

Harland Clarke Webcast 10/28/15**EMV Conversion Made Simple Transcript**

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Greg: Good morning, everybody, and welcome to the Harland Clarke presentation, EMV Conversions Made Simple. My name is Greg Kuyava, and I will be your presenter today. A couple of housekeeping items as we go along so you can know what to expect. Today's presentation and a recording of today's presentation will be available within one week's time. We will email it out to all participants. If you want to ask a question, you can do so by using the little red arrow button on your panel screen. Down toward the bottom, you see a Chat function. You can send the question to the organizers and panelists, and we will then handle those questions. As we go along, we'll try and keep up with them, and we'll certainly leave time at the end of today's presentation to capture any questions that we have not answered at that point. We will have a couple of polls throughout today's presentation, so look for those, and we will then share the results of those polls in real time. With that being said, let's continue on to the next slide, and we will get going with this presentation.

Excellent, so what we're going to talk about today and how we're going to handle today's presentation has to do, very first, with some of the trends that are happening in the market today in EMV. We hit a very large milestone just recently on October 1 with the liability shift, so we'll take a look at where the market has been and how things are looking. We will then do a quick overview of what the EMV card is and what it looks like. We want to make sure we do a baseline or a level setting for everyone so everyone's on the same page. Then we will look at – the heart of today's presentation is the conversion, and how you can go through an EMV project plan, whether you've already started it or whether you're going to be starting in a couple of months. We'll take a look at that journey and what Harland Clarke provides in way of assistance. Then last but not least, as I mentioned before, we are going to talk – we'll leave time for the Q&A. With that, we'll continue on, and we'll start with the trends in the markets.

In the next slide, it talks – this is a graph. This is a survey that we had done towards the beginning of – or towards 2014. What it did is it was a predictor of where cards are going to be into the market as far as EMV is concerned. You can see that we utilized three research groups for these particular slides. What

we're looking at here is the yellow bars show the conversion to EMV for debit, and the blue bars show the conversion for EMV for credit cards. In all three of the slides, you can see that the industry is showing that credit cards were going to be the first to convert. In 2015, where we are today, almost all the slides fall right in all at the 60-70% mark for credit cards with debit, in 2015, falling closer to about the 30-35% mark.

In a recent industry meeting that I went to called the EMV Migration Forum, the forum was made up of industry leaders, processors, card associations, card issuers from all sides, financial institutions, merchants, all size merchants that are there including both large businesses and small businesses, and other industry suppliers and partners. The purpose of this Migration Forum is simply to talk about the issues that the migration to EMV presents itself, and come together in workarounds, and then get that information out into the market. Part of these meetings are an update from the various players within it: the networks, the associations, the issuers, the merchants. The overall general feel for this was that the United States has done pretty well. The issuers were saying that they were going to be right around 60% of their cards in the market are going to actually have EMV on them. This graph here, the graphics that we're looking at here, certainly supports that. We seem to be trending in the right direction according to what the issuers thought when we first took these surveys, and they are hitting their marks.

Small businesses themselves were also doing very well. Although, they were a little bit further behind as far as merchants were in having EMV point of sale ready readers in their locations. Large merchants, the big box stores, were much closer to about 60-70% ready to take EMV. Small businesses, although probably closer to 20-30%, but they were seeing a 30% month-over-month growth. Small merchants are a little bit slower to adapt, but they're getting there. Overall, very optimistic, we've come a long way since 2011 when the card associations first announced the roadmap to migrate the United States to EMV. In comparison, when you think about Canada and what they went through, Canada was a government mandated EMV migration, and it took them well over ten years just to get to the point where they are now. The United States has done a lot in just, really, the last four years. Most of the heavy lifting coming within the last year, year and a half, as the processors were getting in line, the merchants are getting in line, and now the financial institutions are able to issue those cards. The only other thing that I would mention on this is that one of the card associations mentioned that – one of the larger card associations mentioned that the United States, even though we're not at 100%, already has more EMV cards in the market than any other market in the world so all promising signs.

Moving on to the next slide, in talking about the complexities of the U.S. migration and, really, what makes it different, well, first and foremost, what the challenges have been up to this point is that we have the largest number of issuers, merchant acquirers, merchants, ATM operators, networks. We have all of these partners within the card program that really needed to coordinate their efforts, and make sure that the experience for the consumer was seamless. We also have 2 international and 16 debit networks. Other things that were happening, like the Durbin Amendment, slowed us in our ability to be able to start issuing debit cards in particular into the market. As the previous slide suggested is that credit was a little bit further ahead by about 30 percentage points in getting EMV cards in the market. The reason that debit was behind is it took a little bit longer for the industry to figure out what were they going to do with the Durbin Amendment that required U.S. issuers to participate in at least two unaffiliated debit networks, and how those transactions were going to be able to be presented and be allowed to provide that option in an EMV solution.

