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Statement
On Behalf of

The National Retail Federation,
The National Council of Chain Restaurants,
and Shop.org

For

The House of Representatives Committee on Energy and Commerce
Subcommittee on Commerce, Manufacturing, and Trade's

Hearing on

"Protecting Consumer Information: Can Data Breaches Be Prevented?"

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Chairman Terry, Ranking Member Schakowsky and members of the Committee, thank you for holding a hearing examining data breaches and cyber crime. The National Retail Federation (NRF) is the world's largest retail trade association, representing discount and department stores, home goods and specialty stores, Main Street merchants, grocers, wholesalers, chain restaurants and Internet retailers from the United States and more than 45 countries. Retail is the nation's largest private sector employer, supporting one in four U.S. jobs – 42 million working Americans. Contributing $2.5 trillion to annual GDP, retail is a daily barometer for the nation's economy.

Collectively, retailers spend billions of dollars safeguarding consumers' data and fighting fraud. Data security is something that our members strive to improve every day. Virtually all of the data breaches we've seen in the United States during the past couple of months – from those at retailers that have been prominent in the news to those at banks and card network companies that have received less attention – have been perpetrated by criminals that are breaking the law. All of these companies are victims of these crimes and we should keep that in mind as we explore this topic and public policy initiatives relating to it.

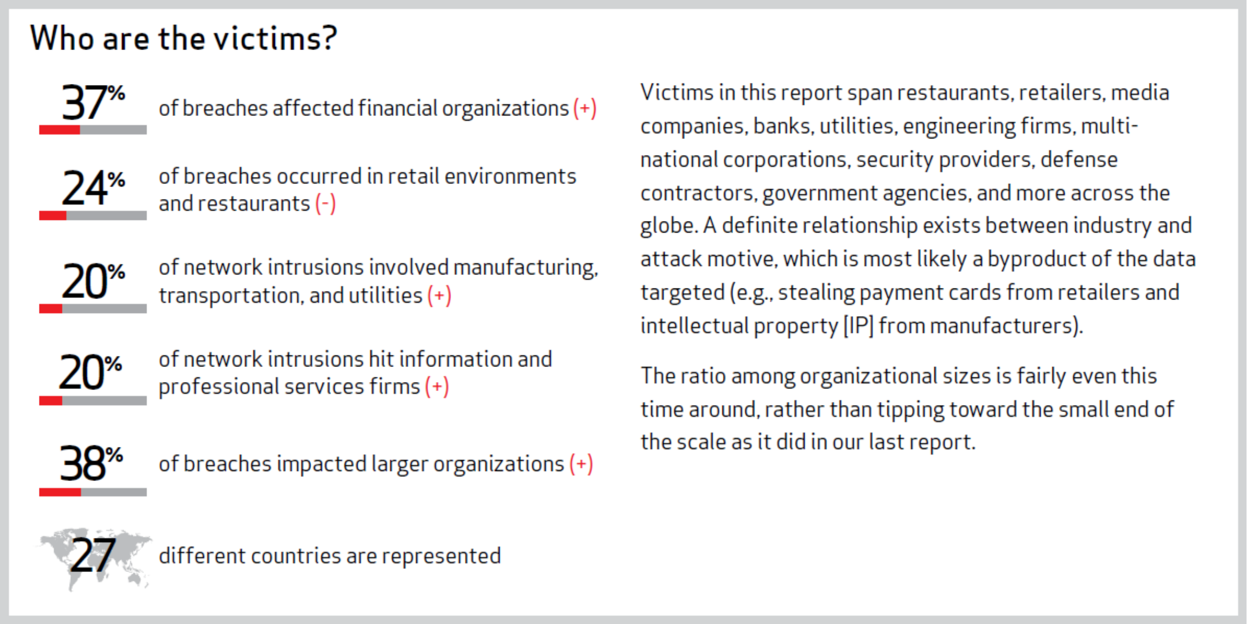
This issue is one that we urge the Committee to examine in a holistic fashion: we need to reduce fraud. That is, we should not be satisfied with deciding what to do after a data breach occurs – who to notify and how to assign liability. Instead, it's important to look at why such breaches occur and what the perpetrators get out of them so that we can find ways to reduce and prevent not only the breaches themselves, but the fraudulent activity that is often the goal of these events. If breaches become less profitable to criminals then they will dedicate fewer resources to committing them and our goals will become more achievable.

