

Business Value Analysis Study

# Email Archiving and Policy Management

September 2007



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## Executive Summary

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### Overview

The National University of Singapore (NUS) is a multi-campus university of global standing, with distinctive strengths in education and research, both of which include an entrepreneurial dimension. The NUS community comprises a cosmopolitan mix of more than 30,000 students from 88 countries and 7,000 faculty and staff at three campus locations. For students, faculty, and administrative staff email, which is overseen by the NUS Computer Centre, is the primary communications tool.

### Barriers

The prior email solution at NUS included 10MB quotas for students and 50MB quotas for faculty and staff. Once end users reached their email quota, they could not receive or send email until they deleted email or moved the email into PST files. Students often resorted to using external third-party email systems with larger storage quotas. This was a concern for the Computer Centre team, as email contained IP-related content and files. For those who used NUS email, valuable time was spent managing PST files, time better spent conducting research, preparing teaching materials, and preparing for exams. In addition, with a newly implemented consolidated, tiered storage solution, the Computer Centre team sought an email archiving solution that would allow them to leverage less-expensive, secondary tier storage.

### Solution

Working with Symantec Consulting Services, the Computer Centre team began rolling out an email archiving solution based on Symantec Enterprise Vault in January 2006. Full deployment was completed in October 2006. The team created email archiving policies, whereby email is archived from end-user desktops and laptops after 30 days or once 60 percent of the end-user's 20MB quota has been reached. The solution leverages an EMC-based tiered-storage environment, which includes archiving to secondary tier EMC Centera disk arrays.

### Benefits

A Total Operational and Economic Impact (TOEI) analysis of the NUS email archiving solution by The Alchemy Solutions Group pinpoints significant business value. More than US\$3.1 million in cost savings, cost avoidance, and productivity improvements—realized and projected—will be achieved by December 2008 (starting in June 2006). The different areas of business value include:

- Elimination of PST File Management
- Avoidance of Microsoft Exchange Acquisitions
- IT Help Desk Productivity Improvements
- Finance Department Productivity Improvements
- Tiered Storage Avoidance
- Single-instance Archiving Cost Avoidance

The value of the solution extends beyond quantifiable results to qualitative benefits. Specifically, students and faculty, rather than spending valuable time managing PST files, are now able to focus on preparing for exams, developing teaching materials, and conducting research.

# About National University of Singapore

## Fact File: National University of Singapore

**Established:** 1905  
**Students:** 30,000  
**Faculty and Staff:** 7,000  
**Countries Represented:** 88  
**Campuses:** Three  
**Faculties and Schools:** 14  
**Email Volume:** 550,000 messages daily

Founded in 1905 as a modest medical school, the National University of Singapore (NUS) has grown to be one of the leading institutions of higher education in the Asia Pacific. The university was ranked 33rd in the world and 4th in Asia in the Times Higher Education Supplement-Quacquarelli Symonds (THES-QS) University Rankings, 2007.<sup>1</sup> NUS is a major research university, with 14 national-level, 16 university-level, and 80 faculty-based research institutes and centres.

Fourteen faculties offer a broad-based curriculum underscored by more than 30,000 students from 88 countries. The 150-hectare Kent Ridge campus houses 12 faculties that offer courses ranging from medicine to architecture to

music. The Faculty of Law is located at the Bukit Timah campus, while the Duke-NUS Graduate Medical School Singapore is located at the Outram campus, with the objective of grooming a new breed of physician-scientists for the biomedical sciences sector.

Email is the primary form of communication at NUS, where 550,000 messages are sent and received daily. As a business-critical application, the NUS email system has a direct impact on how the IT infrastructure is perceived, not to mention on the overall productivity of faculty, staff, and students. And with email volume and storage requirements growing rapidly, Tommy Hor, Director of the Computer Centre at NUS, is keenly aware of the critical role his 154-member department plays in maintaining and improving the quality of the educational experience at the university.

## Business Drivers

In January 2004, Hor and his team, seeking less cost and complexity, embarked on a search to consolidate the storage infrastructure with storage devices scattered across its computing environment. As part of this initiative, they conducted an in-depth survey with faculty, staff, and students, asking them to rank about 10 different IT functions from their vantage point. More than 50 percent of the nearly 6,000 respondents indicated that email was their greatest pain point. Consequently, beyond examining their storage environment, Hor and his team added evaluation of email to the project dashboard. In March 2006, the NUS team selected EMC as its storage technology provider. In addition to standardizing on EMC storage systems, the team decided to implement a tiered-storage approach, with tier-one storage based on an EMC Symmetrix and tier-two storage leveraging EMC Centera technology. The consolidated, tiered-storage solution contains more than 358 terabytes (TB) of data and is expected to help NUS reduce its storage area network (SAN) storage costs by 40 percent over a five-year period.

