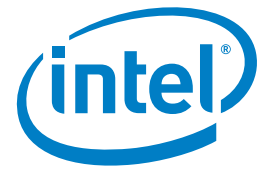


CASE STUDY

Intel® X25-E Extreme SATA Solid-State Drive

Performance: Data-Intensive Computing



Giant leap in storage performance

Lightstone benefits from faster processing time and lower total cost of ownership with Intel® X25-E Extreme SATA Solid-State Drive

Lightstone's success relies on its ability to quickly retrieve information from its database management system. It recently deployed 10 Intel® X25-E Extreme SATA Solid-State Drives to increase the performance and reliability of its supporting storage server system, while improving scalability.



"Thanks to the Intel® X25-E Extreme SATA Solid-State Drive, we are benefiting from improved performance, reliability, and ease of maintenance. Knowing that a complete server install now takes minutes rather than hours really helps me sleep better at night."

Eben Grobler, IT Manager, Lightstone

CHALLENGES

- **Better service.** Further improve the quality of products and services by rectifying data inconsistencies and increasing the speed at which information can be delivered to customers
- **Future-proof hardware.** Future-proof its existing storage server system to cope with increasing numbers of users and complexity of queries made to its Microsoft SQL Server* 2008 R2 database management system

SOLUTIONS

- **Evaluate performance.** Lightstone evaluated the performance of the Intel® X25-E Extreme SATA Solid-State Drive (64GB) in the Intel® Modular Server System, compared to its existing Intel® Server System S7000FC4UR (Hard-Disk Drive)
- **Multiple benefits.** Time taken to validate a database was reduced from 36 minutes to just three minutes; time taken to install a new server was reduced from a few hours to just 10-20 minutes; time taken to retrieve data from Microsoft SQL Server* 2008 R2 database management system was also slashed; database administration time reduced by 90 percent

IMPACT

- **Better service.** Performance improvements make a huge difference, particularly when there are concurrent database users and large spatial database queries; data inconsistencies are no longer an issue
- **Driving future success.** Storage server system is much more scalable, making it easy to add new users and more intense database queries in the future

Increasingly intense analytics

Lightstone has developed a range of solutions based on its analytical, data, technical and spatial capabilities. For example, it provides automated valuation solutions, property market intelligence and risk management solutions to all five leading mortgage banks; has assisted with the revaluation of properties for the Municipal Rates Act; developed a range of market-leading property tools for use by Estate Agents; provides a range of property-related services to professional valuation agencies; and provides spatial analytical and data solutions to a range of consumer-related business including retailers, motor dealers, telcos and property investors.

This business is built around a core competency of working with large, diverse data sets and spatial analytics. Some of Lightstone's data sets consist of over 15 million rows, while some spatial sets have over seven million rows. In total, Lightstone generates over 10,000 live reports daily.

Every product or service it delivers relies on information stored in its Microsoft SQL Server* 2008 database management system. The quality of service Lightstone offers its customers depends on the speed at which information stored in this database management system can be retrieved, as well as on the reliability of the system itself.

Lightstone's Intel® Server System S7000FC4UR powered by four Intel® Xeon® processors 7350 (Hard-Disk Drive) had served it well for many years. But with both data volumes and the number of users accessing information from the database management system increasing, Lightstone began to see degradation in the performance of its existing storage server system. In addition, Lightstone had recently upgraded its database management system from Microsoft SQL Server* 2005 to Microsoft SQL Server 2008 R2, to take advantage of its enhanced support for spatial analytics. But once again, the existing storage server system was finding it hard to cope with the resulting increase in traffic, particularly with very intense queries.



Customers enjoy a speedier and more consistent service

Solid-state drives

Lightstone's IT service provider, Running Computers, highlighted a hardware issue and recommended Lightstone look into the benefits of migrating its storage environment to Intel® Solid-State Drives (Intel® SSD).

Unlike traditional magnetic media drives, for example, spinning hard disk drives (HDDs), Intel SSDs have no moving parts. For this reason, SSD advocates claim that they are much more reliable. They also enable cost reductions and productivity increases while improving overall system responsiveness. Intel SSDs also consume much less power than a traditional HDD, translating into a cooler, quieter platform.

Evaluating the benefits

Lightstone teamed up with Intel to run a pilot that would establish the benefits of switching to Intel SSDs. During the evaluation it compared the performance of the Intel® X25-E Extreme SATA Solid-State Drive (64GB), compared to its existing Hard-Disk Drive. Both systems ran on the Intel® Server System S7000FC4UR - the SSD system powered by two Intel® Xeon® processors 5670 and the HDD system by four Intel® Xeon® processors 7350.

The first test it ran was a Microsoft SQL Server* 2008 install - something Lightstone would have to do if it were routinely deploying a new server, or more pressingly, in the event of a full system failure. With the Intel X25-E Extreme SATA Solid-State Drive, the

time taken to validate a database was reduced from 36 minutes to just three minutes. What's more, this can now be run in peak hours, whereas previously it could not. Lightstone was able to install a new server in around 10-20 minutes, as opposed to a few hours.

With regard to spatial queries, the pilot also revealed a range of benefits with the Intel X25-E Extreme SATA Solid-State Drive. The time to select top 1,000 data was reduced from 1,847 milliseconds to 484 milliseconds¹. The time to select from a spatial table was slashed from 183,373 milliseconds to 2,744 milliseconds, and to delete from a spatial table from 238,766 milliseconds to 30,220 milliseconds.

However, the biggest impact was on database administration time, which was reduced by 90 percent. Furthermore, the performance hits users used to experience during this time were eliminated. The previous administration protocol also resulted in data errors which then had to be accounted for and corrected. Once again, with the new database administration process these errors were eliminated.

Improved performance

Based on the results of this evaluation, Lightstone made the decision to deploy 10 Intel X25-E Extreme SATA Solid-State Drives (64 GB), running on the Intel® Server System S7000FC4UR and powered by two Intel® Xeon® processors 5670, to run its storage environment. By doing so, it has been able to improve performance, data quality, and ease of maintenance.

Spotlight on Lightstone

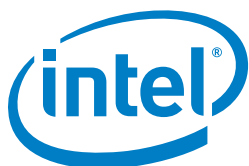
Lightstone was founded in 2005 to provide analytical solutions and products to a range of geographic-dependent industries in South Africa. The business is built around a core competence in analysis of a wide variety of data types, particularly in a spatial manner. Together with its employees' understanding and experience in the financial services, retail, government and property sectors, Lightstone customizes its products and solutions to address the needs of its diverse client base.

Eben Grober, IT manager at Lightstone, said: "In our business, every millisecond counts. These improvements make a huge difference, particularly when there are multiple users making concurrent database queries. We have also noticed that the data inconsistencies we started to experience have now ceased."

"The improved reliability and knowing that if there is a failure, a complete server install now takes minutes rather than hours really helps me sleep better at night," he continued. "Since the Intel SSDs consume less energy, we also benefit from reduced power and cooling costs. Our data center runs a lot lighter." Lightstone's customers now enjoy a speedier and much more consistent user experience. The new server storage system is also much more scalable, making it easier for Lightstone to add new users and more intense database queries both now and into the future.

Find the SSD solution that is right for you or your business. Contact your Intel representative or visit www.intel.com/ssd for product information.

To learn more about other Intel Business solutions, please see the Reference Room at www.intel.com/references.



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