

# Jumping into the Deep End

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**Operator:**

Without any further delay, let's go ahead and begin today's PNC event. It is my pleasure to turn today's call over to our first speaker for today, who is, of course, Rob Dailey, Executive Vice President and Head of Public Finance for PNC.

Rob, with that, I'll turn it over to you.

**Rob Dailey:**

Great, thank you, Aaron. And welcome, everybody, good afternoon, thank you for joining us at this PNC Public Finance webinar. These webinars are a series of events that we use to try to address current and developing topics that are important to public finance decision makers. Today I'm very excited to have an exceptional speaker, Dave Temme, Senior Vice President and Head of PNC's Treasury Solutions Group, which is a dedicated group within our Treasury Management division. It provides product expertise and advice on working capital issues, treasury management, treasury services issues.

Today's presentation, I've got the outline on the screen. Today's presentation will focus on the evolution and ongoing development of our emerging payment channels about recent innovations in what has become a very dynamic payment landscape. We'll evaluate strategies for organizations in the public finance sector and explore applications of specific treasury management products and approaches for public finance entities.

We're going to go for about 45 to 50 minutes, and then at the end of the presentation we'll have time for Q&A. As Aaron mentioned, please take advantage of the window to put in a question. That's where we'll be taking the questions from, and I urge you to do that as well.

But, for now, I will turn it over to Dave.

**Dave Temme:**

Thanks, Rob. We use the topic, you know, "Jumping into the Deep End" just to really set the stage for what's really, in my opinion, a transformative potential that's really starting to emerge over the last number of years in and around the payment space. And I think it's really incumbent of all of us to really start to think about within our respective organizations how we can start to harness that and use some of the new ideas and solutions that we'll talk about over the next 45 minutes to start to contribute to, really, a transformation in the way that we interact together with our customers, if we have customers, whether it's with our employees, whether it's with any of the supply chain partners that we have.

So really try to use the metaphor on — the diving metaphor, which I'll kind of start with. And I thought, maybe as the best jumping-off point, if you will, is to maybe look at five or six significant relevant trends that I think they're going to really enable the change that we're going to talk about. And, really, starting off with there's been a lot of conversation around financial technology companies and how they're viewed from financial institutions. You know, I think, four or five years ago, was much more threatening in terms of — or just more of a competition or a way to kind of, you know, maybe you disintermediate the banking and the bank's role in the payment space.

I think what we've really seen very clearly over the last number of years, though, is much more of a conversions of our respective interest in our offerings. And what I have up on the slide is a snapshot that Pricewaterhouse puts out each year, just looking at some of those dynamics around the interaction between financial institutions and financial technology companies.

And some of the themes I tried to outline there is number one, validating that sense of partnership between the two. You'll see that the vast majority of financial institutions expect to kind of either begin or increase that partnership over the next number of years, and you'll see that 45% are already actively engaged, and that active engagement could be investment, it could be just partnering arrangements or other kind of distribution collaboration.

And maybe just as a point of reference that 45%, kind of compare that to the snapshot the year prior. It was about 32%. So, again, a very significant increase over 2016 to 2017. Still kind of actively waiting for Pricewaterhouse to put out their snapshot for this year.

I think the other thing that you've seen, banks have really had to change the way that we do business, and it's very much kind of fostered much more internal innovation within banks like PNC. But we're, you know, the traditional way of building a solution over three or four years in anticipation of a client need is changing. I think we're very much more agile based in dynamic and trying to create things much more in the way and in the thought process that a financial technology company would do that.

You'll see, you know, fintechs already have enjoyed very strong alignment with consumers and customers, so it's certainly in our interest to kind of find ways that we can start to jointly offer things to our clients, and you'll see that that — the distribution authority kind of taking please, you know, 27% of FIs are using fintechs in some form or fashion again — up about from 17% the year prior.

But just thought this was a good stepping-off point because I think a lot of the innovation is taking place from financial technology companies are driving that mindset and kind of opening up, which has been, you know, a relatively static, gosh, for maybe a decade or decades in terms of traditional payment activities, which have not changed fundamentally in, certainly, my career here at the bank.

The second thing and, again, I'm not going to speak directly as, certainly, as the voice of a Millennial or a Gen Z. But you start to get a sense, on the left-hand side just the relative distribution of individual demographic groups that are in play today so that the Generation Z and the Millennials you'll see, again, depending on who you talk to, the definition of those age ranges may vary a little bit, but just to give you some sense of who your contemporaries would be. And the biggest thing is to think about those Gen Z and those Millennials and what they're going to represent very quickly in the workforce, and I think that quote at the bottom is looking at you, and not very far from now, you know, 75% of Millennials or Gen Z are really going to be the folks that are driving business, whether it's in the public or in the corporate space.

And those individuals are very different, and my kids are very different than the way I grew up, so you think about some of the things that they're used to, they've grown up all along with this idea of the Internet and be able to interact virtually, never having to go to paper, physical books, and things like that. They collaborate online, and very much whether it's the social media, Instagram, Snapchat or what have you, they kind of share back and forth and, kind of, you'll get that validation I think is important.

And then, really, lastly, just those individuals don't share any reticence around, you know, trying new technologies and embracing new financial processes. They're not, kind of, staid in their way of maybe what someone like myself has done in terms of used to writing paper checks forever and ever. And I think those experiences, they start to take more leadership roles within the organizations that they kind of enter the workforce is going to carry forward to them. And the expectations are going to kind of be carried with them into their new roles.