With that in mind, this testimony is designed to provide some background on data breaches and on fraud, explain how these events interact with our payments system, discuss some of the technological advancements that could improve the current situation, raise some ways to achieve those improvements, and then discuss the aftermath of data breaches and some ways to approach things when problems do occur.

Data Breaches in the United States

Unfortunately, data breaches are a fact of life in the United States. In its 2013 data breach investigations report, Verizon analyzed more than 47,000 security incidents and 621 confirmed data breaches that took place during the prior year. Virtually every part of the economy was hit in some way: 37% of breaches happened at financial institutions; 24% happened at retail; 20% happened at manufacturing, transportation and utility companies; and 20% happened at information and professional services firms.

It may be surprising to some given recent media coverage that more data breaches occur at financial institutions than at retailers. And, it should be noted, even these figures obscure the fact that there are far more merchants that are potential targets of criminals in this area. There are hundreds of times as many merchants accepting card payments in the United States than there are financial institutions issuing and processing those payments. So, proportionally, and not surprisingly, the thieves focus far more often on banks which have our most sensitive financial information – including not just card account numbers but bank account numbers, social security numbers and other identifying data that can be used to steal identities beyond completing some fraudulent transactions.



Who are the victims?

37% of breaches affected financial organizations (+)

24% of breaches occurred in retail environments and restaurants (-)

20% of network intrusions involved manufacturing, transportation, and utilities (+)

20% of network intrusions hit information and professional services firms (+)

38% of breaches impacted larger organizations (+)

27 different countries are represented

Victims in this report span restaurants, retailers, media companies, banks, utilities, engineering firms, multinational corporations, security providers, defense contractors, government agencies, and more across the globe. A definite relationship exists between industry and attack motive, which is most likely a byproduct of the data targeted (e.g., stealing payment cards from retailers and intellectual property [IP] from manufacturers).

The ratio among organizational sizes is fairly even this time around, rather than tipping toward the small end of the scale as it did in our last report.

Source: 2013 Data Breach Investigations Report, Verizon

Nearly one-fifth of all of these breaches were perpetrated by state-affiliated actors connected to China. Three in four breaches were driven by financial motives. Two-thirds of the breaches took months or more to discover and 69% of all breaches were discovered by someone outside the affected organization.[1]

These figures are sobering. There are far too many breaches. And, breaches are often difficult to detect and carried out in many cases by criminals with real resources behind them. Financially focused crime seems to most often come from organized groups in Eastern Europe rather than state-affiliated actors in China, but the resources are there in both cases. The pressure on our financial system due to the overriding goal of many criminals intent on financial fraud is acute. We need to recognize that this is a continuous battle against determined fraudsters and be guided by that reality.

Background on Fraud

Fraud numbers raise similar concerns. Just a year ago, Forbes found that Mexico and the United States were at the top of the charts worldwide in credit and debit card fraud.[2] And fraud losses in the United States have been going up in recent years while some other countries have had success reducing their fraud rates. The United States in 2012 accounted for nearly 30

[1] 2013 Data Breach Investigations Report, Verizon.

[2] "Countries with the most card fraud: U.S. and Mexico," *Forbes* by Halah Touryalai, Oct. 22, 2012.

percent of credit and debit card charges but 47 percent of all fraud losses.[3] Credit and debit card fraud losses totaled $11.27 billion in 2012.[4] And retailers spend $6.47 billion trying to prevent card fraud each year.[5]

Fraud is particularly devastating for retailers in the United States. LexisNexis and Javelin Strategy & Research have published an annual report on the "True Cost of Fraud" each year for the last several years. The 2009 report found, for example, that retailers suffer fraud losses that are 10 times higher than financial institutions and 20 times the cost incurred by consumers. This study covered more than just card fraud and looked at fraudulent refunds/returns, bounced checks, and stolen merchandise as well. Of the total, however, more than half of what merchants lost came from unauthorized transactions and card chargebacks.[6] The founder and President of Javelin Strategy, James Van Dyke, said at the time, "We weren't completely surprised that merchants are paying more than half of the share of the cost of unauthorized transactions as compared to financial institutions. But we were very surprised that it was 90-10."[7] Similarly, Consumer Reports wrote in June 2011, "The Mercator report estimates U.S. card issuers' total losses from credit- and debit-card fraud at $2.4 billion. That figure does not include losses that are borne by merchants, which probably run into tens of billions of dollars a year."[8]