“We have taken a bold step. Rather than make incremental changes, we decided to consolidate all the storage on campus.”

**Tommy Hor**  
**Director, Computer Centre**  
**National University of Singapore**

For the email component of the infrastructure makeover, Hor and his team identified a number of different business drivers and technology challenges. The Alchemy Solutions Group captured the following during its interview with Hor and his team.

1. Times Higher Education Supplement-Quacquarelli Symonds (THES-QS) University Rankings 2007. [www.topuniversities.com/worlduniversityrankings/results/2007/overall\\_rankings/top\\_100\\_universities/](http://www.topuniversities.com/worlduniversityrankings/results/2007/overall_rankings/top_100_universities/).

## Protect Intellectual Property

NUS students were allocated a total of 10 megabytes (MB) for their email inboxes. With email as a primary means of communications—both internally and externally—students frequently found that they were running out of space. And while they could move emails over to PST files, this was an inefficient process and not all students were willing to do so. As a result, many students turned to third-party email solutions. As NUS views email communications, specifically the content and file attachments, as intellectual property (IP), Hor sought a solution that would retain email communications in-house.

## Learning Impeded

Many NUS faculty rely on email for communicating with students. Students with mailboxes in excess of the 10MB capacity, however, were unable to receive and send email. This communications “gap” impeded the learning process, something the NUS Computer Centre team wanted to close.

## Billing Inefficiencies

Student email capacity problems spilled over to the NUS Finance Department. Emails containing invoices and fee-related information sent to students with mailboxes beyond the 10MB capacity were not received by students. Hence, in the case of these students, staff had to follow up via regular mail and telephone in order to prompt actions from those students, an operational inefficiency Hor wanted to eliminate.

## Improve Email System Performance

As part of the response the Computer Centre team received to its annual 2004 survey of faculty, students, and staff, respondents indicated that email performance was a critical problem, ranging from delayed message delivery to slow system performance. These degradations in performance affected productivity across the organization.

## Cost-effective Email Archiving

A not-for-profit entity, NUS operates on a limited budget, and the Computer Centre team required an email archiving solution with optimized storage requirements. An annual 10 percent email data growth rate accentuated the need for a solution with a cost-effective archiving approach. Duplication of email, both in volume and file attachments, engendered a complex technology challenge.

“Our users found the email storage limitation very disruptive to their studies and everyday activities. In addition, the faculty and staff rely very heavily on email for communicating internally and externally. Email is truly a business-critical application for us.”

**Tommy Hor**  
**Director, Computer Centre**  
**National University of Singapore**

## Seamless Impact on End Users

The NUS administration stipulated that the new email solution must not disrupt the learning process and daily operations. There was significant concern that introduction of a new technology would require significant end-user training, something they wanted to avoid.

## Technology Challenges

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“We needed to manage our costs, so simply buying more hardware and software wasn’t an option.”

**Tommy Hor**  
Director, Computer Centre  
National University of Singapore

### **Support for Microsoft Exchange and EMC Storage Environments**

With a significant investment in Microsoft Exchange for email management and EMC for its storage infrastructure, Hor and his team required an email archiving solution that would seamlessly integrate with these legacy systems. Specifically, Hor sought a technology provider with a proven record of working with Microsoft and EMC. It was a requisite that the new solution build upon the strengths of the existing Microsoft and EMC technology infrastructures.

### **Automated, Intelligent Email Archiving**

Supporting a vast IT infrastructure that supports more than 37,000 students, faculty, and staff, the five-person Computer Centre team sought an email archiving solution that would require minimal day-to-day management. Specifically, Hor wanted a solution with automated, intelligent archiving capabilities.

“Today, we don’t have legal requirements around compliance, but we are getting ourselves ready so that we can conduct e-discovery in response to requests from government agencies, once those regulations are in place.”

**Tommy Hor**  
Director, Computer Centre  
National University of Singapore

### **Robust, Scalable Solution**

A strategic, long-term vision is part of every new technology initiative undertaken by Hor and his team. And while email archiving was the immediate driver, other initiatives factored into Hor’s decision making. He and his team specified criteria as part of the Request for Proposal (RFP) process that included not only archiving but also e-discovery capabilities for compliance with anticipated open records request requirements and the ability to archive various assortments of data such as business information from the Finance and HR departments.

