

Casa Ley Upgrades to Active/Active OmniPayments

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Casa Ley is one of Mexico's largest, privately held grocery-store chains. It operates almost 200 supermarkets that serve over forty cities in Mexico. The company has over 22,000 employees.

The retailer initially turned to HSBC as its acquiring bank to provide and manage its point-of-sale (POS) terminals. The terminals offer many services to the retailer's customers beyond paying for in-store purchases with credit cards and debit cards. For instance, cell phones can be topped off, bank deposits can be made, and bills can be paid online at the cash register.



Casa Ley subsequently decided to provide its own transaction-authorization switch to save card transaction fees and turned to ACI Worldwide's BASE24 system running on HP NonStop servers for this purpose. When ACI announced its termination of support for BASE24 on NonStop servers, Casa Ley upgraded its transaction-authorization switch to Opsol's OmniPayments and realized several additional benefits in the process. The primary benefits were upgrading to a modern, active/active solution providing continuous availability at a lower price.

Casa Ley Moves to BASE24

In the year 2000, Casa Ley decided to purchase and manage its own POS terminals so that it could have a negotiation advantage with its acquiring bank for credit-card and debit-card transaction fees. This saved the retailer considerable sums of money. It turned to ACI Worldwide's BASE24 electronic-funds processing system running on an HP NonStop server to manage its terminals.

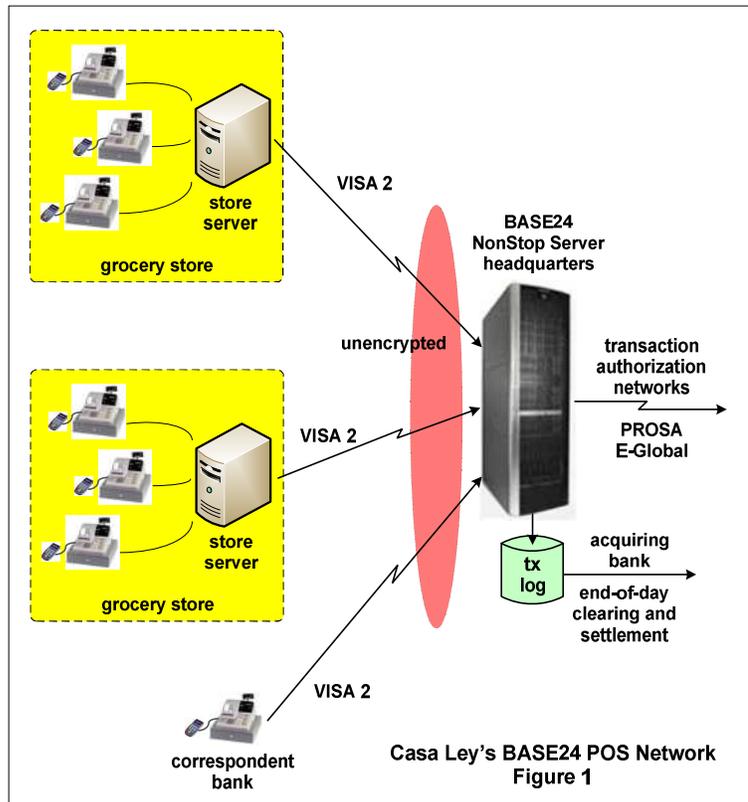
Though normally employed by the financial-payments industry to authorize card transactions, the BASE24 system was used by Casa Ley for this same purpose. Its card transactions were routed to the issuing banks by its BASE24 system for authorization, thus bypassing the retailer's acquiring bank. At the end of each day, the transaction logs from the BASE24 system were sent to the retailer's acquiring bank for clearing and settlement with the issuing banks. The funds due Casa Ley for its day's selling activities were deposited in its merchant account held by its acquiring bank.

The BASE24 architecture employed by Casa Ley is shown in Figure 1. Each grocery store had several (typically, a dozen or more) POS terminals. The transaction traffic from the POS terminals within a store was concentrated by an in-store server and was sent to the BASE24 system via the VISA 2 protocol, a proprietary communication protocol.

The BASE24 application was hosted on an HP NonStop server located at Casa Ley's headquarters.

When a transaction was initiated at a POS terminal, its data was sent by the store server to the BASE24 system. BASE24 sent the transaction via the PROSA or E-Global transaction-authorization network to the appropriate issuing bank for authorization. A response was returned to the POS terminal to accept or reject the card transaction.

As mentioned earlier, the POS terminals supported many additional services – cell-phone topping, bank deposits, bill payments, and others. The store clerk entered the transaction data for each of these transaction types into the POS terminal under the control of the in-store server, which then took the necessary steps to complete the transaction.



In addition to the retailer's supermarket stores, the system also supported what is known as correspondent banks. In Mexico, many little villages have no supermarkets, no banks, and often no Internet service. In these villages, Casa Ley set up one or more local merchants with a POS terminal. The merchants could then sell goods via credit cards and debit cards and could execute other transactions such as the cell-phone topping and banking services mentioned above. These merchants are called *correspondent banks* because they extend banking services to the small villages.