Online fraud is a significant problem. It has jumped 36 percent from 2012 to 2013.[9] In fact, estimates are that online and other fraud in which there is no physical card present accounts for 90 percent of all card fraud in the United States.[10] And, not surprisingly, fraud correlates closely with data breaches among consumers. More than 22 percent of breach victims suffered fraud while less than 3 percent of consumers who didn't have their data breached experienced fraud.[11]

[3] "U.S. credit cards, chipless and magnetized, lure global fraudsters," by Howard Schneider, Hayley Tsukayama and Amrita Jayakumar, *Washington Post*, January 21, 2014.

[4] "Credit Card and Debit Card Fraud Statistics," CardHub 2013, available at http://www.cardhub.com/edu/credit-debit-card-fraud-statistics/.

[5] *Id*.

[6] A fraud chargeback is when the card-issuing bank and card network take the money for a transaction away from the retailer so that the retailer pays for the fraud.

[7] "Retailers are bearing the brunt: New report suggests what they can do to fight back," by M.V. Greene, NRF Stores, Jan. 2010.

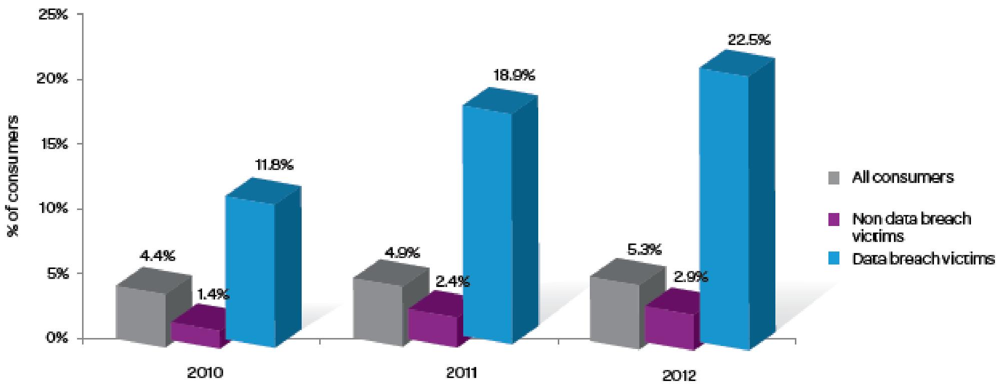
[8] "House of Cards: Why your accounts are vulnerable to thieves," Consumer Reports, June 2011.

[9] 2013 True Cost of Fraud, LexisNexis at 6.

[10] "What you should know about the Target case," by Penny Crosman, *American Banker*, Jan. 23, 2014.

[11] 2013 True Cost of Fraud, LexisNexis at 20.

Figure 11. Fraud Incidence Rate Among All Consumers, Data Breach Victims, And Non Data Breach Victims (2010 -2012)



Q: In the last 12 months, have you been notified by a business or other institution that your personal or financial information has been lost, stolen, or compromised in a data breach?

October 2010 - 2012, n = varies 337 - 5,249
Base: All consumers, data breach victims, non data breach victims.
© 2013 Javelin Strategy & Research