## IT Transformation

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### **Initial Evaluation**

In January 2004, the Computer Centre team began developing their strategy for consolidating data storage across all campus departments, as well as addressing the problems described above associated with the NUS email system. The process included analyzing the benefits of leasing versus buying new hardware. NUS concluded that a leasing solution was the most cost effective and selected a comprehensive storage solution from EMC. In May 2005, Hor engaged his local Symantec account team to discuss his requirements for email archiving. Hor specified three primary selection criteria:

1. The solution would need to support quota-based archiving in an automated manner.
2. Because the NUS team sought to leverage its new consolidated, tiered-storage infrastructure based on EMC storage, they required a technology solution that would allow archiving to their less-expensive, secondary tier storage based on EMC Centera.
3. Every email was estimated to be duplicated 20 times through copying and forwarding by end users, and the Computer Centre team sought single-instance storage capabilities.

### **Proof of Concept**

The NUS team issued an RFP in July 2005, kicking off a selection process that would result in an enterprise-wide solution to support email requirements—both immediate and long term. In October 2005, impressed with the Symantec Enterprise Vault solution, Hor engaged the Symantec team for a two-day proof-of-concept session, a critical step in the evaluation process. The Symantec team helped deploy the proof of concept, which the Computer Centre team tested for functionality, stability, integration, and scalability over a period of several weeks.

## Solution Selection

Based on their evaluation process, the Computer Centre team selected the Symantec Enterprise Vault solution in March 2006. During the interview The Alchemy Solutions Group conducted with Hor and his team, the following criteria were cited as the reasons for the selection:

- Quota-based archiving
- Integration with the tiered EMC storage environment
- Ability to scale to thousands of users without degradation in performance
- Ease of implementation
- Virtually no impact to end users; no requirement for end-user training
- Additional functionality—such as e-discovery and archiving of different data types—for addressing future business and technology requirements

“It was critically important that the Symantec team have the knowledge and experience to assist my team in designing and implementing a solution. Symantec Consulting Services met this requirement.”

**Tommy Hor**  
**Director, Computer Centre**  
**National University of Singapore**

## Solution Deployment

In addition to the licenses of Symantec Enterprise Vault, the Symantec contract included 60 days of Symantec Consulting Services for architecture design, implementation support, mentoring, and project management. Starting in February 2006, Symantec consultants began working with the Computer Centre team to design and implement the email archive solution based on Symantec Enterprise Vault. The combined team determined that a phased rollout approach would work best. They began by deploying the solution to 1,000 faculty and staff, followed by a gradual deployment across the entire user base over a period of three months. Full solution deployment was achieved in October 2006.

The deployment was virtually invisible to end users, as they simply received an email notification from the Computer Centre. The notification let end users know that email quotas had been increased more than 80 percent, and all email could be located through the archive residing within each user’s Microsoft Outlook.

“We had a very good experience with the Symantec team in terms of their knowledge of the products and experience in implementation. The implementation was very smooth because Symantec Consulting Services led a team effort and Symantec Enterprise Vault integrates easily with our EMC Centera platform.”

**Tommy Hor**  
**Director, Computer Centre**  
**National University of Singapore**

In order to resolve quickly any problems that arise with the solution, the NUS team has a Symantec Essential Support Services agreement. The follow-the-sun approach of Symantec Enterprise Support Services provides the NUS team with around-the-clock technical support.

## Quota-based Email Management

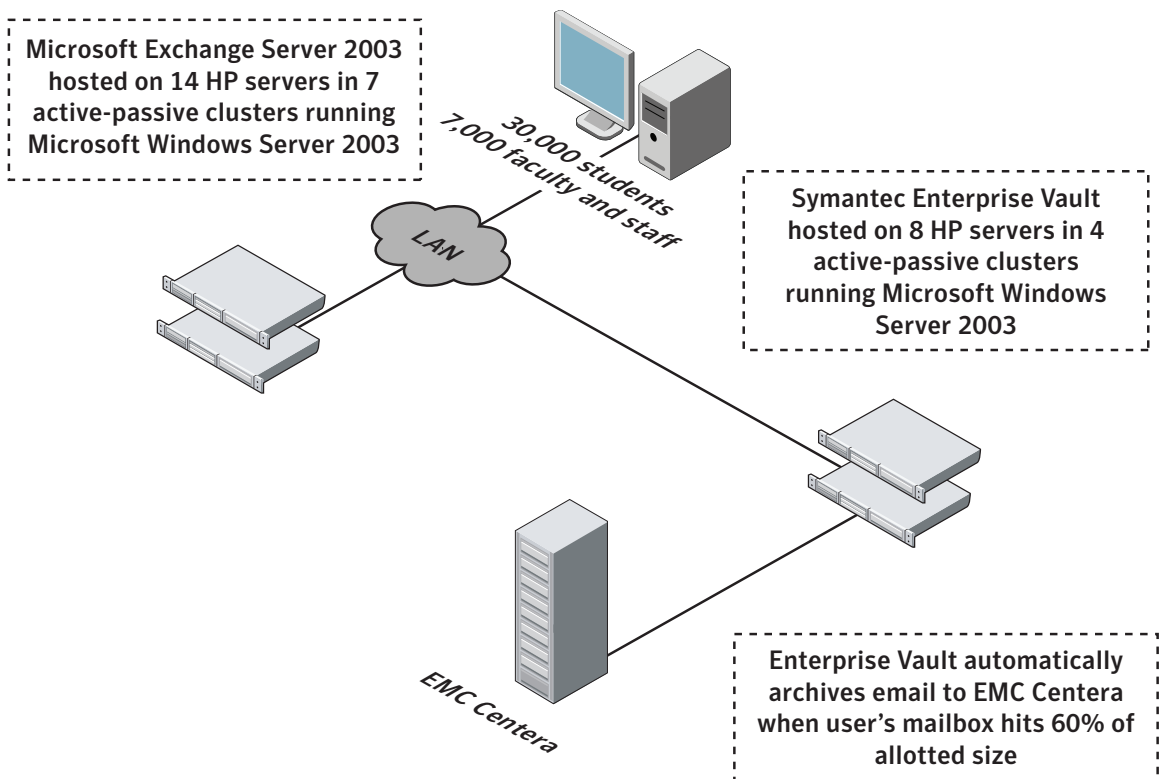
The quota-based archiving functionality in Enterprise Vault allowed the NUS team to establish an effective strategy to remove the need for end-user mailbox management. Hor and his team implemented a 30-day email archiving policy, whereby email is automatically moved to the tier-two EMC Centera storage platform for users exceeding 60 percent of their allocated 20MB capacity (increased from the previous 10MB). Each faculty member and student is allocated 10 gigabytes (GB) or 1GB of email archive storage.