There's also every card supports a different set of features. You've got different operating systems. You've got different chips. You've got different card verification methods are available. That's on the issuer's side, and you can have the same thing on the merchant's side. There's a lot of coordination that needs to go on that just adds to the complexity. Then last but not least is because we're not at 100% merchant available EMV ready transactions, we're going to continue to have both a chip and a magnetic stripe on the card for the foreseeable future. If you talk with the industry experts at the EMV Migration Forum, once again, that foreseeable future could be anywhere from the next five to ten years. There is not a sun setting date for magstripe yet provided. However, we all agree that at some point that will happen. We just need to make sure that the merchants are EMV ready.

Let's move on to A Game-Changing Plan for EMV. What's really different about EMV, apart from just the industry itself and the complexities, is that if you compare it to your traditional magnetic stripe program, magnetic stripe, you could have your card manufacturer, your card issuing personalization provider, and your EFT processor really work in silos as far as your card program was concerned. They would have the same set of keys. The same DES keys, CVV keys, BIN numbers so that they could process the personalization order correctly and issue it correctly. The EFT processor would have the same information on their side so that they could process the transactions correctly.

Manufacturers, as far as they're concerned, it was a very standard set of specs that they needed to put on the card: a magnetic stripe, a certain number of magnetic lines, the association's logo, the secure signature panel. It was easy to run a magnetic stripe program and not have to coordinate all of these players

involved. This has changed completely with EMV. EMV now makes the financial institution have to coordinate between the manufacturer and the personalization vendor and the EFT processor in order to make sure that everything works the way it should. That it is the right type of operating system. That it has the right applications on it and the AIDs on it, and that when you finally create this EMV program that it is going to work at the merchant.

Let's move on. This brings us to our first poll question. Jeb is going to – my assistant is going to put the poll question up on the screen. What we want you to do is we want you to indicate when you will have EMV cards distributed to your cardholders, and please select from one of the options. First one, you currently have those cards in the market. Second option, you will have them out in the next four to six months, which means that you are most likely already working on your EMV program. Seven months or longer, which means you're probably in the queue somewhere, and you're just waiting for that project date to start or you're undecided. You haven't quite organized your project plan, and you haven't put together all the players: your EFT processor, your personalization, and your manufacturing partners. We'll give you a couple of seconds to answer this question.

Jeb: I think we're up to about 65% have voted. Go ahead, and we'll close out in the next five seconds here.

Greg: Okay.

Jeb: We hit 71%, great. Thanks, everyone.

Greg: Excellent, 70-some percent participating. We certainly do appreciate that. All right, here's what we're looking at. Currently in the market, the largest contingency, 45%, is seven months or longer. Certainly no surprise, one of the effects of the October 1 liability shift date was it put this deadline that everybody wanted to get into the queue to get their EMV program up and running. However, with the delays to the EMV debit with the Durbin Amendment and trying to figure that out, not everyone was able to get – make their decisions in order to get queued up. What we're seeing right now is that processors, personalization vendors, even manufacturers, as they're trying to coordinate these project plans, the start date for most individuals, even though they might – financial institutions, even though they might be ready right now, they're getting start dates that are first quarter, second quarter 2016, which could mean that they're not even distributing cards out until the end of 2016.

The next largest group is four to six months. Again, this probably represents those individuals that are probably already starting their project and do have a distribution date that is out there, or they're starting it very quickly so that

they'll know that they'll be out there in the first or second quarter of 2016. Twenty percent currently in the market, that's fantastic. Those people that currently have cards in the market probably made their decision back in the beginning of 2015 that they were going to go forward with EMV, and they made all their decisions on the different elements that were available. There's still a small percent, just about 10%, that is undecided, again, not very surprising. We see that both on the issuer side and the merchant side. People are trying to put their minds around what the heck EMV is, and what they need to do in order to make it a successful program.