The BASE24 Sunset

A decade later, ACI announced to its BASE24 customers that it would sunset its HP NonStop BASE24 product by the end of 2011. To continue full ACI support, NonStop BASE24 customers would have to move to ACI's new product, BASE24-eps. BASE24-eps is an entirely new product and requires a complex migration. Alternatively, customers could move to BASE24 on IBM z/OS mainframes.

This gave Casa Ley an opportunity to review its approach to POS terminal support. The company decided on several additional features that it would like to have in a new system:

- It wanted to incorporate geographical redundancy so that it could provide a rapid failover response to a system outage. If the system failed with the current implementation, Casa Ley's grocery stores could not accept card transactions. They could operate on a cash basis only. Fortunately, the HP NonStop server was fault-tolerant; and a server failure was unlikely.
- All communications between the grocery stores and the BASE24 system were unencrypted. This is a violation of the PCI DSS (Payment Card Industry Data Security Standards) specifications that recently had been issued. Casa Ley wanted to be in compliance with PCI DSS.

- The additional customer services that the retailer wanted to provide via its POS terminals required modifications to the in-store servers in current use. These modifications would have to be rolled out to all 170 store servers, a massive job.

After an evaluation of its various options, Casa Ley selected Opsol Integrator's OmniPayments financial-transaction authorization system.

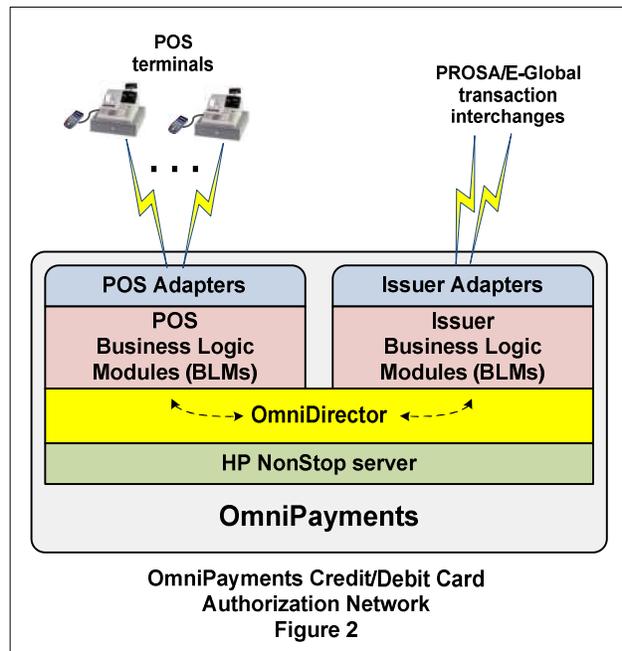
Opsol's OmniPayments Financial-Transaction Authorization System

Opsol's OmniPayments financial transaction authorization system is shown in Figure 2. OmniPayments is a layered architecture. It is built upon the fault-tolerant HP NonStop server.

The core layer of OmniPayments is Opsol's OmniDirector Enterprise Service Bus. OmniDirector services include data transformation, encryption, intelligent routing, and communication-failure recovery. It also provides adapters to support those protocols required to communicate with Casa Ley's POS terminals as well as with Mexico's transaction interchanges such as PROSA and E-Global.

Business logic modules, or BLMs, supply the business functions of OmniPayments. The functions include credit-card and debit-card authorization services, and the BLMs are extensible to include the other services that Casa Ley wanted to offer its customers via its POS terminals.

OmniPayments provides complete logging of all transactions. The logs contain the transaction information needed at the end of each day for clearing and settlement. It is this processing function that transfers funds from the card-issuing banks to Casa Ley's merchant account held by its acquiring bank to reflect the day's sales activities.



Casa Ley Upgrades to OmniPayments

OmniPayments led to many additional benefits for Casa Ley other than the initial goals noted above. The totality of benefits can be best understood by describing the retailer's OmniPayments configuration, as shown in Figure 3.

Active/Active Configuration

Two OmniPayments HP NonStop servers are configured as an active/active system. One server is located at the retailer's Mexican headquarters, and the other server is in a remote location some 500 miles away. Both servers are actively processing transactions, and the transaction load is normally split between them. Should one server fail, all transactions are immediately routed to the surviving server, thus ensuring availability of the transaction-authorization services to the Casa Ley stores.

