

## **Major U.S. Bank Replaces BASE24**

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One of the five largest banks in the United States recently moved its debit/credit card authorization network from ACI's BASE24 to Opsol's OmniPayments financial-transaction authorization system running on HP NonStop servers. This move accomplished two goals. It allowed the Bank to keep its highly available NonStop servers in operation following ACI's announcement that it would "sunset" BASE24 on NonStop. In addition, it allowed the Bank to save millions of dollars in licensing costs over the life of the system.

### **The Bank's Early Authorization Network**

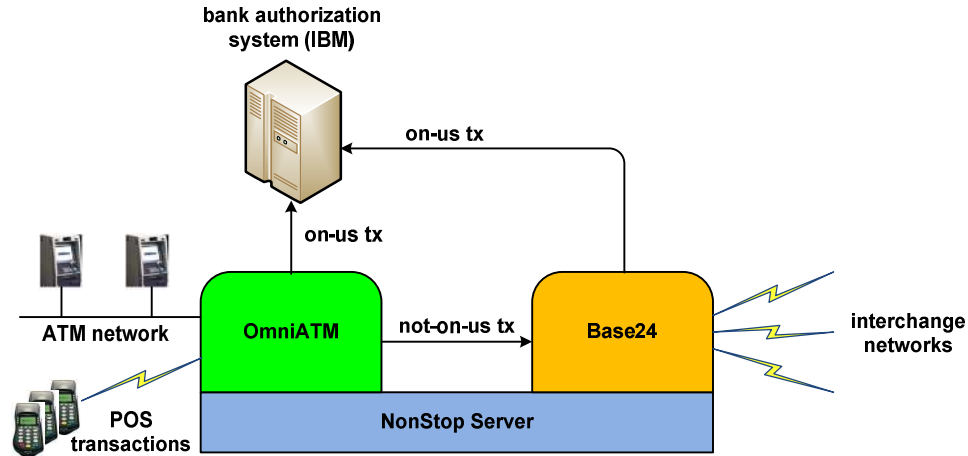
The Bank maintains a network of 15,000 ATMs and thousands of retail POS (point-of-sale) devices. In the mid-1990s, it decided to adopt ACI Worldwide, Inc.'s BASE24 product running on HP NonStop servers to interface with the various interchange networks, such as Visa and MasterCard that banks use to authorize debit- and credit-card transactions. NonStop servers provide proven high availability, immense scalability, and bullet-proof data integrity, all characteristics needed by the bank to protect its critical ATM and POS services.

However, BASE24 did not have the abilities that the Bank needed to manage its ATM network. The ATMs represented the public face of the Bank, and for competitive reasons it needed to provide a superior experience to its customers through its ATMs. For instance, it wanted customers to be able to modify their own preferences, to select languages of their choice, to have access to a wide range of banking services, and to receive personalized offers generated by the Bank, none of which were supported by BASE24.

It therefore made the decision to turn to Opsol Integrators Inc. to provide the system for managing its ATMs. Opsol installed its OmniATM product on the same NonStop servers being used to run BASE24 and interfaced OmniATM to BASE24. OmniATM was configured to provide all of the customized features desired by the Bank.

The resulting architecture of the early system is shown in Figure 1. OmniATM managed the Bank's extensive ATM network and supported all of the ATM enhancements desired by the Bank.

OmniATM analyzed incoming transactions from the Bank's ATMs to determine whether they were generated by a debit- or credit-card issued by the Bank (on-us transactions) or by another bank (not-on-us transactions). OmniATM routed on-us transactions directly to the Bank's IBM authorization system, and that system's response to accept or reject the transaction was returned to the initiating ATM by OmniATM.



**The Bank's Original Debit/Credit Card Authorization Network**  
**Figure 1**

OmniATM passed transactions that were generated by debit/credit cards issued by other banks to BASE24 for authorization. BASE24 sent each not-on-us transaction to the issuing bank over the appropriate interchange network and returned the response to OmniATM for return to the initiating ATM.

If a transaction was initiated at an ATM not owned by the Bank but with a card issued by the Bank, the reverse process occurred. The remote managing bank sent the transaction over an interchange network to BASE24 for authorization. BASE24 passed the request to the Bank's IBM authorization system. The system's response was returned by the IBM system to BASE24 for return to the managing bank.

The Bank's network of POS devices was managed by a third party that sent the POS transactions over its own network to the Bank. The transactions were received by OmniATM and were processed in a manner similar to the Bank's ATM transactions.

## Revisiting the BASE24 Decision

A decade and a half later, ACI Worldwide shocked its 300 BASE24 NonStop customers when it announced that it would sunset its NonStop BASE24 product by 2011. To obtain continued ACI support on NonStop servers, customers would have to migrate to ACI's new financial transaction switching product, BASE24-eps, or pay significantly increased support costs for BASE24. BASE24-eps is an entirely new product and requires a complex and risky migration.

The alternative was to switch to BASE24 on a large IBM z/OS mainframe.

This announcement triggered an in-depth review by the Bank of its current system for financial-transaction authorization. The Bank concluded that there were compelling reasons to revisit its existing approach:

### **Migration to BASE24-eps on NonStop Servers**

The migration to BASE24-eps on NonStop servers would require significant new development to incorporate all of the specialized features needed by the Bank. The migration would be lengthy, costly, and risky. Even HP predicted a 30% chance that the migration would be unsuccessful.<sup>1</sup>

<sup>1</sup> HP Greenbook: BASE24 Upgrade Options, *HP White Paper*.  
[http://www.connect-community.org/resource/resmgr/library\\_whitepapers/4aa2-8602enw.pdf](http://www.connect-community.org/resource/resmgr/library_whitepapers/4aa2-8602enw.pdf).

