

# CELENT

## PAYMENTS-IN-THE-CLOUD

NAVIGATING STRATEGIC CHOICES

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This report was commissioned by Temenos, at whose request Celent developed this research. The analysis and conclusions are Celent's alone, and Temenos had no editorial control over report contents.

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## EXECUTIVE SUMMARY

The very first paper Celent wrote about the opportunities for core payments to be processed in the cloud was written over a decade ago. While we believed it to be an option for leading banks, we didn't believe that it was science fiction, happening far into the future. We expected adoption over the next few years! Rolling forward to 2020, it feels as if we genuinely are on the cusp of a significant change in how payments are processed, as it seems that every payment services hub vendor and bank is speaking about payments in the cloud or payments-as-a-service. But we're not there yet, and certain issues persist.

Previous Celent reports have outlined the many benefits cloud *could* bring. A non-exhaustive list includes scalability, agility, cost, security, and future proofing. However, it's probably fair to say that while many banks will subscribe to many of these *on paper*, most banks, if not all, have heard stories where these benefits have either not quite been accrued, or some other horror story. Yet banks shouldn't be surprised or scared by these — if you're at the leading edge, there will be all sorts of things that didn't go to plan or that you learn along the way.

Unfortunately, from conversations Celent is having, it does feel as if banks today may not have learnt from those early adopters. Furthermore, it feels as if the challenge of getting it right is perhaps even harder now. For example, a quick look at the industry highlights that both banks and vendors are often using similar (or even the same) terms to mean quite different things. They refer to some concepts in quite different ways, yet they are the same.

As a consequence, Celent's goal here is to highlight those areas where banks need to pay close attention, to ensure that the benefits above are attained. In addressing the differences, we may not always be able to provide a clear-cut answer. That is the point — if it isn't clear, then that raises a flag that the bank needs to dig into the details. A bank will need clear answers on every aspect, but the first step is to understand what questions to ask and why.

First, there are four key areas where choices need to be made and the nuances of each must be considered. Furthermore, we highlight that banks need to be aware that there are also links between areas, and that their order of priority and weighting will have implications. The second part is then mapping out some of the myriad options, highlighting how they differ and what the consequences are of that choice, both positive and negative. Banks will have a clearer understanding of how choices in the first part will define what choices they have in the second part. It is critical to have a clear vision about what they want to achieve, both today and in the future. For example, the lowest cost is likely to be achieved only with a "one-size-fits-all" solution. Is a bank willing to trade cost for differentiation?

We outline four broad areas where choices will need to be made, and highlight just a few of the considerations. These alone should show why a bank needs to be careful.

The four areas are:

- **Payment Solution Cloud Readiness**  
To fully benefit from cloud, the solutions will need to have been built utilizing cloud technology. This may seem obvious, yet not all solutions would seem to have been truly built this way but rebuilt from previous versions. Further, there is likely a difference between how they use the terms cloud ready, native, agnostic, and independent.

- **The Type of Cloud**  
While they want the benefits of public cloud (multitenant), equal risk and security concerns often mean they think they want the solution to themselves (single tenant, private cloud), and with no data leaving the country (sovereign cloud). All these variations offer different benefits, and the choices are often the largest contributing factor to why some banks feel that cloud hasn't delivered all the benefits that it promised.
- **Who Runs What**  
Some of the options are effectively similar to being on premise, but "just" running on someone's "tin," through to where it's very close to outsourcing of the payment operations.
- **The Scope of the Arrangement**  
It is easy to see that the vendor could provide additional services, from repairs to operations. We call it out separately from the previous question as there are many implications. For example, who is liable for what? What are the regulatory implications in terms of liability? What are the implications for current and future staffing?

All of these are things that many banks, and indeed, businesses globally, have addressed before. However, they are all things that a bank needs to consciously be aware of, and banks must decide what the implications are for them.

Why does this matter?

At first glance, there would seem to be only a limited number of variations possible, yet there seem to be a growing number of solutions offered that have many of the same elements, or ingredients if you will, but that seem to result in quite different outcomes. In one week at Sibos in 2019, we heard more than a dozen different variations, and as previously noted, we know some vendors mean quite different things even when they use the same terms!

Starting then with what the banks wants, rather than what the solution is called, is critical. To do so, two elements need to be clear for the bank: What are they trying to achieve through adopting cloud; and what are the banks expecting to buy, and from whom? The simplest way to think about this is as a decision tree. A choice between two items will start to narrow the choices, and by thinking these through, a solution checklist will emerge.

There are some other aspects that play into the discussion, in particular, the view of the bank as to how the market may evolve. For example, there are some differences of opinion as to what size of bank the solutions are most suitable for. Big banks will demand more configurability, while smaller banks are likely to be pushed toward very standardized, self-service solutions. This, in turn, suggests prices (and pricing) approaches might differ. Banks are typically fast followers, but someone has to go first. Making sure you follow the right bank, to the right solution, that evolves in the way you expect it to, will be critical yet difficult.

Consequently, while Celent firmly believes that cloud plays a key part in payments processing, we are also aware that the market of today is unlikely to be the market of tomorrow. Having guiding principles will ensure that the best possible choice will be made both for today and tomorrow.

