

Three Delivery Models for Card Processing

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Banks should re-evaluate their delivery models as they prepare to modernize their payment operations. Some of the delivery model options have existed for a long time, while others are new and undergoing initial implementations, but hold great promise.

Key Findings

- Many banks are considering changes in delivery models for card processing/servicing as part of a payment modernization strategy.
- There are three delivery models for card processing: (1) licensed software; (2) third-party card processing; and (3) application platform as a service (APaaS).
- Licensed software is delivered as an in-house solution and enables banks to have full control of their data.
- Third-party card processing is an outsourcing solution that enables banks to avoid the capital expenses of acquiring new payment systems/services.
- APaaS is a new delivery model that can be implemented on a continuum that ranges from third-party processing to in-house deployment. It enables banks to cost-effectively create, manage and/or sell customized, payment-specific products and services.

Recommendations

- Evaluate the strengths and weaknesses of your card processing delivery models and identify gaps.
- Avoid selecting an independent software vendor (ISV) or third-party card processor that doesn't have plans to adapt its software to be consumable as software as a service (SaaS), or componentized so that end users can create customized solutions in conjunction with software from other vendors.
- Consider APaaS as an attractive way to implement applications and services for the payment services hub because of its customization capabilities and potential revenue generation opportunities.
- Don't select a vendor that has no plans to support APaaS, if you're looking to drive revenue from payment services that you create as part of a payment services hub implementation.
- As many software and SaaS providers confront system update issues and replatforming, evaluate the product road maps of card processing vendors to understand their plans for APaaS.

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ANALYSIS

1.0 Overview

Banks in many regions of the world are preparing to make substantial changes to their payment systems. There are many reasons for this, including:

- Market volatility
- Regulatory change
- Account and transaction volume growth (in emerging markets) or decline (in established markets)
- The desire to leverage payments as a growth engine
- The need to contain costs
- The need to improve existing technology systems

As an overarching theme, banks are preparing to modernize their payment systems. However, banks as a whole aren't going one way or the other with their delivery models for card payment operations. Some banks are looking to bring portions of their card processing operations back in-house, while others are looking to strategically outsource various aspects of their operations. Most banks would like to implement a mixed approach, taking control of some aspects of their systems while outsourcing others.

2.0 Scope of This Analysis

The scope of this analysis is card processing for issuers. The analysis is global and applicable to all major regions (North America; Latin America; Europe, the Middle East and Africa; and Asia/Pacific).

3.0 Defining Retail Card Payments

Functions performed by retail card issuers include all activities to win a customer and support the card throughout its life cycle. This includes at least the following:

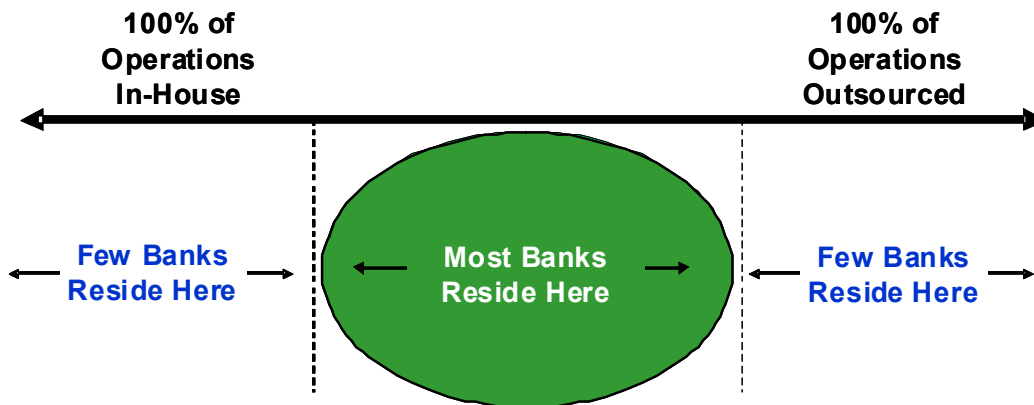
- **Card marketing:** Marketing programs, campaigns, mailings and online communications.
- **Origination:** Application processing, customer profiling, scoring, credit-bureau integration and account setup.
- **Card issuance:** Provisioning the physical support of the payment instrument: plastic card printing and embossing; personalization; credential (PIN, chip configuration) generation, integration and management; distribution; and activation.
- **Product management:** Types of cards (*card scheme*: Visa and MasterCard; American Express, Discover, Diners Club International and JCB; *account types*: credit cards, automated teller machine [ATM]/debit cards, private-label cards and prepaid cards; *purchase cards and product rules*: fees, transaction limits, allowed transaction sets, validation rules, attached loyalty programs, payment cycles, credit/debit card association compliance, Europay-MasterCard-Visa [EMV]-compliant chip cards, and market segmentation).

