Visa USA

Upgrades network to handle $1 trillion in payments

Industry: Financial Services
Product(s): BEA Tuxedo®

Summary

Visa implemented a network re-architecture in order to future-proof and add enormous scalability to its payments infrastructure. Based on BEA Tuxedo, the system is designed to process an unprecedented volume of transactions. Visa worked closely with BEA from the initial architectural assessment all the way through to design and implementation of its new payments network.

Problem: Scalability

Visa needed to double the capacity of its transaction networks while maintaining absolute reliability.

Solution: Reliable transaction platform

The BEA Tuxedo platform processes an unprecedented volume of transactions with "anytime, anywhere, anyplace" flexibility, while maintaining Visa's standard of 100% reliability.

Results

- The network is designed to process more than $1 trillion in payments annually.

- It can accommodate a volume of 10,000 transactions per second, almost triple its current peak load of 3,500 per second.

- This equates to more than 100 billion transactions annually — more than twice the current transaction volume.

Benefits

- Rock-solid 100% reliability – just five minutes of downtime annually could impact $55 million in transactions. Eight hours of down time, equivalent to 99.9% uptime, would mean a potential loss of $5 billion in transactions.

- BEA Tuxedo offers high availability through system-wide redundancy as well as continual monitoring of application, transaction, network, and hardware.

- Dynamic load balancing handles unexpectedly high demand, and distributed transaction management ensures data integrity.

- BEA Tuxedo integrates seamlessly with legacy mainframe systems, an essential capability in the world of financial services.

THE BUSINESS CHALLENGE

As a Visa cardholder, you expect to be able to use your card anywhere, at any time, with accurate billing for each transaction. Visa is the world's leading payment brand and largest consumer payment system, enabling banks to provide their consumer and merchant customers with the best way to pay and be paid.

Consumers in today's digital economy are looking for increased flexibility and convenience when paying for goods and services. In addition to this trend, Visa anticipates an explosion in the number of electronic payment transactions in the near future, sparked by the availability of new transaction options, such as mobile commerce, smart cards and person-to-person payments.

To prepare for these movements, Visa set out to implement a network re-architecture in order to future-proof and add enormous scalability to its payments infrastructure.

The re-architecture initiative, called Direct Exchange, builds upon the company's existing transaction platform, a closed proprietary system that was highly advanced when deployed two decades earlier, but not capable of scaling up to meet the demand Visa expected.

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Direct Exchange needed to be designed to process an unprecedented volume of transactions with "anytime, anywhere, anyplace" flexibility in order to support Visa's vision of universal commerce, while maintaining Visa's standard of 100 percent reliability. The importance of true 100 percent uptime cannot be overstated. Just five minutes of downtime annually could impact $55 million in transactions. Eight hours of down time, equivalent to 99.9 percent uptime, would mean a potential loss of $5 billion in transactions.

THE BUILT ON BEA™ SOLUTION

"Besides being the most proven and best-of-breed technology, BEA Tuxedo was the only product that met or exceeded all of our requirements," said Scott Thompson, Visa USA's Chief Technology Officer.

The BEA Tuxedo transaction platform communicates across Visa's secure, private IP (Internet Protocol) network. Compliance with open standards protects Visa's investment and extends the life of the infrastructure indefinitely by enabling Visa to add and customize new features and capabilities rapidly in response to changing market opportunities. It also scales by an order of magnitude beyond Visa's current financial transaction volume, which is already the heaviest in the world, to handle Visa's projected traffic in the coming years.

Worldwide, the network includes nine million miles of fiber, enough to circle the globe 400 times. "The system is so massive that it defies a person's ability to comprehend. But despite such size, it's so reliable that it actually serves as a backup to other payment platforms. It's a real credit to BEA that its Tuxedo software is able to power such an immense transaction system," said Sara Garrison, Senior Vice President, Technology Development, Visa USA.

In addition to the superiority of BEA's software, the strength of BEA's Services organization, including its consulting and customer support groups, proved to be a key success factor for Visa. Visa worked closely with BEA from the initial architectural assessment all the way through to design and implementation of its new payments network. In addition, the global presence of the BEA Support organization was a key factor in Visa's choice of the BEA platform. "BEA's highly skilled customer support organization responds quickly to our requests, and its worldwide presence gives us peace of

mind as we look to the future when the design concepts of the platform expand beyond North America," added Garrison.

THE RESULT

The network is designed to process more than $1 trillion in payments annually, accommodating a volume of 10,000 transactions per second, almost triple its current peak load of 3,500 messages per second. This equates to more than 100 billion transactions annually, more than twice the current transaction volume. Visa expects these numbers to continue to climb as the new payment technologies enter the mainstream.

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"We're very happy with the build-out of Visa Direct Exchange. BEA has played an integral role in helping us bring the system online within the budget and timeline that we established two years ago. BEA Tuxedo has demonstrated the ability to keep pace with our projected 20-30 percent annual growth, and we view it as an ideal platform to support emerging technologies, such as mobile commerce," said Garrison.

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