Maybe just expanding a little bit further, think about if you have sons or daughters or nephews or nieces, again, very much everything, if it's on the Internet, it must be true. So whether it's Wikipedia or what have you, they're used to being able to find information very quickly and digesting it. They're adopting technology,

whether it's Facebook, Instagram, Snapchat or whatever. I try to keep up with what my kids are doing so I can kind of interact with them.

But, beyond that, even the idea of that immediacy that they're used to, so you think about something like Amazon Prime now, where even someone like myself waiting two days for a package to be delivered feels, you know, just incredibly long to me. So the idea of more and more that absolute requirement for speed and an urgency and immediacy around something that I'm trying to accomplish is really starting to kind of pervade everything that we're doing.

And then, very lastly, think about that experience, you know, that driving service like Uber or Lyft offers, very much through a digital environment where I can kind of track the drivers that are coming to me. I know where they are. I can rate them. I can see what their rating is. They can rate me. You know, if there's more than one of us taking a cab fare, we can certainly share that all within the context of a mobile environment.

So, again, think about all those and how that's going to, I think, start to really support and drive much more interest and change from constituents, from students, you know, from parents and everybody that you interact with on a day-to-day basis.

Kind of, another trend to think about and then something I kind of started to learn is my kids entered college a few years ago, is the idea of starting to transact in a different way, so using peer-to-peer networks, whether it's some of the early ones like PayPal or Popmoney and probably the ones that a lot of the kids had been familiar with the idea of Venmo where there is they kind of share value back and forth.

It's a little bit different where it's not directly tied to bank accounts, there's kind of holding accounts that I can kind of now, at certain times, share with Rob if we kind of split a restaurant bill, I can kind of share that with him in the immediate sense and then at points in time kind of pull that money back out of my respective Venmo account into an actual banking relationship.

Really, where there's been a tremendous, I think, change is the idea of trying to find ways to harness and connect into that, and I think we'll talk a bit further about that later on. We've got tremendous critical mass, you'll see, just in terms of whether it's just the number of touches that someone does on their smart phone every day. And even to me 2,600 touches probably seems light even for myself and some of my kids and their contemporaries.

But, really, look on the right-hand side, you start to get a sense of just the number of users that are going to be expected by the end of this year. Close to 200 million that are on one of these systems. You think you've got this critical mass of consumers, so — and as we start to kind of evolve these discussions to how can I start to connect with them in a different way it would maybe try to migrate to an electronic type of an interaction. They're there, they're using it, and we'll talk a bit more about particularly where PNC is as invested it with one of six other banks that really own the Zelle® network just start to facilitate business-to-consumer type transactional activity through that participation that's real and that's growing every day.

So think about the way that you've always kind of dealt with your banks and the way that a lot of your financial processes historically have been a place very much batch-driven. You know, usually it's a file transmission at some point in time, you know, once a day or maybe a bit more than once a day in some cases. But, you know, not real time in any sense of the word. But what we've started to see, over time, is an evolution that's taking place over the last maybe 18 to 24 months and certainly going to be picking up speed over the next months ahead is banks being much more open with [inaudible] ecosystem and allowing more immediate interaction between the banking system and the banks' delivery systems as well as what our clients' enterprise infrastructure looks like.

I thought an example would be think about two case studies in this social media space. You had Facebook, you had Myspace, certainly one is still around, one is really not any longer. But not too long ago, Myspace was the dominant of the two, and they really took two different philosophical paths, where Myspace really

wanted to control that total environment. They wanted to build everything that was in that, where Facebook said, “Look, our core competency is kind of building the ecosystem but we would allow innovation to come in and out and really try to find the best in kind of connecting that experience through Facebook to other pieces of what our users would want to kind of gravitate towards.”

And you kind of see the quote to the bottom from the founder of Myspace kind of lamenting that decision that they did make and not kind of sticking to core things that they thought that they were excelling at. And you’re seeing very much, whether it’s banks like that are very global in nature that are kind of being prompted from regulatory things like the payment service directive over in the Europe theater that’s kind of really mandating more some opening up of that information.

Or whether it’s more, I think, here in the U.S., banks are just wanting to kind of take that same kind of a fresh look at things and not wanting to secure absolutely and entirely that overall experience but to start to allow some outside connectivity that’s maybe different than what you’ve ever seen in the past.

And I wanted to maybe share on the right-hand side just to give you some sense from Aite group study recently just asking banks where their API focus is centered around. It’s around that digital experience for their consumer base, in particular, so it’s the retail channels. But very closely behind that, treasury management and the way that we start to deal with commercial type activities as well on behalf of the clients that Rob and I serve.

Maybe two other quick things with my windup, so there’s also just in the way that that information is structured and interpreted is starting to change. I think, for my whole career, we’re very used to whether it’s the BAI and the ANSI standards that have been in place forever to kind of a very clear migration to ISO-based formats that the ISO 222, which I think is thrown around a lot, started off, really as a mechanism and the messaging service for very large financial institutions just to talk amongst ourselves.

It started to be adopted by large Fortune 500 companies but very quickly, kind of, now migrating is very much more of a mainstream. So whether it’s SAPs or Oracles or Treasury workstations, very much more of a gravitation towards that ISO standard that’s in place today.

And on the right-hand side, just to give you a snapshot again, it’s more of a corporate view, but just kind of asking why those corporate users in this case were looking at and valuing a migration to the ISO standards. And I think some of the themes, I think, will still resonate with this audience. It really is to start to position their system to kind of take advantage for some of the innovations that we’ll talk about. It will maybe promote more standardization and to allow, on a go-forward basis, connectivity into other payment systems that are very much more ISO-based today.