Source: 2013 True Cost of Fraud, LexisNexis

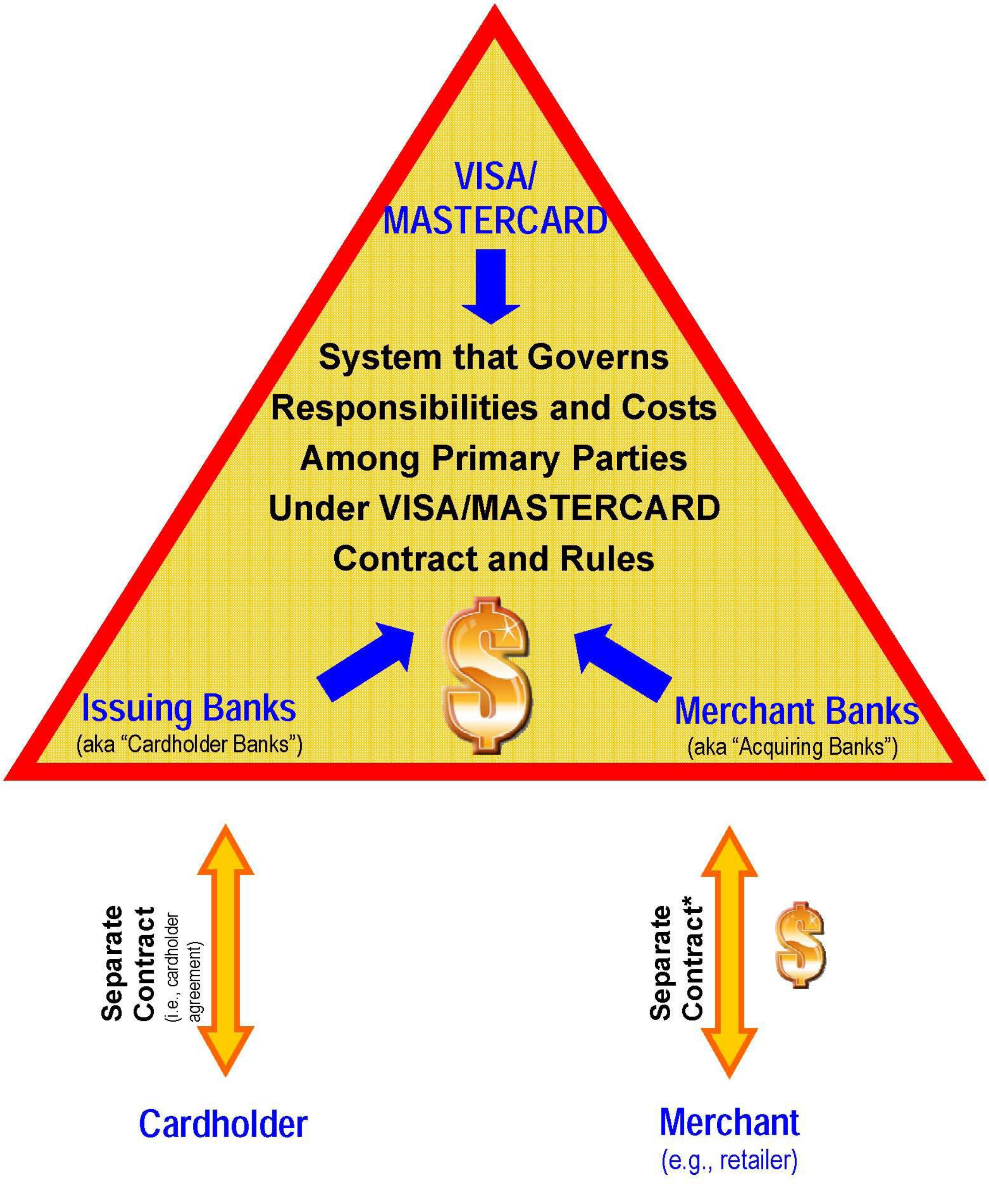
These numbers provide insights as to how to get to the right solutions of better safeguarding consumer and cardholder data and the need to improve authentication of transactions to protect against fraud. But before delving into those areas, some background on our payments system could be helpful.

The Payments System

Payments data is sought in breaches more often than any other type of data.[12] Now, every party in the payment system, financial institutions, networks, processors, retailers and consumers, has a role to play in reducing fraud. However, although all parties have a responsibility, some of those parties are integral to the system's design and promulgation while others, such as retailers and consumers, must work with the system as it is delivered to them.

As the following chart shows, while the banks are intimately connected to Visa and MasterCard, merchants and consumers have virtually no role in designing the payment system. Rather, they are bound to it by separate agreements issued by financial intermediaries.

[12] 2013 Data Breach Investigations Report, Verizon at 445, figure 35.



* Typically contract between merchant bank and its retailers requires retailers to reimburse merchant bank for any costs, penalties, or fees imposed by the system on the merchant bank (including chargebacks – i.e., disputed charges – and costs of data breaches)

Thus consumers are obligated to keep their cards safe and secure in their wallets and avoid misuse, but must necessarily turn their card data over to others in order to effectuate a transaction. Retailers are likewise obligated to collect and protect the card data they receive, but are obligated to deliver it to processors in order to complete a transaction, resolve a dispute or process a refund. In contrast, those inside the triangle have much more systemic control.

