Mercator Bank & Insurances

Safe, cost-effective and future-oriented long-distance network between head office and points of sales with VPN based on IPSec

"We didn't take any chances and did a thorough investigation into how best to match our computer platform with that of the service providers. Our VPN is a sound investment because our operational costs have decreased and the system guarantees the flexibility needed for the future."

Koen Van Dyck, *head of the division ICT Business Systems Services at Mercator*

EXECUTIVE SUMMARY

Background
Mercator Bank & Insurances has grown into a leading financial services provider in Belgium. The company resulted from the merger between the insurance group Mercator & Noordstar and the HBK savings bank. It offers banking and insurance services for individuals and the SME market. Mercator has around 350 points of sale spread across Flanders.

Challenge
To deal with the integration and expansion within the company, the 350 points of sale were equipped with a completely new IT infrastructure. Central to this was the management of costs for Internet connections. Moreover, Mercator Bank wanted in the long term to replace the software applications in the offices and to make the processed data available in real-time at the head office. As part of this streamlining operation it was decided to create a long-distance network between the points of sale and the head office that would also take care of future demands.

Solution
Mercator Bank installed together with Telindus an IP VPN based on Cisco 7200 routers at the head office and Cisco 1720 routers at the points of sale. These provide a permanent and secure link to the Internet through ADSL and cable connections. IP Security (IPSec) and Generic Routing Encapsulation (GRE) were used in this.

Results
Mercator Bank has a permanent, cost-effective and secure connection between the head office and each point of sale. Thanks to the uniform infrastructure, the network is well-organised and easy to manage. Moreover, it offers enough scope for changes in the future. Because VPN allows you to work with dynamic IP addresses at the points of sale, Mercator is saving considerably on Internet connections. All in all, the communication costs are around half of those previously.

Mercator Bank & Insurance is a leading financial services provider in Belgium and is part of the Swiss group La Bâloise. Mercator offers banking and insurance services for individuals and the SME market, focusing mainly on the traditional domestic market of Flanders. Independent intermediaries offer the services through around 350 points of sale. These offices vary in size but rarely have more than five PCs. In 2002 the entire office network was refurbished with a completely new IT infrastructure. Moreover, Mercator is also working on a new software system. This will replace the current applications in the banking and insurance offices and make all information available in real-time.

Such a vast streamlining operation requires a through approach. So Mercator first decided to renovate the long-distance network (WAN) between the points of sale and the head office. The WAN is after all the foundation of the whole system. Previously the points of sale were connected to the head office through an ISDN dial-up connection. The software for the banking applications was installed in the local offices, so staff members worked independently and mostly off-line. Once a day they linked up with the head office to send through the processed data. Not only was it cumbersome, but it also made it hard to control the costs for the ISDN connections. Even after optimising the ISDN infrastructure, they remained too high. That was why Mercator wanted to build a well-organised network that would guarantee secure connections, lower costs and increased efficiency.

Secure and cost-effective

After a needs analysis, Mercator presented specification requirements to different service providers for a WAN where all traffic would run through the central site of the head office. The company presented

five objectives. The costs had to be manageable. Not only did Mercator want an affordable alternative to the connection between the head office and the points of sale. The new WAN also had to be cost-effective with regard to purchase, management and expansion. A second requirement was high availability and therefore a doubly executed architecture. Because certain data streams within the financial enterprise have to have priority or a fixed bandwidth, the infrastructure also had to guarantee Quality of Service (QoS).

Moreover, Mercator was looking for architecture that was flexible enough to allow it to add new offices easily, increase the bandwidth for a specific office or implement new connections. “Currently we don’t need connections between the points of sale. A smooth, reliable connection to the head office is sufficient,” according to Koen Van Dyck, head of the division ICT Business Systems Services at Mercator. “But the banking environment is changing constantly and it is difficult to predict future needs. In such a context the network has to anticipate quickly the dynamics of the company.”

Finally, Mercator wanted to remain independent of its service provider because of security and commercial reasons. “We are a financial institution. So the confidentiality of our data must be beyond dispute. We don’t want to hand over the running and security of the network to third parties. Moreover, we want to be able to switch to another Internet provider without problems if it offers better prices and services,” says Koen Van Dyck.

Thorough testing

The requests for quotations produced several solutions including rental lines, a frame-relay network and a long-distance network based on IPSec technology. The IPSec protocol guarantees the confidentiality of the data. Whenever the affiliates connect to the head office, the IPSec sets up a protected, virtual tunnel and encrypts the data. The latter is done with Triple DES, an improved version of the Data Encryption Standard. Triple DES encodes the data three times, each time with a different key.

