By Linda Windler, Thoroughbred Systems, Inc.

Computer Corner

Utility Bill Paying – Balancing Between Convenience and Risk

T he theme for the Kansas Rural Water Association's 52nd Annual 2019 Conference and Exhibition is "Planting Good Ideas, Harvesting Results". That's what KRWA has been doing for more than half a century. A great many of those ideas relate to ever-changing, ever-advancing technologies. Of course, the key to the theme is not just planting ideas; it's planting GOOD ideas. In other words, just because a new technological idea is made possible, doesn't always mean it is a good idea.

The last two *Computer Corner* articles have been about security or, sometimes the lack of security, on the Internet. One could fill a book just listing the headlines we have seen in the last decade related to security breeches on the Internet affecting millions of people. Some of these security problems have been or could be solved with technology, while sometimes the best solution is applying some common sense.

Take for instance utility bill payment options. Let's step back to the days when the only way people paid a utility bill was to either go to the city or water district's office with cash or check or money order or send their payment by mail or by placing a payment in a drop box. If a water department either feared someone might tamper with a drop box or, perhaps, actually had a theft experience, they might improve the physical security of the drop box maybe by replacing wood with steel, in other words, using a better technology to solve the problem. On the other hand they might head off a thief by posting instructions that no cash payments should be put in the drop box, which is a common sense solution. Some communities also have arrangements with the local bank for taking payments.

Today most water departments still offer all or some of those choices, but with modern computer technologies, they may allow other options as well.

When utility departments first started offering their customers the convenience of automatic bill payment directly from their bank accounts, without the customer having to worry about writing a check on time, they were doing paper bank drafts. This meant that the city or district would print a 'Bank Draft Check' from their utility billing software or provide a report of the customers who had signed up for the service listing their current balances for the bank to use to deduct the appropriate amount from each customer's account. Meanwhile, the payments would be applied to the city or water district's utility software, tracking the customer's charges, payments and balances.

Periodically, we find a small town or water district still working with their local bank using this paper method; generally banks are no longer willing to use this old method.

ACH – Automated Clearing House

Modern automated banking, known as ACH, an acronym for Automated Clearing House, is accomplished without paper. Just like a customer handing over a paper check, it does not matter what bank the customer uses. We have found that believing the customer's all have to bank at one common bank is one of the misconceptions some people have about ACH. When a customer signs up for ACH they usually are asked to provide a voided check. This provides the clerk with the information needed to set up their ACH payments, their bank routing number and their checking account, which is entered into the same utility billing program that creates and stores the customers and tracks their payment status. Monthly, the city or water district's bank is provided with an electronic list of customers with their bank information and their balances.

Sometimes we hear of banks that are charging the city or water district for this 'service'. This is absurd! When a city or water district takes a bank deposit of paper checks and cash into the bank, the bank has to pay a person to enter each of those payments correctly into a computer. With ACH, that step, which requires paying a person to enter in each payment, is skipped, as the data is already electronic, i.e. already on the computer.

There are federal guidelines for setting up this means of payment. It is important to follow proper protocols when it comes to transferring this information to the bank, particularly if that is done over the Internet. While this can be done with nearly perfect security, if that is a concern, many banks will also accept the data delivered on a USB thumb drive or a CD disk, the same as a paper deposit.

Usually the clerk will wait one to two days before clicking the button that pays all of the city's or RWD's ACH customers' accounts on the computer, just in case the utility receives notification from the bank that a customer's account is short of funds.

ACH Autopay keeps the customers from worrying about getting their payments in on time, or, having any late charges added to their accounts. It also saves time in the utility office, as the clerk doesn't have to open envelopes, bring up the account and post the payment.

Payment by credit card

Some utility departments accept payment by credit card. Some offer this service in the office. The customer provides the card just as in any department store; some utilities even equip their field staff members, e.g., meter readers, with mobile phone remote payment devices such as the popular 'Square'.