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## INTRODUCTION

2019 was the year that it seemed that every payment services hub vendor and every bank spoke about payments in the cloud or payments-as-a-service. At face value, Celent is glad. The very first paper we wrote about the opportunities for core payments to be processed in the cloud was written over a decade ago. At that time, cloud was far less established than it is today, but equally, banks were already adopting cloud-based CRM systems, large stock exchanges were using it to crunch large data sets, and a second version of PCI DSS requirements for processing cards in the cloud had been released. While we believed it to be an option for leading banks, we didn't believe that it was science fiction, happening far into the future. We expected adoption over the next few years! Roll forward to today, and it feels as if we genuinely are on the cusp of a significant change in how payments are processed.

Previous Celent reports have outlined the many benefits cloud *could* bring. A non-exhaustive list includes:

- **Scalability.** Cloud allows the solution always to be “right-sized” and grow as demand requires. Equally, it can scale back when not needed. No longer should there be a need to invest in unused capacity, especially when 90% of capacity is typically idle for 90% of the time in many banks' payments systems. Cloud offers a significant saving. It also allows for banks to maintain and improve Straight-Through-Processing (STP), especially as ISO 20022 messages are adopted. (ISO 20022 messages are often significantly larger in size than equivalent legacy messages).
- **Agility.** Cloud enables banks to innovate and create tailor-made solutions for their clients, using standard building blocks, at a much lower return on investment (ROI) for the new services. Furthermore, not only can the solutions be rolled out “on the fly,” but the platform itself can be updated in real time as well. It means the end of downtime and being trapped with old versions of software.
- **Cost.** In effect, someone else has already invested in the technology stack to make it work, and ongoing investment costs are shared by all the users. The maintenance and support of that technology and ongoing upgrades are also part of that cost. Not only that, given the competition in the cloud solution space, that investment is significantly higher than any one bank could ever make.
- **Security.** The cloud vendors have invested significant sums of money in meeting all the necessary regulatory security standards, and the regulations that banks face. With the cloud, security will be stronger and more sophisticated than any one single bank could devise.
- **Future Proofing.** Change, as the saying goes, is constant. The opening section discussed the likely impacts of the changes we're already facing, but how do you plan for their downstream consequences, or indeed, those we can't even imagine?

It is probably fair to say that while many banks will subscribe to many of these benefits *on paper*, most banks, if not all, have heard stories where these benefits have either not quite been accrued, or some other horror story. In reality, many of these instances are because the party concerned didn't fully understand the implications of some of their choices. This is not a criticism, but a consequence of being market leaders. Put simply, they were learning what they didn't previously know or correctly understand.

Unfortunately, from conversations Celent is having, it does feel as if banks today may not have learnt from those early adopters. Furthermore, it feels as if the challenge of getting it right is perhaps even harder now. For example, a quick look at the industry highlights that both banks and vendors are often using similar (or even the same)

terms to mean quite different things. Equally, they refer to some things in quite different ways, yet they are the same.

As a consequence, Celent's goal here is to highlight those areas where banks need to pay close attention, to ensure that the benefits above are attained. In addressing the differences, we may not always be able to provide a clear-cut answer. That is the point — if it isn't clear, then that raises a flag that the bank needs to dig into the details. A bank will need clear answers on every aspect, but also need to understand what questions to ask and "Why?" is the first step.

We do this in two stages. The first is understanding four key areas where choices need to be made, and the nuances of each. Further, we highlight that banks need to be aware that there are also links between areas, and that their order of priority and weighting will have implications.

The second part is then mapping out some of the myriad options, highlighting how they differ and what the consequences are of those choices, both positive and negative. Banks will have a clearer understanding of how choices in the first part will define what choices they have in the second part.

First though is a critical piece that all banks should — but often don't — address: What are they trying to achieve?

## HEADING OFF IN THE RIGHT DIRECTION

Many clients quote a Chinese proverb when they start looking at cloud. In thinking about how they start, they say:

*“A journey of a thousand miles begins with a single step.”*

Its shorthand for saying that they have to start somewhere, and that what they do first is unlikely to be their final destination. This isn't surprising — it is after all, a big step.

But, to play on that metaphor, Lewis Carroll's quote is even more apt:

*“If you don't know where you are going, any road will get you there.”*

That is, any first step is best taken with at least a rough idea of where you wish to travel to. It perhaps sounds strange, but often the banks we speak with are less clear sometimes about what their final destination looks like. Celent believes there are two critical elements.

First, is a mid- to long-term strategy for payments. This encompasses not just what may happen in payments, such as the need for a Wire replacement program or that a specific payment type will grow or disappear. This may seem obvious, but not every bank has this, especially outside of operations.

Second, what do payments mean to their bank, across a range of different lenses? A bank that considers payments to be a utility that has no differentiating value will view the various options quite differently than a bank that considers them to be a large revenue driver and opportunity. This is often somewhat harder to agree on, as it does require a more strategic and holistic viewpoint. Payment operations in banks are often quite siloed, and so getting a consistent viewpoint is not as clear as it might seem. Furthermore, it does require at least some view of cost and revenue. For example, are the indirect revenues payment revenue or deposit account revenue? An example is net balance income, which is typically associated with a debit card, but provided automatically as part of a deposit account? This is a topic worthy of a paper in its own right!