In the end, a proof of concept was set up for two systems to investigate the possibilities and functioning. This showed that the requirements were best met by Cisco’s VPN (Virtual Private Network) with connections through Mobistar and Telenet.

“We didn’t take any chances and did a thorough investigation into how best to match our own computer platform with that of the service providers,” assures Koen Van Dyck. “A frame-relay network would also have provided a good solution, but for us it was essential to control communication costs quickly. When it came to investment and management the frame-relay was more expensive and what’s more less flexible. Moreover, if in the longer term you want to switch to having connections between all the offices the costs are higher. The VPN also required a considerable investment, but this is justified as the operational expenses of such a network are cost-effective and the system ensures the flexibility needed for the future. Finally, Quality of Service is very important for us – and this is guaranteed with this system. All the routers support QoS in four categories so that certain data streams and applications have priority over others or a guaranteed processing capacity.”

Living network

The VPN at Mercator is based on Generic Routing Encapsulation (GRE) and the VPN infrastructure is duplicated in the head office to guarantee high availability. By having two powerful Cisco 7206 VPN routers there, it is possible to set up simultaneously two IPSec tunnels from each of the 350 points of sale to the head office. This is done with Cisco 1720 VPN routers, appliances especially designed for small offices that nevertheless offer a range of possibilities.

The GRE protocol is a technology that allows you to send routing information through the VPN tunnels. Cisco is the only supplier to combine IPSec and GRE. Thanks to the use of GRE, the IPSec tunnels are always active and the head office can always contact the points of sale. This offers exciting opportunities, for example the central management of the network from the head office.

Moreover, the setup allows you to work with dynamic IP addresses at the points of sale, so that Mercator is saving a lot of money on Internet connections. The number of IP addresses available is not limitless and so fixed IP addresses are more expensive. If you use a dynamic IP address, you select it from a store of addresses shared with other customers and so you regularly get another address allocated by the service provider. In Mercator’s setup the affiliate automatically establishes a new IPSec connection whenever the service provider allocates a new IP address. So the connection is never lost.

Koen Van Dyck: "We have reduced the communication costs by fifty per cent with our new infrastructure. We have a conventional ADSL subscription for most connections because we use dynamic IP addresses. The fixed tariff allows for more accurate budgeting.”

Saving on management and connections

Cisco’s IP VPN network also offers Mercator a clear return on investment with regards to management, maintenance and modifications. “For us Cisco is a strategic partner. All our networks are almost completely built using Cisco equipment. So our systems engineers have plenty of experience with the products and with Cisco Works, our operating platform. So you save on time and money for training. Because the VPN is always active, remote management is now also possible. To avoid creating hidden costs we decided on a uniform network throughout, even for the small offices. This means the network remains well-organised for the systems engineers and the helpdesk,” says Koen Van Dyck.

Investing in extra manoeuvring space

The Cisco 1720 routers for the points of sale mean an additional investment, but with this decision Mercator is looking to the future. “We also considered the cheaper routers of the 800 series. These would meet our demands now but because the banking sector is changing fast we decided to have extra manoeuvring space. The Cisco 1720 offers more possibilities. This could prove advantageous if you think about all the new services that are emerging, such as speech and video. Moreover, an encryption hardware accelerator fits into the Cisco 1720. We may need these to increase the capacity of the routers when our new software applications are ready. Finally, the appliances offer the flexibility

needed to change the Internet connection from cable to ADSL at certain points of sale. Currently ADSL connections are still not available everywhere. With the Cisco 1720 you only need to replace the modem – the rest of the infrastructure you can keep."

The Internet connection at the head office is made through Mobistar and Telenet. Mobistar provides two ATM connections, with a view to redundancy. The connection offers a bandwidth of 16 Mbps, which can be increased to 45 Mbps if necessary. The Telenet connection has a capacity of up to 4 Mbps and is not duplicated. Thanks to the exchange of traffic between Telenet and Mobistar, the traffic can go through Mobistar should there be a problem with Telenet. The old infrastructure is also being retained at the points of sale as a backup. Should the Internet connection fail, then the system automatically switches to an alternative connection through ISDN.

"The advantages of the WAN will become quite evident to end users when the new banking applications are installed," according to Koen Van Dyck. "But already they're losing less time because they no longer need to log on and off the central network and the current applications are running more stably due to the permanent connection. The ease of use has increased dramatically."

Mercator installed the new system together with its ICT partner Telindus. In the first phase the equipment for the head office and the 80 larger points of sale was delivered. This phase was completed in April, after which the remaining points of sale were taken care of. On average, every day Mercator and Telindus provided six offices with the new network infrastructure, new PCs and banking applications. The project was completed in mid-July 2002. Telindus took care of support for the management and controls the network around the clock. The total investment amounted to about 1.4 million euros.

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