TNT Express enters the world of virtualisation
TNT Express

industry: Travel and Transportation

country: Czech Republic

business challenge: To ensure 24/7 availability of a data infrastructure for clients to access an internet portal to view delivery information

solution: Virtualising part of the server infrastructure on which the company’s back-up information systems and applications are hosted. The supplied solution is the first successful step on the path to the extensive virtualisation of all server systems.

services: • Planning, testing and implementation services for virtualisation

results: • Virtualisation simplifies server administration, reduces energy and cooling demands on the data infrastructure, and ensures high-availability of critical server applications

Executive Summary
Dimension Data helped TNT Express to virtualise part of its server infrastructure on which the company’s back-up information systems and applications are hosted. The supplied solution is the first successful step on the path to the extensive virtualisation of all server systems.

Client Overview
The express division of TNT is one of the leading suppliers of express services. On a weekly basis it delivers 4.4 million packages, documents and heavy cargo over 200 countries and avails itself of a network of more than 2331 depots, regional centres and sorting centres. The division operates more than 26,760 road vehicles and 47 aircraft and it has the most extensive air and road infrastructure in Europe.

The express division of TNT employs more than 74,000 people world-wide and was the first organisation to achieve the global Investor in People award. The reported turnover of the division in 2007 was EUR 6.5 billion. The operating income was EUR 599 million, which represents a 7% growth from 2006.

TNT provides businesses and consumers worldwide with an extensive range of services for their mail and express delivery needs. Headquartered in the Netherlands, TNT offers efficient network infrastructures in Europe and Asia and continually optimises its global network performance. TNT serves more than 200 countries and employs more than 161,500 people. Over 2007 TNT reported EUR 11 billion in revenues and an operating income of EUR 1192 million. TNT is officially quoted on the Amsterdam Stock exchange. TNT recognises its social responsibility and has formed partnerships with the United Nations World Food Program and the United Nations Environment Program to fight hunger and pollution throughout the world. Our efforts are being recognised; in 2008 TNT again reached the highest score of all companies included in the Dow Jones Sustainability Index and in the Carbon Disclosure Project.

Business Challenge
TNT Express offers its clients access to an internet portal where it is possible to view delivery orders, follow the real-time movement of their goods, monitor the history of their consignments and download a copy of their proof of delivery. There is also an electronic invoicing service with an option to link up company ERP systems in order to simplify the accounting of services from both sides, along with a long list of other possibilities. Customer service quality is backed up by a CRM system and, most importantly, by a contact centre. The motto of TNT Express is that each customer must be able to ring speak to a contact centre staff member within ten seconds of the first ring.

Work at the contact centre is therefore subject to stringent criteria in terms of human resources management. Performance indicators are measured extremely precisely, all calls with clients are recorded and in total, dozens of parameters are monitored and evaluated. The essence of the express business is a set of complicated mathematical algorithms for the processing of large amounts of data, for example the optimal set-up of delivery routes, optimal timing and the utilisation of delivery vehicles. All services and processes are of course supported by a set of integrated applications.

TNT Express therefore views a stable and highly accessible information infrastructure that is in operation 24/7 as an essential prerequisite for the fulfilment of the above-standard client care philosophy, and for the optimum provision of services.
“Dimension Data has proved to be a reliable and professional partner, which actively shares its interest in a successful project outcome.”

Vladimír Vojtíšek, Country ICS Manager, TNT Express

In the past, TNT Express assured the high availability of its information infrastructure on the basis of the physical redundancy of individual critical components. Over time that approach proved ineffective and costly. The data centre has now been modernised and virtualisation tools have been introduced. This development has shown itself to be the logical outcome of the efforts to achieve continual operative optimisation and provision of a comfortable method for the administration of the entire IT environment.

To ensure that the transfer to a new virtualised infrastructure was as secure as possible, TNT Express decided, as an initial step, to virtualise only support systems that encompassed items such as payroll systems, systems for customs procedures, file servers and print servers.

Relationship History

In terms of the active exploitation of the opportunities presented by information technology, TNT is a highly innovative company. It owes the continual optimisation of its information system to severe competitive pressure in the commercial sector and to the insightful ICT Management who actively seek out new methods to make the company’s operations more effective. TNT Express is primarily active in the B2B sector i.e. as a partner to corporate clients. The quality of services in this sector is not only measured by the timeliness of deliveries but also the range of services, professional client approach, overall client care and methods that allow the shipper to simplify the entire process of ordering and delivering its services.

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Solution Provided

The main aim of the project was to test the method of operation of the virtual infrastructure on non-critical server systems and applications, and to make practical preparations for the transfer to a completely virtualised server infrastructure.

The infrastructure for a virtualisation solution consists of an HP ProLiant BL460c dual blade server, built on a blade chassis HP c7000 together with LAN and SAN switches. Each server is equipped with two QuadCore processors, 16 GB RAM and a dual-channel, 4Gbps Fiber Channel adaptor. The servers are not equipped with local discs and load the operating system from a disc array.

An HP Enterprise Virtual Array 4400 disc array is used as shared consolidated data storage, with capacity 2.5 TB on FC discs and 6TB on FATA discs. The servers are linked to the disc array by means of a dual SAN to Cisco MDS equipment. The LAN connection is made using two Cisco Catalyst gigabyte switches. From a logical viewpoint, this is a compact disc array installation linked by a dual SAN to the servers, which are interlinked by a dual Ethernet LAN infrastructure on the client side and then to the local LAN.

The virtualisation layer consists of VMWare Infrastructure 3 Enterprise — two ESX servers and a VMWare vCenter Server. A high availability cluster and a DRS cluster are used. This solution offers the possibility for further dynamic growth by simply increasing the number of blade servers and increasing the capacity of the disc arrays.

Value Derived

TNT Express successfully underwent a process of practical preparation for the virtualisation of all of its server systems and applications. At the same time achieved positive results, output availability and stability were improved and the environmental burden, produced by the company’s IT section, was reduced.

Vladimír Vojtíšek added: “I do not consider ‘Green IT’ to be a formality by any means. TNT Express has introduced a system of environmental management pursuant to ISO 14001:2004, but in my opinion, a positive environmental approach is part of the personal responsibility of each IT Manager.”

And in conclusion he stated: “Dimension Data has proved to be a reliable and professional partner, which actively shares its interest in a successful project outcome. We shall continue to implement the virtualisation project and I am convinced that we shall continue working together with Dimension Data.”