There's also the weighing of the option of do I need to be the first one into the EMV market? It's a wait and see approach. Although, what we are seeing, as you would expect, as we have given this presentation before in the past and we've done this quick poll question is those numbers are shifting. The undecided, that 10%, used to be the current in the market percentage. It's always been seven months and longer. That's always been the bigger percentage as more and more financial institutions are trying to prepare themselves. They're finding, as they want to start their program, they're probably going to have to wait a couple of months in order for them to actually get going on that project plan.

We appreciate your participation in that poll. We'll continue on into the rest of the presentation. What we're going to do is we are going to take a look at the EMV card. I'll go through these next couple slides fairly quickly. We just want to make sure that we have a level set for everybody understanding what we're talking about the EMV card and the different components that are involved. Because, like I said earlier, this is a very complex issue.

First and foremost is that, when it comes to an EMV card, you'll have the chip on the front. That is a standard place positioning of that chip. As well as, cards for the foreseeable future will have the magnetic stripe. Now, we'll talk about this a little bit in the – we'll talk about this a little more when we talk about communications, but the chip and the magnetic strip will be confusing to your cardholders. They will raise a lot of questions of when do I use one or the other? Why does it have a mag-stripe? Is my data still secure? Why can't I use my chip card at some merchants? First and foremost is you need to be aware that it will be with a mag-stripe for at least the next couple of years, and you want to start thinking about ways to handle the questions that are coming in with that.

What you basically have when it comes to chip cards, EMV cards, is you have contact cards where there's a chip only card in the construction. You can see that the card has its traditional front and back to it, but in a contact only construction, the chip is embedded into the card itself. Dual interface, otherwise known – also known as contactless, it still has the front and the back of the card.

It still has a contact chip embedded into it, but also within the card itself is an inlay or antenna. What this antenna allows it to do is a reader that you can swipe it over. A contact card needs to come in contact with the actual reader itself. The chip stays within the reader and makes contact with the reader and stays there for the full time. A contactless card or a dual interfaced card will also have the ability for that chip to go in contact with the reader, or if the merchant has it available, they will be able to wave the chip on top of the reader and the antenna then transmits the transaction, creates the transaction.

Now, anecdotally, I will tell you that the United States is by and large – certainly for this first round of EMV cards is going to chip only or contact. We did see some early adaptors to dual interface, but even some of those financial institutions are going back to the contact only card. There's two reasons for that. Number one, the dual interfaced card, contactless card, is more expensive than the contact. You're adding another layer or feature, and benefit, and technology to it in allowing for a contactless transaction. The other reason and probably the most compelling reason not to do it is merchants by and large are – when they're getting their EMV programs up and running and they're getting their point of sale readers ready for EMV transactions, they are implementing the software and the hardware that allows for contact transactions, and they have not gone to the contactless features yet. If you were to go to a contactless or dual interfaced type of card construction, you would be adding to your cost and providing a feature that by and large is not going to be able to be used within the – at the merchant itself.

On the card, not only then do you have the type of construction but there's an operating platform, and there's basically three options that are available: a Native, JAVA, or Multos. Native is unique and specific to a particular processor or a particular financial institution. JAVA and Multos are certainly more universally used. The difference between JAVA and Multos is Multos is a more complex operating system. It allows for additional products and features to be added on to it if you wanted to use the card beyond just transactions. You wanted to use it for security purposes or ID purposes. Maybe transit features to it. Being able to get on at the train, or the bus, or whatever the case might be in cities that have that available.

Both JAVA and Multos, like I said, are universally utilized. They are both highly secure. The difference is one provides a little bit more features, so it's a little bit more expensive. JAVA, again, I will tell you from our standpoint we're seeing that is the more popular operating system. There's card certifications and these come along with all of these cards. Both the chip itself, the operating platform all need to be certified through Master Card and Visa. The chip itself actually does hold a lot of information. Think of it as a mini computer. It's going to hold

not only the cardholder data, just like the magstripe does, but it holds a set of encryption keys and the certification in order to allow for that transaction to occur.

Let's move on to the next slide where we actually do compare the chip itself to a computer. Again, this is just for knowledge and level setting. I'm not going to spend too much time here, but think of the chip itself as a laptop or a piece of hardware. Whether you have that PC from HP or Dell, or you have something from – you buy something from Apple, the chip is very similar to comparison to that. There are literally hundreds of different chip manufacturers that are sitting out there. From a financial institution standpoint, you will not have to decide whether you want – which type of chip you want out of the hundreds. The manufacturer that you go to, the personalization provider that you utilize will have a recommendation and will have a certified chip on that side.