**Rob Dailey:** Dave?

**Dave Temme:** Yes, Rob.

**Rob Dailey:** Just thinking about public finance clients. Generally, it seems that many, if not most, are still operating with relatively old legacy systems. Do they have the flexibility or can they work with faster payment solutions? You know, like, what’s the compatibility issue as we bring in new technology? Is that something that can lay on the old systems well? Or is that kind of one of the big issues?

**Dave Temme:** I think it’s a consideration, Rob. It’s a great question. It’s probably twofold. So, number one is it’s just a delivery mechanism, right? So what do I want to use — do I have — you know, can my current system, kind of, even harness and take advantage of an API connectivity for real-time processing? Maybe yes, maybe not.

Or do I already, kind of, have an established file-based system that I, kind of, want to just continue? I think what you, hopefully, want to look for is a financial institution that's allowing for all those channels. So if I'm able to kind of harness APIs, would love to do it, but I also kind of want to take advantage of means to kind of just extend, you know, delivery connectivity through a file transmission or maybe potentially use online banking. I think there was, again, another Aite survey earlier this summer, it was just kind of polling banks in terms of where their development focus was.

I think 90% of the banks are looking to do it online. Maybe 60% are going to offer API connectivity, about half will be looking to do file transfer ready. From PNC's standpoint we really wanted to be agnostic and allow and then our development roadmap is really looking for all three of those to be able to be supported. I guess that's maybe part one of the response.

But, second, even, you know, four clients that maybe don't have the wherewithal to kind of create the ISO-based messaging in the near term, what we also wanted to do is not preclude anybody from participating in some of the new payment channels that are emerging.

So what we're kind of building and refining is the idea of if someone can deliver you a NACHA file today, if it's payroll-related or anything else, we could still take that legacy format, and we would be able to do the translation on behalf of our clients. So we can kind of enable clients that are kind of sharing that situation you described and still take advantage of what we're talking about today.

**Rob Dailey:**

Okay. So it sounds a little bit like just a little bit of a customized thing just to make sure you're picking up old system and new system — what it's going to take to translate, but it's doable.

**Dave Temme:**

It is. But it would be somewhat, I guess, dependent on which bank, you know, whether they're going to take that similar mindset to what PNC is going down and not whether they're going to take a more finite use of this application along the way.

But certainly I think we view it as we want to enable the why this participation possible, so that's — we're kind of trying to open all channels.

**Rob Dailey:**

All right, thanks.

**Dave Temme:**

And then, just lastly, I think what you get a sense of, I think, for anyone that travels, us here in the States are still very much maybe behind in terms of the evolution of these faster payment systems. There's probably, you know, 20 in various degrees of evolution around the world. For the last number of years, the Federal Reserve has kind of promoted a faster payments council. It was looking to build a similar capability here in the U.S. They don't have — you know, the Federal Reserve, you know, they do not have the mandate to require the banks to force this evolution, or migration, to the channel, which is maybe different from somewhere like in the UK where maybe 10 or 11 years ago that was very much more a regulatory mandate that takes its place.

I think here in the States it's going to be very much incumbent on us in the banking space. You know, our corporate clients and consumers will start to see that value and breathe life and kind of, you know, bring some of these faster payment initiatives to bear.

**Rob Dailey:**

Okay. I might just jump in here, Dave, before we move forward. It's worth taking a look — a moment — just to think about the pace of innovation in the payment space over the past few years. It's been, sort of, hurtling fast and I think increasing, you know, accelerating its change. Most clients have processes that have been

in place for many years. It does present an exciting opportunity for organizations to kind of think about the way they're doing things, their practices, and try to think about how they might be able to transform practices and organizations looking for or taking advantage of the new technology. Anything that involves interaction with constituents, employees, trading partners, it's sort of — it's a brave, you know, it's a whole new world, I guess, is the way I would describe it.

And so looking out to evaluate the contenders, more of a statement than a question. But it does look like, at the moment, the challenge is to identify. If I wanted to change, what's out there and what's developing? What might be out there in six months or 12 months that's out there today?

**Dave Temme:**

That's 100% correct. What we're really — I think that's kind of been my window that I've been chasing, particularly this year, is to start to going out and kind of promoting that and sharing that gospel, if you will, in terms of, you know, what's been, up until very recently, processes that have been, like I said, been intact forever. They work well, hasn't been a tremendous amount of energy to change. I think now there's potential in the payment space from a number of different avenues to really rethink that and really start to take advantage over the next number of years and start to position yourselves to take advantage and digitize a number of things that have taken place or take place within the organizations very differently.

And what I thought I would do is maybe just keep that conversation over the next couple of minutes, around three, particular payment channels. One that I think we're familiar with, which is the ACH network, but talk about it more around their initiatives around same-day ACH and the subset of that. Talk about, you know, connecting, as I mentioned earlier to a peer-to-peer network like the Zelle network.

And then, lastly, really, to talk about the first new payment channel that's been introduced here in the U.S. since, probably, ACH was introduced probably in the '70s, and that's introduced by the Clearing House, and it's called real-time payments. So we'll talk a bit more about each of those as we go through and maybe try to give you some framework, I think, about each one of those.