But it highlights the broader issue. Many banks consider moving to the cloud will be cheaper. Yet unless the bank understands the different types of costs and their drivers, it's unlikely you'll accurately assess if this is true before moving, and very likely the bank will always have a feeling that it didn't deliver the savings anticipated.

Even more importantly, low cost may not be the correct lens to view a solution through. Celent believes that the lowest cost solutions will be those that operate at scale. To do so, the provider will standardize as much of the solution as possible, and will focus on, well, cost. As a result, the bank may have the cheapest solution possible, but will it match what the bank already provides, and how will it manage customers' expectations? For a small retail bank that is focusing on, say, consumer deposits and lending, that may not be an issue; for a bank that wants to differentiate its digital experience or wants to compete with value-added payment services, it may actually cost them more to deliver — if they are able to deliver it at all.

## FOUR DIMENSIONS OF A BANK'S CLOUD STRATEGY

There are four areas in particular that, when considered together, tend to define what type of solutions a bank ends up with. These are:

- Payment solution cloud readiness
- The type of cloud
- Who runs what
- The scope of the arrangement

We have laid the dimensions in the probable order of importance, but this is not set in stone. Our assumption is that the solution fit is the absolute determinant — after all, why would a bank buy a solution that didn't do what it needed? The wrong system is the wrong system however it is deployed! Instead, these are additional requirements that help shape the RFI and in turn, which vendors will be shortlisted.

### PAYMENT SOLUTION CLOUD READINESS

There is a mild irony in the title of this section that underlines the point of this section — what do we actually mean by “ready,” in a section about readiness? Many solutions describe themselves as ready, as well as native, agnostic, enabled, independent, as well as a myriad of other terms. Banks need to ask themselves (and the vendors) what this actually means. To fully benefit from cloud, the solutions need to be built utilizing cloud technology. This may seem obvious, yet not all solutions have been truly built this way — rather, they have been rebuilt from previous versions. This is not a technical paper, but understanding some of the process to being able to execute on the cloud will help the banks understand the nuances, and why they are so important.

Figure 1 summarizes at a high level the differences between solutions that have been cloud enabled versus those that are cloud native.

Figure 1: High-Level Differences Between Cloud Enabled and Cloud Native

Topic	Cloud Enabled	Cloud Native
Design	<ul style="list-style-type: none"> <li>• Modify systems that were designed to be locally hosted</li> </ul>	<ul style="list-style-type: none"> <li>• Designed to be deployed in the cloud using microservice design principles</li> <li>• No modifications needed</li> </ul>
Scalability	<ul style="list-style-type: none"> <li>• May be limited to server capacity, or require specific configuration to scale</li> </ul>	<ul style="list-style-type: none"> <li>• Performed automatically</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>• Must be customised to the installation environment</li> <li>• May require specific configuration</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance and updates can be applied automatically without interrupting service</li> </ul>
Redundancy	<ul style="list-style-type: none"> <li>• Requires specific contingency planning</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity is always available</li> </ul>

Source: Celent

Cloud-enabled solutions are just that — solutions that have been “lifted and shifted” to the cloud, with the use of containerization. This delivers some of the benefits, but how much depends on how the containerization is done. The best way to containerize (also known as the “clean” approach), is to refactor the legacy app into modules, allowing it to work in a microservice environment. Refactoring isn’t the same as recoding. While not every line needs to be recoded, refactoring is just effectively dividing and chopping up code. These applications haven’t been adapted from their original single machine or on-site server architecture, and so can’t take advantage of the many capabilities that cloud brings.

Dirty containerization is even more basic and crudely consists of taking the entire legacy app and putting it into a single container, making the necessary adjustments required for it to operate in a container environment.

Cloud-native applications, on the other hand, are applications that have been rewritten with microservices, multitenancy, and elasticity in mind, designed from the ground up to natively incorporate the advantages of cloud architectural components. There are two implicit aspects to this.

First, the vendor has had to re-write the application. That takes time and effort, and requires a view of the technology going forward.

Second, that view must include a greater focus on how they’re going to support the product going forward. This may sound obvious, but it’s worth highlighting. Software versions will no longer exist as a concept, as there will be a continual stream of updates that are automatically released. Many banks are undertaking this replacement program because they’re locked into an old version of their software with no easy upgrade path. Furthermore, testing requirements, always a complex and costly process, are considerably reduced and can be largely automated.

Celent believes that there is a level more advanced than cloud native. Many vendors will state that there’s no further tweaking necessary to make them work in the cloud

as they were born to be there and function smoothly and cleanly in that environment. That is largely true, but some solutions have been built using one specific cloud provider's technology. Not every cloud runs in the same way, or using the same technologies. Consequently, while the solution may be cloud native, it will run less optimally on a different cloud solution, and may not run without some additional software, across multiple cloud solutions. The reasons why this is potentially important are discussed below.