Working with Symantec Consulting Services, Hor's team designed the solution so that any message less than five days old is not archived, even if the user's mailbox is over 60 percent of the specified quota. Enterprise Vault follows a defined process for checking each mailbox and archiving only emails that meet the prescribed requirements. For end users, the solution is seamless; they can easily access archived email from Microsoft Outlook with virtually no knowledge as to whether the email is archived or still residing on their desktop or laptop.

## Email and Email Archiving Architecture

The Microsoft Exchange infrastructure consists of 14 HP servers configured in seven active-passive clusters running Microsoft Windows. Symantec Enterprise Vault resides on eight HP servers in four active-passive clusters running Microsoft Windows. Total email storage volume is at 1.7TB, with an average of 550,000 emails sent daily. Archived email is moved to the tier-two EMC Centera disk arrays after 30 days or once an end user's allocated email capacity exceeds 60 percent of the 20MB quote. The index for the email archive—about 300GB—is stored on the tier-one EMC Symmetrix DMX storage system.

## Network Architecture



## IT Evolution at NUS

**January 2004:** Search for storage consolidation solution and email archiving solution initiated

**May 2005:** Pre-sales discussion with Symantec account team

**July 2005:** RFP for email archiving solution extended to technology providers, including Symantec

**October 2005:** Symantec engaged for 2-day proof of concept

**March 2006:** Symantec Enterprise Vault, including 60 days of consulting, selected for email archiving solution

**June 2006:** Solution design initiated by Symantec Consulting Services, initial rollout to 1,000 faculty and staff

**October 2006:** Full solution deployment to 37,000 end users

## Business Value Analysis

Using the Total Operation and Economic Impact (TOEI) model, The Alchemy Solutions Group conducted an in-depth analysis of the email archiving solution deployed by the NUS Computer Centre. The following areas of business value were identified as a result of our analysis:

- Elimination of PST File Management = Productivity Improvements
- Avoidance of Microsoft Exchange Acquisitions
- IT Help Desk Productivity Improvements
- Finance Department Productivity Improvements
- Tiered Storage for Cost Avoidance
- Single-instance Archiving Cost Avoidance

### Elimination of PST File Management

End users no longer need to expend valuable time managing their PST files.

Based on the surveys conducted with end users, the Computer Centre team estimates faculty and staff spent an aggregate of 200 hours each day—assuming 12 minutes per week per person—managing their PST files. Assuming an hourly wage of US\$24 (annual salary of US\$49,920<sup>2</sup>) and including an annual cost-of-living increase of 2.5%,<sup>3</sup> The Alchemy Solutions Group projects NUS will realize US\$2,567,490 in productivity improvements—realized and projected—from October 2006 to December 2008.