Others invite their customers to call and provide their credit card information over the phone, and some enroll customers for automatic credit card payment. From the customers' point-of-view, the convenience is similar to ACH as they don't have to give making the payment a thought, and the charge just shows up on their credit card bill each month.

Security Breaches

Articles in two previous issues of *The Lifeline* on Internet security and Internet breeches reviewed some of those pitfalls. While, yes, the Cloud applications have some benefits, we always advise, "don't put anything on the Internet you wouldn't want on the front page of a newspaper or the nightly news!"

Just before Christmas, news media reported that sensitive information for as many as 10,000 water utility customers of the city of Topeka was put at risk by an Internet breach. WIBW News reported that the city of Topeka announced that... "If any data were compromised, the City says it would have affected customers who between October 31 and December 1, made a one-time payment, or; set up their auto-pay".

In this case, even normally secure ACH was involved. Why? Because the city allowed customers to sign up for ACH over the Internet. It was not the action of having their bills paid by ACH that put them in jeopardy, but the filling out of sensitive information on the Cloud.

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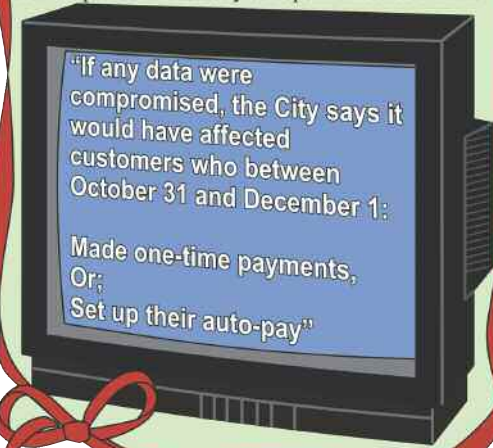
While a lot of financial threats these days are Cyber threats, the taking of credit card information can come with a liability that is more tangible. One must be careful with procedures involving customer or staff information like credit card numbers, social security numbers, etc. Such data can be dynamite if it falls into the wrong hands. Sometimes an office break-in is more about the data the burglar might steal than the office equipment. Even the trash can might be a source of liability if sensitive information is carelessly discarded.

Internet pay

Sometimes people may be confused about the difference between ACH and Internet Pay. While both are conveniences a utility system can provide for its customers, they are very different methods as is the security risk. While monthly ACH can be handled in a very secure manner, Internet Pay is more exposed. For that reason, a water utility that offers Internet Pay should employ a third party company to take the risk and handle the payment. Whether a small town or water district or a

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I think my method beats ACH, Online Pay, and all those highfalutin payment choices. And, the bonus is, I can visit with you for a while as you count out the change from my piggy bank each month.

big corporation like Westar Energy, when a customer pays their bill over the Internet, it should be set up that they actually are passed along to a third-party, online payment company that is steeped in security measures. Even then, hacking may still be the result, but at least the liability would not fall to the city or water district.

So... unlike ACH, the district or city that wants to do Internet Pay will need to enter into a contract with a company whose business it is to process payments. Those companies go to great lengths to guard against the wrong doer, and, when their security efforts fail, they are normally heavily insured for the potential of a breech.

Not all Internet Pay is created equal. The most simplistic versions of Internet Pay have the utility agency sending out a bill, either paper or by email, then the customer can go to a site where, knowing what they owe from the bill, they can pay the amount they owe, or use their local bank Bill Pay service to manually pay the bill amount using their mobile device or computer.

A more extensive way of doing Internet Pay is where the customer is able to look up their account on the Internet, rather than having to wait to receive a bill by mail or email. To accomplish this the utility will either need to constantly send updates to the payment company or, they would have to do ALL their utility billing work on the Cloud ALL the time. In other words, the city or water district would not have their utility software or their data on their own computer in their office, but would instead need to log onto the Internet for ALL the work they do. This would mean using utility software in which a regular subscription fee would be paid in order to access the program and data on the Cloud.