For example, retailers are essentially at the mercy of the dominant credit card companies when it comes to protecting payment card data. The credit card networks – Visa, MasterCard, American Express, Discover and JCB – are responsible for an organization known as the PCI (which stands for Payment Card Industry) data security council. PCI establishes data security standards (PCI-DSS) for payment cards. While well intentioned in concept, these standards have not worked quite as well in practice. They have been inconsistently applied, and their avowed purpose has been significantly altered.

PCI has in critical respects over time pushed card security costs onto merchants even when other decisions might have more effectively reduced fraud – or done so at lower cost. For example, retailers have long been required by PCI to encrypt the payment card information that they have. While that is appropriate, PCI has not required financial institutions to be able to accept that data in encrypted form. That means the data often has to be de-encrypted at some point in the process in order for transactions to be processed.

Similarly, merchants are expected to annually demonstrate PCI compliance to the card networks, often at considerable expense, in order to benefit from a promise that the merchants would be relieved of certain fraud inherent in the payment system, which PCI is supposed to prevent. However, certification by the networks as PCI Compliant apparently has not been able to adequately contain the growing fraud and retailers report that the “promise” increasingly has been abrogated or ignored. Unfortunately, as card security expert Avivah Litan of Gartner Research wrote recently, “The PCI (Payment Card Industry) security standard has largely been a failure when you consider its initial purpose and history.”[13]

PCI has not addressed many obvious deficiencies in cards themselves. There has been much attention to the fact that the United States is one of the last places on earth to put card information onto magnetic stripes on the backs of cards that can easily be read and can easily be counterfeited (in part because that data is static and unchanging). We need to move past magstripe technology.

But, before we even get to that question, we need to recognize that sensitive card data is right on the front of the card, embossed with prominent characters. Simply seeing the front of a card is enough for some fraudsters and there have been fraud schemes devised to trick consumers into merely showing someone their cards. While having the embossed card number on the front of the card might have made sense in the days of knuckle-buster machines and carbon copies, those days are long passed.

In fact, cards include the cardholder’s name, card number, expiration date, signature and card verification value (CVV) code. Everything a fraudster needs is right there on the card. The

[13] “How PCI Failed Target and U.S. Consumers,” by Avivah Litan, Gartner Blog Network, Jan. 20, 2014, available at http://blogs.gartner.com/avivah-litan/2014/01/20/how-pci-failed-target-and-u-s-consumers/.

bottom line is that cards are poorly designed and fraud-prone products that the system has allowed to continue to proliferate.

PCI has also failed to require that the identity of the cardholder is actually verified or authenticated at the time of the transaction. Signatures don't do this. Not only is it easy to fake a signature, but merchants are not allowed by the major card networks to reject a transaction based on a deficient signature. So, the card networks clearly know a signature is a useless gesture which proves nothing more than that someone was there purporting to be the cardholder.

The use of personal identification numbers (PINs) has actually proven to be an effective way to authenticate the identity of the cardholder. PIN numbers are personal to each cardholder and do not appear on the cards themselves. While they are certainly not perfect, their use is effective at reducing fraud. On debit transactions, for example, PIN transactions have one-sixth the amount of fraud losses that signature transactions have.[14] But PINs are not required on credit card transactions. Why? From a fraud prevention perspective, there is no good answer except that the card networks which set the issuance standards have failed to protect people in a very basic way.

As noted by LexisNexis, merchant fraud costs are much higher than banks' fraud costs. When credit or debit card fraud occurs, Visa and MasterCard have pages of rules providing ways that banks may be able to charge back the transaction to the retailer (which is commonly referred to as a "chargeback"). That is, the bank will not pay the retailer the money for the fraudulent transaction even though the retailer provided the consumer with the goods in question. When this happens, and it happens a lot, the merchant loses the goods *and* the money on the sale. According to the Federal Reserve, this occurs more than 40 percent of the time when there is fraud on a signature debit transaction,[15] and our members tell us that the percentage is even higher on credit transactions. In fact, for online transactions, which as noted account for 90 percent of fraud, merchants pay for the vast majority of fraudulent transactions.[16]

Retailers have spent billions of dollars on card security measures and upgrades to comply with PCI card security requirements, but it hasn't made them immune to data breaches and fraud. The card networks have made those decisions for merchants and the increases in fraud demonstrate that their decisions have not been as effective as they should have been.