## THE TYPE OF CLOUD

Aside from the various providers, there are a few other distinctions worth noting. First, how they can be deployed. This varies from true, multitenanted cloud to private, sovereign cloud (that is, only a single user, with the data residing in a specific, single country). Although those areas are relatively well documented and understood, there is often a disconnect between what the banks want and what they think is acceptable! Risk and security concerns often mean they think they want the solution to themselves (single tenant, private cloud), and want to ensure that no data leaves the country (sovereign cloud). All these variations offer different benefits, and the choices are often the greatest reason why some banks feel that cloud hasn't delivered all the benefits that it promised. For example, private sovereign cloud simply cannot deliver the same cost benefits as public multitenant, since in essence you're paying someone to replicate the "tin" that you already have.

Bigger banks are also starting to think about multicloud (that is, two or more cloud providers), with splits both horizontal (that is, with different components spread across both solutions) and vertical (where the solutions operate in an active:active configuration). There are a number of reasons to consider these approaches.

First, risk might well be a consideration. It's not just that the provider may have an outage, but there are other political risks as well, as recent sanctions and trade wars have shown. This isn't to say that it will happen, but banks need to have at least thought about the risks that exist.

Second, the tools and features of the cloud solutions do differ, as do their pricing. Ensuring that the spread across the clouds may create some opportunity for optimizing the spread of work.

Third, banks may wish to either avoid "lock in," or take a more holistic view of provider choice. The former is interesting. In many recent conversations, many referred to an unnamed fintech that had built their solution on one of the well-known cloud providers. The story goes that the fintech was wildly successful, and grew rapidly, but as they grew, so did their bill from the cloud provider. While unnamed, a brief search for cloud + sticker shock brings up many results and similar stories.

There are many reasons for this that we won't explore here, but a key one is the volume of data processed, generated, and stored. The "lock in" that many describe is the fact that many cloud providers include a "data egress charge," which makes it even more expensive to remove data from the cloud.

## WHO RUNS WHAT

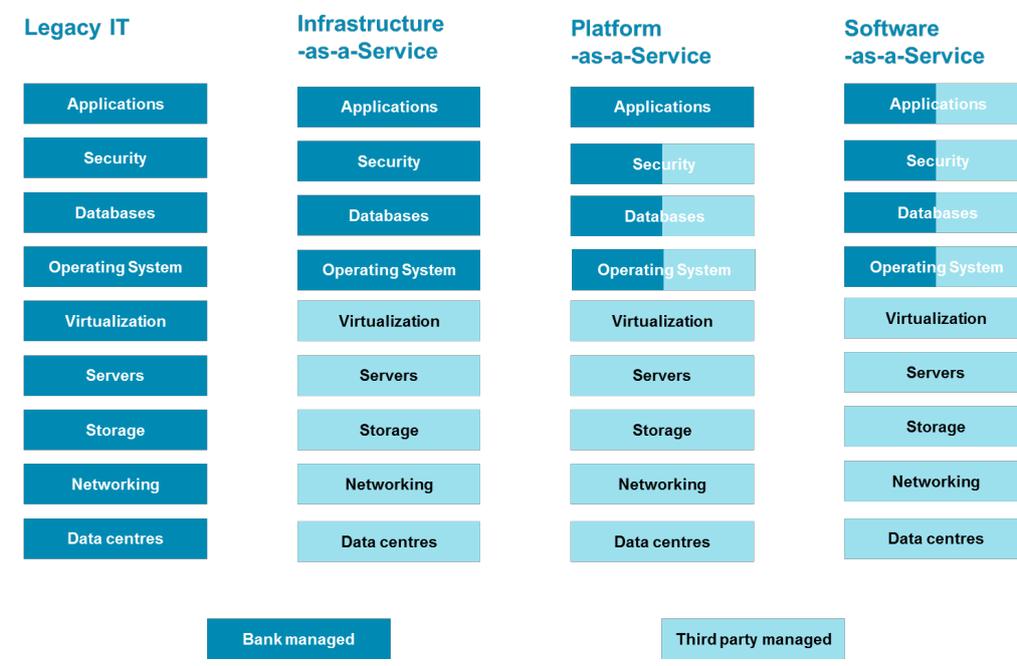
Many people will be familiar with some of the basic concepts. Traditionally there have been three main flavors:

- Infrastructure-as-a-service. Crudely, this is a third party providing all the necessary infrastructure, either "bare metal" or with a set of virtual servers. The financial institution manages everything, from applications to the operating system.
- Platform-as-a-service. Here the supplier manages much of the service, but the financial institution manages the applications, and consumes them on demand.

- Software-as-a-service. Here the application is run in the cloud by the solution provider, while the financial institution consumes the software without needing to be involved in the infrastructure at all.

Figure 2 shows some of the differences.

Figure 2: Banks Can Utilize Different Flavors of Cloud



Source: Celent

These descriptions however don't reflect the true complexity of how the market is evolving. For example, if a solution provider has partnered with a specific cloud provider, some of the above start to blur. Today, when it is working, that's fine; but it matters when there is an issue regarding understanding who has what responsibility to whom. There are several recent cases that highlight the need to understand this in detail.

The main reason for highlighting is that a number of vendors are offering "Payments-as-a-Service," and also offer some limited additional services. This is probably best described as Managed Service-as-a-Software since they are offering some operational aspects in addition to the software provision. We believe that many of the misunderstandings will come from conflating *management* of the software with managing the *operations* that use the software. Given that payments need to integrate with so many other parts of the bank, it may become quite difficult to determine which operations fall into which of those two services.

