



Case study

Industry sector:
financial services

Shaping new markets in the digital networked economy

BT has transformed Visa's CEMEA network infrastructure with a judicious celestial and terrestrial mix, providing unprecedented levels of speed and availability

Executive summary

Visa International is a service association owned by and comprised of 21,000 member banks. Well over a billion Visa cards have been issued worldwide on which some US\$3 trillion is transacted every year in over 150 countries.

In 2003, Visa's CEMEA (Central and Eastern Europe, the Middle East and Africa) business recognised that the legacy networks it relied on to process card transactions on behalf of members were failing to keep pace with business growth and desired response times. In addition their management was incurring large overheads. The company came to BT for a solution.

BT's solution comprises terrestrial and satellite technologies across over 265 sites in 51 countries. It has radically reduced network management costs and complexity and delivered an impressive 40 per cent reduction in transaction times, as well as guaranteeing availability – currently running at an impressive 99.98 per cent – and security through rigid service level agreements. A spirit of partnership and shared risk and responsibility between the two companies underpins the solution.

“The new BT infrastructure offers the scalability and flexibility required to meet the challenge of Visa's growth in emerging markets, as well as providing a platform for Visa to develop and deliver innovative products in the CEMEA region.”

Brian Hockett
CFO & CIO
Visa CEMEA

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Marketplace

Visa International is a service association owned by and comprised of 21,000 member banks for which it provides payment solutions, enabling them to issue cards and process merchants' card transactions. Well over a billion Visa cards have been issued worldwide on which some US\$3 trillion is transacted every year in over 150 countries.

In Visa's CEMEA (Central and Eastern Europe, the Middle East and Africa) region most economies are based on cash, but this is changing as the social and economic benefits of cashless payment become more widely understood and as consumers and retailers increasingly appreciate the safety and convenience of payment cards. Visa products help bring people in CEMEA into the banking system, so increasing available funds – the lifeblood of a growing economy. Cashless payment methods provide a clear audit trail and broaden economic participation, which brings tax revenue and overall financial benefit to the countries of this vast and diverse region.

But the CEMEA marketplace also has some unique geographical characteristics. Remote areas provide serious logistical and environmental challenges for Visa in maintaining network service levels.

Business opportunity

In CEMEA, driving the cultural shift toward cashless payment began with Visa Electron debit cards and today these cards represent 85 per cent of all Visa cards in the area. Many of these cards have been issued as 'salary cards' where an employer works with a bank to issue cards to all its employees enabling it to switch from paying salaries in cash to electronic payment.

Brian Hockett, CFO & CIO for Visa CEMEA, says: "Over the last ten years Visa's member banks have begun to offer cashless payment facilities targeted and designed for ever-widening segments of society. We've also brought electronic payment to big businesses and government – including purchasing cards and other facilities fit for purpose in each market."

But to offer these types of service to the widest possible audience in CEMEA required the right infrastructure. With Visa's rapid business growth – there were three million cards when Visa CEMEA was formed in 1995 and there are over 60 million today – the network that connected the banks to VisaNet (Visa's processing system that enables

transactions to be authorised and monies transferred from cardholder to merchant) had expanded organically. Individual solutions – the best at that time for each individual market – had been implemented country by country.

By 2002 Visa CEMEA found itself with an ever-increasing number of contracts to manage. As a result it was often difficult to identify which supplier owned a specific connectivity issue. Visa's solid but inflexible network was introduced 27 years earlier and the costs of running it were increasing steadily.

Visa recognised that a switch to a consolidated network, combined with rationalising its supplier contracts, was the best solution.

Visa began negotiations with 250 different suppliers with a view to procuring a new network for the CEMEA region. From initial responses from 200 service providers Visa came down to a short list of three, including BT. These three potential networked IT services partners were benchmarked against a comprehensive statement of business-driven needs containing desired service level agreements (SLAs), performance penalties and latency requirements.

BT solution

Visa chose BT because both parties recognise the value in partnership, and put into action steps to ensure that a true and open relationship was formed. The network would need to be highly available and fully resilient, and Visa was confident that BT acting as prime supplier would guarantee it those attributes. Visa was also confident that BT would support the development of new products and share its own best practice local and technical knowledge.

Raj Haider, Head of VisaNet Service Management, says: "We created a strategic partnership with a clear direction. The concept of 'in-sourcing' was agreed between the two parties, with BT people working inside the Visa organisation. This has helped BT gain a deep understanding of the business and made for an efficient partnership."

A five-year \$66 million contract was offered to BT encompassing a 265-site, 51-country migration path. The network architecture developed by BT is highly complex, with 27 varieties of access technology used within the overall

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Raj Haider
Head of VisaNet Service Management
Visa CEMEA

network topology. Risk was shared equitably between the two parties, with the service level agreement for VisaNet secured effectively between BT and Visa's members. Executive sponsorship in both companies ensured governance and maintained momentum.

"The partnership model is highly valued, bringing shared risk and responsibility as well as the assurance that if things ever go wrong there is the will to put it right immediately. This spirit of collaboration extends to the development of new solutions and services looking forward," adds Raj Haider.

Ninety per cent of all 265 terrestrial and satellite sites were live by July 2004 and the last site was migrated in February 2005. During the implementation, BT joined Visa and local members in negotiating with each government, as well as participating in joint marketing to drive new Visa member take up. There were numerous challenges in delivering the project on time: from obtaining power supplies to shipping the equipment, as well as cultural and political obstacles.