So, again, ACH historically was very much a batch-driven, file-driven process for next-day settlement, right? So it carried to be very rich data. I could originate that in a number of different ways, whether it's through a file, whether it's through an online banking service. But, really, it was geared towards rich information but, really, you know, next-day settlement.

You'll see, and I think most of us that are kind of in this space are now familiar with it. For about two years, a little bit more beyond NACHA offering up the capability to kind of replicate that very same existing process that we're familiar with, but to do it for a same-based settlement. And offering up certain discrete deadlines that could be taken advantage of to allow for funds to be settled sometime within that given business day.

Last year, debits were introduced in September of 2017, and you'll see — I think what I'll talk about on the slide that follows this, and I kind of used this picture where, in my opinion, probably, it's been, certainly, an incremental improvement. But I don't know that it's been a transformative event yet. There's absolute utility for it, but I think there are still limitations around particularly some of the deadlines that are in place for — particularly for entities that are trying to transact, you know, west of the Mississippi where the — you know, I think that's changing a bit. You'll see that there was somewhat of an extension within Phase 3 to kind of allow for origination later in the afternoon, Eastern Coast time, but there was still, I think, a very heavy interest from NACHA to start to make that even much more of [inaudible] clients.

And you'll see, I think, a number of weeks back, NACHA did recently announce some rule changes and start to just to get that on your roadmap. So I think that window, now, will kind of go to 4:45 p.m. East Coast time, you know, in about two years from now. The dollar limits will start to change, we'll talk about some of the dollar limits for the different various alternatives.

And then, certainly, I think one area, in particular, around ACH is just how quickly those funds are actually available and kind of communicated to that recipient, particularly for things like payroll. And so NACHA is trying to kind of start to maybe make some strides along, you know, each of those different dimensions as we go through.

But as you look at, maybe, what that impact has been, so far, sticking to the left-hand side, the very large blue bar to give you some sense over 21 billion ACH transactions last year. Only 75 million were kind of designated and processed in the same day ACH file type. Of those — because, again, it was really the last quarter of 2017 when debits came on. You'll start to see this again.

That's certainly well less than the percent even if you annualize the debits for a full year less than a percent of overall volume. I think what's on the left-hand side, kind of looking at that pie chart, most of, I think, the value that folks have seen so much so in same-day ACH from a payment perspective has really been around enabling, you know, emergency-type payroll, or "I need to pay somebody today," and, you know, the traditional ACH next-day settlement just wasn't of value to them. So that's where a lot of the activity, so far, has been centered around.

Maybe switching gears just a bit to the idea of these peer-to-peer networks. And, again, I'll certainly speak from a *Zelle* perspective, but you'll envision being able — and one of the areas, I think that's — you know, when you start to think about, you know, one-time interactions with a student or a constituent or someone else, I'm trying to make a refund payment or something else. It's been a challenge to kind of capture the banking information to enable that and to kind of build an ROI to kind of even pursue trying to do that for a one-time interaction. That I probably would never take advantage of again. It's a little bit different than a direct deposit of payroll, or I'm going to make that payment on a recurring basis.

You know, so I think one of the biggest values of the *Zelle* network and kind of connecting it is the concept of a token or a directory where I can now say, "I just want to send it to rob.dailey@verizon.net. And within that directory, if he's already registered, I know the banking information is kind of held within the *Zelle* network. So to make a payment as a corporate or a public entity, I don't need Rob's banking information. I just need a token, whether it would be his email address or his mobile number. And I can start to facilitate these transactions.

So it really starts with a file that would be, you know, the amount to the payment, you know, whatever that token would be to email or the phone number, and then would start with, number one, validating are they already participating in the *Zelle* network today? And, if so, really would have those funds automatically be transferred into that recipient's account? Get an email with some limited information. You'll let him know that they've been paid and the nature of that payment that's been there.

But they don't have to participate in the *Zelle* network today, or they don't have to use a *Zelle* network bank to do that. If they don't participate, the email would be a little bit different that, you know, ABC University you know, wants to provide you your \$10 — your refund or payment, and kind of direct them to register whether it's through a bank, if it is a *Zelle* network, or they can go directly to *Zelle.com* to register and start to participate that way.

In the event that they don't want to participate, you could still offer channels for us to do the check printing or to offer prepaid cards or to put funds into a debit card or go through some other channels. And a lot of these — these are, kind of, you'll think about within your organizations, usually there's some subset of transactional check volume today that's just very difficult to electronify. This, I think, is a quick way to do that without having to kind of gather that banking and control that banking information and really create a different, more digital experience for those recipients.

And we can also talk about the ability to layer in an escheatment service. So if you wanted us to kind of do the check printing for the folks that elect not to participate we can still issue the checks, but then we also kind of wrap around it, and we can escheat that on your behalf so you can really take that whole work set out of your organization if it makes sense to do so.

Maybe just talk a bit about the *Zelle* network just to give you some sense of, you know, I mentioned earlier, there was certainly something where there's a tremendous critical mass that's already taken place. You've got 100,000 consumers that are kind of being enrolled every day. You kind of get a sense of the number of transactions, the dollar value that's transacting in that today and just the number of banks that are involved. You know, that 148 number, probably about 30 to 35 that are actively live today. The others are in the process of implementation. You know, those 148 banks represent, I think, about close to 60% of the overall consumer bank accounts across the country. So your ability to kind of connect, you know, really, on a turnkey basis with the lion's share of overall consumer-based, you know, bank accounts, really, right from the beginning is there today.