### THE SCOPE OF THE ARRANGEMENT

Given the range of options, it is easy to see that the vendor could provide additional services, from repairs to operations. We call it out separately from the previous question because there are many implications. For example, who is liable for what? What are the regulatory implications in terms of liability? What are the implications for current and future staffing? The latter is particularly important, and often overlooked. It's not only whether the bank has the skills to operate something in the cloud, but also if the bank moves to PaaS, there is a likelihood that it will lose those skills inhouse. In effect, it is a one-way street, where it is difficult to reverse direction and back up.

None of the issues discussed in this report are things that many banks — and indeed, businesses globally — haven't addressed many times before. However, they are all issues that a bank needs to consciously consider in order to evaluate what the implications are for them.

## SIMILAR INGREDIENTS, BUT CREATING MANY DIFFERENT FLAVORS

At first glance, there would seem to be only a limited number of variations possible, yet there seem to be a growing number of solutions that have many of the same elements, or ingredients if you will, but that seem to result in quite different outcomes. The following list was created by just recapping what we heard from vendors in one week at the 2019 Sibos Conference:

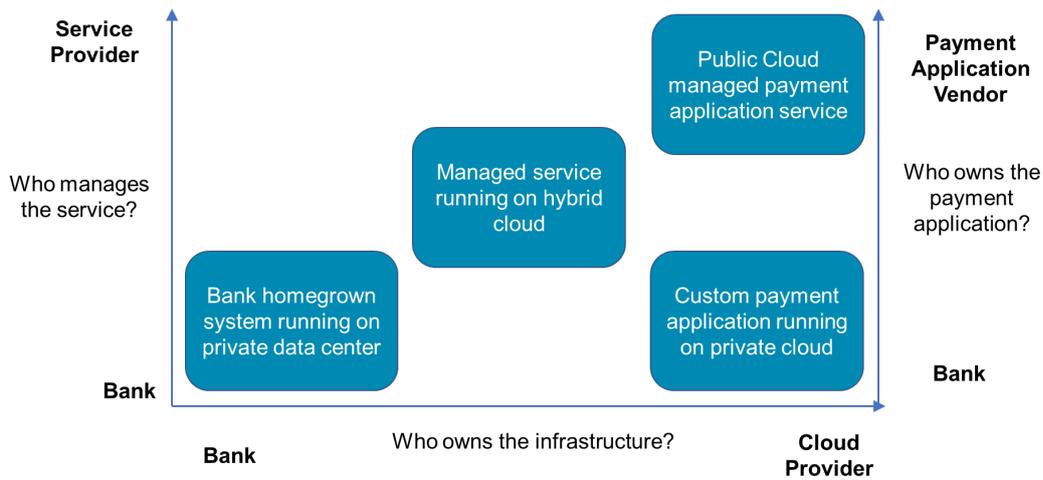
- Fully on premise
- Fully hosted
- Private cloud first — using a third party solution on a cloud platform chosen and run by the bank
- Private cloud, but the vendor is chosen first, and they recommend their cloud partner
- Public cloud-based solution, but single-tenant
- Public cloud-based solution, multitenant
- Multicloud-based solution, but single-tenant
- Hybrid solution, spanning both on prem and cloud
- Partially SaaS, where a vendor provides a second instance of the software in the cloud
- SaaS
- Managed SaaS, where there are additional operational services to SaaS
- Payments-as-a-Service (PaaS)

Within each of these there are more variations still. No two Payments-as-a-Service solutions seem to offer the same thing. It is likely to get worse still as there are a growing number of banks that are also offering services to other banks. These include:

- Bank-as-a-Service providers, such as Solaris Bank of Germany, which provides their own software to other banks.
- In some instances, the bank may also include their regulatory compliance as part of the technology. For example, before it was acquired, the US neobank Simple used CBW's banking licence for aspects of its service.
- Specialist payment banks such as Clear Bank in the UK that provide technical and regulatory access to payment systems.

The simplest way to think about the various models is to think about who owns what, and who controls what. As Figure 3 highlights, the bottom left is the current status for many banks, with everything on premise, with the top right being broadly described as PaaS.