"Many challenges were unique to the areas and countries in which the projects were being carried out," says Raj Haider. "BT had to ensure its solutions worked from the sands of the Sahara Desert to the tundra of Siberia."

The terrestrial network is built upon a combination of BT's International Frame Relay network and International Private Leased Circuits (IPLCs), but in areas where terrestrial networks were hard to deploy, Visa decided upon a Very Small Aperture (VSAT) satellite communications system provided by BT's Media and Broadcast team. The challenge for BT was to provide high and consistent levels of service in countries such as Azerbaijan, Cameroon, Estonia, Ivory Coast, Mauritius and Palestine where ordinary terrestrial solutions were not possible.

Raj Haider comments: "The satellite solution is an integral part of the new network, provided by BT to 63 sites in 28 countries utilising on-site satellite antennas. It is based on the innovative iDirect solution, a two-way communications platform designed to optimise IP traffic delivery over satellite."

The solution also needed to be future proofed. Not only had it to support

Why BT?

- BT's global reach meant that it was able to provide and support secure and highly available connectivity in some of the most underdeveloped parts of the world
- BT was able to offer one accountable point of management for the whole CEMEA region, while peer-to-peer commitment demonstrated good governance and commitment to the relationship at executive level
- The BT team were flexible in their approach, and BT met Visa's cost, technology and commercial needs together with a continuous focus on improving service to the Visa membership
- Visa valued the longevity of the relationship with BT. BT had already demonstrated excellence in technology implementation through its networked IT services to support Visa across Europe

several protocols and standards but it also needed to be scaleable, allowing Visa to introduce new applications and services. Security also had to be embedded into its DNA, thus ensuring the safe handling of confidential transaction data. The BT VSAT solution was created to be inherently secure – the data runs on virtual private circuits but is also sent at randomly selected frequencies making it almost impossible to intercept.

Results

The new solution comfortably exceeds Visa's promise to its member banks of 99.5 per cent availability. Average transaction times have dropped by over half a second. Visa is also benefiting from the reduced headache of a single service provider with a managed services contract. And critically, Visa is paying less in network management costs than before.

Raj Haider scopes the hard business benefits: "It is imperative that the new network is totally dependable. We have recorded 99.98 per cent availability in our first few months of using the new network, which has surpassed our expectations. As a direct result of the BT implementation, Visa CEMEA has measured a 40 per cent improvement in response times for card processing, providing a better experience for members and their cardholders across 25 per cent of the world's land mass."

Visa is also benefiting from double the available bandwidth capacity together with backup technologies for all Visa members. The VisaNet team has vastly

improved network visibility, management and control capabilities. The new architecture is also meeting Visa's stringent security requirements which are of fundamental importance to the network. In fact, BT is giving Visa the same commitment that Visa gives to its own customers – its member banks.

"The new BT infrastructure offers the scalability and flexibility required to meet the challenge of Visa's growth in emerging markets, as well as providing a platform for Visa to develop and deliver innovative products in the CEMEA region. BT has enabled us to provide a much better service to our members while reducing costs and simplifying supplier and network management," says Brian Hockett.

The partnership with BT provides significantly higher SLA targets than were in place for the patchwork of previous suppliers, and BT is under strict contracts which enforce penalties for missed SLAs. All of the BT ground staff at remote locations act continually to support BT's commitment to Visa's service level agreements. Even in isolated areas of Africa, BT offers a remarkable four-hour break fix support.

Brian Hockett concludes: "Most importantly, the BT network gives the cardholder a much better experience in all 51 countries where VisaNet operates – elevating the individual's experience of Visa's card payment services. Member banks are happier with the day-to-day experience of doing business with Visa."

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Technology blueprint

VisaNet connects all the banks that issue Visa cards, enabling transactions to be authorised within seconds, and cleared and settled overnight. It comprises 25 mainframe computers and more than 230 mid-range systems, running some 300 applications. Processing up to 5,000 authorisation transactions per second and settling as much as US\$5 billion and 100 million transactions in a single day, it is the world's leading financial transaction processing system. VisaNet has only experienced five minutes of downtime in the last 25 years.

Primary access is provided by BT's International Frame Relay network where it is available and BT partner Frame Relay services or IPLCs where it is not. Where the terrestrial network is insufficiently well developed or considered unreliable, a state-of-the-art BT IP-based satellite solution has been deployed.

The BT satellite solution is an integral part of the new network provided by BT and connecting to VisaNet. In a star topology, VSAT terminals connect back to key hubs that transmit data to BT's earth station in Goonhilly, Cornwall. Failsafe redundancy is provided through mirrored data transmission to a second BT earth station in Herefordshire, as well as through terrestrial backups including ISDN and PSTN via BT sites in and around South East England.

The VSAT solution is based on the innovative iDirect platform, a two-way communications platform that has been designed to optimise IP traffic delivery over satellite. At the remote member locations an iDirect NetModem II is employed with a 5-10 Watt BUC and 2.4 – 3.8 M antennas. Dedicated Visa satellite hub stations provide far more robust and less interference-prone 'C' band satellite technology instead of 'KU' band. Visa has rented its own satellite space segment from BT Media and Broadcast which provides excellent coverage across the CEMEA region.

Backup (secondary) access is provided through ISDN, PSTN or in some locations where PSTN is considered unreliable, through the INMARSAT 4 Regional Broadband Area Network (R-BGAN) service.

Main BT products & services

- BT International Frame Relay network
- International Private Leased Circuits
- BT VSAT satellite communications system with iDirect two-way communications platform



Offices worldwide

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