And I think the latest statistic I've seen, if you even want to kind of think about *Zelle* in relationship to the Venmo network, I think we've just kind of hit that tipping point where *Zelle* has surpassed Venmo. They probably have, I think, 28 or 30, you know, million users today versus Venmo's 20 to 24.

So it's certainly something that's viable, it's not just, hey, it's a neat idea, it's something that's really actively being used by a number of our clients today. Most of the early adopters probably have not been in the public space, but I think most of them have been, like, insurance companies that are looking to pay property and casualty claims, whether it's healthcare entities looking at maybe patient refunds for portions that they paid of their co-pay that they need to be refunded. But, certainly, not limited to a number of applications. I think we'll try to talk a bit about some use cases for this and others as we kind of get further into the hour.

**Rob Dailey:**

We don't have a lot of people that have begun, you know, kind of a transformation, but we certainly are having a lot of conversations on it.

**Dave Temme:**

Yes, absolutely. And, really, if you think about that ePayment concept, Rob, we probably introduced that within the last two years. Again, we're very much at the beginning of that process. But there's a tremendous amount of active development around that, to your point.

And you want to talk about something that's very much just at its infancy or, really, beginning. It's kind of a good transition over into, again, the introduction of real-time payments. So we kind of think about same-day ACH. It's fast, ePayments is faster and, again, now we're talking about real-time payments which is, as the name would imply, the immediate value transfer on a 24x7 365-day basis. And we're just about coming up on the one-year anniversary of that first transaction, you know, taking place.

You'll see on the lower left-hand side there were six initial pilot banks that participated. There were, I think, two others that have come on, so far earlier in 2018. There's about another six that will be coming online in the rest of 2018, and I'll show you a snapshot in a few moments in terms of what that growth looks like.

Just to think about, you know, this is probably one, maybe, slide, if any, I'd hoped that would resonate and you guys would kind of — you'd take some of these and remember these if nothing else that we talk about. So I was thinking about what real-time payments represent and, again, really, offered not right now, not through the Fed. The Fed, kind of, their faster payment counts are lined up, attributes that they were looking for. The Clearing House was selected as the network sponsor to kind of facilitate this new payment rail.

Clearing House, if you're not familiar with them, it's a bank organization, probably the 24 largest banks that are operating here in the U.S. partnered with a technology provider called Vocalink, who actually built the similar network over in the United Kingdom. You might have seen some stuff in the news where the Fed might still be looking to also kind of introduce a similar real-time payment network. I think, for now, I think the focus has been on using the private sector. But, again, it's not that different. Anyone that's used to ACH is



where the Fed can do ACH transactions where, again, the Clearing House had a 30 PN network that could do ACHes as well.

So think about some of the attributes, the speed to be able to transact at 11:59 tonight or to be able to transact on a Saturday. That ability kind of transact without artificial Fed deadlines or NACHA deadlines is going to be very different than anything we've ever seen before here in the U.S.

Beyond that, you know, I mentioned the ISO standards that those transactions that can carry very rich information with them. The next two boxes are probably the most exciting, you know, to me is number one. It's the idea of transparency where think about any other transaction today, any electronic or certainly check. As soon as that transaction would settle to the account, both parties would have the means to get notified. You know, if I'm making a payment to an employee, they can get immediate notification through their mobile or their online banking channels that that came through. They're not having to wait and think is it going to come in sometime later today?

But, also, as the payor, I know that it got there, so if I'm talking about a supplier, I know that I kind of have that proof of payment, I have that messaging that I kind of can be sure that that payment's been made and received and make sure that's not going to disrupt any of my supply chain or my procurement activities.

Beyond that, it's really the integration, which I'll talk to in the next slide is that ability to collaborate. So the idea of a request for information, I can receive in this real-time payment credit but also can really message back to the sender, if I'm not sure what it relates to. If it's a particular account or an invoice or a transaction, I can kind of foster communication back and forth in a very automated way.

I can extend the idea of not just receiving a payment, but I can initiate it by doing an RFP, which I know anybody in the public space in terms of having to read the RFPs that you get back from banks, and the banks certainly love all the compilation of our proposed responses. What we're talking about here is not a request for proposal, it's a request for payment where you can really send a message, you know, requesting that recipient to send money back, and I'll show you some examples as we go through the next couple of slides.

The other thing that's always going to be paramount is the idea of security, so whether it's any participant that's going to — or any bank that's kind of connected to the Clearing House, we've got very strict guidelines where we're going to do all of our know your customer. We're going to do our risk evaluation procedures around that. We're going to certainly looking and requiring dual approvals just as we would with wire transfers and things like that. But, beyond that, really, the Clearing House itself has built an enterprise-wide system where they're really tracking those transactions through the network and risk-scoring them as it's going through and evaluating those and monitoring for potential fraudulent activities.

And then, lastly, for all this it makes sense, we need to kind of achieve a sense of ubiquity where most of the accounts are able to kind of send and receive these types of messages. And you'll see a very aggressive, I think, target from the Clearing House and the banks that are starting down this path to try to get to that stage in the 2020 timeframe, which sounds — at least it did sound pretty far away, but we're getting up on that pretty quickly as we kind of come into the holidays now.

Just another view of some of the things I just described, so kind of thinking about maybe first starting with that second icon from the top. The idea of a credit push, as it would imply, would be electronic payment in. That payment could have the extended remittance that's fourth down from that — when I received that payment. I mentioned the confirmation that can go both sides. That recipient can also send a separate message of payment acknowledgment, which may be thanking someone for their business or their donation, and we're offering other incentives. So, again, an additional kind of way to kind of connect with a customer base or a student body or donor base as you go through.

