

TNT Centrally Manages Global IP Network with VitalQIP® Network Management Software

IN BRIEF

- **Goal:** For TNT, the world's leading provider of express delivery services and supply chain solutions, to centrally manage IP on an expanding global network which was being administered on a country-by-country basis. TNT also wanted to gain visibility and control over IP, DNS and DHCP for its network so that it could deliver new IP-based productivity solutions, including Voice over IP (VoIP) and Web-based enterprise applications.
- **Solution:** Lucent's VitalQIP® DNS/DHCP IP management software for configuring, automating, integrating, and administering IP services across the network.
- **Results:** Centralized visibility and management control of a global IP network. A reduction in ongoing IP management and administration costs. Increased productivity because new applications can be rolled out more quickly and simply.

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A well-managed IP network, capable of handling tens of thousands of IP objects, is key to the success of a global express shipping and logistics supply chain firm. When TNT, a world-leading provider of express delivery services and logistics supply chain solutions, needed to provide central IP management of its global network, it turned to Lucent's VitalQIP® IP management software. It found that the Lucent solution gave it central management control and visibility over its network in 60+ countries, helped to support and create a global DNS architecture, delivered ongoing management cost reductions, paved the way for a Windows 2000 upgrade, and allowed TNT to build a network capable of handling new technologies including VoIP and Web-based enterprise applications.

This case study was authored by the Case Study Forum. The Case Study Forum is dedicated to writing and publishing case studies for the IT community.

Benefits

Objective	Benefits Achieved
Centrally assign and manage IP resources across a world-wide network.	Prior to the Lucent solution, IP was managed on a country-by-country basis, often with manual tools such as a spreadsheet. TNT can now centrally administer and manage IP resources across its entire network.
Provide TNT with a global DNS architecture.	Prior to the Lucent solution, TNT had no unified DNS architecture, and each country had to handle its DNS independently. TNT is now able to centrally manage 45 DNS servers globally.
Lay the groundwork for a network that supports VoIP and enterprise applications such as computer telephony integration (CTI) for call centers.	VitalQIP®'s ability to manage dynamic DNS with DHCP, as well as IP objects, allowed TNT to build a stable network capable of handling next-generation enterprise applications.
Manage a growing, increasingly sophisticated network in a cost-effective manner.	Because of VitalQIP®'s ability to centrally manage IP and DNS with fewer people than would have been otherwise required, TNT was able to benefit from ongoing management cost reductions.
More easily migrate to Windows 2000.	Because VitalQIP® allowed TNT to centrally manage IP and DNS resources, introduction of Windows 2000 went more smoothly because it rolled out into an existing, easy-to-use domain structure.

About TNT

TNT is a global provider of mail, express delivery and logistics supply chain services. The company employs over 163,000 people in 64 countries and serves over 200 countries.

TNT is made up of TNT Express and TNT Logistics. TNT Express is the world's leading business-to-business express delivery company. The company delivers 3.3 million parcels, documents and pieces of freight a week to over 200 countries using its network of nearly 900 depots, hubs and sorting centers. It operates over 18,000 road vehicles and 43 aircraft and has the biggest door-to-door air and road express delivery infrastructure in Europe. TNT Logistics designs, implements and operates complex supply chain solutions on a national, regional or global scale.

For 2003, TNT reported sales of 11.9 billion Euros. It is publicly listed on the stock exchanges of Amsterdam, New York, London and Frankfurt.

The Challenge: Manage a Global Network and Pave the Way for VoIP and Advanced Applications

In 1999, TNT had a large, growing, decentralized global network. It left IP management of the network to each separate country, assigning subnets to the countries, but let each country assign and manage its own IP addresses. Typically, a country would keep track of IP addresses in a spreadsheet kept on a local computer. TNT's central IT group had established a set of standards for how to assign IP addresses, such as how to allocate printer and server addresses, but the group had no way to ensure that its rules were being followed.

As the network and number of IP addresses grew, decentralized control of IP addresses became problematic. Because there was no central way to check whether an IP address had already been assigned, IP conflicts were common. Users would be disconnected from the network, and network devices such as servers and printers would become unavailable.

TNT was looking for a tool that could give it centralized management of its IP resources, and ensure there would be no conflicts. It also wanted the tool to be able to assign IP addresses quickly and efficiently, and to handle DNS and DHCP.

"Our network is dispersed all over the globe, and we had no central way to manage and administer IP addresses. Each country handled IP address management on its own. That led to IP conflicts, servers and printers being unavailable, and users not being able to use the network at times."

JOHN RILEY
SENIOR NETWORK ARCHITECT
TNT

Driving the Need for a New Solution

TNT recognized that it could not effectively manage its network in a decentralized manner using simple tools such as spreadsheets. It was looking for an IP management solution for a number of reasons:

- **To centrally manage IP on its fast-growing global network.**
With a network spanning the globe, and located in dozens of countries, it was no longer tenable to allow individual locations to manage the IP address space. IP conflicts were affecting network availability, disconnecting users from the network, and making network devices like printers and servers unavailable. It could take several hours to troubleshoot a single IP conflict.
- **To handle a global DNS architecture.** TNT had no unified DNS architecture, and each country had to handle its DNS independently. It wanted to unify and centrally manage its DNS architecture.
- **To manage a growing network while containing costs.**
Managing IP and DNS locally rather than centrally was proving to be an inefficient way to manage a network. TNT was planning on growing its network even further, and wanted to be able to do so without having to add additional staff.
- **To prepare for future enterprise applications and VoIP.** TNT wanted to take advantage of emerging technologies such as VoIP and Web-based enterprise applications. To do that, however, it needed to be able to centrally manage dynamic DNS with DHCP.