Improved Technology Solutions

There are technologies available that could reduce fraud. An overhaul of the fraud-prone cards that are currently used in the U.S. market is long overdue. As I noted, requiring the use of a PIN is one way to reduce fraud. Doing so takes a vulnerable piece of data (the card number) and makes it so that it cannot be used on its own. This ought to happen not only in the brick-

[14] *See* 77 Fed. Reg. 46261 (Aug. 3, 2012) reporting $1.11 billion in signature debit fraud losses and $181 million in PIN debit fraud losses.

[15] *Id*. at 46262.

[16] Merchants assume 74 percent of fraud losses for online and other card-not-present signature debit transactions. 77 Fed. Reg. 46262.

and-mortar environment in which a physical card is used but also in the online environment in which the physical card does not have to be used. Canada, for example, is exploring the use of a PIN for online purchases. The same should be true here. Doing so would help directly with the 90 percent of U.S. fraud which occurs online. It is not happenstance that automated teller machines (ATMs) require the entry of a PIN before dispensing cash. Using the same payment cards for purchases should be just as secure as using them at ATMs.

Cards should also be smarter and use dynamic data rather than magnetic stripes. In much of the world this is done using computer chips that are integrated into physical credit and debit cards. That is a good next step for the United States. It is important to note, however, that there are many types of technologies that may be employed to make this upgrade. EMV, which is an acronym for Europay, MasterCard and Visa, is merely one particular proprietary technology. As the name indicates, EMV was established by Europay, MasterCard and Visa. A proprietary standard could be a detriment to the other potentially competitive networks.[17] Adopting a closed system, such as EMV, means we are locking out the synergistic benefits of competition.

But even within that closed framework, it should also be noted that everywhere in the world that EMV has been deployed to date the card networks have required that the cards be used with a PIN. That makes sense. But here, the dominant card networks are proposing to force chips (or even EMV) on the U.S. market without requiring PIN authentication. Doing that makes no sense and loses a significant part of the fraud prevention benefits of chip technology. To do otherwise would mean that merchants would spend billions to install new card readers without they or their customers obtaining PINs' fraud-reducing benefits. We would essentially be spending billions to combine a 1990's technology (chips) with a 1960's relic (signature) in the face of 21st century threats.

Another technological solution that could help deter and prevent data breaches and fraud is encryption. Merchants are already required by PCI standards to encrypt cardholder data but, as noted earlier, not everyone in the payments chain is required to be able to accept data in encrypted form. That means that data may need to be de-encrypted at some points in the process. Experts have called for a change to require "end-to-end" (or point-to-point) encryption which is simply a way to describe requiring everyone in the payment-handling chain to accept, hold and transmit the data in encrypted form.

[17] There are issues with EMV because the technology is just one privately owned solution. For example, EMV includes specifications for near field communications that would form the technological basis of Visa and MasterCard's mobile payments solutions. That raises serious antitrust concerns for retailers because we are just starting to get some competitors exploring mobile payments. If the currently dominant card networks are able to lock-in their proprietary technology in a way that locks-out competition in mobile payments, that would be a bad result for merchants and consumers who might be on the verge of enjoying the benefits of some new innovations and competition.

So, while chip cards would be a step forward in terms of improving card products, if EMV is forced as the chip card technology that must be used – rather than an open-source chip technology which would facilitate competition and not predetermine mobile payment market-share – it could be a classic case of one step forward and two steps backward.

According to the September 2009 issue of the Nilson Report "most recent cyberattacks have involved intercepting data in transit from the point of sale to the merchant or acquirer's host, or from that host to the payments network." The reason this often occurs is that "data must be decrypted before being forwarded to a processor or acquirer because Visa, MasterCard, American Express, and Discover networks can't accept encrypted data at this time."[18]

Keeping sensitive data encrypted throughout the payments chain would go a long way to convincing fraudsters that the data is not worth stealing in the first place – at least, not unless they were prepared to go through the arduous task of trying to de-encrypt the data which would be necessary in order to make use of it. Likewise, using PIN-authentication of cardholders now would offer some additional protection against fraud should this decrypted payment data be intercepted by a criminal during its transmission "in the clear."