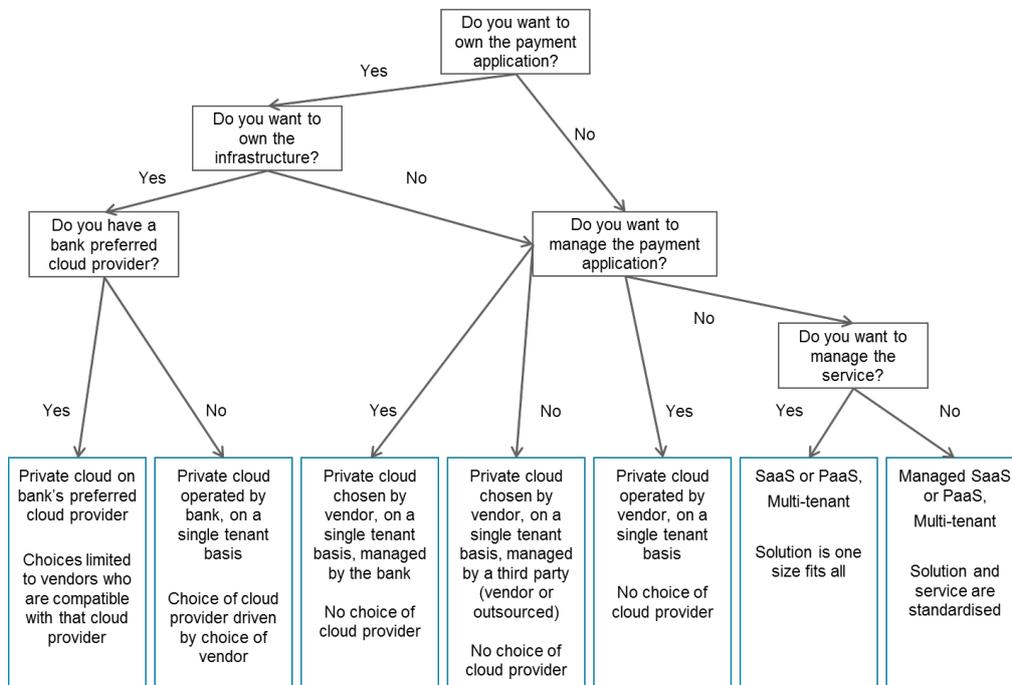
Figure 3: Choices on Who Does What Define Quite Different Solutions



Source: Celent

We believe that a bank needs to prioritize a few fundamental factors first. This may sound like an unnecessary statement, but Celent encounters many organizations that confuse or conflate the decision to future proof their technology investments the best they can with choosing to adopt the cloud. They aren't necessarily mutually exclusive, but which aspect takes precedence will probably define the resulting solution. Figure 4 lays out an illustrative example. With the answers to just a few yes/no questions, the bank would end up on both extremes of the spectrum of choices, and many in between, yet all are technically payments in the cloud.

Figure 4: Illustrative Example of How Choices Define Solutions Available



Source: Celent

### A Conscious Decision to Adopt Cloud

This section could equally have been labelled, are you trying to achieve better payment processing or cheaper payment processing? They aren't mutually exclusive, but if you were prioritizing the former, you would be looking for the best payment solution as the priority. With the latter, much of the cost savings will come from the simplifying of the technology, with the vendor seeking to find ways to keep their costs low as well.

However, not every bank seems to recognize the difference, and thus, there seem to be banks and vendors that equate adopting cloud to just moving some technology from platform A to platform B. While it can be that simple, there are significant implications, some of which don't seem to be mentioned or at least adequately underlined. For example, in moving to the cloud, the bank is, de facto, committing to the cloud long term, or at least not on premise. It isn't just the significant cost of standing up new servers if they want to bring capabilities back in-house in the future; it is also the fact that the skillsets of managing and maintaining the technology will be reduced or lost when the initial migration takes place. Furthermore, it may well require a degree of financial reengineering, as budgets move from fixed Capex budgets to variable Opex budgets.

To make the business case accurate, the less obvious things include the need to calculate the ROI and total cost of ownership (TCO) for both accurately. On-premise calculations assume low utilization rates, and as seen above, that can be as low as 20%. Cloud is 100% all the time, which is conceptually different. Capacity is 100% because it is only using exactly what is needed, and no more, at all times. The value that needs to be included is the ability to scale, the amount of the ongoing cost savings, and the agility to innovate.

At the same time, a well-rounded business case should look at the "what ifs." As mentioned earlier, the costs of the cloud depend on many elements, and so scenarios should be run to test what happens if, say, payments migrate to ISO20022, a much larger file type, or what the cost would be to change to a different cloud provider. This is particularly pertinent given the nascent nature of the business. It is reasonable to expect that not every vendor will decide to continue offering a PaaS service. If it's unsuccessful as a concept, a vendor may decide to withdraw the service; if PaaS becomes very successful, it's likely to become a low-margin, high-volume business over time, and some vendors will decide to withdraw.

### Decide What You're Buying, and from Whom

There are a number of dimensions to this, and it's important to understand the nuances. There are many solutions available but not all are alike. It's not so much that there are bad choices (though there likely are some!) but ensuring that the implications of each are compared and considered. For example, this paper has assumed that the bank is considering a cloud-native solution, running in a public cloud platform. The former is a key point to clarify because the true benefit will only be gained if it has been designed and built from the ground up for cloud, and if it is multitenant. If it's a private, sovereign cloud deployment, it's almost "on premises," but just someone else's premises, and the bank is covering the whole cost. Figure 5 highlights some of the dimensions that banks have to choose from, and how they deliver quite different solution options. As an added complexity, it's important to understand who has what SLAs with whom. For example, in a PaaS solution, the bank will be contracting solely with the technology vendor in most instances, yet the system's availability relies on the cloud provider. A bank's risk manager may have issues with this!