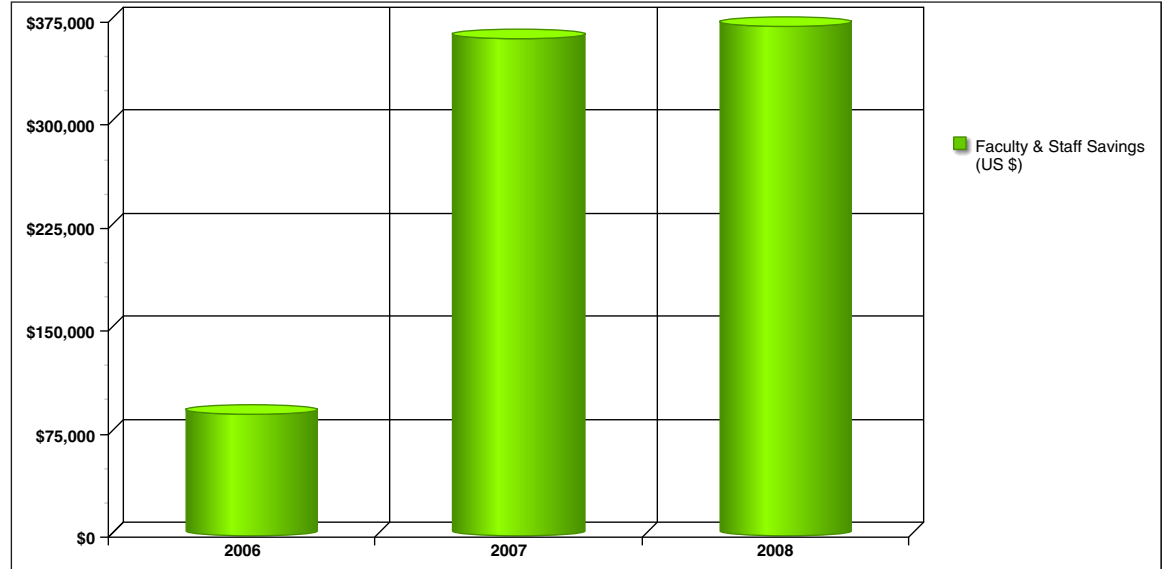
Also, previously spending an average of 12 minutes per week managing their PST files, students are now able to focus on learning, conducting research, preparing for exams, collaborating with other students and faculty. Specifically, over the course of a typical four-year enrollment, each student attends school for 35 weeks each year and would recapture an average of 28 hours.

**Table 1: Savings Resulting from Elimination of PST File Management**

Time Faculty, Staff and Students Spent Managing PST Files		Realized Labor Savings	Projected Labor Savings
Faculty and staff spent an aggregate of 200 hours daily resolving PST file limitations. Year 2006 calculations begin in October. Year 2007 realized savings is through September and the remainder of the year projected. Using US\$24 per hour x 200 hours daily = \$4,800 in daily productivity lost. The calculations are based on a full year with an average of 230 working days.	2006	\$276,000	
	2007	\$848,700	\$282,900
	2008		\$1,159,890
<b>Realized and Projected Labor Savings</b>		<b>\$1,124,700</b>	<b>\$1,442,790</b>
<b>Total Labor Savings</b>			<b>\$2,567,490</b>
Each student loses an average of 12 minutes each week managing their PST files. A student attends classes an average of 35 weeks each year over two semesters. Over a four year period, a student would save 28 hours.	2006	1.75 hours	
	2007	5.25 hours	1.75 hours
	2008		7 hours
<b>Time Saved by each Student Over Four Years</b>			<b>28 hours</b>

2. Average salary estimate for NUS faculty and staff was provided by NUS, 2007.

3. Bureau of Labor Statistics, October 2006. Consumer Price Index. CPI-U. www.bls.gov/oes/. (Accessed December 2006).



**Chart 1: Faculty and Staff Savings Resulting from Elimination of PST File Management**

### Avoidance of Microsoft Exchange Hardware and Software Acquisitions

The more efficient email architecture is helping the Computer Centre avoid the cost of two servers each year, in addition to maintenance and labor administration associated with its Microsoft Exchange environment. Assuming an average cost of US\$20,000 for hardware, software, and maintenance for each additional server and the ability to avoid adding one FTE—at an annual salary of US\$22,880<sup>4</sup>—each year to manage those additional infrastructure components, The Alchemy Solutions Group pinpoints savings of US\$161,013 over a three-year period, from 2006 to 2008.