What sits on that chip then is an operating system. Just like going back again to your PC, you have different operating systems, whether it's a DOS, or Windows, or Mountain Lion. The chip itself hosts an operating system, and as I described earlier, there's really three choices that are out there: Native, Java, or Multos. On top of the operating system, you then have other applications that you can use. Again, if you're going back to the PC and you've got a Dell. You have Windows as your operating system. You might have Excel, Outlook, Lotus Notes, Microsoft Word, all of these different applications that you can run off of this operating system. There are different applications that are driven by the card association that you are currently issuing cards for that will lay on top of the actual operating system itself. In many cases, the guidance on which operating system and which application will come from your partners, your EFT processor, and typically, your personalization provider. What you need to be able to do, though, is you need to make sure that you are coordinating that with your manufacturer as well.

Moving on to the next slide, there are a couple of options that are available when it comes – oops, I'm sorry. We're going to a poll question. I missed my poll question so if we could go to the poll question. Thank you, Jeb. I appreciate that. Second poll question of the day, for those that are close to doing – either have their cards in the market or you're going to be out there doing it in the next seven months or four to six months, whatever the case might be, indicate which operating system your FIs most likely use or currently using when you migrate to an EMV card program, Java, Multos, Native, or for that 10% that was undecided on where you're going to start, you may be undecided on this as well. We'll give you some time here to answer this question.

All right, what we have here is certainly a large number of individuals are undecided on that. Again, what we can detect from this poll question is that those individuals that might be a little bit further out or either in the four to six months or even in the seven or longer months, that you're probably in the queue. You have not decided. You have not coordinated with your EFT processor and your personalization provider to decide on which cards that you want. The Multos, as well as the Java, that would indicate those are cards that are already in the market, or you're already starting your project plan, but as you can see, as I mentioned earlier, JAVA is the more popular one. It's very secure. It's a little less expensive, and then, obviously, as we talked about, there's a large number that are undecided. It does not surprise me either that there is no one here using Native. Again, it's such a small group because it's very specific to certain financial institutions. If you want to do special types of features to your operating system or if you wanted to add special types of things to your EMV card, a Native operating system certainly would assist in that.

Now, as we move forward with EMV and we look at this in two or three years down the road, we may see some of these statistics shift. Certainly, the undecided is going to shift, but barring that, we may see Multos or Native become a little bit more popular as financial institutions zero in really what they want to do with their EMV program. More importantly is they look for ways to expand the features on the card. When you think about it, as I just said, we just added a mini computer to the card. Really, the sky is the limit on what we can do with this. Who knows what type of features and benefits we can think of now that we are putting a computer chip on a card?

Moving on to the different types of EMV card types, real quick, you've got a couple of decisions that you need to make here. You have eight contact or six contact. Really, what that refers to is the size of the actual chip itself. As you can see that, in the eight contact, there are four contact points on one side and four on the other making it an eight contact chip. The six contact, it has three on one side, three on the other, again, making it a six contact. The main difference between those is that there's a slight cost difference, but they're both contact cards, meaning they come in contact with the reader. The eight-contact card is a little bit larger. It just takes up more real estate. Both of them will operate with a Java operating system just fine.

As you move into dual interface, you need to go to the larger eight-contact chip. The reason behind that is simply because the antenna needs the larger space for it to be able to connect to and hook up to. One more reason, as I said, the eight-pin chip is a little bit larger than the six-pin chip, making it a little bit more expensive. Dual interface requires the little bit more expensive chip because of

the surface needed in order to have the antenna connect or the inlay connect. Both contact and dual interface operate out of those three operating systems, Native, Java, and Multos. Certification from MasterCard and Visa on the contact cards as well as American Express and Discover, dual interface MasterCard and Visa are allowing that.

We are going to move on to the security of the EMV transaction. One of the last things that as a financial institution you get to make some decisions on, besides the operating system, is the verification method and how the EMV becomes more secure, and what the different security features are. First and foremost is the card authorization. What this does is it makes sure that this is not a counterfeit card in card-present transactions. This verifies that the card is a good card and not something counterfeit. I do want to stress that EMV handles security for card-present transactions. EMV at this time does not cover online or card-not-present types of transactions – transactions that you might do over the phone where you're providing the card number or transactions that you're doing on your PC. The industry as a whole is starting to look at ways to help EMV support those types of transactions and secure those types of transactions, but right now, it's just card-present transactions.

