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Executive Summary

Overview
Servicio Andaluz de Salud (SAS), the Andalusia Health Service, provides health care services to the nearly 8.3 million citizens of Andalusia, Spain. Founded in 1986, the public health system’s mission is to guarantee high-quality, around-the-clock care to the people of this region, located in the southern part of the country. SAS is the second largest health maintenance organization in the world, with nearly 83,000 employees across 33 hospitals, approximately 1,500 primary health centers, and more than 100 specialized health centers.

Barriers
Ensuring high-quality citizen care is the primary focus of SAS, followed closely by effectively managing operational costs. In addition to a dynamic and dispersed citizen population and increasing regulatory demands, SAS was challenged by a depressed macroeconomic environment—Spain’s struggling economy, in particular—that heightened the need for cost controls and operational efficiencies. The health care provider required greater process automation, application and data consistency, and visibility into its complex, distributed information technology (IT) environment. It also sought to reduce IT risks and ensure continuity of care by improving endpoint management, properly securing its systems, and protecting sensitive patient information.

The Solution
To meet these challenges, SAS standardized its IT environment and streamlined its business processes by consolidating on the following Symantec products: Symantec NetBackup and Veritas Backup Reporter to address backup and recovery issues; Altiris Client Management Suite for simplified provisioning, reimaging, and patch management capabilities; Altiris Server Management Suite to streamline server provisioning and patching; and Veritas Volume Replicator for continuous data replication. Also deployed were Symantec Endpoint Protection; Veritas Cluster Server; Veritas Storage Foundation (device-level, Oracle RAC, and Windows versions); Altiris Asset Management Suite; Symantec Control Compliance Suite; Symantec Security Information Manager; Symantec DeepSight Threat Management System; and Wise Package Studio. To augment its IT staff, SAS contracted with Symantec Residency Services, Symantec Business Critical Services, Symantec Consulting Services, and Symantec Education Services at various points during the IT transformation.

Benefits
A Total Operational and Economic Impact (TOEI)™ analysis by The Alchemy Solutions Group found that Symantec and Altiris solutions helped SAS realize tangible business value. Actual and projected savings of more than $53 million are expected for the period of October 2005 through December 2012 (all savings are expressed in U.S. dollars).

This TOEI was jointly developed by SAS senior IT executives and The Alchemy Solutions Group. To ensure the integrity of this analysis, the assumptions and formulas were audited by an independent finance and accounting firm.

Chart 1. Savings Attributed to Each Symantec Solution
About SAS

SAS is a geographically dispersed and complex public health network in southern Spain serving the autonomous community of Andalusia, whose capital city is Seville. The service, which is affiliated with the Government of Andalusia's Ministry of Health, provides primary and specialized health care to the Andalusian people. Approximately 65 million medical visits, 500,000 surgical operations, and nine million medical emergencies are logged by SAS annually.

SAS's citizen focus is mirrored in the charter of the IT organization. The critical environment depends on information system availability at all times—24 hours a day, seven days a week, and 365 days a year—so that health service providers have instant access to their patients' electronic medical records. IT projects are both large and critical in nature because they impact the quality of care provided by the 84,000 SAS employees to all the citizens in the region. All points of care are connected to a common health information network. In addition, initiatives are underway to integrate the SAS system with other health services in Spain and the European Union.

In 1998, SAS's IT organization launched an effort to consolidate data across all of its information and care management systems so that every health center would have access to the same clinical history database. Beginning in the 2000s, in an effort to better support the integrated system and improve efficiencies, SAS increased its reliance on Symantec technology solutions, initially within its data center and later extending to the entire operating environment.

Key players in the SAS IT transformation include Ana Ceballos, the deputy director of information technologies who oversees the organization's 40 employees and more than 1,800 contractors; Adolfo García, the head of information systems services and manager of the information security and infrastructure system transformation; Jesús Romero Muñoz, the head of business and infrastructure; Diego Manuel Alonso, the infrastructure and applications manager; and Ricardo Franco, the chief financial officer (CFO).