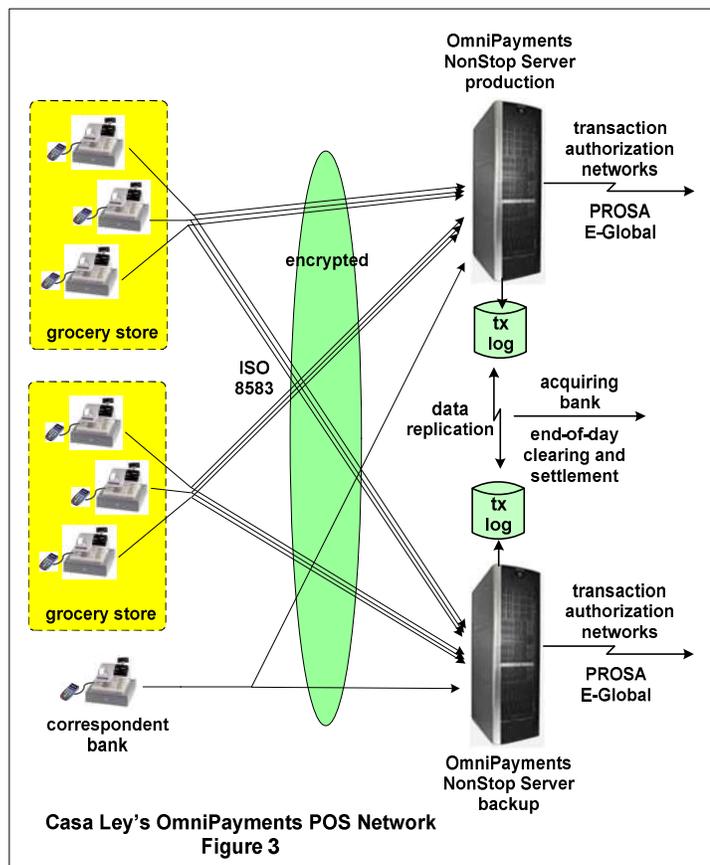
Each NonStop server is responsible for authorizing the transactions routed to it. Each sends its transaction requests to the appropriate issuing bank via either the PROSA or E-Global transaction-authorization network and returns the responses to the POS terminals that originated them.

Each server logs its own transaction activity. However, to ensure the durability of transactions in the event of a server failure, the transaction logs on each of the two servers are synchronized via bidirectional data replication. Whenever a transaction is entered into the transaction log of one server, it is immediately replicated to the transaction log of the other server. Thus, each server has a record of all transactions made by both servers. This replication is performed directly by OmniPayments – no third-party data-replication engine is required.

At the end of the day, either log may be used to send transaction information to the acquiring bank for settlement and clearing.

Communication Services

The communication services required to support this configuration are provided by Telmex, the dominant fixed-line phone carrier in Mexico. Each POS terminal maintains an active connection with each OmniPayments NonStop server and can reroute transactions instantly.



The correspondent banks are similarly connected.

The communication network normally balances the transaction load between the two OmniPayments NonStop servers. However, should Telemex determine that the links to one server are down, Telmex immediately reroutes all traffic to the surviving server. Thus, recovery from a server outage is measured in seconds.

Casa Ley no longer has to use the proprietary VISA 2 communication protocol between its stores and the NonStop servers. The industry-standard ISO 8583 protocol is now used.

Simplified Store-Clerk Procedures

All POS terminal functions are now provided by OmniPayments. In addition to transaction authorization, BLMs were written to implement the ancillary services such as cell-phone topping and banking services offered by the retailer through its POS terminals.

As a consequence, the store-clerk procedures have been standardized and simplified and result in a more positive customer experience.

PCI DSS Compliance

OmniPayments implemented a component on the POS terminal to support encryption. All transmissions between the POS terminals and OmniPayments are now encrypted, as are all transmissions between OmniPayments and the transaction-authorization networks. OmniPayments totally supports encryption, and Casa Ley is now PCI DSS-compliant.

Total Cost of Ownership

Casa Ley's costs to operate and maintain the system have been reduced significantly by savings in its license fees. This is because ACI's pricing model is based on the peak transaction rate experienced during the previous year, whereas Opsol's pricing model is not based on transaction rate. It is based on the number of NonStop processors used in the OmniPayments servers.

Support

Opsol committed to support the implementation and deployment of the OmniPayments system with onsite staff for the duration of the project and for a three-month period following successful deployment. There was no daily charge for this support. Rather, it was included in the price of the system.

The Results

The benefits that Casa Ley realized by upgrading to OmniPayments were many:

- It achieved continuous availability of its transaction-authorization system by implementing an active/active system that will recover from any fault, including a total data-center outage, within seconds.
- It became PCI DSS-compliant with full encryption of all transaction traffic.
- It was able to move to improved, industry-standard communication protocols.
- The interaction between the sales clerk and the customer became simpler, faster, and more efficient.
- It reduced its licensing costs.



Opsol Integrators

With successful implementations at many customer sites, OmniPayments (<http://www.omnipayments.com/>) is just one member of the Opsol family of solutions for the financial industry. Opsol Integrators (<http://opsol.com/>) specializes in NonStop mission-critical applications and is HP NonStop's largest system integrator.

OmniPayments offers customers all the requisite functionality to manage credit-card and debit-card transactions. Based on a SOA architecture, it is easily expandable to provide additional functionality when needed.

OmniPayments supplies complete security functions for every financial transaction that it handles, including encryption-at-rest and encryption-in-flight. Available around the clock, it will survive any single fault, requires no downtime for maintenance or upgrades, and supports a range of disaster-recovery solutions.