Then, also, in the middle, kind of collaborate message back and forth. I want a particular payment if I'm not sure how to account for it. So the idea of reconciling and had a much more straight-through processing and exception resolution, very different dynamic in the real-time payment world.

I'll try to get through these next couple of — a little bit quickly as we get through. So what's really happened in 2018, the leading banks are really looking to build out capabilities through the year. Kind of, building out and connecting, building APIs, you know, they're seeing very, I think a lot of convergence, and there's some of the same banks that are in the Clearing House are also *Zelle* banks. So using some of the, that idea I talked about it, you know, the *Zelle* network is starting to build the supplier director, so I know Rob Dailey, I know his, you know, based on a token like his email address, I know his banking information because he's already registered.

Wouldn't it be great to leverage out if I want to initiate a real-time payment by kind of connecting and maybe sending a real time API, you know, reach out to ask whether Rob's in there populating that in so I can kind of complete and send out the real-time payment as we go through. Transaction limits, which I do have a slide on in a moment, and we'll certainly make sure that you'll have hard copies of the next couple of slides. Right now, real-time payments are limited to 25,000 just until the banks kind of get comfortable with the new payment network.

And then, lastly, you have certainly a lot of advocacy, whether it's from the Clearing House, whether it's from banks like PNC, or our clients working with their enterprise systems and their treasury workstation providers to make sure they're envisioning and kind of incorporating the potential of RTP within the experiences that they're developing.

To give you some sense of snapshot here on slide 20, just, again, in blue, just looking at the percentage of bank accounts. Again, this is not just consumers, this is consumer and corporate accounts. So as banks come online and start opening up more and more of their routing and transit numbers, you'll kind of see by the end of this year, we're probably at about just to close to half of banks being able to receive, or bank accounts being able to receive an RTP credit. And a little more a third will originate, as I mentioned, a couple of large banks coming on this year.

All the Clearing House banks have committed to be, you know, connected and online and capable by end of 2019. But you'll also see, I think, starting — yes, there's one of four kind of preferred third party service providers that are coming online, I think, within the next week or two that are going to enable the smaller regional community banks that connect in. If they don't want to connect in directly, they can kind of use this third party network, and you'll start to see that growth going on through 2019 and beyond.

Just a quick view here. There's still a lot — the devil is in the details, so you'll start to get a sense of — the first one you have to talk about is pricing. I think the best response I can give you right now, you know, banks are still looking at this. It's going to fall somewhere between the cost of a same-day ACH and what a wire transfer would be, and it's going to be a heck of a lot closer to that ACH cost. It will probably be a little bit of a premium over same-day ACH, just given some of the attributes that are there.

Banks are still thinking about are they going to change their end of the day to kind of start to account for the fact that more and more transactions could come through, you know, after normal business hours. And in light of that, maybe there's still, kind of, you know, thinking about do I need to maybe restrict services like zero balance accounts or sweep activities for an account that could transact in the RTP world?

And then, you know, on the lower right-hand side just to get a sense of the different ways of whether to an SMS text or emails or their online banking channel that they're kind of envisioning that they'll start to deliver these messages type through.

So I'll probably defer this next slide just because there's a lot there, and then we're kind of coming up to about the 15-minute deadline. But you kind of get a sense of the different transactions there. Some of the key attributes, I think, with the copy that you kind of get at the end of the session, I think this would be a good source of reference just in terms of a couple of the [inaudible].

I think the one thing maybe I'll just point out as it relates to RTP. Number one is, is that concept of irrevocability just as a wire is real-time payments. You don't have the same things that you would deal with in the ACH world like reversals of returns. You get a sense of just the relative breadth of information that could come along with that and a confirmation and such.

**Rob Dailey:** And, Dave, is there — I know we're sort of short on time, but same day ACH with the NACHA changes, is that going to become more competitive than with RTP?

**Dave Temme:** I mean, I think it's going to be — it's absolutely a step in the right direction. But I think we would start to envision, you know, what ePayments can do, you know, connectivity-wise, due to the ideas of the API connections and things and real-time payments the same. ACH is always going to kind of be a batch-driven process, so I think it will help. It will maybe open up some ideas or use cases for same-day ACH that maybe weren't there before. But if we're talking about, really, more of a transformative kind of a digital application of integration of payments, I think probably it's still going, I think, be a strong argument for the ePayment of the RTP kind of a payment channel.

**Rob Dailey:** Thanks.

**Dave Temme:** The next two slides, just — this is kind of my vision of nirvana, right? So in a perfect world, wouldn't it be great if I could deliver bills electronically? Deliver them to whether it's a corporate or business user or a consumer in a way that they can ingest it without having to print or scan or rescan documentation back and forth to kind of keep it purely electronic. A lot of them that respond to an electronic form with that information that started the process, you know, part of that and then also allow for collaboration as you go through.

And that's really kind of when I look at RTP and what the potential is, it's that model that I think aligns very clearly. So it's starting again with the idea of a request for payment versus an invoice or an account statement, you know, allowing businesses and consumers to kind of whether choosing the ISO data for businesses and integration into their systems or whether it's consumers through their retail online banking and their web channels. You know, allowing for the RTP credit to come through with the confirmation that would kind of come along with that and, hopefully, over the next number of years, I think it's going to open up, really kind of connect and expand this beyond the borders of the U.S. and then also just allow for that collaboration to take place.