The second part, and this is the biggest one, is cardholder verification. This is how we know that the person who's presenting this EMV card is the actual person who owns this. What this does, is this protects against any card that might have been lost or stolen from someone. Card authorization protects against data breaches and that information being put on to a fraudulent card. Cardholder verification makes sure that the individual presenting the card is the individual that they set.

You've got some options that are available as a financial institution. You get to decide what you want from a hierarchy on these different types. You can allow for PIN-only types of transactions where if the card of the merchant is online, you can request that the individual enter their PIN number. Offline PIN means that the merchant actually isn't online and that transaction is not going to happen and be authenticated in real time, but you still want that individual to enter in the PIN, and those transactions get batched and authorized at a later date. You could allow for signature, or, in some cases, say if the dollar amount is small enough, we're not going to require your signature, a PIN, or anything. As a financial institution, you'll decide which of these four you want to include and in which order you want them to happen.

A number of months ago, Visa was really pushing the signature types of transactions, signature only, and MasterCard was leaning more towards the PIN, but they're not as strong in their preferences any more. Keep in mind, what

you'll learn as you go through this process, is that the merchants also get to decide for themselves what they want their hierarchy to be. What happens is when you have an EMV card that comes in touch with a reader, what card verification methods will do is the merchant will look for their top priority and they'll look for it on the card. As soon as it matches up, if their top priority is signature only and if it finds a signature on your card, it will choose the signature option. If signature isn't an option on your card and the second option is online PIN for the merchant, it will look on your card to see if the online PIN is there, and if it is, it will match it up there. Both financial institutions, issuer and merchant, get to decide their hierarchy, but that is a decision you'll want to make – which of these card verification methods you want on your card.

Last but not least, the transactional authorization, again, the approval process, whether you will allow that to be in an online or offline environment. In the United States, 90+ percent or the high percentage of 90 percent is in an online environment anyway, so it doesn't really matter as much, but in the cases of cards that are going to go overseas, you may want them to have the ability to do it offline. Many kiosks in particular, overseas, will be in an offline environment and so if you have a large population of your account holders that travel internationally, you may want to consider offline as an option.

Let's go into the conversion itself in the journey made easy and what Harland Clarke provides is a way to handle this. What Harland Clarke does is see EMV coming down the road and what we do with many of our products and services, in particular within card services, is that we go out there and we try to simplify the whole process for everyone. We try to package programs that make it easier for the financial institution to get to the end goal, and in this case, our end goal is to be able to distribute working cards and understanding that it's a strain on the internal resources, both financially as well as the personnel resources, that are needed.

We've designed a program called "Chip Complete." We did this in coordination with EFT source and CPI. What this is, is a complete EMV migration package that allows the card issuer, you, to be able to issue cards in a fast, easy to implement, very cost-effective program that is supported by your host and your processors. Within Chip Complete, we have a number of different elements. There's training, design, the card design itself, card manufacturing, personalization, marketing communication strategy, and there's obviously the issuing of the card out into the market.

If you were to come to Harland Clarke and you were to say, "I want to participate in your Chip Complete program," you would then utilize all aspects of the Chip Complete, from the training all the way through to getting the card

issued out into your market. However, if you're coming to Harland Clarke, you can choose any one of these elements and utilize them. If you just need Harland Clarke to manufacture for you, we can do that as a standalone service. If you just want us to issue those cards, we can do that as a standalone service. If you want to utilize our marketing services and our expertise in communication out to your financial institution or cardholders, we can do that.

Chip Complete, and what we're going to talk about over the next couple of slides, combines all of these elements. What you're going to have to do as you migrate your EMV program into how it does it easily into one program. What we've done here is we've simplified it. We've broken it down into three areas. When it comes to migrating your EMV program, what Chip Complete provides is three elements: education, implementation, and communication. Over the next couple of slides we are going to talk about that.

Education is the first up in the three phases of this. First and foremost, we have come up with a series of education power points along with voiceover recordings to guide, not only yourself, but your employees on what EMV is. We have EMV 101 and we have best practices around communication strategies, so not only will you and your staff understand what EMV is, but you will understand what the different elements are, why this is important, and then it will also help you talk to your cardholders moving forward. There's also a FAQ document that's available that has over 30 questions, the most common questions that are out there for EMV. All of that is part of our education side of it.

Moving on to the project plan and support that is available, as I keep mentioning, there is a lot of coordination that needs to go on when it comes to EMV. No longer is your manufacturer your personalization and issuing partner or your EFT processor, are they able to work in silos. They now need to be able to partner up. Not only that, but when you take a look at the roadmap that needs to occur for you to get from the starting point to EMV issuing, you have everything from training yourself, what resources you're going to use, where you're going to go to find that training, and defining what you want as a product.