“We knew that we were going to be using our network for Web-based applications, VoIP and computer telephony integration for call centers. But our network wasn’t ready for that, and we needed a way to prepare for the future.”

JOHN RILEY
SENIOR NETWORK ARCHITECT
TNT

TNT Chooses Lucent

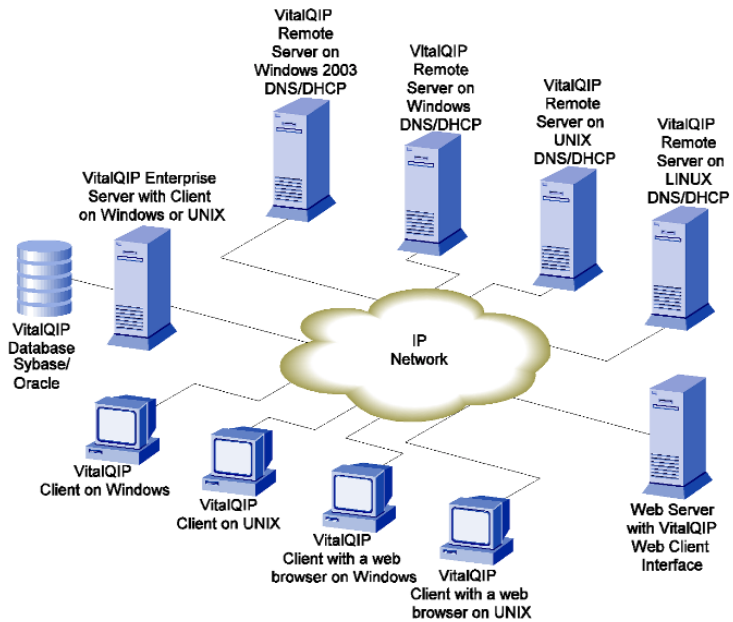
TNT examined several different vendors for providing the solution, and chose Lucent’s VitalQIP®. The solution worked best with TNT’s existing and future network environment, and gave it global DNS management in addition to IP management. Additionally, competing vendor solutions required that extra hardware be purchased, while the Lucent solution required no new hardware.

For installation and support, TNT turned to n3k, a leading Lucent business partner in delivering services and products in dynamic IP environments. The n3k professional services team oversaw the installation and implementation, managed the business relationship, and handled all the support issues. “The distributed nature of TNT’s business demanded a stable, comprehensive IP management solution,” said Julian J Rigg of n3k, “and Lucent’s VitalQIP® was installed by n3k as the product of choice due to its robust architecture and well-proven performance in our other Enterprise customers”.

An Inside Look at the Lucent Solution

VitalQIP configures, automates, integrates, and administers IP services across diverse networks, such as TNT's. Figure 1 shows how it works.

FIGURE 1: HOW VITALQIP WORKS



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VitalQIP supports a wide variety of hardware and operating systems, including Windows 2003, Windows 2000 and Active Directory, IBM AIX, HP-UX, Solaris, and Linux. The VitalQIP Enterprise Server, running on Windows or UNIX, manages DNS and DHCP using the VitalQIP database, in Sybase/Oracle.

The Bottom Line for TNT

TNT will gain substantial benefits from the project. It will be able to reduce and control ongoing management costs. It will also benefit from increased productivity because the network is available more of the time, and because new applications can be rolled out more quickly.

Network availability has been increased because there are no longer IP conflicts. Troubleshooting time has been significantly cut because there is now a centralized way to look up IP addresses when there are network problems.

TNT can now manage a unified global DNS architecture, instead of having each country handling its DNS independently. It currently manages 45 DNS servers globally.

"I can't imagine trying to manage our network without VitalQIP. We would not have been able to support 45 DNS servers globally, or the massive increase in IP addresses that we've had. Also we couldn't possibly roll out IP telephony and Web-based applications without it."

JOHN RILEY

SENIOR NETWORK ARCHITECT

TNT

Additionally, centralizing control of IP allowed TNT to more effectively manage its pool of IP addresses. When it allowed individual countries to assign IP addresses, it gave each country more addresses than each needed, because the company had no central way to track IP address assignments. Ultimately, it could have run out of IP addresses. With the VitalQIP solution, it can precisely track actual IP address usage, and so assigns addresses more effectively. It is not in danger of running out of addresses.

TNT Looks to the Future

Because of VitalQIP®'s ability to manage dynamic DNS with DHCP, TNT has been able to build a stable network capable of handling next-generation enterprise applications. It is deploying VoIP, as well as CTI for call centers, and so it can more effectively manage and deliver its worldwide services and products. Soon, it will be introducing enterprise-wide, Web-based applications for even more efficiency.

Market Leading Enterprise Software – Backed by World-Class Service and Support

VitalQIP® DNS/DHCP IP Address Management Software is a key component of the Lucent Network Management Software portfolio. Only Lucent offers multi-vendor, multi-technology, multi-service software solutions developed on extensible, programmable platforms, open APIs and advanced system architectures. These carrier-grade solutions provide the reliability, scalability and flexibility to deliver advanced services across current and next generation networks – while improving efficiencies, significantly reducing operating expenses and delivering the Quality of Service that today's enterprise users demand.

To learn more, contact your Lucent Technologies sales representative or contact an authorized reseller or sales agent. You can also visit our web site at <http://www.lucent.com/vital> or call 1-888-426-2252. For more information on n3k, visit <http://www.n3k.co.uk>.