Business Drivers

The business drivers that led to SAS's IT transformation centered on ensuring quality care despite a limited budget, demonstrating agility in a dynamic environment, automating work processes, controlling costs, complying with evolving regulatory requirements and standards, and protecting endpoints and systems from security risks.

Maintain Quality with Reduced Budgets

The budget constraints caused by Spain's 2008–2009 economic contraction amplified the need for close alignment between the SAS business and its IT organization. As a public entity, SAS's budget is capped, which makes increasing operational efficiency the IT team's primary goal in times of crisis to maintain optimal levels of citizen care.

Accommodate a Dynamic, Distributed Environment

The health care industry is typified by ongoing improvements, from new work processes and patient therapies to advancements in the tools used by health service professionals. Numerous clinical applications, such as laboratory information systems, radiology information systems, anatomy–pathology information systems, and multiple departmental systems, must be integrated and constantly available.

Fact File: SAS

| Founded – 1986 |
| Industry – Health care |
| Type – Public nonprofit |
| Region – Andalusia, Spain |
| Headquarters – Seville |
| Service Area – 17.3 percent of Spanish territory |
| Citizens Served – Approximately 8.3 million |
| Annual Services – 65 million medical visits, 500,000 surgical operations, and nine million emergencies |
| Facilities – 33 hospitals, 1,500 primary health centers, and 100 specialized health centers |
| Employees – 84,000 (19,000 primary care and 65,000 specialized care) |
| IT Organization – 40 employees and more than 1,800 contractors |
| Website – http://www.juntadeandalucia.es/servicioandaluzdesalud |

“Budgetary constraints resulting from the economic downturn simply increased the importance of business and IT alignment.”

Ricardo Franco
Chief Financial Officer
SAS
“Information systems integration is a very clear objective—to be able to have a complete clinical history, above all in hospitalization, which is the most complex area because of its large number of information systems.”

Ana Ceballos
Deputy Director of Information Technologies
SAS

because they affect citizens’ medical histories. The challenge for the SAS IT team is heightened by a service area that encompasses roughly 8.3 million people and more than 1,500 health care facilities distributed throughout southern Spain (see map).

Automate Manual Processes
The SAS IT team was burdened by manual work processes and frequent travel to distant locations, which proved expensive not only in direct costs, but also in productivity and responsiveness. Automating activities and performing tasks from remote locations would significantly improve IT performance and reduce the cost of labor.

Manage Technology Costs
Data was growing at a rate of 15 percent annually, stretching the limits of the data center servers. Backup reporting was labor intensive. Software was purchased without a clear understanding of where the applications were already installed and how many licenses were still available. The IT team needed to increase storage efficiencies and enhance visibility into its processes and systems to reduce technology costs.

Ensure Compliance with Regulations and Standards
SAS must comply with various local and national regulations, such as the Spanish Data Protection Act. In addition, data and system standards must be followed. For instance, the Ministry of Health is working with all of Spain’s autonomous areas to allow the exchange of information among different regional health systems. The ministry is also working to implement the European eHealth initiative—European Patients Smart Open Services or “epSOS”—which is establishing standards for sharing citizens’ clinical and prescription information throughout the European community.

Protect Against Security Vulnerabilities
Securing an SAS system consisting of approximately 50,000 distributed endpoints, including desktops, laptops, and various other devices, was a high priority for the IT team. A 2007 virus attack revealed critical weaknesses in the organization’s security infrastructure. A more comprehensive solution was needed to manage IT risk, including antivirus and antispyware features, personal firewall and intrusion prevention, and streamlined management of endpoint security.

“IT governance is particularly important in helping to ensure cross business–IT alignment and compliance with different regulations and policies.”

Ana Ceballos
Deputy Director of Information Technologies
SAS
Technology Challenges

SAS faced a number of technology challenges that affected productivity, efficiency, costs, and business continuity, such as a highly diversified IT infrastructure, cumbersome client and server management, inefficient backup and recovery processes, and limited disaster recovery and software management capabilities.