We go to software developer conferences where this is all the rage because it makes a lot more money for the software company. We are always being encouraged to push our clients to this method by pointing out the selling points of subscription software, like the customers seeing each and every change to their account as soon as it happens, while, of course, there's no mention of the pitfalls.

Our company, Thoroughbred Systems writes software for utility billing. We offer modules for ACH and for Internet Pay, and yet, even though we offer both, we do not enthusiastically promote the Internet Pay module. We always point out the pitfalls of online payment to our clients. We stress that if they do decide to use an

Security-Related Sessions at 2019 KRWA Conference

The 2019 KRWA conference is offering two security-related seminars. Thoroughbred Computer is pleased to have been invited to present on Wednesday, March 27 at 10:45 a.m. The title of the presentation is "Guarding Against Monsters of the Dark Web". The presentation will focus on simple steps utilities can take to minimize risks to the utility and customers concerning billing, payments, and the Internet. We will also discuss a variety of Internet security topics of concern to smaller utilities, including payment options, and simple steps to take to minimize risks. Every utility should weigh the value of customer service and convenience vs. the cost, work and risks involved in offering each payment option. The presentation will also explain the new generation of more secure devices like the WPA3 WIFI AX Routers mentioned in the November 2018 *Lifeline* issue. The session may shed some light on why there is a growing trend of cities and RWDs of abandoning Internet Pay for safer options. The goal of the presentation is to give utilities the information they need to strike a balance between convenience to their customers and safety.

Water and wastewater utilities regularly ask us about automatic pay choices, what options are available and how they work. We find that some people have some preconceived notions that just aren't true. That said, the presentation at the KRWA 2019 conference will discuss utility bill payment options and how to avoid undesirable consequences.

The other security-related presentation will be on Wednesday, March 27 at 4 p.m. by Dana Kreeger, Special Agent with the FBI. The title is "The Role of the FBI in Ensuring a Safe Water System". The presentation will focus on the FBI's efforts and services to protect utilities from terroristic activities targeting water and wastewater systems.

Don't miss these and your selection of the 56 other training session opportunities at the conference.

automated payment method, the city or RWD needs to follow procedures that will at least make online pay as safe as is possible.

If a utility department is going to make online payment available to its customers, the most important rule to follow is to arrange NOT to take the payment themselves but to contract with a third-party company that takes the payment and assumes the risk. Unfortunately there are those, even large utility departments, that have not fully understood what this means. It is not enough to arrange to have a third party company such as GoDaddy as the host for a site the customer makes the payment at. Handing that responsibility off to a third party company means that the customer actually hits a link or, from a user standpoint, a button that may say something like "Pay Your Bill Now" that transports the customer to the payment company's website. Only in this way does the liability get passed out of the hands of the utility.

Even then, when utility employees are asked about the safety of their online service, they should avoid making promises of absolute security, but instead point out that the payments are done through a professional payment service that follows standard security practices in order to protect data. Otherwise, a representative of the city or water district is making assurances they have no control over.

During the time we have been compiling information, fact checking and writing this article, we placed a call to a recently-hacked utility and asked about the security of their online payment service. The clerk enthusiastically gave her assurances that there was absolutely no risk, a claim that no one in her position should be making because it is a guarantee that may not be able to be fulfilled.

Ironically, while this article was being written, we heard from one of our customers that had purchased the ACH and the Internet Pay module from us. They were doing only Internet Pay because apparently there were those on the board or in management that thought Internet Pay would be more secure than ACH. The truth is, of course, exactly the opposite. ACH does not require the water utility to put any sensitive information at risk on the cloud, unlike online payments, in which every aspect of the transaction is over the Internet.

Linda Windler and her husband Merle are owners of Thoroughbred Systems, Inc., Topeka. The company specializes in utility billing for cities and rural districts, computer networking and associated training. Contact: lindawindler@yahoo.com