

Windows Server 2008 Charts a Secure and Flexible Roadmap for Virtual Map

Overview

Country or Region: Singapore, Malaysia, Indonesia

Industry: Mapping Applications Service Provider

Customer Profile

Established in 1999, Virtual Map (VM) is one of the pioneer firms in Singapore that specializes in location-based software. VM developed and maintains the travel portal www.streetdirectory.com, one of Singapore's highest ranked Websites.

Business Situation

VM needed a solution that would enable it to expand its offering across the region without compromise on security and performance. However, it was limited by its linux infrastructure running their PHP applications.

Solution

By testing its existing PHP applications on Windows Server 2008, VM has seen an increase in performance against Linux, and are planning to build future service offerings with Windows Server 2008.

Benefits

- Better performance and management
- Ease of remote administration
- Minimal installation
- Enhanced security

"Windows Server 2008 allows us to provide packaged solutions of our location-based service applications to our clients in a way that is faster, more efficient and easier to manage than before."

Eugene Lim, Business Development Director, Virtual Map

Virtual Map Pte. Ltd. (VM) has specialized skills in the areas of desktop GIS, wireless communication, GPS tracking and mobile applications. VM's unique combination as a software developer and content owner has enabled it to provide a wide array of solutions across the Asia Pacific.

By benchmarking its existing PHP applications on Windows Server 2008, VM has seen a marked improvement with an ability to handle more concurrent users, number of hits, and achieve a performance gain over its existing Linux infrastructure, and is making plans to migrate to this infrastructure in the near future.

Situation

An integral part of VM's solutions includes aggregating detailed raster imagery and location-based datasets. These datasets, which are integrated onto VM's IT platforms, are adapted to fulfill its clients' needs. VM's solutions division supports the following product lines:

- **Online Mapping Applications**

This offering targets the commercial market. VM licenses its location-based service (LBS) technology as a hosted service or as a dedicated solution hosted in the client's IT environment. VM is able to provide services like location search, GPS tracking and road distance computations.

- **Desktop GIS Applications**

This offering targets governments and commercial clients. It provides planning and analysis capabilities and allows clients to overlay proprietary datasets over VM datasets.

- **Mobile Applications**

This solution targets the mass handheld consumer market. It delivers useful location-based information through Windows Mobile smart phones.

In recent years, demand for LBS has increased not just within Singapore but across Asia. VM began receiving requests from its clients to provide dedicated LBS solutions on Microsoft.

The Web service offerings by VM operate on Linux with PHP as its programming code. This system was sufficient and served the needs of VM during its early years but as its business grew, VM received requests from corporate clients who wanted VM solutions to operate on the Microsoft platform. One of the main reasons for such requests was because many of VM clients' system

administrators were better versed in the Windows environment.

Other reasons for such requests were the issues of updates, ease of remote administration and security in a Windows environment. As VM's business expanded across the region, there was a need to remote manage its clients' servers. However, the existing IT systems could not provide secure capabilities to enable this critical function.

Solution

VM understood the constraints of its current IT structure and immediately embarked on two courses of action. Firstly, VM wanted to simplify its solution packaging by selling it on a single box, which meant that each VM solution would run a single dedicated server. The second solution was to explore the new capabilities of the new Microsoft Windows Server 2008.

VM and Microsoft have been long-time partners and VM was keen to test the capabilities of Windows Server 2008 against its Linux setup. VM decided to work with Microsoft to compare the performance of Internet Information Services 7.0 (IIS 7.0) on Windows Server 2008 against Apache on the Linux Operating System.

To help VM test the new features of Windows Server 2008 and to facilitate the benchmarking exercise, Microsoft sent a Microsoft certified team over to VM to provide technical knowledge transfer and to ensure a smooth testing process.

The benchmarking procedure was done in Singapore by Chass Computer Consultants Pte Ltd. who measured the performance and response rates of three of VM's PHP applications listed below:

SBSTransit: a transportation guide of bus and Mass Rapid Transit (MRT) services from one location to another.

Webtrace: an application that helps users track the location of their fleet via a Web-based map interface.