- **Relationship management:** Systems of records of payment products, and customer and account management; customer service; statement production and communication; collections; dispute management; renewals; and replacements.
- **Operational risk management:** Key management, fraud prevention, anti-money-laundering, EMV-compliant card updates and business continuity. Also, dealing with suddenly nonconvertible currencies and problems with cross-border capital flow.
- **Transaction management:** Channel delivery (point of sale, ATM, Internet), authentication, authorization, switching and settlement.
- **Portfolio management:** Financials and governance: key metrics (activation rate, transaction cost, transaction fraud and exception cost), analytics and modeling; and the response analytics of product marketing, deployment and sales.
- **Payment information value-added services (PIVAS)** to support increased card usage and loyalty (merchant funded, direct to customer); includes aggregated, immediate individual, retrospective individual and hybrid PIVAS.

4.0 The Continuum of Card Payment Operations

The card payment operations required to execute these activities lie on a continuum for most banks, with insourced operations at one end of the spectrum and outsourced operations at the other end. Most Tier 1 and Tier 2 banks do not fall at either end of the continuum, but rather outsource some of their card payment operations and keep some of their card payment operations in-house (see Figure 1).

Figure 1. Card Payment Operations Are on a Continuum



Source: Gartner (December 2008)

For example, many banks choose to outsource transaction processing. This is a high-volume, low-differentiated value process. However, many other banks choose to keep origination and card issuance in-house, where volumes are lower and the capability to differentiate is higher.

5.0 Three Delivery Models

Banks have three primary delivery models from which to choose with their card payment operations:

- Licensed software

- Third-party processing
- APaaS

Each of these delivery models is defined in detail after Table 1, but each delivery model's strengths and weaknesses are summarized here:

Table 1. Strengths and Weaknesses of Card Processing Delivery Models

Delivery Model	Strengths	Weaknesses
Licensed Software	<ul style="list-style-type: none"> • Control of parameterization • Faster time-to-market with new products • Data control 	<ul style="list-style-type: none"> • Higher capital expense • Updates/upgrades challenging • Higher burden of operations
Third-Party Card Processing	<ul style="list-style-type: none"> • Lower capital expense • Managing regulatory change, card network mandates • Frees resources to focus on strategic IT, differentiating processes 	<ul style="list-style-type: none"> • Platform enhancements, customization barriers • Lack of control • Multiyear, projected accounts pricing model
APaaS	<ul style="list-style-type: none"> • Customization and segregation of systems • Control • Delivery model flexibility • System management relief (through rolling versioning) 	<ul style="list-style-type: none"> • Emerging technology and not yet proved • Lack of industry-specific vendor solutions

Source: Gartner (December 2008)

5.1 Licensed Software

5.1.1 Definition

Licensed software that supports end-to-end card management and processing (for example, ACI Worldwide and Postilion) typically is installed on-site at the bank and supported by the IT department. In today's market, many banks leverage a combination of licensed software and third-party processing. The licensing model of card management software often is based on volume — for example, the number of accounts. A maintenance fee is charged to support updates.

5.1.2 Strengths

The strength of modernized licensed software is the capability of card management software to enable change at the business analyst level through parameterization, as opposed to coding. Some, but not all, card management software solutions have a modular design and a flexible, rule-driven environment that enable clients to implement customizable environments (see "MarketScope for Multiregional Card Management Software" for details). Together, these two things provide faster time-to-market with new products and the capability to support more-rapid change.

Using licensed software provides an enhanced capability to leverage data for value-added purposes, which is key to the future of payments (see "Payment Information Value-Added Services: The Cornerstone of Customer Loyalty").

5.1.3 Weaknesses

Licensed software includes higher upfront capital expenses for implementation. The impact of the financial crisis on some banks means that they don't have this capital to spend. The flexibility and capability to configure and customize card management software can become challenging during updates and upgrades, often making them more time-consuming and expensive to execute than banks would desire or expect.

Licensed card management software that's managed in-house also places a higher burden on internal IT resources. For example, some banks are struggling to focus on more-strategic IT initiatives in payments (such as PIVAS) because their time is consumed in running daily operations.

5.2 Third-Party Card Processing

5.2.1 Definition

Third-party card processors (for example, First Data, TSYS [Total System Services]) use an off-premises delivery model to manage some or all card payment operations on behalf of a bank. This is performed through the third party's technology platform, by leveraging card management software from an ISV, or a combination of both.

