Beyond Money
The Campus One-Card Redefined
New missions for an old soldier

• Higher Education has been a leader in Campus Cards adoption.
• The vast majority of card applications are financial, related to refunds or payment for various activities.
• Changes in education and technology demand new applications beyond just the financial ones.
• The campus card needs to manage these new needs
  – Identity management challenges, both physical & cyber.
  – Student accountability and school retention needs.
  – Campus & student physical safety & school operations.
Focus of discussion

- Nature of new needs
- Approaches to meeting these needs
- Technology challenges and opportunities

Higher Education can benefit from adopting many One-Card features proven in other areas, such as secondary education.

Campus card needs to evolve to be an academic performance & safety card as well as a financial card.
New needs: Identity Management

- Adoption of cloud-based systems and increasing population of online students is forcing adoption of standardized single sign-on solutions, mostly for network & application logon.
- Campus card issuance can not be divorced from these identity management solutions.
- Campus card can be an integral part of this ecosystem, both as a second factor for authentication and as a tool for safety.
- Identity management is a system for electronic access that must be integrated with physical access systems (doors, turnstiles, etc.).
New needs: Student retention & accountability

- Various studies have shown that missing classes is an early indicator for dropping out.
- Automated attendance systems can be an warning system for detecting potential retention risks.
- Increasing popularity of online learning require fool-proof means of identifying participants.
- Physical access systems can be made into ancillary attendance systems with proper design and management.
- All of these needs require tight integration with Student Information Systems (SIS) or Learning Management Systems (LMS).
New needs:
Campus safety & school operation

- Campus card is widely used as a means of visual identification.
- Additional systems, such as new classes of Visitor Management systems can enhance both safety and management of student population in buildings.
- Campus cards, with appropriate technologies, can be key to managing school assets (e.g. books, devices, parking spots, etc).
- Traditional means of managing printing & copying need to adapt to the increasing need to manage electronic content.
Card Technology: What matters?

• Secure identity and transactions demand better technology than the standard barcode or magstripe. “Smart Cards”

• Smart cards come in two varieties: contact and contactless. Transaction speed, especially in safety & accountability, favors contactless.

• Card cost, ease of issuance, ease of use & privacy concerns favor 13.54 MHz standard.

• Use of smart phones as tokens will increase but not likely to completely replace smart contactless cards.

The future campus card ecosystem will be 13.54 MHz contactless.
New Approaches: Multi-factor card

• New Campus cards need more technological versatility:
  – Support optical (barcode) & magstripe technology for legacy applications.
  – Support EMV for new banking requirements.
  – Support 13.54 MHz contactless standards for new technology & access.
  – Support legacy 125K Prox for older access systems.

• New Campus cards need simpler & more automated issuance mechanisms.

One Card > Many technologies.
Catechism of an Academic & Safety Card

- Exploring what is possible today and what will soon be possible through a series of Q & A.
- Focus on what schools can actually accomplish without a major overhaul of existing systems, and allow the coherent acquisition and integration of new systems.
Is “zero-day” issuance realistic with a large population of students?

Yes. This is highly desirable from a safety & organizational perspective. The key factors are:

• Tight integration with SIS/LMS or registration system, preferably real-time.

• Automate the process of photo management to pre-obtain the photos of the students or allow use of mobile device photos.

• Utilize distributed printing, issuance and distribution.

• Success has been possible with a population as large as 100,000 students and staff
Can I integrate issuance, voiding, and re-activation with identity providers such as Active Directory, LDAP, Shibboleth?

Yes. This simplifies the task of card management and provides greater security and accountability. Key factors are

• Adoption of an issuance system capable of Single Sign-on integration with these standards.

• Careful attention to the fields and the claims used via the SAML type protocols.
Can I support rule-based door access control based on student and staff demographics and academic status and location.

Yes. This streamlines the process, making it more secure and accountable. Key factors

- Systematic definition of access rules and locations.
- Proper definition of building and door location and attachment to student & staff demographic and access rights.
Can I support rapid issuance at any standard desktop while maintaining security and identity integrity?

Yes. New “Web App” issuance applications allow Browser-based queuing and issuance.

• Utilize appropriate printers/encoders supporting these standards (such as Zebra ZXP series).
• Utilize Single Sign-on so Browser based Web Apps can securely provide printing and encoding rights to appropriate administrative staff.
Can I transition from legacy contactless door access systems to newer and more secure cards (such as 13.54 MHz standards)?

Yes. “Multi-factor” cards are the appropriate tools for that. Some key factors to note:

• Mixing legacy 125 KHz Prox and 13.54 MHz secure cards is possible when cards are properly “sourced”. Tie-in between Prox ID and internal smart card UID makes this possible.

• It is desirable to move away from “clam shell” type cards to standard size and thickness cards that can be printed and encoded easily.
Can I simplify and reduce the cost of installing door access readers and door strikes?

Yes. Newer technologies allow considerable reduction in cost and complexity through newer processes of miniaturization, such as:

• Smartly powered door strikes which work off the readers Power-over-Ethernet network cables and need no additional low voltage wiring. This reduces the need to low-voltage additional wiring certified installers.

• Smart door access readers (and door strikes) with internal CPU & Memory can be pre-programmed for door location and achieve “plug-and-play” simplicity.
Can I utilize door access devices and turnstiles as attendance devices, in addition to other hardware such as attendance Kiosks?

Yes.
How does the academic card be used to improve my student retention and achievement?

A combination of automated attendance methods for capturing building, scheduled class, non-scheduled classes and sessions, can generate a time profile of student attendance. Frequent missing of classes and academic sessions is an early indicator of retention risks. Standard data analysis tools provide the means to zero in on specific groups of students and attempt to rectify problems and improve achievement.
Can the academic card serve as a safety tool during emergencies requiring “lock downs”?

Yes. Consistent use of the academic card for building and class attendance provides a real-time data as to student location. Additional “panic points” can be installed at various locations where a single tap can identify the student location. Smart door access readers can make “lock down” more intelligent and granular, for example allowing access to public safety personnel but denying access to most students and staff.
Can the academic card provide an additional authentication token for network resources?

Yes. The cost of contactless readers, especially for the 13.54 MHz range, is now low enough to warrant inclusion on most devices as an additional authentication token. It is simpler to install and use than competing technologies (e.g. Google authenticator), and is less sensitive to set up problems or spotty cell network access.
No single path for every type of school and environment. But some steps are well-defined and apply to the vast majority of specific school environments

- Implement the appropriate card technology and issuance systems.
- Add tools and applications in a measured fashion to address specific needs. Important to have accurate survey of needs and involve the responsible parties: safety offices, retention and academic achievement offices, etc.
- Upgrade legacy technologies and facilities in a gradual fashion to avoid “technology shocks”.
Conclusion

- Campus cards have always evolved, as new needs and technologies arise.
- Extending the card functionality to cover the new mandates for safety, accountability and student retention requires new thinking and new platforms.
- The physical card will continue to be a critical component, even as new “card-less” technologies evolve and make inroads.
- “Change” is the permanent feature.
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