Mileage Claim: an application commonly used on www.streetdirectory.com to calculate distance traveled using location points, postal codes, or street names

The applications were benchmarked on a controlled and isolated infrastructure setup. Two Web servers were deployed, each having the same PHP Web applications provided by VM. Both Web servers were linked to a MySQL Database Server and a remote link was established to the SBSTransit database.

Using a simulator, engineers from Chass tested the applications based on a few indicators:

- Total number of concurrent users accessing the server simultaneously.
- Number of hits/requests made during the test run that received a response from the Web server.

- The amount of data (in kilobytes/second) sent and received. A low figure indicates a slow transfer rate.
- The percentage gain or loss of Windows Server 2008 against Linux.

Performance Outcomes: SBSTransit

The SBSTransit system provides users with a calculation of public transport fares and traveling time based on their input source and destination locations. VM's portion is the rendering of route information of the selected public transport route. The test was conducted across three scenarios. The results of the test indicated that Windows Server 2008 showed an average gain of 44.85% when handling concurrent hits. There was also a significant improvement in data transfer rates of up to 59.18% against Linux. On average, Windows Server 2008 also demonstrated the ability to cater to a higher number of user requests.

There was significant performance by 131.35% of the tested application on handling the number of current hits in the test scenario one "Landmark to Landmark at Cheapest Fare".

There was also remarkable performance improvement in both scenarios two and three of the data transfer rates by 91.56% and 71.12% respectively. The graph below shows significant performance improvement in scenario two for data transfer rates.

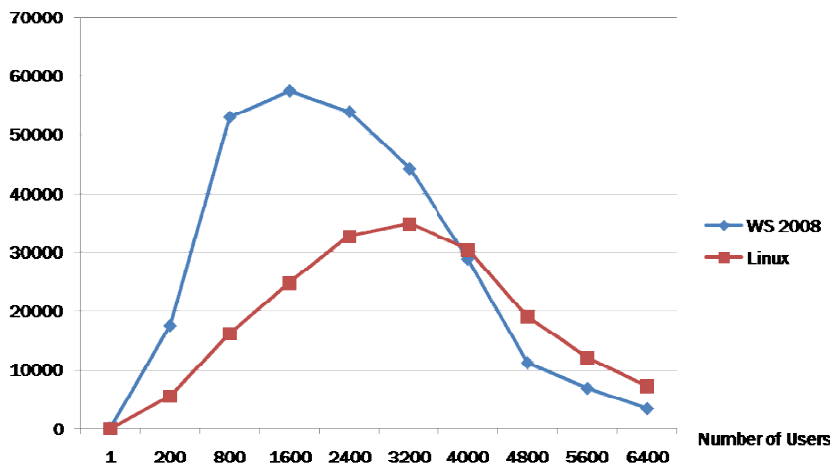
Performance Outcomes: Webtrace

Webtrace helps VM clients take note of tracking devices which are possibly attached to their fleets of vehicles, products or parcels. In this scenario, Chass engineers simulated a login and a request to view the locations for a particular fleet.

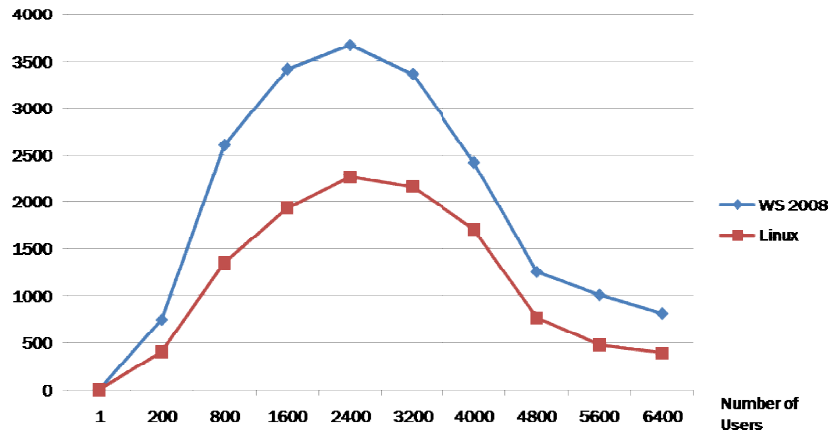
The results were highly significant in favor of Windows Server 2008. In terms of the number of hits and transfer rates, both tests

Results for Number of Sustained Hits – Windows Server 2008 Against Linux On Scenario 1 "Landmark to Landmark at Cheapest Fare" for the SBSTransit Application

Number of Sustained Hits



Total Kbytes/Sec



Results for Data Transfer Rates – Windows Server 2008 Against Linux On Scenario 2 “Street To Street at Shortest Travel Time” for the SBSTransit Application

showed a high average net gain of 91.93% and 92.53% respectively for Windows Server 2008 against Linux.