**Table 2: Cost Avoidance Related to Future Hardware, Software, and Maintenance Acquisitions**

Microsoft Exchange Environment Cost Avoidance	Year	Acquisition Cost Avoidance	FTE Cost Avoidance
With the deployment of the Enterprise Vault solution, the NUS Computer Centre team has been able to avoid additional Microsoft Exchange acquisitions, including staffing additions, for sustained email performance. Acquisition equals two servers and software and maintenance for each one, along with one FTE annually.	2006	\$20,000	\$15,253
	2007	\$40,000	\$22,880
	2008	\$40,000	\$22,880
<b>Acquisition and FTE Cost Avoidance</b>		<b>\$100,000</b>	<b>\$61,013</b>
<b>Total 2006 - 2008 Cost Avoidance</b>			<b>\$161,013</b>

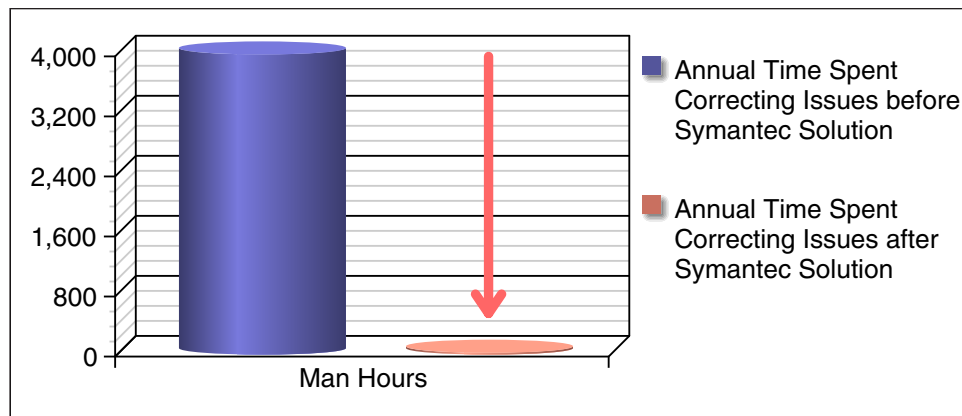
4. Average salary estimate for NUS faculty and staff was provided by NUS, 2007.

## Email Quota Remediation

Email problems encountered by users have dropped dramatically since the NUS Computer Centre implemented the email archiving solution. Previously, NUS had to allocate one IT FTE from the Help Desk (an aggregate of 176 hours each month), resolving issues related to email quotas. Now that Enterprise Vault is in place, the Help Desk team spends virtually no time at all helping users with email quota issues. Assuming an annual salary of US\$22,880<sup>5</sup> and an annual cost-of-living increase of 2.5<sup>6</sup> percent, The Alchemy Solutions Group projects the university will save US\$54,029 in labor productivity—reallocating resources to work on more strategic initiatives—from October 2006 to December 2008.

**Table 3: Help Desk Labor Savings Resulting from Email Quota Management**

IT Email Quota Remediation Savings	Realized Help Desk Savings	Projected Help Desk Savings
Number of FTEs resolving email quota issues per month	1	
Total hours spent resolving issues per month by FTE	176	
Average IT FTE salary	\$22,880	
2006 (Beginning in October)	\$5,808	
2007 (Realized savings through September 2007)	\$17,860	\$5,953
2008		\$24,408
<b>Help Desk FTE Cost Savings</b>	<b>\$23,668</b>	<b>\$30,361</b>
<b>Total Labor Savings</b>		<b>\$54,029</b>



**Chart 2: 100% Reduction in IT Man Hours Resolving Email Quota Issues**

5. Average salary estimate for NUS faculty and staff was provided by NUS, 2007.

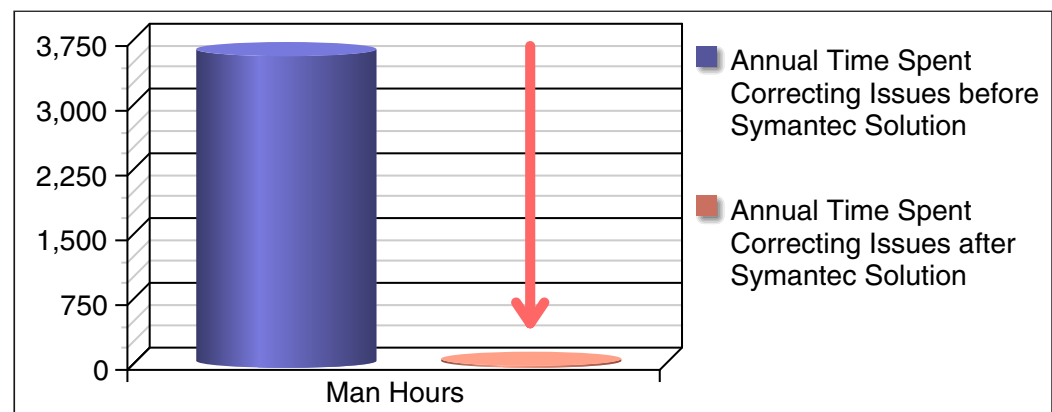
6. Bureau of Labor Statistics, October 2006, Consumer Price Index, CPI-U, [www.bls.gov/oes/](http://www.bls.gov/oes/). (Accessed December 2006).

