

## Scottish Qualification Authority



### SQA Gives Symantec Full Marks for Increasing Storage Performance 10-fold

**Question one—no conferring. How does the leading examination authority in Scotland ensure its applications and services operate at peak performance and around the clock? There’s no multiple choice answer here; because there’s only one answer: Symantec™. The Scottish Qualification Authority turned to Symantec—in particular the skills of Symantec Consulting—to help deliver a comprehensive, next-generation email archiving, data protection, high availability, and storage virtualization management solution. Symantec technology and services have turned four disparate environments into one cost-effective storage solution, which benefits from cross-site resilience. As part of the solution, storage performance improved by a factor of 10. Top marks to Symantec Consulting.**

#### ORGANIZATION PROFILE

The Scottish Qualifications Authority (SQA) is an executive non-departmental public body (NDPB) sponsored by the Scottish Government Schools Directorate. It is the national body in Scotland responsible for the development, assessment, and certification of qualifications other than degrees.

#### INDUSTRY

Education

#### SOLUTION

Archiving

Data Protection

Storage Management

Virtualization Management

High Availability

#### No Margin for Error or Delay in Student Examination Results

With ten of thousands of pupils and students in Scotland nervously biting their nails in anticipation of their examination results, there’s no margin for error. The entire process leading up to ‘results day’ must operate reliably, accurately, and quickly—from the development of the qualifications themselves and the management of the education and training establishments, to the assessment of people taking SQA qualifications and issuing certificates to candidates. IT system failures, data being unavailable, or data not being available at the right time would be a serious black mark.

This responsibility for managing qualifications in Scotland (other than degrees) falls on the shoulders of the Scottish Qualification Authority (SQA). The SQA is the national body in Scotland developing, accrediting, assessing, and certifying qualifications. To give some idea of the scope of the SQA and how it delivers qualifications, there are approximately 1,470 centers approved to offer the range of qualifications.

Technology is the engine of the SQA’s success. It is imperative that all the information associated with managing the qualifications process is available around the clock, retained for as long as is necessary, and available immediately in the right format to the appropriate individuals. Until recently though, data was not being managed as efficiently as it might be. There were four separate backup environments across two sites (one at the SQA’s Glasgow headquarters, the other in Dalkeith). Each of these sites ran separate instances of Microsoft Windows and UNIX—the result being there were a total of four separate administration teams, four separate platforms, and four separate processes. This overlapping process, coupled with exponential data growth, and outmoded hardware platforms meant the SQA was experiencing data retention

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Engineer

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## Authority responsible for managing qualification in Scotland experiences 10-fold improvement in storage performance with Symantec

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issues—as well as unnecessary costs. One particular problem was an elongated backup window which sometimes reached into the working morning.

### Symantec Quickly Positioned as a Trusted Advisor

Against this backdrop, Symantec entered the frame, as Stuart Paterson, senior network systems engineer at the SQA explains. “We already had Symantec technology deployed in the data center and decided to engage Symantec Consulting to help us centralize the four environments into one using a new backup and storage infrastructure. The previous work the Symantec Consultants did—in particular the sterling work by Symantec Solutions Architect David Whittaker—was so good we already placed Symantec in a ‘trusted advisor’ position. One of the reasons we respected Symantec’s recommendations so much is because they’re hardware agnostic; they’re not tied to a particular hardware vendor.”

The outcome has been a highly resilient, cross-site infrastructure for up to 200 Sun Solaris and Windows servers (90 percent Windows and 10 percent Solaris) based on Veritas NetBackup™ 6.5 software from Symantec, Veritas Storage Foundation™ HA 5.0, and Symantec Enterprise Vault™. Deployed in collaboration with the technology solutions provider SCC, the next-generation infrastructure addresses the three key issues facing the SQA: data retention, infrastructure complexity, and poor performance. NetBackup provides the SQA with a single platform to manage, protect, and recover critical Scottish qualifications data across the Network Appliance storage tiers, the Glasgow and Dalkeith locations, and Windows and Solaris operating systems. Moreover, using the Veritas NetBackup for NDMP agent, the SQA is also able to ensure reliable, high-performance backup for NDMP-enabled Network Attached Storage (NAS)—most notably the virtualized VMware environment, comprising 50 Windows servers.