5.2.2 Strengths

Third-party card processing enables banks to avoid the capital expense of acquiring a licensed software application. This can be attractive for banks that are struggling with balance-sheet capital, yet need to make technology or other changes to their card payment operations.

With card processing, banks can rely on the third-party processors for regulatory change (such as the Single Euro Payments Area — SEPA) and card network mandates (such as Visa's Payment Application Best Practice — PABP). This is also the case with licensed software, although licensed software requires the IT organization to implement the updates as soon as they're sent from the vendor (whereas, with card processing, this is seamless to the IT organization). Leveraging a third party to manage various aspects of card payment operations also enables the bank to remain focused on differentiating processes, and on the modernization of their payment operations (for example, payment governance and the payment services hub).

5.2.3 Weaknesses

Because of the "one to many" model of third-party card processing, time-to-market delays with product enhancements and/or customizations are frequent. In addition, lower-volume issuers generally find it difficult to get the product enhancements they need if their requirements diverge from larger issuers that have more accounts with the card processor.

Most of the applications used by card processors are either mainframe-era monolithic applications or network-era distributed client/server applications. Few are service-oriented-architecture-era integrated/composite applications, and even fewer are cloud-era solutions as a service. For customers with segmented environments, customization can be difficult to manage during version updates/upgrades.

Banks frequently complain about the pricing model of third-party card processing. Pricing generally is based on the number of accounts, and is a multiyear contract. Banks must estimate the number of accounts during this period of time and sometimes pay for more accounts than they really have. This issue is particularly acute in emerging markets, where banks are experiencing rapid growth rates and struggling to estimate their future number of accounts beyond a 12-month period.

5.3 APaaS

5.3.1 Definition

APaaS has the potential to offer banks the best of the software and the third-party card processing worlds.

Cloud platform technology includes programmable environments and provides programmatic access to cloud-based computing resources at multiple levels. Pure APaaS is an in-cloud platform for the development and deployment of new cloud application software (see "Cloud, SaaS, Hosting and Other Off-Premises Computing Models"). As they mature, payment-specific APaaS solutions (for example, TxVia) for card processing should enable bank and nonbank payment providers to leverage template libraries and deploy custom solutions without the burden of application development and system management.

APaaS is an emerging technology in card processing. In fact, it is so emergent that few payment-specific APaaS solutions or frameworks exist. Banks that desire to adopt APaaS for card processing can therefore leverage:

- **A non-industry-specific APaaS vendor** — for example, Bungee Labs and Rollbase — see "The Impact of SaaS on Application Servers and Platforms." Non-industry-specific APaaS provides banks with strong in-house development capabilities to begin designing or building some of the services required for the payment services hub through the cloud. Payment services can be developed, tested and deployed through APaaS with the cloud service provider supporting the environment.
- **A payment-specific APaaS** — for example, TxVia. Payment-specific APaaS provides banks with customized and segregated processing platforms that they can control in various respects, if they choose. Over time, even well-established, payment-specific providers should leverage a SaaS-enabled application platform (SEAP — if more control is desired) or APaaS from another vendor (if less control is desired) to provide a cloud-based framework. (A SEAP is an on-premises programmable platform for the deployment of new cloud application software.) This framework would provide a set of applications and services that banks can use to customize (through configuration or other models) and create new services/applications.

APaaS can be used in three different ways for payments (see "Cloud Computing Technologies Provide New Opportunities in Payments"):

- **APaaS (or SEAP) service providers to banks:** Banks can leverage SEAP or APaaS service providers directly to custom build (SEAP) or obtain customized (payment-specific APaaS) payment services and applications.
- **Payment providers to banks:** Payment providers (ISVs, processors, business process networks — BPNs) can leverage or build a payment-specific SEAP (if they want more control of the platform) or APaaS (if they want less control of the platform) to provide APaaS to their banking customers so that they can leverage and customize frameworks/services.
- **Banks to other banks:** Banks can create payment services and applications by leveraging APaaS (or a SEAP) and then marketing these services/applications to other banks.