## Finance Department: Productivity Improvement

Issues with email quotas extended beyond individual end users and the IT Help Desk. Prior to the Enterprise Vault deployment, the NUS Finance Department had to devote valuable time each month to track down approximately 600 students, who were not receiving financial notices because their email storage quota had exceeded its capacity. On average, each incident took 30 minutes to resolve for a total of 300 hours per month. Based on a US\$49,920<sup>7</sup> salary and an annual 2.5<sup>8</sup> percent cost-of-living increase, The Alchemy Solutions Group projects a total time labor savings of US\$200,934 from October 2006 to December 2008.

**Table 4: Labor Savings for Finance Department**

Finance Department Tracking Billing Issues	Realized Savings	Projected Savings
Average number billing issues per month	600	
Average Finance Department salary	\$49,920	
Average time to remediate issue previously (one FTE per issue)	0.5 hours	
Average time to remediate issue now	0 hours	
Time savings per application issue	0.5 hours	
Time savings per year	3,600 hours	
2006 (Solution deployment in October 2006)	\$21,600	
2007 (Realized savings through September 2007)	\$59,040	\$29,520
2008		\$90,774
<b>Finance FTE Cost Savings</b>	<b>\$80,640</b>	<b>\$120,294</b>
<b>Total savings</b>		<b>\$200,934</b>



**Chart 3: 100% Reduction in Finance Department: Time Tracking Email Billing Issues**

7. Average salary estimate for NUS faculty and staff was provided by NUS, 2007.

8. Bureau of Labor Statistics. October 2006. Consumer Price Index. CPI-U. [www.bls.gov/oes/](http://www.bls.gov/oes/). (Accessed December 2006).

## Leveraging Tiered Storage for Cost Avoidance

The ability to leverage less-expensive, tier-two storage (EMC Centera disk arrays) allows the NUS team to realize significant cost savings (versus archiving email on more-expensive, tier-one storage). Assuming an annual email data growth rate of 10 percent, an average cost-per-gigabyte of US\$65 for tier-one storage, and an average cost-per-gigabyte of US\$45 for tier-two storage, The Alchemy Solutions Group projects cost savings of US\$97,320 from October 2006 to December 2008.

**Table 5: Cost Avoidance through Implementation of Tiered Storage**

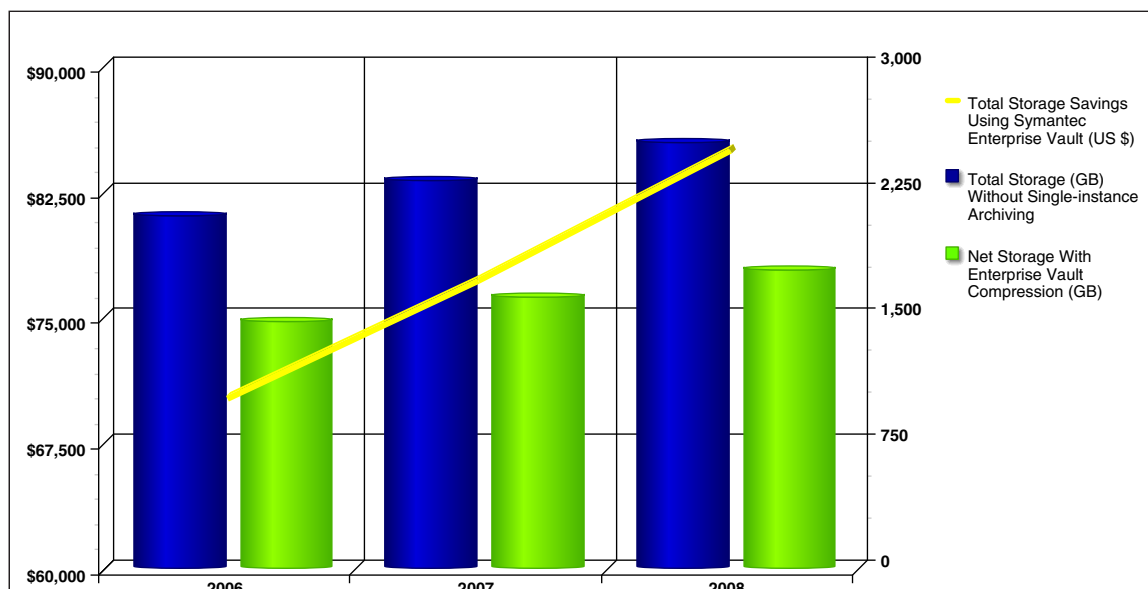
Tiered Storage Cost Avoidance	2006	2007	2008	Total
Post-Enterprise Vault compressed storage total	1,470GB	1,617GB	1,779GB	
Average cost per GB on tier-one EMC Symmetrix DMX	\$65	\$65	\$65	
Average cost per GB on tier-two EMC Centera storage	\$45	\$45	\$45	
<b>Annual Cost Avoidance</b>	<b>\$29,400</b>	<b>\$32,340</b>	<b>\$35,580</b>	<b>\$97,320</b>