Provide Flexibility for Heterogeneous Environment
The organization’s highly heterogeneous IT environment required a data center solution that could support various server platforms, operating systems, and storage devices. For example, SAS server platforms included Solaris on Fujitsu and Sun servers and Red Hat Enterprise Linux, Novell SUSE Linux Enterprise, and Microsoft Windows on HP servers, among others. Heterogeneous virtualization support was also desirable.

Streamline Client and Server Management
Managing thin clients and PCs located throughout Andalusia was highly time consuming for the IT team. Provisioning, patching, reimaging, and remediating the clients frequently required traveling long distances. The team sought to reduce this burden by largely automating the management processes and introducing remote-control capabilities. Likewise, the team looked to automate the provisioning, reimaging, and patching of data center servers to save time and to increase confidence that all patches were being applied consistently.

Chart 2. IT Labor Hours Before and After Altiris Client Management Suite Deployment 2003–2010

Improve Backup and Recovery
Long backup windows and labor-intensive backup processes were introducing unnecessary risks to the health care provider. The IT team wanted to standardize on a single solution that automated the backup process and offered high-availability configuration capability to increase the reliability of backups and recoveries.

Ensure Business Continuity
A reliable disaster recovery solution would require establishing dual data centers. The IT team needed to maintain business continuity throughout the deployment of the second data center to avoid interrupting patient care. It then needed to ensure ongoing database and application consistency between the data centers to enable timely and complete failover of all systems should one of them go down.

“Security is a very critical element of any organization, and that is certainly true for SAS. Neglecting any aspect of security could quickly create vulnerabilities that could have a dramatic impact on the business.”

Adolfo García
Head of Information Systems Services
SAS
Establish a Common Software Management Infrastructure

The software used at SAS is highly diversified. To improve IT governance and increase efficiencies, the IT team sought to standardize with software management tools that automate security compliance and expedite threat resolution.

IT Transformation

Under the leadership of Ceballos and García, SAS selected a series of Symantec and Altiris solutions to be implemented at its data centers and throughout the Andalusian health care facilities. Consolidating on integrated solutions and automating work processes improved SAS's ability to deliver high-quality, responsive patient care while staying on budget and in compliance with necessary regulations. Numerous solutions were selected, but the key components of the transformation were solutions for backup and recovery, client and server management, data replication, and supplemental IT resources.

Data and Storage Management

SAS deployed a number of solutions aimed at improving operational efficiency in the UNIX environment beginning in 2002, such as a limited deployment of Symantec NetBackup for central system data protection, Veritas Cluster Server and Veritas Storage Foundation for Oracle RAC for high availability, and Veritas Storage Foundation for storage management at the device. Symantec Education Services provided training for Symantec NetBackup and Veritas Storage Foundation.

The solutions were extended beginning in August 2008 when the SAS IT team deployed Veritas Storage Foundation and Veritas Cluster Server across the Linux and Microsoft Windows platforms. A total of 22 different partitions on the Sun Solaris servers, powering 10 different databases, are configured as active-active clusters using the Cluster Server. Symantec Business Critical Services assisted with the deployment and was instrumental in sharply reducing response times for severity-one availability incidents.

In October 2008, the team deployed Symantec NetBackup in its data centers. The Veritas Backup Reporter feature was implemented at SAS hospitals in September 2009 to enhance backup and archive reporting and more effectively manage the storage environment. In January 2010, Symantec NetBackup replaced EMC Legato in the hospital environment.

Endpoint Management and Security

To provide holistic endpoint management, the IT team selected Symantec IT Management Suite in October 2005, which included Altiris Client Management Suite for thin client patch management, provisioning, reimagining, and remote management; and Altiris Asset Management Suite, which improved visibility into licensed and deployed applications. In January 2010, Altiris Client Management Suite was extended to SAS PCs. With these solutions, the IT team is able to manage SAS devices remotely from a centralized tool.