Now, we just asked a poll question of, "What operating system are you going to use?" Fifty-eight percent of us were still undecided on that. These are some of the questions. Your EFT personalization, working with both your processor and your personalization partner, your design; we cannot forget about the design. We are now putting a chip on the front of the card. It's going to take up real estate. How does that affect what your current design looks like? Does it cover

key elements of your brand? Does it cover key elements of your design? Do we need to redo the front of that card?

Key management: With the magnetic strip program, you've got your set of keys, DES keys and CVV keys. EMV offers a whole new set of keys, and so you're going to need to be able to figure out what you want to do with key management. Then you have to go through a live production and card testing. You want to be able to create the cards and inventory, and then finally, how are you going to issue those cards out?

What Chip Complete does is it simplifies the whole journey. It organizes it into nice, easy-to-follow steps, and it provides a project manager along the way to make sure that through this checklist of seven steps, we can help you through your journey with the least amount of difficulty possible. Moving on to the next slide, we'll talk a little bit about how we're able to do that.

The first place we're going to start is technology. First and foremost, what we've done is we've simplified it. There are many different options that are available. You have all of these different operating systems. You have all these different chips. You've got card verification methods. You've got AI application identifiers. You've got applications themselves. What we've done is we've simplified it.

When it comes to our program, you get to decide between two chips – two easy-to-understand chip options, saving you time. They are the most common in the industry, and it provides the flexibility in choice, memory size that you're going to need, authentication methods that we talked about, and operating systems. Everything that you're going to need is within these two chips. What we've done is we've taken this smorgasbord of options and we've narrowed it down in to two, and said, "Here's option one," and "Here's option two."

Let's take a little bit closer look at those two options on the next slide. Option one, first and foremost, is a contact chip. In both of our options, one and two, are contact cards, as I mentioned at the top of this presentation. That seems to be, by and large, the way the United States is going, at least in round one of EMV. We'll talk about round one more in just a moment.

Obviously, we're hitting the Compliant Association's Visa and MasterCard. If you are using Discover or American Express, we have the availability for that as well. The main difference between option one and option two is the authentication method, whether it's a SDA or a DDA. Again, depending on what your verification methods are going to be, the cardholder verification methods, if you want to do something in an online or offline environment, whether you're just doing signature or CVM, we'll be able to guide you into the correct authentication method. Both options use the operating system of Java, and as

we saw from the poll from those that are participating, that is by and large the way most of the United States is going.

You've got a choice of chip color, gold or silver. At the end of the day, we've kind of hit all the major things. We have your contact or dual interface, and we've said, "Everyone's doing contact; let's stay with contact." We've provided you the operating system decision. We are compliant and certified with the right associations, Visa and MasterCard. You get to choose the color of the chip, and then, depending on what you're going to do with your cardholder verification methods – online, offline, signature, no CVM – we'll guide you in the right direction, whether you need SDA or DDA.

What we see on the next slide, is we help you determine the types of profiles. We use the most common personalization specifications for MasterCard and Visa. The reason we do this is because it helps with the speed to market. Instead of creating new profiles or determining profiles that are not as widely used, what we have done is we've taken the standard profiles and we've put in our personalization process. It certainly doesn't compromise the quality, because we're certified in these particular profiles, it adds feeds to the actual market itself. Again, as I mentioned on the last slide, if you're Discover or American Express, we can provide profiles that are available to them.

When it comes to profiles, there are dozens of profiles that are available. Visa provides 4 different profile options. MasterCard provides 19 different options, so there's 23 total profiles that you could choose from. Chip Complete says, "Here are the most common ones." These are the ones that, by and large, the market is going to. Again, we simplify your whole decision process.

Let's get into the implementation side of this, and as I mentioned earlier, it is a very complex program that requires the managing of key partners. The card manufacturer, the card issuing partner, and the card EFT processor all need to work in cooperation to make sure that we know which card the EFT personalization processor can encode the chip on and what operating system it is. We need to know all those types of things in order to make this run smoothly.

What the next slide will illustrate is a real quick chart of the different elements of your card, the chip, the operating system, the AID/Application, the profiles, and then the card verification method, and which partners need to make sure that they are in sync with one another in order for your project and your EMV card to operate correctly. You cannot have your manufacturer manufacture a card that has a Java operating system going to a personalization vendor that

handles operating systems that can only encode chips with Multos. That card would not be able to work correctly.