Tokenization is another variant that could be helpful. Tokenization is a system in which sensitive payment card information (such as the account number) is replaced with another piece of data (the "token"). Sensitive payment data could be replaced with a token to represent each specific transaction. Then, if a data breach occurred and the token data were stolen, it could not be used in any other transactions because it was unique to the transaction in question. This technology has been available in the payment card space since at least 2005.[19]

And, mobile payments offer the promise of greater security as well. In the mobile setting, consumers won't need to have a physical card – and they certainly won't replicate the security problem of physical cards by embossing their account numbers on the outside of their mobile phones. It should be easy for consumers to enter a PIN or password to use payment technology with their smart phones. Consumers are already used to accessing their phones and a variety of services on them through passwords. Indeed, if we are looking to leapfrog the already aging current technologies, mobile-driven payments may be the answer.

Indeed, as much improved as they are, chips are essentially dumb computers. Their dynamism makes them significantly more advanced than magstripes, but their sophistication pales in comparison with the common smartphone. Smartphones contain computing powers that could easily enable comparatively state-of-the-art fraud protection technologies. The phones soon may be nearly ubiquitous, and if their payment platforms are open and competitive, they will only get better.

The dominant card networks have not made all of the technological improvements suggested above to make the cards issued in the United States more resistant to fraud, despite the availability of the technology and their adoption of it in many other developed countries of the world, including Canada, the United Kingdom, and most countries of Western Europe.

In this section, I have merely described some of the solutions available, but the United States isn't using any of them the way that it should be. While everyone in the payments space has a responsibility to do what they can to protect against fraud and data theft, the card networks

[18] The Nilson Report, Issue 934, Sept. 2009 at 7.
[19] For information on Shift4's 2005 launch of tokenization in the payment card space see http://www.internetretailer.com/2005/10/13/shift4-launches-security-tool-that-lets-merchants-re-use-credit.

have arranged the establishment of the data security requirements and yet, in light of the threats, there is much left to be desired.

A Better System

How can we make progress toward the types of solutions that would reduce the crimes of data theft and fraud? One thing seems clear at this point: we won't get there by doing more of the same. We need PIN-authentication of card holders, regardless of the chip technology used on newly issued cards. We also need chip cards that use open standards and allow for competition among payment networks as we move into a world of growing mobile commerce. Finally, we need companies throughout the payment system to work together on achieving end-to-end encryption so that there are no weak links in the system where sensitive card payment information may be acquired more easily than in other parts of the system.

Steps Taken by Retailers After Discovery of a Breach of Security

In our view, it is after a fulsome evaluation of data breaches, fraud, the payments system and how to improve each of those areas in order to deter and prevent problems that we should turn to the issue of what to do when breaches occur. Casting blame and trying to assign liability is, at best, putting the cart before the horse and, at worst, an excuse for some actors to ignore their own responsibility for trying to prevent these crimes.

One cannot reasonably demand greater security of a system than the system is reasonably capable of providing. Some participants act as if the system is more robust than it is. Currently, when the existing card products are hit in a criminal breach, that company is threatened from many sides. The threats come from entities seeking to exact fines and taking other penalizing action even before the victimized company can secure its network from further breaches and determine through a forensic analysis what has happened in order to notify potentially affected customers. For example, retailers that have suffered a breach are threatened with fines for the breach based on allegations of non-compliance with PCI rules (even when the company has been certified as PCI-compliant). Other actors may expect the breached party to pay for all of the fraudulent transactions that take place on card accounts that were misused, even though the design of the cards facilitated their subsequent counterfeiting. Indeed, some have seriously suggested that retailers reimburse financial institutions for the cost of reissuing more fraud-prone cards. And, as a consequence of the breach, some retailers must then pay higher fees on its card transactions going forward. Retailers pay for these breaches over and over again, despite often times being victims of sophisticated criminal methods not reasonably anticipated prior to the attack.