While security was always a critical IT function due to the vast number of endpoints in use at SAS, its urgency came to light in 2007, when a virus attack mutated and shut down various systems. Following that event, the SAS IT team partnered with Symantec Consulting Services to remediate the infection and get the systems back online, deploying Symantec AntiVirus to help remediate the systems and provide ongoing protection.
In mid-2009, the SAS IT team began upgrading approximately 50,000 endpoints—desktops, laptops, and various devices and data center servers—from Symantec AntiVirus to Symantec Endpoint Protection. The upgrade to Symantec Endpoint Protection, expected to be completed in mid-2010, reduced IT risk and streamlined management of endpoint security for IT staff. It also provided antivirus and antispyware features that are used across all endpoints. The team was assisted by Symantec Consulting Services in defining security policies for the various clients and customizing personal firewall and intrusion prevention features for the different client groupings. Symantec Education Services trained more than 200 SAS personnel and a member of Symantec Residency Services provides ongoing management support.

**Business Continuity**

In August 2008, the SAS IT team moved to a dual data center infrastructure strategy to accommodate business continuity requirements. A new data center in Malaga would mirror the existing one in Seville, with each containing approximately 500 servers. The Seville data center would power the western Andalusia health care facilities, while the Malaga data center would power those in eastern Andalusia. Both data centers would be configured to handle a complete failover of all systems from the other data center.

Veritas Volume Replicator was selected to replicate data across the approximately 560-kilometer (350-mile) distance between the two data center sites. Asynchronous replication ensured that database consistency was established prior to the transfer of applications. Because of its success in the data center deployment, in January 2010, Veritas Volume Replicator was selected to replicate data between the two production data centers on an ongoing basis for disaster recovery.

Altiris Server Management Suite was used to provision the new set of standard images in the Malaga data center. SAS is now using the solution for ongoing automated patch management and to monitor and consistently manage all servers in the data center.

The SAS IT team leveraged the expertise of Symantec Consulting Services to launch the new data center. Symantec consultants assisted with defining the migration strategy and architectural configuration for business continuity. The IT team chose Symantec Residency Services to help with the management of Volume Replicator in conjunction with Altiris Server Management Suite. A Symantec resident will work alongside SAS IT personnel providing one year of managed services.

**IT Governance**

SAS selected several additional Symantec solutions on which to standardize its IT environment. In early 2009, the IT team deployed Wise Package Studio from Symantec to support application virtualization and Symantec DeepSight Threat Management System to automate security intelligence. The IT team is in the process of adding Symantec Control Compliance Suite and Symantec Security Information Manager to further enhance its efforts around IT governance. There is also interest in deploying server and storage virtualization in the future.

Symantec Business Critical Services personnel continue to help manage threats to availability for SAS. Beginning in October 2010, two Symantec Residency Services consultants will be added for system administration.

“With Altiris Asset Management Suite, we are able to see what types of applications are deployed on what machines. Moving forward, we plan to begin identifying instances where we own too many licenses, which will enable us to reduce costs.”

Adolfo García
Head of Information Systems Services
SAS

“Altiris Server Management Suite allows us to manage provisioning, reimaging, and patching of our data center servers in an automated manner that saves us significant IT staff time. It not only reduces cost but drives significant operational efficiencies through automation.”

Diego Manuel Alonso
Infrastructure and Applications Manager
SAS

“Symantec Residents, coupled with Symantec Business Critical Services, enhance our ability to collaborate with the larger Symantec team.”

Adolfo García
Head of Information Systems Services
SAS
Key Business Value

The different Symantec and Altiris solutions are delivering tangible business value for SAS. A Total Operational and Economic Impact (TOEI)™ analysis by The Alchemy Solutions Group, which compared the cost to achieve key results today with the cost SAS would have incurred to achieve the same results before the current program, quantified business value in the following areas:

- Data center backup efficiencies
- Hospital backup efficiencies
- Client provisioning, reimaging, and deployment
- Server provisioning and patching
- Volume replication
- Critical service reduction
- System administration

SAS Network Architecture

Each data center has approximately 500 servers. SAS maintains a heterogeneous environment, which includes Solaris on Fujitsu, Sun, and HP servers. Red Hat Enterprise Linux, Novell SUSE Linux Enterprise, and Microsoft Windows on HP servers. The Sun Solaris environment consists of 22 different partitions powering 10 different databases that are configured as active–active clusters.