It's the same thing when it comes to the EFT processor and personalization. When you're looking at the profiles and the cardholder verification methods, you need to make sure that as you are encoding the chip with the different applications and IDs with the different profiles and the different cardholder verification methods, as if those are elements that are supported over on the EFT processing side.

How do we do this? The way we do this is we supply the project management for this. Everywhere from your card manufacturing and your personalization, because you need to coordinate three elements of your card programs, card issuance, card inventory, and card processing, Harland Clarke can provide you in Chip Complete a program manager that can handle both of those in one place. What we can also do is, we can also then participate in calls and coordinate calls with your payment processor and continue the same touch throughout the whole migration.

We can add some additional support, graphic design and key management; putting the chip on the front of the card, you need to make sure that the branding you have on the front of your card is not effective, and if it is what can we do to correct it or make it better? Key management – we have a whole new set of keys that need to happen, and then card configuration and analysis. Which is the best setup for your card profiles, AIDs, CVMs, all those types of things?

Moving on, we'll talk a little bit more about key management. As I mentioned, we're adding a whole new set of keys. EMV has a whole new set of encryption keys. There are also production keys and transfer keys that are available and figuring out the storage of those keys and putting those keys into the system. We add that as a service on your behalf. Some processors will also provide this as a service. Some financial institutions, if they have the resources and knowledge, may want to do that themselves, but key management is an optional service that we provide.

The next slide talks about chip lifecycle management, and I think this often comes as a surprise to most financial institutions. The chip that you put on your card today has been determined by the Card Associations to have a lifecycle. In other words, they have said that at some point in the future, which is typically three years, that chip will expire. What they then require you to do as a financial institution is you can no longer distribute any EMV cards with that particular chip. As a financial institution, you need to distribute cards out into the market

on an updated version of that particular chip. Cards that are currently in the market with the chip that “expires” will still be able to be supported, it’s just as a rule, the Card Associations will not allow you to distribute a card that’s passed the expiration date.

Visa and MasterCard determine, as manufacturers of chips come out with their chips, what the lifecycle is. It starts as a three-year lifecycle. Visa and MasterCard have the ability to extend the lifecycle of that chip. They can do it up to a maximum of three years, and they would do it in one-year increments. What that means for a financial institution is, you need somebody in a program that helps you track your card inventory, and of your card inventory, what is your chip’s lifecycle and when are they going to expire so you’re never out of compliance with your Card Associations by distributing cards out into the market.

Equally as important, if you want to make sure that you have a method, when it comes time to replenish your inventory, you don’t replenish your inventory with a whole bunch of card stocks and chips that are going to expire in a shorter time than you’re able to distribute those cards. Harland Clarke and Chip Complete allows ChipTrac. This is a system that will track all the expiration dates of all of your cards.

We will help you determine, when it comes time to reorder, as to whether we need to go to a new chip, the next version or whether we can stay with the existing version, and if we do, what kind of order quantity should we have. We’ll also be able to help you determine, “Okay, I’ve got three months before the chip expires, but I have five months’ worth of inventory. Knowing just those two pieces of information, you can make a strategic decision to maybe issue five months’ worth of cards in a three-month period, thus, being able to get rid of all your inventory and speeding up your fourth and fifth month. They normally would not get their expired cards reissued in the fourth or fifth month, but now you decide to give it to them in the third month, again, helping you make decisions that make financial sense as well as manage your inventory.

Speaking about issuing cards, our next slide talks about instant issue as a viable option in order to help you support your distribution needs, our instant issue program card at once are fully compatible, EMV ready printers. If you currently have a printer in one of your branches right now and that printer was distributed to you after October 2013, that printer is now ready to be EMV enabled, and once we get your EMV program up and running, we simply need to update those printers. If you have a printer distributed prior to October 2013, we can retrofit your existing printers or you can buy new printers at a

significantly reduced price. In either case, what this does is support your issuance strategy.

At the beginning of 2015, we talked to financial institutions and they were going to redistribute their entire card program and get all their EMV cards out in the market as soon as they could. As 2015 pushed along, more folks started to really understand what that liability chip meant to them, and where the market was as far as being ready to accept EMV transactions at the merchants' locations, we are seeing more and more take the strategy of saying as cards expire and need to be reissued, that's when they will receive their EMV card.