So I wanted to just spend a couple of minutes, I think, most of the folks [inaudible]. What I'm hoping to do is leave you and maybe spur some inquisitiveness and some more provocative ideas in terms of how you maybe want to start to think about and use each of these within your organization. So, again, I think, really, the things to think about, none of these are absolutely mutually exclusive, but it's more kind of thinking about what I'm trying to solve and where that might fit best.

I think your same-day ACH, as I mentioned, it can affect the business-to-business over business-to-consumer transactions. ePayments are more focused on the B2C environment. Real-time payments, again, can do both. So depending on what I'm trying to do is sometime today good enough? Or if it has to be an absolute precision what I need to know, it has to be now and I need to know right now, or integrate it into more of a broader digital experience. I think that's where you kind of start to move from left to right in terms of attributes.

But what I thought I'd share maybe at a high level, some of the use cases that we're kind of talking about for potential, I think that would overlap with some of the folks on the phone. Same-day ACH, I think, maybe even just starting in maybe before. This isn't absolutely not a complete list, but maybe a lot of the traditional, you know, for the government, you know, social service payments, they're probably known in advance. I don't know that you need to send those on a same-day basis. You know, traditionally, ACH probably would work.

In the event of a failure or any other disruptions or business continuity, I think, same-day ACH offers utility for certain types of those transactions for folks that receive payment and do have bank accounts or other ways to receive it. I think ePayments, you know, we talk about different types of refunds and refunds where I don't have the banking information to effect a traditional ACH or a wire transfer stamp when I could kind of use that idea of that alias or that token of a mobile number or an email address to kind of send that out.

So whether it's, you know, when someone maybe completes their jury duties and are discharged, you know, to think about a different experience that rather than waiting for their check for that participation today, they could kind of receive an email as they're leaving the building even in an extreme sense or work per diems as you go through. Real-time payments, I think, are even broader in terms of potential again. Emergency payroll, and there could be emergency payroll, as I mentioned on a Friday night. Over the weekend if I need to get something out. Whether it's, you know, things like termination pay, certain states, you know, that as that employee leaves, a lot of times it's not first thing in the morning where same-day ACH channels would be open. It might later in the day, but to be able to kind of deliver that final, that last and final pay immediately into their account, I think, is different.

You know, for some of the folks maybe that are operating with the public utilities, the idea wouldn't have to be limited. But you think about a delinquent account where before service would be suspended or something else would happen, you could start with a request for payment letting them know that they're 60 days past due, or they've got "x" number of balances that are outstanding and will be kind of message around what those next steps could be and allow for that payment to come and be responded to and immediately either send a payment or they can, kind of, you know, schedule advances. But can kind of get that messaging around what that could mean.

You'd think about a variety of different fees within your digital portals to start to maybe not collect credit card but to maybe start now as an extension of some type of a, you know, within your web and ecosystem the end result would be your out looking for payment so rather than kind of going and just plugging into maybe a credit card gateway to allow for an alternative that the idea of them, you know, paying you using the RTP channels.

I think one area that comes up is the idea of whether it's tuition refunds or it's even dispersion of Title IV type funding, absolutely real-time payments can be considered and work for both. I'm sorry, ePayments, at least for a bit of time, I think PNC was kind of taking the position that the ePayment using the *Zelle* network would not be something that would be supported for any Title IV distribution, but I think now we're starting to maybe relax that view a bit and starting to look at that on a case-by-case basis so, certainly, we can kind of have discussions individually with your treasury sales officers around, that's something there.

But also maybe think about an experience where for larger universities that have, you know, better kind of, you know, have ongoing health studies where they're paying participation fees. Rather than giving that student a check or that participant a check, they can automatically receive an electronic immediate payment for that in a very different way and probably a way that they're more accustomed to receiving it.

And then maybe just lastly just — maybe throw a different idea out there. We're talking to a large university around what they're doing in terms of collecting donations, right? So right now they have a very rich web environment where someone can kind of come in and make different gifts to different purposes or freeform bequeaths, if you will, to the university. And right now, the only option they have is credit card. And there's still a manual process afterwards where they would make sure they're acknowledging that gift where I think, with RTP, they can kind of keep that experience in place. But if someone wants to make something other than a credit card payment, they can kind of be prompted to provide their banking information and allow them a request for payment to be sent to them, respond to it right away, and kind of settle that donation out.

But also then allow the university to send a digital thank you, I think, to kind of use that payment acknowledgment message type to thank them in a very personal way for what they've done. So think about as more and more of the alumni is a lot younger than I am, they may well start to value that type of a digital thank you and interaction versus, maybe, a handwritten note or something that has been the norm through the years.

Go ahead, Rob.

**Rob Dailey:**

I was just going to say can an organization — I assume they can — but organizations can use multiple platforms or multiple applications?

**Dave Temme:**

They can and, yes, yes, so we're actually — we have some conversations with clients where they might say, "Look, I would love this to use real-time payments as much as I could for a particular, whether it's for payroll or something else." So in the event that eligible use RTP, let's do that or, you know, then maybe kind of default to ACH or maybe I can give you business rules and tell how each one of these could flow down or — absolutely, I think they are up and not mutually exclusive by any means.

So maybe just in the interest of time, I think a couple of these slides, I think, are similar to what I've shared. So, again, I think depending on what you're trying to accomplish, you're thinking about the attributes that each of these represent, I think that will start to lead you down the path, and we would certainly love to be kind of that journey together thinking through some of these use cases and potential applications.