Sevilla

Malaga

Each data center has approximately 500 servers. SAS maintains a heterogeneous environment, which includes Solaris on Fujitsu, Sun, and HP servers. Red Hat Enterprise Linux, Novell SUSE Linux Enterprise, and Microsoft Windows on HP servers. The Sun Solaris environment consists of 22 different partitions powering 10 different databases that are configured as active–active clusters.

Veritas Volume Replicator provides continuous, asynchronous data replication between the two data centers for disaster recovery.

Symantec NetBackup and Veritas Backup Reporter provide essential and reliable backup and recovery capabilities for the data centers and the SAS network of hospitals.

Symantec Residency Services and Symantec Business Critical Services allow SAS IT resources to be reallocated to other core tasks.

Altiris Client Management Suite simplifies provisioning, reimaging, and patch management for more than 50,000 endpoints, including desktops, laptops, and various other devices, throughout Andalusia.

Altiris Server Management Suite streamlines server provisioning and patching in the data centers, hospitals, and other facilities for more than 2,000 servers.

33 Hospital Networks

33 Hospital Networks
For calculations in this section, The Alchemy Solutions Group used a full-time equivalent (FTE) IT salary of $40,000.¹ The euro-to-dollar conversion rate was EUR 1.30² as of May 2010, when the calculations were made. The period of service used was 240 annual regular working days¹ and 365 annual working days for backups,³ with a 2.8 percent¹ year-to-year salary adjustment for TOEI labor-related calculations.

Data Center Backup Efficiencies

The deployment of Symantec NetBackup in the SAS data center in October 2008 provided multiple benefits. In spite of the 15 percent annual data growth rate, backup storage savings are expected to increase by just 5 percent annually to 20 percent in 2012. The average storage cost per terabyte is $20,000 and, by December 2010, the total data center backup storage is estimated to be 300 terabytes. Also, with NetBackup, fewer IT FTEs will be required to perform the backup tasks, saving approximately 7,300 hours per year as a result of improved IT labor productivity.

The Alchemy Solutions Group estimates that SAS will achieve realized and projected data center backup storage cost savings of nearly $2.1 million by reducing the storage growth rate, IT labor cost savings of more than $255,000 due to resource reallocation, and IT labor productivity gains of approximately $336,000 as a result of more efficient data center backups from October 2008 through December 2010. When the savings are aggregated, The Alchemy Solutions Group estimates that SAS will achieve realized and projected IT savings in the data center of nearly $2.7 million from October 2008 through December 2010.

Chart 3. Data Center Backup Storage Savings, IT Labor Cost Avoidance, and IT Productivity Gains
Hospital Backup Efficiencies
The September 2009 deployment of Symantec NetBackup’s Veritas Backup Reporter feature in the hospital environment reduced by half the amount of time required to perform data backup reporting. When Symantec NetBackup was extended to the hospital environment in January 2010, further IT labor savings were realized. Approximately 80 percent less time was required to perform hospital backup management and reporting tasks. In addition, with NetBackup, data backup storage for the hospitals is expected to increase by just 5 percent annually to 20 percent in 2012. Each of the 30 hospitals has approximately 10 terabytes of storage, and the total hospital backup storage by December 2012 is expected to be 397 terabytes at an average storage cost per terabyte of $20,000.

The Alchemy Solutions Group estimates that SAS will achieve realized and projected hospital backup storage cost savings of nearly $5.4 million by reducing the storage growth rate from January 2010 through December 2012. IT labor productivity gains of nearly $3 million are expected as a result of more efficient hospital reporting from September 2009 through December 2012 and streamlined hospital backup management from January 2010 through December 2012. When the savings are aggregated, The Alchemy Solutions Group estimates that SAS will achieve realized and projected IT savings in the hospital environment of more than $8.6 million from September 2009 through December 2012.

