When a college or university engages near field communication (NFC), it gains the ability to install all campus access capabilities onto a student’s smartphone. Not only is student ease of use gained, but the operational and financial efforts necessary for keeping up with a card credential system are eliminated. This web seminar addressed the future of NFC in higher ed, the user and institutional benefits to switching over, as well as how Villanova University successfully piloted an NFC program of their own.

Jeremy Earles: Allegion conducted a study early in 2012 with over 1,000 colleges and universities. We wanted to probe and understand the development of credentials over time. First, we asked what each institution used for access control five years ago. Answers varied and included keys, magnetic stripe cards, smart cards, proximity cards, and a few others. Many schools used a mix of a few different access control methods.

We followed up by asking what they use today and what they expect they’ll be using five years in the future. We expected that the reliance on mechanical keys would decrease, but we did not expect it to decrease quite so much! About five years ago, 80 percent of schools were using mechanical keys. Looking out five years into the future, less than half of those schools expect to be using keys. We were a little shocked about how dramatic that decline was.
During the study, we asked what the biggest issues were with each institution’s current credentials system. With mechanical credentials (keys), the biggest problem reported was keys getting lost, stolen or not being returned to the college. When these situations happen, it means a lot of work needs to be done to replace the keys, re-core the locks, and restore security to a building.

If a school were to switch from mechanical keys to using a smartphone as an access key, these issues would be eliminated. Once a student is done with a room, the key on the phone can simply be deactivated. Over 90 percent of the time, students are never farther than three feet away from their phone. Students will take much better care of their phone than a key.

The biggest problems with electronic access cards, as reported by our survey participants, are similar to those with mechanical keys. The top issues were with cards being lost or stolen, as well as being damaged or broken. Administrators usually charge a fee for replacing cards, which leaves students with a negative view of the institution’s access system. Issues such as the time required to manage and activate access cards and the cost of printing equipment are eliminated when a college or university instead utilizes keys on smartphones.

One of the biggest reasons we think near field communication (NFC) will be a big success is because of the way these students have grown up—the mobile consolidation trend has exploded over the past few years. Ten years ago, students needed to carry a paper planner to take care of their assignment planning. They also needed a notebook to take notes in class. As they reached out to the external world, they needed magazines and newspapers to catch up on what is going on around them. Depending on their interests and needs, they also may have carried a music playing device, a watch, a camera, or a video camera.

Today, all of these things have been consolidated into one device. All can be done on a smartphone or digital pad. However, one thing that is still not commonly consolidated onto a student’s phone is their campus access credentials. The next step in consolidation must be downloading that key onto their phone.

The primary benefits of NFC are:

- **More convenience.** Rather than digging for that credential in their pocket or wallet, most students are carrying their phone in their hand at all times.

- **Greater security control.** Students are much less likely to lose their phone, because it’s always within arm’s reach. The passcode option on most phones prevents the lost credential from being used by anyone.

- **Reduced administrative costs in labor, printing time, and maintaining credential inventories.** Credentials can be issued remotely and on any schedule.
The number 1 benefit we have heard from everyone we’ve spoken to is that people may forget to bring their keys, ID, or wallet somewhere, but will never forget their phone.

From a technical standpoint, you need four main parts to make NFC work:

- A smartphone.
- A secure element. iPhones do not currently have built-in NFC, so we have to put special cases on those devices to make NFC work.
- An access app. At Villanova we use “aptiQmobile.”
- The credential—that mobile key that needs to be downloaded onto the phone to give a student access.

When an institution goes to implement NFC-based credentials, the first step is the student requesting a mobile key. At Villanova, the system administrator then logs into their system, logs a request, looks up the student’s info, and selects “make this credential mobile.” AptiQmobile creates the credential in the cloud and then sends an email to the student’s iPhone. When he or she opens the email and downloads the app, he or she verifies his or her identity with a pin code. When verification is complete, the credential is pushed to the phone and stored in the secure element. When the student is ready to use his or her credentials, they simply click on the app on their smartphone screen.

It’s expected that 46 percent of all mobile phones will be NFC-enabled in four years, up from 20 percent today. Movement is happening very quickly. The access control and the payment industries are pushing hard for this shift.

Other Allegion studies have found that 91 percent of students who have used NFC say the convenience or ease of use is the best part. Seventy percent preferred using their phone to using an access card, and 100 percent of students surveyed said they would be interested in having NFC built into their phones.

Kathy Gallagher:

The Villanova Wild Card can be downloaded onto an iPhone and used for residence hall access, doing laundry, making bookstore and vending machine purchases, and meal plan redemption.

In November 2011, we rolled out Phase One of the mobile credentials program. We piloted NFC in six residential halls, with 30 students who had the iPhone 4 or 4s. In addition, we piloted four faculty offices with 12 staff members. This phase went from November 2011-April 2012. Surveys revealed that everyone loved the program. The biggest issue participants had was having to put a case on the iPhone. We are hoping the case is a temporary solution and that Apple will eventually put the NFC in their future phones.
Not one of the students or staff lost their phone during the pilot, compared to the high number of people who lose their access cards each semester. The average person realizes within three minutes that they do not have their cell on them, but staff and students lose their access cards often.

In Phase Two, we changed from mechanical locks to card touch locks in two large residence halls. This allowed participating pilot members to use their iPhone for access. This is also when we rolled out the ability to use phones for meal plan redemption. Our dining services staff was thrilled to swipe fewer cards during their dining shift. Other students were jealous of the pilot students’ ability to use their iPhones!

Overall, it has been a very successful pilot and we are very happy we did it. We are excited for the future of NFC on our campus.

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