Celent believes to combat these complexities, some vendors will seek to offer value-added services to increase revenue and to attract banking clients. The intersection of these two elements then becomes even more important to understand as the situation will become even more complex, as Figure 5 highlights. Recent cases highlight the risks. In one example, a former contractor of the public cloud provider accessed data that a bank stored in the provider's cloud. Yet the cloud provider

believes blame is on the bank for not correctly choosing their security settings. None of these are impossible to address, but this highlights that choices may have implications.

Figure 5: Clarity for Responsibilities for Services Is Critical (Illustrative)

	Bank	Solution provider	Cloud provider
Service management			
Infrastructure management			
Infrastructure ownership			
Application ownership			
Application management			

Source: Celent

### OTHER KEY FACTORS TO CONSIDER

As described previously, there are a number of variations, especially in the PaaS space. Two factors stand out. First, while we use the terms *use* and *control* to distinguish between who does what, we should also be clear as to who *can* do what. Some parts of the value chain are regulated for example. While a vendor may imply that they will take over the processing of payments for a bank, the regulatory responsibility remains with the bank in just about every variation. Understanding how a vendor may carry out these activities is key, particularly for data residency and storage. When a bank offers these services to other banks, it needs to be clear as to who is responsible for what aspect, and how that will be checked.

Second, if the PaaS service is offering access to the clearing system as an additional option (several now have settlement accounts), who is providing the funding and liquidity, and how are those funds managed? Again, the questions are less about the day-to-day operations, but the “worst-case scenario.” Imagine a scenario where the PaaS service is unable to settle, for whatever reason — what happens?

## THE OUTLOOK FOR CLOUD PAYMENTS

The previous sections may seem negative, with a lot of “what if” doomsday scenarios. Celent is positive about the outlook for the use of cloud in payments, but cognizant of the fact that the market is in its early stages, that it isn’t a simple, discreet market, and other factors will play a major role as well. Understanding what this means is also an important factor for banks to consider.

While there are lots of offerings in the market, and lots of discussion, the market has been very slow to take off. Banks are often “fast followers,” but it still requires a large bank to take that first step. If we look at the adoption of payment services hubs, even then, after banks like Santander, Deutsche Bank, and JP Morgan all adopted payment services hubs, the market was still unconvinced that this was conceptually possible.

Celent believes two key questions will determine how quickly the market will grow: Who will actually buy such a solution, and consequently, how big is the market?

### WHO WILL BUY WHAT?

One view in some quarters is that cloud solutions are either for the very biggest banks (primarily where they are running their own solutions on public cloud) or very, very small banks as an alternative to hosted solutions. This is perhaps reinforced by the pricing of some of the existing “quasi-cloud” solutions, which are really hosted solutions but look very similar in offering to PaaS solutions. For these, clients repeatedly point out that above a relatively small volume of payments, it starts to become significantly cheaper to run on premise. However, several vendors currently stipulate, even for their PaaS service, a minimum of monthly spending. While they don’t state that there is a volume floor, the cost per transaction below a certain volume makes the cost per transaction very high when compared to what it might cost the bank on premise. Reverse engineering what we hear from those vendors suggests these floors range from 500,000 transactions a year to 2 million. For ACH, that’s a smallish bank, but for instant payments or Wire, that’s actually the volume for quite a substantial bank.

There are obviously issues for pursuing smaller banks. First, small banks have small volumes and therefore generate small revenue. While there is a scale business that could be created, there is a cost for acquiring and onboarding those smaller banks. Second, in markets where there are large numbers of small banks, there are typically incumbent players that operate at scale. Those banks often buy multiple products from those vendors, making it very difficult to win those banks as customers.

### HOW BIG IS THE MARKET?

There are a number of other factors to consider. Bigger banks often have the skillsets and/or aspiration to do everything themselves. This isn’t a criticism, but an observation that the market is actually quite fragmented — many banks may consider cloud but as we have pointed out, there are many flavors to choose from, each competing against each other.

Second, for some solutions, such as PaaS, the vendor bears the cost of providing the service, especially if they are providing value-added services. That is, if they are a large payment services hub vendor, they may have the country packs available already to meet a bank’s geographic footprint, but they still have to invest in other aspects of supporting that customer. Consequently, a key question will be which markets will have enough banks to support each offering type. It is also the reason why the offerings are likely to be domestic only. To be valuable from a cross-border perspective, there needs to be a sufficiently large number of countries or nodes. However, SWIFT Service Bureaus arguably address this issue.

Thus, we feel that PaaS in particular will be limited to a relatively small number of large markets at first.

## WHAT THE FUTURE MAY HOLD

As with any new market, there are usually evolutions in products and usage. That is, what is sold to whom on Day One is unlikely to be the same in just a short few years. Payment Services Hubs are a good example, and indeed, arguably this is just one of their evolutions. Why is this important? The way a bank views how the market will evolve may influence their decisions. For example, no bank would want to be the first and only bank to adopt a product, but someone has to be first. Understanding the vendor's vision and commitment then is as important as the technical stack itself.

Here we focus mainly on PaaS, as running a solution on someone's cloud platform has less impact on the vendor or bank. In effect, it's "just" a different deployment venue. There are several interesting ways that the PaaS product could evolve. These are examples of what could happen rather than Celent saying that they will happen, but different vendors could offer some of these views better than others. That is, believing that a particular scenario will likely impact their decision today.