Chart 4. Hospital Backup Storage Savings and IT Labor Productivity Gains

Client Provisioning, Reimaging, and Deployment Labor Productivity Gains
In October 2005, Altiris Client Management Suite was deployed for thin clients and, in January 2010, it was extended to PCs. The solution’s reimaging, provisioning, and deployment capabilities allow the IT team to update and remediate all endpoints from a central console, without having to travel to each device. Provisioning and reimaging time per unit fell from four hours to 30 minutes. The Alchemy Solutions Group estimates that nearly 80,000 hours of thin client provisioning time will be saved from October 2005 through December 2012 and nearly 79,000 hours of PC provisioning time will be saved from January 2010 to December 2010. Reimaging time saved from October 2005 through December 2012 will be nearly 95,000 hours. In addition, deploying applications from remote sites—about 10 are deployed each year—will enable SAS to save close to 7,600 hours of IT labor from October 2005 through December 2010.

The Alchemy Solutions Group estimates that SAS will achieve realized and projected IT labor productivity savings of more than $1 million from October 2005 through December 2012 as a result of thin client provisioning efficiencies, nearly $3.2 million from January 2010 through December 2012 as a result of PC
provisioning efficiencies, nearly $1.9 million from October 2005 through December 2012 as a result of reimagining efficiencies, and more than $131,000 from October 2005 through December 2010 as a result of application deployment efficiencies.

When the savings are aggregated, The Alchemy Solutions Group estimates that SAS will achieve realized and projected IT labor productivity gains of nearly $5.2 million from October 2005 through December 2012 with improved client management.

Altiris Client Management Suite was deployed in October 2005 and used to provision and reimage thin clients. In 2010, PCs were included and the overall time savings for the IT staff was almost 90%, while the total number grew to 10,500 units provisioned and 6,000 units reimaged annually.

Altiris Client Management Suite led to a 75% improvement in the time required to deploy applications. SAS deploys an average of 10 applications annually.
Server Provisioning and Patching Labor Productivity Gains

The deployment of Altiris Server Management Suite in August 2008 allowed the IT team to reduce the time required to provision and patch its servers. Approximately 50 new servers are deployed annually, a task now performed by one IT FTE rather than three. An estimated 40,000 provisioning hours will be saved from August 2008 to December 2010. In addition, approximately 500 patches are performed quarterly by one IT FTE rather than the previous 20. Patching hours will be significantly reduced from August 2008 through December 2010. The SAS IT team now has the ability and confidence to make patches on a consistent basis—something that was not possible prior to this deployment.

The Alchemy Solutions Group estimates that SAS will achieve realized and projected IT labor cost savings of more than $36.1 million from August 2008 through December 2010 as a result of server provisioning and patching efficiencies.

"Volume Replicator was an indispensible tool. It would have required a significantly longer time to complete the migration and would have incurred more cost, not to mention that we were able to verify that the data was exactly the same upon arrival as upon departure."

Diego Manuel Alonso  
Infrastructure and Applications Manager  
SAS

Volume Replication Labor Productivity Gains

When the dual data center strategy was implemented in August 2008, Veritas Volume Replicator was used to duplicate the data to the new data center. Tremendous one-time hardware and labor time savings were realized. Had the replication been performed using EMC or Hitachi hardware, it would have required three IT FTEs at least one year to complete, plus approximately $1.6 million in hardware costs. With Veritas Volume Replicator, the entire migration of data from Seville to the new Malaga data center was completed in less than two weeks. The Alchemy Solutions Group estimates that SAS achieved one-time realized and projected IT labor and hardware cost savings of nearly $1.7 million for the data migration in August 2008 as a result of automated replication.
Critical Service Reduction Labor Productivity Gains

In September 2008, Symantec Business Critical Services assisted SAS with reducing high-severity support incidents, and a 90 percent decline was immediately realized. Previously, five SAS IT FTEs spent 112 hours per incident; now just one IT FTE spends three hours per incident. The Alchemy Solutions Group estimates that SAS will achieve realized and projected IT labor cost savings of nearly $257,686 from September 2008 through December 2010 as a result of this staff augmentation.