Breaches require retailers to devote significant resources to remedy the breach, help inform customers and take preventative steps to ward off future attacks and any other potential vulnerabilities discovered in the course of the breach investigation. Weeks or months of forensic analysis may be necessary to definitively discover the cause and scope of the breach. Any discovered weaknesses must be shored up. Quiet and cooperative law enforcement efforts may be necessary in an effort to identify and capture the criminals. Indeed, law enforcement may temporarily discourage publication of the breach so as to not alert the perpetrators that their efforts have been detected.

It is worth noting that in some of these cases involving payment card data, retailers discover that they actually were not the source of the breach and that someone else in the payments chain was victimized or the network intrusion and theft occurred during the transmission of the payment card data between various participants in the system. For this reason, early attempts to assign blame and shift costs are often misguided and policy makers should take heed of the fact that often the earliest reports are the least accurate. Additionally, policy makers should consider that there is no independent organization devoted to determining where a breach occurred, and who is to blame – these questions are often raised in litigation that can last for years. This is another reason why it is best to at least wait until the forensic analysis has been completed to determine what happened. Even then, there may be questions unanswered if the attack and technology used was sophisticated enough to cover the criminals' digital tracks.

The reality is that when a criminal breach occurs, particularly in the payments system, all of the businesses that participate in that system and their shared customers are victimized. Rather than resort to blame and shame, parties should work together to ensure that the breach is remedied and steps are taken to prevent future breaches of the same type and kind.

Legislative Solutions

In addition to the marketplace and technological solutions suggested above, NRF also supports a range of legislative solutions that we believe would help improve the security of our networked systems, ensure better law enforcement tools to address criminal intrusions, and standardize and streamline the notification process so that consumers may be treated equally across the nation when it comes to notification of data security breaches.

NRF supports the passage by Congress of the bipartisan "Cyber Intelligence Sharing and Protection Act" (H.R. 624) so that the commercial sector can lawfully share information about cyber-threats in real-time and enable companies to defend their own networks as quickly as possible from cyber-attacks as soon as they are detected elsewhere by other business.

We also support legislation that provides more tools to law enforcement to ensure that unauthorized network intrusions and other criminal data security breaches are thoroughly investigated and prosecuted, and that the criminals that breach our systems to commit fraud with our customers' information are swiftly brought to justice.

Finally, and for nearly a decade, NRF has supported passage of legislation that would establish one, uniform federal breach notification law that would be modeled on, and preempt, the varying breach notification laws currently in operation in 46 states, the District of Columbia and federal territories. A federal law could ensure that all entities handling the same type of sensitive consumer information, such as payment card data, are subject to the same statutory rules and penalties with respect to notifying consumers of a breach affecting that information, Further, a preemptive federal breach notification law would allow retailers and other businesses that have been victimized by a criminal breach to focus their resources on remedying the breach and notifying consumers rather than hiring outside legal assistance to help guide them through the myriad and sometimes conflicting set of 50 data breach notification standards in the state and federal jurisdictions. Additionally, the use of one set of standardized notice rules would permit the offering to consumers of the same notice and the same rights regardless of where they live.

Conclusion

In closing three points are uppermost.

First, retailers take the increasing incidence of payment card fraud very seriously. We do so as Main Street members of the community, because it affects our neighbors and our customers. We do so as businesses, because it affects the bottom line. Merchants already bear at least an equal, and often a greater, cost of fraud than any other participant in the payment card system. We have every reason to want to see fraud reduced, but we have only a portion of the ability to make that happen. We did not design the system; we do not configure the cards; we do not issue the cards. We will work to effectively upgrade the system, but we cannot do it alone.

Second, the vast majority of breaches are criminal activity. The hacked party, whether a financial institution, a card network, a processor, a merchant, a governmental institution, or a consumer is the victim of a crime. Traditionally, we don't blame the victim of violence for the resulting stains; we should be similarly cautious about penalizing the hackee for the hack. The payment system is complicated. Every party has a role to play; we need to play it together. No system is invulnerable to the most sophisticated and dedicated of thieves. Consequently, eliminating all fraud is likely to remain an aspiration. Nevertheless, we will do our part to help achieve that goal.

Third, it is long past time for the U.S. to adopt PIN and chip card technology. The PIN authenticates and protects the consumer and the merchant. The chip authenticates the card to the bank. If the goal is to reduce fraud we must, at a minimum, do both.