### ***Migration to BASE24-eps on an IBM Mainframe***

If the Bank replaced its NonStop servers with an IBM mainframe, it would totally change the culture of its IT department. The system administrators that were familiar with the nuances of the card-authorization process were HP NonStop administrators. Either they would have to be retrained to become familiar with the IBM mainframe, or IBM administrators would have to be retained and trained in the authorization process.

Furthermore, the fault-tolerant NonStop systems had rock-solid availability. It is imperative to the Bank that its ATM and POS networks always be available. If the Bank cannot authorize transactions, retail activity using its services ceases. NonStop servers have field-proven availability that is an order of magnitude greater than IBM mainframes (unless the complex and expensive dual-processor IBM Parallel Sysplex systems are used).

### ***Total Cost of Ownership***

The support and licensing fees for BASE24 had skyrocketed with ACI's sunset announcement. The license fees were tiered and were based on the peak monthly transaction volume experienced during the prior year of operation. Thus, the greatly exaggerated holiday peaks of purchasing activity determined the license fees for all of the next year.

The Bank handled 300 million ATM and POS transactions a month. 90% of them, or 270 million transactions per month, were incoming transactions that flowed through BASE24 from the ATMs of other banks. Thus, BASE24 activity accounted for the majority of the costs of running the Bank's ATM/POS networks.

### **Studying Its Alternatives**

To identify a plausible alternative, the Bank's staff asked themselves:

- Why do we want to migrate off of BASE24?
- What are our options?
- How painful is it to do the migration?

The answer to the first question was very clear and is summarized above. Maintaining the NonStop level of service, retaining the knowledge and experience of the Bank's IT department, and reducing licensing costs while minimizing the risk of the Bank's new approach were paramount drivers in the staff's decision making.

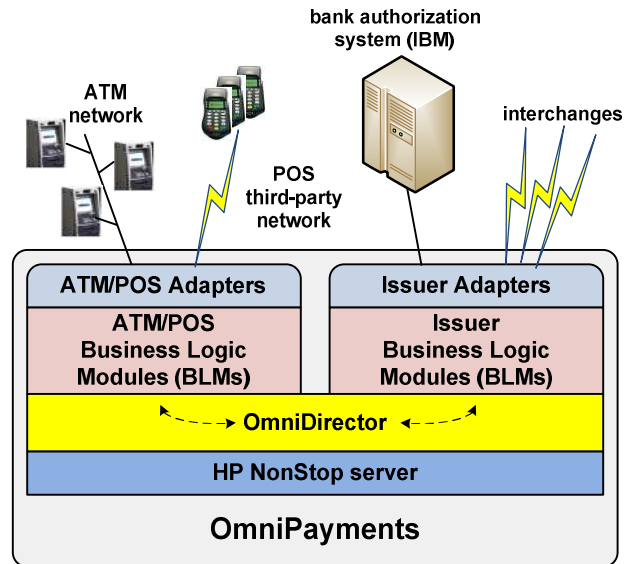
The options were to make a significant investment in BASE24-eps to customize it to the Bank's needs, to move to an IBM mainframe, or to find another NonStop financial-transaction authorization system that ran on NonStop.

All of the options had their degrees of pain. However, the Bank already had a successful and satisfying relationship over several years with Opsol and its OmniATM product. The Bank also was familiar with Opsol's OmniPayments financial-transaction authorization system. The underlying foundation for OmniPayments already was running on the Bank's NonStop servers to support OmniATM, and OmniATM would continue to manage the Bank's ATM network as a core service of OmniPayments.

It was clear that moving from BASE24 to OmniPayments was a viable and minimum-risk solution. The move would retain the NonStop culture of the Bank's IT department. The continued high availability of the Bank's card services through the NonStop fault-tolerant architecture would be preserved. And thanks to OmniPayments' model of licensing based on the number of processors in the NonStop system instead of ACI's tiered licensing model based on transaction volume, this solution could save substantially on the Bank's yearly licensing costs.

### The OmniPayments Project

The Bank's upgraded 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 Bank's OmniPayments Credit/Debit Card Authorization Network  
Figure 2

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 the Bank's ATMs and POS network as well as with its IBM authorization system and transaction interchanges such as Visa, MasterCard, STAR, and PULSE.

Business logic modules, or BLMs, provide the business functions of OmniPayments. They include withdrawal and deposit services for ATMs and mobile devices as well as authorization by the Bank's IBM authorization system and the interchange networks. A BLM is provided to offer stand-in authorization should the Bank's authorization system become unavailable. OmniPayments includes a settlement batch-processing module that exports settlement records to the IBM at the end of each day.

### The Results

OmniPayments was online and working with the first interchange network, STAR, in three months. Within a year, the complete OmniPayments system was online and communicating with ten interchange networks, including Visa, MasterCard, PULSE, STAR, and others. As expected, the risk of migrating to OmniPayments was minuscule as compared to upgrading to ACI's new and different product, BASE24-eps.

The Bank easily made ACI's 2011 sunset deadline and terminated license payments to ACI on the first day of 2012. It continues to run card-authorization services on its highly available HP NonStop systems. Perhaps most importantly, it has significantly reduced its five-year licensing cost by moving 90% of its transaction load to a product whose licensing is insensitive to transaction rates.

### Opsol Integrators

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

OmniPayments offers banks all the requisite functionality to manage credit-card and debit-card transactions. Based on 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.

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