Performance Outcomes: Mileage Claims

Within the mileage claims application, a user would enter various values based on two different scenarios – postal to postal and places to places; this would calculate the distance between two points.

Within both scenarios, Windows Server 2008 handled more hits and provided faster rate of data transfer while supporting a higher number of users.

Benefits

The results from the performance benchmarking tests show that Windows Server 2008 can provide VM with significant improvement in performance particularly in its ability to handle higher number of hits, and its capability to sustain a higher amount of data throughput. The results indicate that for its PHP applications, VM can expect an average Web application performance increase of 45.7% in the number of hits sustained and 50.9% increase in the throughput of information.

Improved Performance and More

In addition to these results, VM also considered other features of Windows Server 2008, such as the ease of installation and

set up, its remarkable capabilities for the Web, Server Core installation options and the support provided by Microsoft.

The installation and porting of the applications onto Windows Server 2008 processes were effortless. The setup was as simple as an out-of-the box installation and with the Microsoft certified team onsite, the whole experience was extremely smooth.

Windows Server 2008 is built to enable rich Web experiences. Not only does it simplify the day-to-day tasks of managing Web sites and applications, the implementation of FastCGI enables organizations to host a variety of technologies such as PHP applications, Perl scripts and Ruby applications. The ability to host PHP enables VM to migrate its existing PHP applications to Windows Server 2008 with little to no effort and cost, a highly critical consideration for VM.

The Server Core installation options provide administrators with a server that allows companies to install only components that they need. This means reduced management and maintenance for administrators as fewer applications are installed and this result in reduced attack surface within the IT infrastructure.

Improved Management and Remote Administration

Windows Server 2008 uses Terminal Services which gives VM better connection and management compared to its Linux setup. Terminal Services can provide VM with a low-bandwidth method for administering customer deployments. Automation of common tasks can also be achieved with Windows PowerShell, a scripting technology that is built into Windows Server 2008. The flexibility and reliable remote administration on Windows Server 2008 is a big bonus as these features enable VM to extend its geographical coverage for its business.

"Deploying Windows Server 2008 in our customer environments gives us the confidence that all our remote administration tasks will be over a secure connection."

Suwandi, Project Manager, Virtual Map

Minimalist Installation and Enhanced Security

For VM, Server Core allows them to provide "minimalist" installation of the OS, providing them with the flexibility and ease to install only the components they need. This in turn means that administrators need to manage less applications, reducing maintenance time and cost. Such a setup also increases security by reducing the attack surface.

Next Steps

The benefits of Windows Server 2008 produced perfect solutions to the problems that VM faced. It solved the issue of remote administration and provided VM with tools that enabled it to better serve its clients. The results from the performance benchmark exercise also showed that Windows Server consistently outperforms Linux and its new features would provide ease of migration from Linux-Apache-MySQL-PHP (LAMP) to Windows.

The results also indicated that Windows Server 2008 could help VM run its applications at capacity, which frees up its resources. The reliable support rendered by the Microsoft certified team during the benchmarking exercise has also improved technical knowledge, productivity, accuracy and confidence within VM. This relationship is further strengthened with a sponsorship from Microsoft Learning to VM on certifying its employees.

With these assurances in mind, Mr. Lim is confident that the existing applications can work better on Windows Server 2008 and at a lower operational cost. He is excited at the prospect of future plans to VM solutions onto a dedicated hosting platform and providing clients with an efficient and secure GIS services not just within Singapore but across Asia.

For More Information

For more information about Microsoft products and services, visit the Web site at: www.microsoft.com/singapore

Microsoft Server Product Portfolio

For more information about the Microsoft server product portfolio, go to: www.microsoft.com/servers/default.aspx

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