## Single-instance Archiving Cost Avoidance

When combined with the single-instance archiving of Enterprise Vault, the cost avoidance is accentuated further. Specifically, the Computer Centre team estimates, conservatively, 30 percent data compression as a result of single-instance archiving. As the Computer Centre team reports 27 million archived emails as of October 2006 equating to 2.1TB, The Alchemy Solutions Group—assuming US\$45/GB for tier-two storage and 10 percent annual email data growth—pinpoints US\$93,825 in storage cost avoidance as a result of single-instance archiving. In the case of the initial deployment in October 2006, the 2.1TB of email data was compressed to 1.5TB.

**Table 6: Cost Avoidance through Single-instance Archiving**

Single-instance Archiving Savings	2006	2007	2008	Total
Annual data storage based on users	2100GB	2310GB	2541GB	
30 percent compression	(630)	(693)	(762)	
<b>Net Storage with Enterprise Vault</b>	<b>1470GB</b>	<b>1617GB</b>	<b>1779GB</b>	
Average cost per GB of storage now available	\$45	\$45	\$45	
<b>Annual Savings</b>	<b>\$28,350</b>	<b>\$31,185</b>	<b>\$34,290</b>	<b>\$93,825</b>



**Chart 4: Total Savings Using Symantec Enterprise Vault Single-instance Archiving and Tiered Storage**

## Conclusion

Based on the TOEI analysis of the email archiving solution deployed by the NUS Computer Centre team, The Alchemy Solutions Group pinpoints more than US\$3.1 million in realized and projected business value from October 2006 to December 2008. To summarize, the different areas of business value include:

- *Elimination of PST File Management:* US\$2,567,490 in staff and faculty labor savings and 28 total hours of student time over a four-year period that are now available for studying, preparing for exams, conducting research, and collaborating with each other and faculty
- *Avoidance of Microsoft Exchange Acquisitions:* US\$161,013 Microsoft Exchange acquisitions resulting from better email performance and scalability
- *IT Help Desk Productivity Improvements:* Labor savings of US\$54,029 through the elimination of remediation of email quota issues
- *Finance Department Productivity Improvements:* US\$200,934 in labor savings resulting from the elimination of failed email billing communications to students
- *Tiered Storage Avoidance:* US\$97,320 in storage cost avoidance with the ability to leverage tier-two EMC Centara storage for email archiving
- *Single-instance Archiving Cost Avoidance:* US\$93,825 in storage savings leveraging single-instance email archiving

Benefits of the solution extend beyond the quantitative to the qualitative. Students no longer need to go outside of the NUS email system for sending and storing IP-related content and files. And students and faculty are able to spend the time they previously spent managing PST files for learning and research.

## The Alchemy Solutions Group [www.alchemygroupinc.com](http://www.alchemygroupinc.com)

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The Alchemy Solutions Group is a global management consulting company delivering professional services and expertise to Fortune 1000 companies. Alchemy has the resources and industry knowledge to make a positive difference in organizations that have a high client touch ratio, primarily in sales, marketing, and customer support.

The Total Operational and Economic Impact (TOEI) Research and Publishing Practice delivers both public and private research services which measure a product's operational and economic impact in post-implementation environments. One of the public mediums is the Business Value Analysis (BVA), which provides a clear description of the impact of the deployed technologies and services.

Alchemy is committed to leveraging deep industry expertise, proven business processes, and formal research best practices to understand the key attributes of and constraints on corporate performance. Our professionals have strong execution capabilities and help our clients drive value-based education and process changes quickly and effectively.



### **Skip King – Principal and Corporate Officer** [stanleyking@alchemygroupinc.com](mailto:stanleyking@alchemygroupinc.com)

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As Principal and Corporate Officer of The Alchemy Solutions Group, Stanley King is responsible for establishing strategic relationships with executives who are committed to understanding the impact products and services have in global commerce. The TOEI Practice was created specifically to research the post-implementation deployment of products and services and to identify the positive and potentially negative impact on select operating environments. The journalistic approach is key to providing industry executives the candid insight required to educate their employees and customers and transform organizations. From product development to sales and marketing, the repurposing of the research findings has always proven valuable to Alchemy clients.

Prior to founding The Alchemy Solutions Group, Stanley served in the software industry for 19 years in sales, sales management, field operations, executive management, and merger & acquisition positions. His global experience in large companies like Oracle and in smaller firms, including technology start-ups, allows him to bring a wealth of insight in support of continued Research and Publishing efforts at Alchemy.

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