

Enhancing Global Reach for Banks Through Payment Network Solutions

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Abstract: *Banking has evolved through the advancement of digital technologies. Most of the payments processed by a bank are through its digitally enabled channels, such as ATMs, credit cards, and debit cards. However, all these transactions are centrally processed through payment networks. Payment networks form the backbone of banking. This paper aims to discuss the advantages of payment networks for the banking sector and how banks can implement payment network integration and benefit from it.*

Keywords: Shared Payment Networks, Automated Teller Machine, ATM, Credit Card, Debit Card, Master Card, Visa, Amex, Discover

1. Introduction

The evolution of digital banking has been a fascinating journey, shaped by advances in technology and changing consumer expectations.

The advent of Automated Teller Machines (ATMs) in the late 1960s marked the beginning of digital banking. ATMs allowed customers to perform basic transactions like cash withdrawals and balance inquiries without visiting a branch.

The 1990s saw the rise of the internet, and banks began to develop online banking platforms. This allowed customers to access their accounts, transfer funds, and pay bills via the web. Early adopters were mainly tech - savvy individuals and businesses.

With the proliferation of mobile phones in the late 1990s and early 2000s, banks started offering mobile banking services. These early apps were basic and often required users to use their phone's SMS services. The introduction of smartphones and app stores in the late 2000s revolutionized digital banking. Banks developed dedicated mobile apps, offering more sophisticated features like mobile deposits, real - time alerts, and transaction history.

The 2010s saw the rise of fintech startups that offered innovative solutions like peer - to - peer payments [1] [2], robo - advisors, and digital wallets. These companies often provided a more user - friendly experience and leveraged new technologies.

Now, we are seeing the growth of digital - only banks, which operate entirely online without physical branches. These banks focus on offering seamless digital experiences and often have lower fees.

Challenge: Implementing payment networks requires investment, infrastructure, and expertise in the payments

domain. The investment and expertise required to integrate payment networks is often a challenge, especially for small cooperative banks. Even larger banks struggled to implement payment solution integration to enhance their business and increase their customer base. Being compliant with the ever - changing regulations [3] also adds to the complexity of the overall implementation and integration of payment networks.

Solution: Successful implementation of payment network integration requires understanding the messaging structure used by the payment network and developing a system that can parse the message string to process it and respond back in the same format.

ISO 8583 is one such standard messaging format that is adopted internationally. The messaging standard has been upgraded with a new format, ISO 20022.

The message format integration with the issuer bank is complex and requires a lot of testing. The tolerance for transaction failure is almost zero for financial processing systems, and hence testing and maintaining regulatory compliance becomes critical for payment network implementation.

1) Message Simulators:

Using simulators for generating payment messages and transactions is the ideal way to test payment network integration. Mastercard, Visa, Discover, and other payment networks provide proprietary software that can be used to test the integration.

The simulator tools often have in - built test transactions that are automated and can be executed as a test suite to verify transactions.

Payment networks connect ATMs, international debit cards, credit cards, and online e - commerce transactions to their respective issuer banks to settle the transactions in real time.

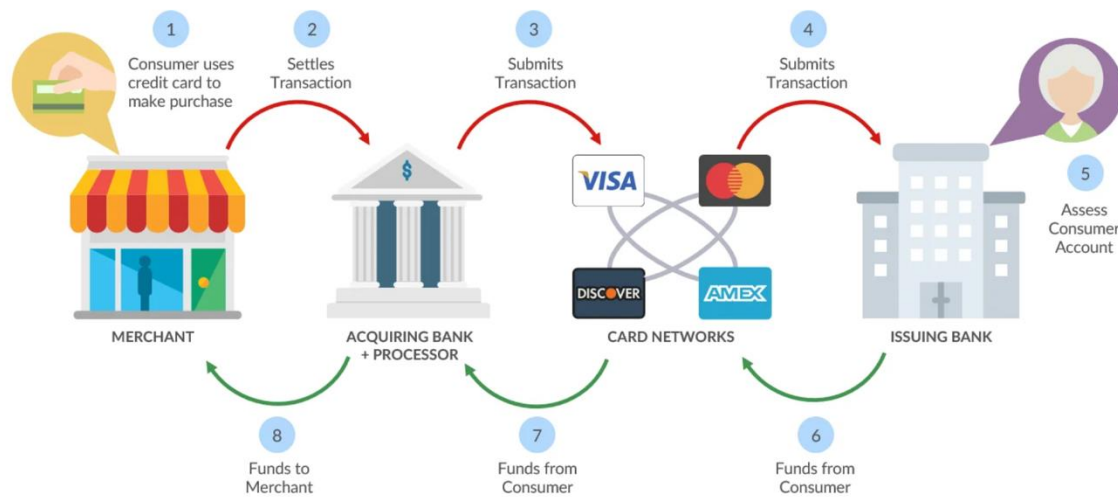


Figure 1 [4]: Transaction flow in a payment network

The use of simulators for validation of payment network integration saves time and money spent on testing, compliance, and certifying activities.

2) Shared payment network (SPN):

SPNs are usually formed by a group of banks to form a network. These networks have the advantage of lower fees per transaction. Many cooperative and small banks often implement and partner with other banks to form a consortium to avoid or reduce paying higher fees to major payment networks.

This worked great for sharing ATM networks. But it was not sufficient to issue international debit and credit cards. The shared payment networks usually issue debit cards that are local to the geography of the bank.

While there is cost savings, the acceptance of these geo-specific cards has constantly declined. But this is still a viable option for small banks to consider based on their budget.

3) Co-branded cards:

With co-branded cards, small banks can tie up with other major financial institutions and issue cards in their name, but the accounts are managed by the issuer bank for a fee.

Small banks always have challenges going completely digital. But shared payment networks and co-branded cards are a couple of ways to provide better services to their customers.

4) Automated Teller Machine (ATM):

Another aspect of using payment networks is the use of ATMs. Implementation of ATM networks is another challenge, especially for cooperative banks and small banks.

ATM implementation involves network testing, failure transaction recovery, and device testing. While the simulators discussed above can help in testing, the cash dispensing mechanism, testing of the divert bin in case of transaction failure, and functioning of the ATM in case of network interruptions require knowledge of the ATM switch and its integration with the ATM's connected to it.

A lot of negative testing is required for ATMs. There are a number of scenarios to test, and most of the ATM testing cannot be automated. Testing an ATM machine requires an engineer to be present in person to perform most of the testing and certifying tasks.

Banking institutions need to accommodate this effort in their planning phase.

5) Point of Sale (POS):

One of the most used devices that's integrated into payment networks is the point-of-sale machine. POS testing and validation can be done by simulators. However, there is a lot of manual testing involved to verify the card stripe reader, chip reader, domestic and international card transactions, and network failures.

2. Conclusion

Payment networks are crucial in today's economy. Payment networks enable the electronic transfer of funds between individuals and businesses, making transactions faster, more secure, and more convenient than cash or checks. They provide a standardized way to process transactions across different countries and currencies, facilitating international trade and travel.

Though there are challenges to implementing and integrating these complex networks, the banks have various options to choose from and implement these networks for the benefit of their customers and to increase their business growth.

Based on the size and financial ability of the bank, they could choose full network integration with their core banking system or choose co-branded cards and shared payment networks as described in the paper to increase their global reach.

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