What first started off as everyone doing lump, large-amount reissues, has now turned into the industry starting to say, "You know what? We're going to be distributing our EMV cards over the next two or three years." Where instant issue comes into play is if you decide that latter strategy and someone comes in and they want an EMV card today because they don't feel like they're getting the service or the security and you need to take care of that for them, instant issue is a great, inexpensive way for you to be able to do that at any of your branches.

Going into the communication side of this; this is the last piece of it. First and foremost is that we have fully turn-key communications and marketing support, whether you need to go out and communicate to your cardholders via direct mail, e-mail, statement inserts, any type of envelop inserts, we can support you with everything from developing all the materials, creating and designing, building the schedules, all of that is a turn-key operation within marketing services.

What we have developed through Chip Complete, if we are doing your personalization, issuing, and manufacturing is that we have created all of the types of messaging that you need as well as the strategy that goes along with that. Part of that strategy includes the best practices of when you need to communicate out to your cardholders. How many months in advance is that card being distributed do I need to communicate to my cardholders? What should my message be and how should I announce that this EMV card is coming? How do I communicate to my members when the card is actually being issued and the time it's being put into their mailbox? Last but not least, what do I need to do after the card has been distributed? What should my messaging be? Chip Complete provides turn-key communication and marketing support for all of that.

Along with the turn-key marketing support, we also have card plastic as well as collateral materials – the card carrier, the messaging that needs to go on the

card carriers – all those types of things are available. Last but not least, what we do once the cards are there – contact center and utilizing the amount of calls that are going to come in. What we do know, what we have seen, and what we have heard from issuers that have already put their cards out into the market, simply is that the amount of calls and volume of calls are on EMV and questions on how to use the card and what to use the card for increases significantly. How are you going to handle that influx of calls coming in? Harland Clarke, through our contact center, provides EMV conversion support, whether we're doing proactive calls before the cards get distributed or taking calls after they come in, we can supply that information.

We're up to our last poll question of the day, and then we're going to get into the questions that you might have as we come down to the last couple of minutes here. How comfortable are you with your existing communication strategy when it comes to EMV and messaging that you're going to send out to your cardholder? We can write the how-to manual on EMV and messaging, holding internal discussions but nothing is set – “Wait, there's more to this beyond getting cards distributed?” There is.

I'll give you guys a couple of seconds here to answer this question. I will also note while you're answering this question and kind of filling in the dead air, is I don't know if you saw in *American Banker*, there was an article out this week that talked specifically about how financial institutions are failing their cardholders because they're not educating them on the communication strategy. They're not communicating with them and educating them on what EMV is.

There are a lot of questions as to how the card is supposed to be used, why it's being used at some merchants, but it's not being used at other merchants. Why does it have a magnetic stripe? The communication strategy is the one area where we see that most financial institutions completely overlook. They get very absorbed in educating themselves, and by the time they get the program out and they get it distributed, they think, “Wow, did we educate our cardholders enough?”

Here are the results. We would write the manual – seven percent. That's excellent for you folks. I'm glad. A lot of that has probably come from experience and dealing with the communication that's coming in, or maybe you've been working with Harland Clarke and we've helped you write that manual. That certainly could be the case too.

Holding internal discussions but nothing set – 73 percent. That's fantastic. When we asked this question much earlier, by and large, the largest percentage was,

“Wait, there’s more to getting beyond the cards getting distributed.” It’s really good to see that, from the industry, we’re looking at this as a must-have, must-do part of the overall program. Twenty percent, that’s one in five, you haven’t even thought about it yet, and again, three months ago when we took this survey, this was the largest percentage, so that does not surprise me.

That concludes the webinar for today. We are going to sit and go through the questions. Let me look here real quick. Easy enough – I don’t see any questions sitting up here. As of right now, there are no questions in the question box, so if you would like more information on Chip Complete or how Harland Clarke can support your EMV program, simply log on to HarlandClarke.com or contact your Harland Clarke account executive, who will be more than happy to provide you guidance with that. If you are interested in any one of these elements or all of the elements, we can certainly support you. If you’re looking for us to do the manufacturing or the issuing, we can handle that. If you already have those elements in place but you really don’t know what to do with the communication side, we can help you with the communication side as long as you’re using Harland Clarke to help fulfill that communication strategy.

With that, one last check. There does not look to be any questions here. I will just remind everyone that a recording of this presentation along with a copy of it will be sent out to everyone that participated today. I want to thank you for your time. Have a great day!