Published in DHI Doors Security + Safety Magazine, March 2020

Virtual Networks in Electronic Access Control

by Gordon Holmes

Electronic access control now has a new option that uses credentials to manage access rights, simplifying operations and saving time and money.

Since the onset of electronic access control (EAC), a gap has existed between stand-alone EAC and wired or wireless access control. Virtual networks are filling this gap by providing the contract hardware channel an opportunity to offer a more flexible and complete solution with less up-front cost but have the scalability for future growth.

This is good news for distributors who may have shied away from offering fully networked access control. Distributors now can approach EAC in the same manner they would have done with an offline system because virtual networks do not require a vast amount of technical expertise.

As a distributor, this is a game-changer. It allows you to furnish the entire building – including all the interior doors – where you may traditionally have used mechanical locks. Because it isn't overly complicated, you are able to offer the end-user total mechanical key replacement.

The Evolution of EAC

During the last decade, electronic access control has been lumped into two basic segments: offline, or wired and wireless.

Offline EAC requires a person to physically go to the lock to add or delete users and access rights or when an audit of the lock is needed. This requirement alone made offline EAC a less-than-attractive option for many end-users simply because it was impractical. In larger buildings, it was time-consuming to walk around the building to update user information.

To address this, wired and wireless EAC was developed so that the lock could be controlled in "near real-time" through a server. To govern the locks, hard wires were run throughout the building to each door, and there was an additional cost to prep the doors and frames.

Wired EAC became the preferred option for exterior doors where electrified exit devices, maglocks or electric strikes were used, but for interior applications, it was not a practical one due to the expense.

Wireless systems can cut down on the cost and amount of wires required throughout the building. However, this can present its own unique challenges, such as the number and placement of the wireless communication points and potential interference from building conditions or other electronics. In addition, there is always a compromise between the communication time back to the server and the battery life of the lock.

While wireless is often a better option, both wired and wireless required additional infrastructure costs, which were sometimes prohibitive.

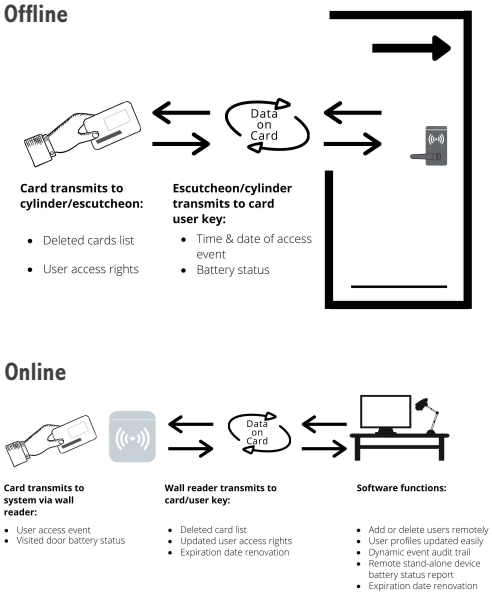
In short, there has never been an affordable middle ground, until now.

Virtual Networks: A Game Changer

In a virtual network, access rights are controlled by a credential, like a card, fob, or phone app, not the lock. The credential is not only a person's physical access device, but it also allows for vital information to be transmitted back and forth between the credential and the locking device.

Each data-on-card system is specialized in the way information is exchanged between a credential and the other components in the system. They are also unique in what type of information is being exchanged on the credential. Some systems are sophisticated enough that offline locks can write essential data to any user's credential, such as the battery status of the lock and audit information.

This stored information can then be pulled from the user's credential at a hardwired (or, in some cases wireless) fully networked access point and sent back to the server. At the same time this data is being extracted, new system information containing updated access rights for the user and deleted credential alerts are downloaded to the credential and then transferred to offline locks. This allows balance to be maintained between convenience and security, without sacrificing budgets.



But what makes virtual networks a game-changer for distributors is the cost to the end-user and ease of installation.

“With the same installation cost as a regular mechanical lock, a facility can add EAC to doors that are neither wired nor wireless and have the benefits of a networked system – all with data-on-card,” says James Stokes, director of corporate training for Hager Companies.

As a distributor, you can install an uncomplicated system that has minimal infrastructure requirements. And from an end-user's perspective, they are able to utilize EAC throughout a building and not be limited to the exterior doors or critical security doors, like IT server rooms or pharmaceutical supply closets, because of their budget.

“Virtual networks also are a great option for retrofit projects, as they may not require the doors to be prepped,” adds Brian Clarke, DHT, AHC, CDT, CSI, director of specifications at Hager Companies

A Practical, Budget-Friendly Approach
The beauty is that it doesn’t need to be an all or nothing situation. With the additional of virtual network technology, you can now mix three platforms easily under one intuitive software program.

“A school is a good example of where you’ll want a mixture of all three types of EAC – wired, wireless and virtual – in order to get the proper security level throughout campus,” Clarke explains.

Exterior doors can be wired to administer immediate lock-down capabilities, should it be needed. The classroom doors can be wireless, which also provides immediate lock-down, but without the cost of running wires throughout the building. Interior doors such as closets and offices can be on a virtual network.

“It’s important to keep our children safe from all issues in the schools. Everyone thinks of active shooters, but there are other circumstances that could contribute to security threats.”

In fact, between 2013 and 2017, the Federal Bureau of Investigation reported an average of four active shooter incidents in educational occupancies per year. Yet, according to the National Center for Education Statistics, in 2017, students aged 12-18 experienced 827,000 incidents of crime (including theft, assault and sexual assault) in U.S. schools.

A college in California recently spent more than $200,000 on “barricade devices” – also known as kick locks – following an October 2015 attempted armed kidnapping. Only after the purchase and installation did they learn that the National Association of State Fire Marshals condemned these devices just months before. Not only did they ignore the fire code, but these devices could lead to unsafe situations.

“As more and more states rewrite their building codes to allow for barricade-type devices, I think it’s important that distributors help educate the community that these devices are actually dangerous, and electronic access control is a safe and affordable alternative,” Clarke notes.

A System That Grows With Customers
As a distributor, one of the biggest benefits to you in selling the value of a virtual network to the customer is that there is no complicated preparation of doors. There is no special reinforcement or wiring to prepare the opening, and most doors can be used right off the shelf. Furthermore, in a retrofit application, the locks generally fit the existing lock prep.

“The virtual network is flexible enough to change with end-users’ needs,” Stokes explains. “A storeroom function can be changed into an office function or an office function into a passage function. It's just a matter of reprogramming the lock and reassigning access rights with the click of a mouse.”

Additionally, a virtual network allows the end-user to develop their access control over time – as their budget allows them to do so – which is often the case with the education vertical market.

A school campus may only have the funding to integrate EAC on exterior doors during the construction of a new building. However, with the introduction of virtual networks, the distributor can play an integral role in helping the school district phase in their security needs over time by creating a multi-year plan during which the school can be equipped with EAC throughout.

The same is true with the software. As a customer’s needs grow, modules to the software can be added to address those needs. “It’s an ala carte software system, not all or nothing. You build it as your needs change—adding parts to modify it to work the way you want it to,” Clarke says.

“The virtual network is also an excellent option for customers who are regularly changing the configuration within an existing layout, like a hospital wing or multi-tenant office development,” Stokes notes. “Departments can expand into other areas – shifting personnel around – and your system and security can adjust quite easily. It means that total mechanical key replacement can be achieved with lower costs than previously possible.”

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