### True Multitenant

Here we envision that payments between clients on the same platform could be considered as "on us" or pre-settled before they are passed to the clearing mechanisms. This has obvious benefits for liquidity, but does require that the banks are broadly similar in size (that is, both sending and receiving with a peer).

Another opportunity might be to utilize the data across clients better, from fraud to insights. Ownership and separation of the data may make this too challenging in the short term, and the regulator may start to view the service in quite a different way from being a software solution for a single bank.

### Enabling Differentiation

PaaS, as described, is designed to be a one-size-fits-all approach, with everything standardized. That makes it pretty hard to differentiate between vendors, and arguably becomes a discussion on price and service. Calling it a commoditized solution perhaps may be harsh, but it would seem to suggest that scale will be the key determinant for success for a vendor.

Equally, that has a consequence for a bank. If banks choose these commoditized solutions, they are equally commoditizing their own offerings. There is very little scope for innovation or differentiation, especially as banks are also likely to have lost some of their skilled employees.

If a vendor could create customizable configurations, there may be an opportunity for banks to differentiate on the same platform. It's what many banks do today to offer certain clients value-added services, such as a later cut-off time. The challenge will be balancing the need for the vendor to keep the solution as simple as possible (effectively, the lowest common denominator with the potential revenue) versus what a bank could control themselves in their own systems.

### Expanding Along the Value Chain

In 2019, Bank-as-a-Service and Banking-as-a-Service were probably discussed as much as Payments-as-a-Service. Expanding along the value chain and providing a "soup to nuts" solution would seem to be an obvious next step for some vendors, but the question is whether they would want to offer everything a bank needs — and of course, whether a bank would want to buy everything from that vendor. No vendor can have the best-of class-system for everything, so banks choosing multiple vendors will create complexities for integration (i.e., who actually does what?) and SLA management.

## THE PATH FORWARD

Banks face many challenges over the next few years, with growing pressure on revenue, rising costs on maintenance, a very long list of complex mandatory and regulatory changes, and a growing number of competitors. Arguably, there is nothing new in that list, but that is somewhat the point of listing them. Banks have faced these challenges for years, but with few exceptions, have not really done much than managed to tread water. That isn't a criticism. Payment systems are big, complex, and costly, and getting it wrong could be catastrophic for a bank.

Yet logically this can't go on, and banks will need to decide when they are going to modernize and simplify their payments environment. Celent is a firm believer that cloud will play a part in the solution for a large number of banks. Yet it won't be and shouldn't be for every bank — there is no such thing as a one-size-fits-all solution. Banks then need to decide whether this particular transformation journey is for them. We started earlier with the journey analogy, and given the title of this section, it feels appropriate to portray the next steps in terms of what is required for a journey.

### PLAN YOUR ITINERARY

Every journey may start with a single step, but in a large organization, that isn't as simple as it may sound. To reiterate earlier points, banks need to have made a conscious decision that they are planning to move to cloud, and understand what they actually mean by that. There needs to be a common understanding across the stakeholders about the implications and a commitment to cloud.

### A COMPASS TO SET THE RIGHT DIRECTION

A long-term payments strategy that spans multiple dimensions will be central, from what the banks think will happen in payments to what the banks think about payments. It doesn't necessarily have to be precise and thorough in the first instance, but should at least be able to guide the bank in the right direction.

### A MAP AND TIMETABLE

Banks need at least an approximate destination and to know how quickly they want to get there, but they also need a realistic view of where they currently stand. Planning your journey to a destination 50 miles away with years to get there is a very different prospect from a trans-Atlantic destination requiring you to be there tomorrow. These have clear impacts on the types of approach.

### A TRANSLATOR

What we hope has been very clear is not to assume that all stakeholders will understand the same terms the same way. Clarity and precise language will be key to success.

### A GUIDE

For many banks this will be new territory, and will be the first time they have undertaken a renewal of a payment product in at least a decade, and quite possibly significantly longer. Using experts to guide you will add value, if only in confirming that you have done everything correctly. We would recommend this even if the solution was going to be on premise; using a very different deployment model would make expertise even more important.

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### SUPPORT FOR FINANCIAL INSTITUTIONS

Typical projects we support related to payments and platformification include:

**Vendor short listing and selection.** We perform discovery specific to you and your business to better understand your unique needs. We then create and administer a custom RFI to selected vendors to assist you in making rapid and accurate vendor choices.

**Business practice evaluations.** We spend time evaluating your business processes. Based on our knowledge of the market, we identify potential process or technology constraints and provide clear insights that will help you implement industry best practices.

**IT and business strategy creation.** We collect perspectives from your executive team, your front line business and IT staff, and your customers. We then analyze your current position, institutional capabilities, and technology against your goals. If necessary, we help you reformulate your technology and business plans to address short-term and long-term needs.

### SUPPORT FOR VENDORS

We provide services that help you refine your product and service offerings.

Examples include:

**Product and service strategy evaluation.** We help you assess your market position in terms of functionality, technology, and services. Our strategy workshops will help you target the right customers and map your offerings to their needs.

**Market messaging and collateral review.** Based on our extensive experience with your potential clients, we assess your marketing and sales materials — including your website and any collateral.

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