But I think that will start to lead you down, which, one or more than one that would maybe resonate for a particular use case. I think I've kind of hit on some of these that's who's gone through. But really we kind of want to make sure we close this analysis just for a couple of minutes to wrap up. But I thought this was an interesting server that I kind of ran across recently. It was a polling of public sector employees just asking for their opinions and kind of see on the left-hand side, you know, 80%, really, had a huge value in terms of what that digital service delivery would mean in terms of how that service delivery to the constituents would kind of change in the years ahead.

So I think the public sector employees are seeing, you know, and evaluating that, I think, that aspiration that there'd be much more of a digital interaction with the different stakeholders that you're serving. Maybe, you know, I don't have it on the screen here, but I think maybe another observation that was in there, I think, 68% of their agencies' digital portals were not user friendly and need improvement. So the over idea of kind of just reimagining and more digitally enhancing what you can do in terms of interacting with whether it's, again, your constituents, whether it's your students and parents, you know, whether it's other stakeholders and employees, what have you, I think there is a tremendous impetus for change here.

And just on the right-hand side, I think very much more around that engagement and that — I think that's — kind of look at externally it's just that engagement and the satisfaction that that interaction starts to manifest itself but also even just the idea of enhancing the productivity and the efficiency and just our ability to kind of respond to those stakeholders, I think, is different.

So might just pause there, Rob, and if you had one or two questions that we could at least allow for but, certainly, I know we won't get to them all, and we'll make sure that still have the means to follow up with those further as we go through.

**Rob Dailey:**

Thanks, thank you very much, Dave. And thanks, everybody, for participating. If you do have questions, put them in at the Q&A section. We can see those from here. I do have a bunch of questions, so as they come in, I'll keep reviewing them and try to make sure that we get in as many as we can between now and the top of the hour.

So first, Dave, do you envision RTP effectively replacing existing wire transfer and ACH transaction volumes?

**Dave Temme:**

I don't. I mean, I think, probably there are just some cases, like, you know, mortgage processors and things are looking at that because they are very heavy wire users today. I mean, they are looking at this as maybe just a cheaper version of the wire. But I think a lot of the attributes that RTP offers is maybe a bit broader, but, as I mentioned, there still are limitations just around dollar sizes and also the ability to kind of, like, wires can certainly transact across borders. So I think there's still the value proposition for the existing channels.

And I probably rather than kind of cannibalizing the existing channels, you're depending on how imaginative we get. I almost kind of envision new transactions that's kind of being created that are going to resonate with an RTP or any payment as opposed to just displacing something that's already taken place today.

**Rob Dailey:**

Yes, okay. Thanks. Can you describe the experience for an individual being notified of an RTP receipt into their banking account?

**Dave Temme:**

Yes, so think about it from two ways. It could be a corporate user or a commercial user receiving it or it could be an individual. The Clearing House, as they've started to build out this network, you laid out guidelines in terms of what that ISO messaging, you know, for those types of events wouldn't incorporate, but also, you know, mockups of what that would and how that would be presented to the end user. I think visually, I wish I could pull it up, but think about your smart phone today. You would be able to receive it if you use your bank today as a consumer, use their web application, you could receive a notification of that in the case of maybe a receipt of an RTP credit. You could have the confirmation of that with the information that would kind of come along with that format in any human readable way.

If it's a request for payment, it could be your messaging in terms of what it relates to but then, kind of, just, really, four buttons there — pay now, pay sometime in the future, pay for something less than the 100% of what was asked, or just to dismiss it or decline. So, again, depending whichever one of those selections that are in there, the originator would be able to kind of get those status updates if Rob did elect to pay for, I could kind of know that that was taking place or if he scheduled for a week from now, you know, I could get messaging around that to know.

If I'm a recipient, that's more a corporate or a commercial user. I'm probably not going to use mobile. Potentially, I could, but, you know, the idea of, you know, for PNC, our online system is called PINACLE®, there would be to be able kind of see you through a module just to kind of see the receipt of those requests for information or requests for payment and kind of react to them in a more integrated, you know, treasury management experience.

**Rob Dailey:**

Thanks. Here's a question — will RTP be bundled with Payables Advantage?

**Dave Temme:**

Yes. So, again, we're envisioning, for the folks that aren't familiar, so PNC has today a comprehensive ability to receive a single file from our clients that could include, you know, ACH transactions, wire transfer transaction, automated AP card transactions and also kind do the check printing. We really just view this as another payment channel that could be, you know, number one, it could be included in that as we go forward.

To my earlier point, we're probably envisioning even maybe a bit of an extension around that. You might want to allow for us to do some kind of a routing around that, so you might want to give us some direction. RTP first, then wire, or what have you, depending on the nature of it. You don't have to use the routing concept, but I think we're looking at the ability to do the concept of routing based on whether it's just attributes that are kind of implicit in the file or very specific instructions that our clients would deliver to us.

**Rob Dailey:**

Okay. Hey, Dave, we've hit the top of the hour here, so I think we'll go ahead and wrap it up.

So I've turned to a page here on the presentation. We'd ask you to participate in a short survey on the screen. The feedback is very important to us, and we place a lot of value on the feedback that we do receive.

Dave, thank you very much for your time. Thanks to everybody who has participated in the webinar, and we look forward to hearing from you and continuing what is really a dynamic topic. It's the sort of topic that I think changes quickly and will change enough that we probably want to revisit it sometime in the next six to 12 months.

Thank you, everybody, for participating.

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