Chart 8. Critical Service Reduction IT Labor Productivity Gains

System Administration Labor Productivity Gains

Symantec Residency Services for system administration, scheduled to begin in October 2010, will allow SAS to reallocate four IT FTEs to other crucial IT responsibilities. The Alchemy Solutions Group estimates that SAS will achieve realized and projected IT labor cost savings of nearly $374,000 from October 2010 through December 2012 as a result of this staff augmentation.

Chart 9. System Administration IT Labor Productivity Gains
Conclusion

Symantec and Altiris solutions enabled SAS to maintain high-quality health care while controlling costs, automating work processes, reducing IT risks, and ensuring compliance. A TOEI analysis by The Alchemy Solutions Group found aggregate real and projected savings of more than $53 million from October 2005 through December 2012 in the following eight areas (all savings are expressed in U.S. dollars):

- **Data Storage Savings:** $7,495,655 in storage cost savings with a data center and hospital storage structure that leveraged Symantec NetBackup
- **Backup Labor Cost Avoidance:** $255,478 in IT labor cost savings through improved data center backup efficiencies
- **Backup Labor Productivity Gains:** $3,615,431 in IT labor productivity through automated data center and hospital backup processes
- **Client Management Labor Productivity Gains:** $5,185,281 in IT labor productivity through simplified client provisioning, reimagining, and deployment
- **Server Provisioning and Patching Labor Productivity Gains:** $36,141,052 in IT labor productivity through expedited server management
- **Volume Replication Hardware and Labor Cost Avoidance:** $1,677,240 in IT hardware and labor cost savings through automated data replication
- **Business Critical Services Labor Productivity Gains:** $257,686 in IT labor productivity through reducing severity-one incidents
- **System Administration Labor Productivity Gains:** $373,565 in IT labor productivity through resource reallocations enabled by Symantec Residency Services

Notes

1. Mean Annual Wage, Information Technology Full-Time Equivalent. (Data provided by SAS, May 2010.)
3. Annual Business Days Worked. (Data provided by SAS, May 2010.)
4. Annual Days Worked for Backups. (Data provided by SAS, May 2010.)
5. Year-to-Year Salary Adjustment. (Data provided by SAS, May 2010.)

“Ana and her team are successful because they have a keen understanding of our business objectives and are able to map those against available technology requirements.”

Ricardo Franco
Chief Financial Officer
SAS
The Alchemy Solutions Group

The Alchemy Solutions Group is a global management consulting and marketing research firm providing program level support to senior information technology (IT), sales, marketing, and customer relationship professionals in Fortune 1000 companies.

The Total Operational and Economic Impact (TOEI)™ Research Practice delivers public and private research and publishing services. This forensic economic research confirms the positive or potentially negative attributes of products and services in post-implementation environments. This practice enables IT professionals to assess the economic impact of leading technology solutions in the global IT supply chain. Alchemy’s Business Value Analysis (BVA)™ is one of the public communication mediums available for this research.

Alchemy leverages deep industry expertise and formal research best practices to help business leaders better understand their economic contributions in the business-to-business marketplace. Alchemy’s clients use TOEI research to provide economically driven go-to-market strategies and support integrated sales and marketing best practices.

Stanley King — President and CEO

King is responsible for establishing strategic relationships with executives who are committed to understanding the economic impact of products and services in the global IT supply chain. King’s international sales and marketing experience and ongoing research efforts provide industry executives with the candid insight required to enable effective customer life cycle management.

The repurposing of TOEI research has proven valuable to IT procurement, product development, strategic and product marketing, enterprise sales, and long-term customer support. Prior to founding The Alchemy Solutions Group, King served in the software industry for 19 years, specializing in mergers and acquisitions, executive management, and field operations.

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