Sun Fire B100 Blade servers for e-mail management and Sun Fire V240 servers for enterprise directory. A Sun Fire V1280 server is used for e-mail failover.

In the Web tier, Sun consultants helped choose the Sun Fire V240 and V440 servers, along with Sun Java System Web Server, Sun Java System Directory Server and Sun Java System Calendar Server to retrieve and present Web pages for CES. Sun consultants also performed installation, testing and implementation services that assured optimal performance of the solution.

“The Sun Java Enterprise System components are so well integrated that they gave us a simple and reliable software infrastructure system to support all our CES applications,” says Bret Jones, Director of Technology Engineering at The George Washington University. “And with Sun Services, we know we can call somebody to get immediate help if anything goes wrong.”

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In parallel, Sun consultants have also helped GW implement a new messaging system in a Sun clustered environment. In this new system, Sun Java System Messaging Server runs on two Sun Fire 4800 servers clustered with Sun Cluster software. “We chose the messaging system a few years ago because it offered comprehensive features, security controls and a level of support that suited our needs,” explains Jones. “Now with this clustered messaging system, we expect to deliver 24x7 messaging availability.”

Already, the clustered messaging environment has demonstrated increased availability for 14 months. “Sun’s leadership has helped us find this creative and highly successful new messaging solution,” says Jones.

### Everyday Savings

The university is even happier with the overall benefits of the new server architecture. The business continuity architecture of the two mirrored data centers has put IT staff at ease. If disaster strikes at one data center, the data replication capability allows GW’s IT staff to recover in hours as opposed to days with the previous system. And the reliability, availability and serviceability of Sun servers have increased significantly the IT staff’s productivity. “Our staff spends a lot less time and energy on our nightly processing and data copying,” says Bonig. “That frees up resources that we can use for other pressing needs such as maintenance and software upgrades.”

Today, the same network and data center administration staff can manage more servers while saving thousands in training and lost productivity. The IT staff can in turn engage in more creative and productive projects. Developing self-service Web applications that enable more efficient administrative processes, for example, will save thousands of dollars in productivity gains within the university’s administrative staff. With this level of efficiency, GW expects the total cost of ownership to be significantly lower than with the previous infrastructure.

### Looking Ahead

To continue on the path of growth, GW expects to rely on Sun’s quality products and the expertise of Sun consultants in maintaining its IT infrastructure. Sun consultants have already begun security workshops and a security assessment of the new data center environment. In addition, Sun consultants will help IT staff implement Sun NetConnect—a component of Sun Preventive Services—to proactively monitor and manage its server environment.

“With Sun at our side, we know that our growth path will benefit from Sun’s innovation and commitment to service,” concludes Bonig. “We look forward to making continuous improvements to our IT infrastructure, assisted by Sun.”

### Sun Technology

- Sun Fire™ 15K, 4800, V1280, V440 and V240 servers
- Sun Fire B1600 Blade platform and Sun Fire B100 Blade servers
- UltraSPARC® processors
- Sun StorEdge™ L700 tape library
- Solaris™ 9 Operating System
- Sun Java™ System Calendar Server
- Sun Java System Directory Server
- Sun Java System Messaging Server
- Sun Java System Web Server
- Sun™ Cluster 3.1 software
- Sun NetConnect

### Sun Services

- Designed and implemented data center technology refresh.
- Performed architectural assessment and design and Oracle sizing assessment.
- Delivered Application Readiness Service for Sun Fire 15K servers.
- Installed, tested and deployed servers.
- SunSpectrum Gold™ support agreement.

### Third-party Products

- Oracle 9i database
- Oracle E-Business Suite 11i
- SunGard SCT Banner

Get the details.

For more information on The George Washington University, visit [www.gwu.edu](http://www.gwu.edu).  
And for more information on Sun Services, please visit [sun.com/service](http://sun.com/service).

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