## SOLUTION AT A GLANCE

### Business Drivers

- Ensure uninterrupted availability of critical qualifications applications and services
- Reduce complexity
- Cut costs

### Technology Challenges

- Backup window was reaching into the working day
- Requirement to merge four cross-platforms environments into one

### Solution

Comprehensive, next-generation Domino archiving, data protection, and storage virtualization management solution

### Symantec Products

- Veritas NetBackup™ 6.5, with the following agents and options:
  - NetBackup for SQL
  - NetBackup for NDMP
- Veritas Storage Foundation™ HA 5.0
- Veritas Storage Foundation™ HA for Windows
- Veritas™ Cluster Server 5.0
- Symantec Enterprise Vault™

### Technology Environment

- Servers: 200 (90% HP Windows and 10% Sun Solaris), 50 virtualized by VMware
- Operating systems: Sun® Solaris® and Microsoft® Windows®
- Storage: Network Appliance
- Database: SQL Server

### Symantec Services

- Symantec Consulting

### Symantec Partner

- SCC

To further minimize application downtime, the SQA has also deployed Veritas Storage Foundation HA, which combines the storage availability and manageability of Storage Foundation with the server and application availability of Veritas Cluster Server. From a clustering perspective, an intelligent agent monitors the multi-node SQL Server database in the Windows clustered environment at each of the sites, looking for potential database failures. When one is detected, Storage Foundation HA shuts down all the operating instances before restarting them on a Solaris master server at the second site. Featuring eight servers per cluster—and supporting a total of up to 200 servers (50 of which are virtualized using VMware)—the solution enables the SQA to automatically detect and recover from database or system failures. The bottom line being that downtime on the Lotus Notes and Windows Server applications—plus the SQL database—is reduced.

“The fundamental advantage of Storage Foundation HA is that it gives us unprecedented levels of availability,” says Stuart Paterson. “We also benefit from a single view of the entire environment and its status. We can instantly see if there have been any issues experienced in any of the environments. Plus we only need to train staff in one version of NetBackup as opposed to two.”

To complement this cross-site clustering solution, SQL also uses the volume management functionality within Storage Foundation to control the storage while it's online. This includes re-configuration, day-to-day maintenance, and techniques to improve I/O performance.

The final component of the Symantec infrastructure protects the SQA's file environment. Here, the software-based intelligent archiving platform Symantec Enterprise Vault is used for file archiving of the Windows file servers. Combining backup and recovery technologies with archiving enhances the traditional backup and recovery techniques by reducing the data

## BUSINESS VALUE AND TECHNICAL BENEFITS

**Cost Savings**

- Drove down operational costs through the use of a single, unified storage management toolset
- Optimized storage hardware investments

**High Availability**

- Provided high application availability by monitoring applications and associated components
- Delivered the performance and availability needed to support qualifications process

**Efficiency**

- Improved storage performance by a factor of 10
- Introduced one integrated approach to optimizing availability and simplifying the management of complex storage
- Reduced the administration burden of providing high availability

**Risk Management**

- Helped mitigate risk by delivering 24x7 infrastructure
- Enabled rapid problem resolution through rapid issue diagnosis

stores on the file servers. These smaller data stores help shrink SQA's backup and recovery times—and save money on storage and storage management. At the same time, the archived data can be easily searched and retrieved.. “With Enterprise Vault, SQA is centralizing its file archiving for improved protection of this critical asset. It also allows us to de-dupe large amounts of the same data and store it on cheaper disk,” says Stuart Paterson.

### **Symantec Consulting Helped Enable a Ten-Fold Improvement in Performance**

So what difference has Symantec made to SQA's three major concerns, namely data retention, complexity, and poor performance? The Symantec Consulting team has worked shoulder-to-shoulder with SQA to merge four separate environments into one. This consolidated, cross-site, cross-platform infrastructure means that data is managed and protected irrespective of operating system (Windows or UNIX), location (Glasgow and Dalkeith), and storage platform. Complexity has been replaced

by simplicity and manageability. The data is not only secure, it's available faster too, says Stuart Paterson. “The backup window used to sometimes reach into the working day,” he says. “The Symantec technology, coupled with the skills of the Symantec Consulting team, has enabled us to reduce the backup timeframe to one or two hours. That's a ten-fold improvement in performance. We also benefit from a reduced management overhead.”

He concludes, “We're exceptionally pleased with the work Symantec Consulting has delivered. They didn't simply come to us, sell their products, and walk away. They worked as a team to understand the SQA objectives and turn those objectives into a realized strategy. Their independent judgment was valuable in making the hardware decisions, to the extent we're now examining more ways of developing the relationship, including UNIX backup agents flash backup for UNIX, and potentially NetBackup PureDisk for protecting remote SQA sites.”