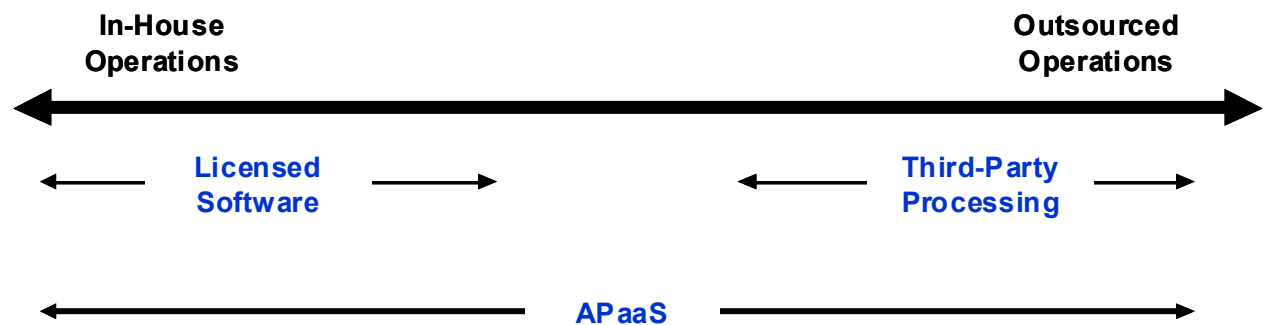
5.3.2 Strengths

APaaS enables deep customization capabilities for banks, which is desperately needed. When banks leverage a licensed application, the general hope is that the application will meet 80% of requirements, and the bank will only need to customize the other 20%. In reality, most banks (especially large ones) customize much more of the application than 20%, especially over time. Similarly, the third-party processing delivery model restricts customization; banks often must wait until the vendor decides that enough customers are interested in the customization to proceed with it.

With APaaS, these challenges are overcome. Banks can customize the framework, applications and services through configuration or other models. Banks also can create their own applications and services. This control enables agility, as well as the capability of banks to more-easily specialize in their individual areas of competitive strengths.

These capabilities also enable delivery model flexibility that previously was not possible. At times, banks desire to outsource more of their operations. At other times, they desire to have more control of their operations. With APaaS, banks can do the customization or service creation themselves, or they can have the vendor do these things. In other words, banks can move fluidly among the delivery models as they choose (see Figure 2).

Figure 2. Delivery Model Flexibility Comparison



Source: Gartner (December 2008)

The capability to use APaaS to create services and applications, and then provide them through an exchange, is "game-changing" for banks that actively deploy payment service hubs. Banks can leverage a framework and customize it to fit their needs. Then they could drive revenue from the service if this is desired. In this way, early adopters of the payment services can benefit from having a first-mover competitive advantage and from revenue generation.

With more pure, cloud-based computing offerings, pricing models are based on on-demand and metered quantities. Although this still means that card processing vendors price by the number of accounts for an APaaS offering, pricing also could be by transaction volume. Transaction volume is more attractive to most usage-based vendors because, in card payments, transaction volume is growing globally, while account growth is stagnant in established markets (but growing in emerging markets). This would enable banks to pay for what they use, rather than what they *think* they will use. However, processors may continue to force banks to make forward projections, even as they relate to transactions.

APaaS enables rolling versioning, whereby all customers are automatically upgraded to the latest version (which is possible even when a customer has customized the system using parameters and models, as opposed to code). This simplifies the process of system updates.

With APaaS, the third-party provider can handle system management, thereby relieving banks of this burden. This enables banks to remain focused on their core competencies.

5.3.3 Weaknesses

APaaS is an emerging technology. Currently, however, it is underdeveloped, and there is a lack of vendor solutions (particularly payment-specific solutions) in this space (TxVia being an exception). The lack of payment-specific solutions is a barrier to adoption, for reasons ranging from an increase in customization work for banks (if they adopt a non-payment-specific solution) to a lack of infrastructural support for payment-specific security standards.

With other outsourcing and processing types of contracts, subscription costs tend to increase over time. This may occur with some APaaS solutions as well, and would strengthen the initial total cost of ownership analysis and business plan, but weaken the return on investment over time.

The risk of vendor lock-in is higher with APaaS because standards haven't yet emerged for SaaS-enablement and multitenancy of application platforms (see "Introducing SaaS-Enabled Application Platforms: Features, Roles and Futures"). However, developing this type of environment in-house will likely carry the same risks, and at higher costs (see "Hype Cycle for Software as a Service, 2008"). In addition, this risk can be mitigated with customizable integration capabilities, combined with a vendor commitment to open standards and technologies, which provide a path to future industrywide standards.

6.0 Bottom Line

The coming years will see significant changes in the delivery models used for card processing, with banks desiring more delivery model flexibility. ISV and third-party card processing solution providers should have a strategy to disaggregate functionality into component-based constructs that could be consumable on an APaaS. They also should separate the business component software from the platform technology in their applications so that the platform can be exposed as an APaaS for the extension of applications, and for new development. BPNs eventually may be providers of payment-specific APaaS solutions because of the commoditized nature of payments. This could include things like an application exchange, user interface as a service, logic as a service, integration as a service, database as a service and development as a service. ISVs could provide services on top of this platform that banks can mix and match as needed.

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