

## COLORID CAMPUS IDENTITY SUMMIT

# CURRENT TECHNOLOGIES

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Director - Product Management

Mark Degan  
Director – Corporate Marketing

## WHAT WE WILL TALK ABOUT

- Card Technologies
- Biometric Solutions
- Physical Identity & Access Management

# CARD TECHNOLOGY

Upgrade your cards?

# COLORID LEGACY ID CARDS



## Barcode

- Auto Identification
- Easily Copied
- Printed on any card



## Magstripe

- 1, 2, or 3 Tracks
- Normally encoded in printer
- Cards can have 2 mag stripes
- No Security
- Legacy Systems



## Visual Security

- ID Photo
- Printed Numbers
- Holograms, UV Inks, Foils
- Logos

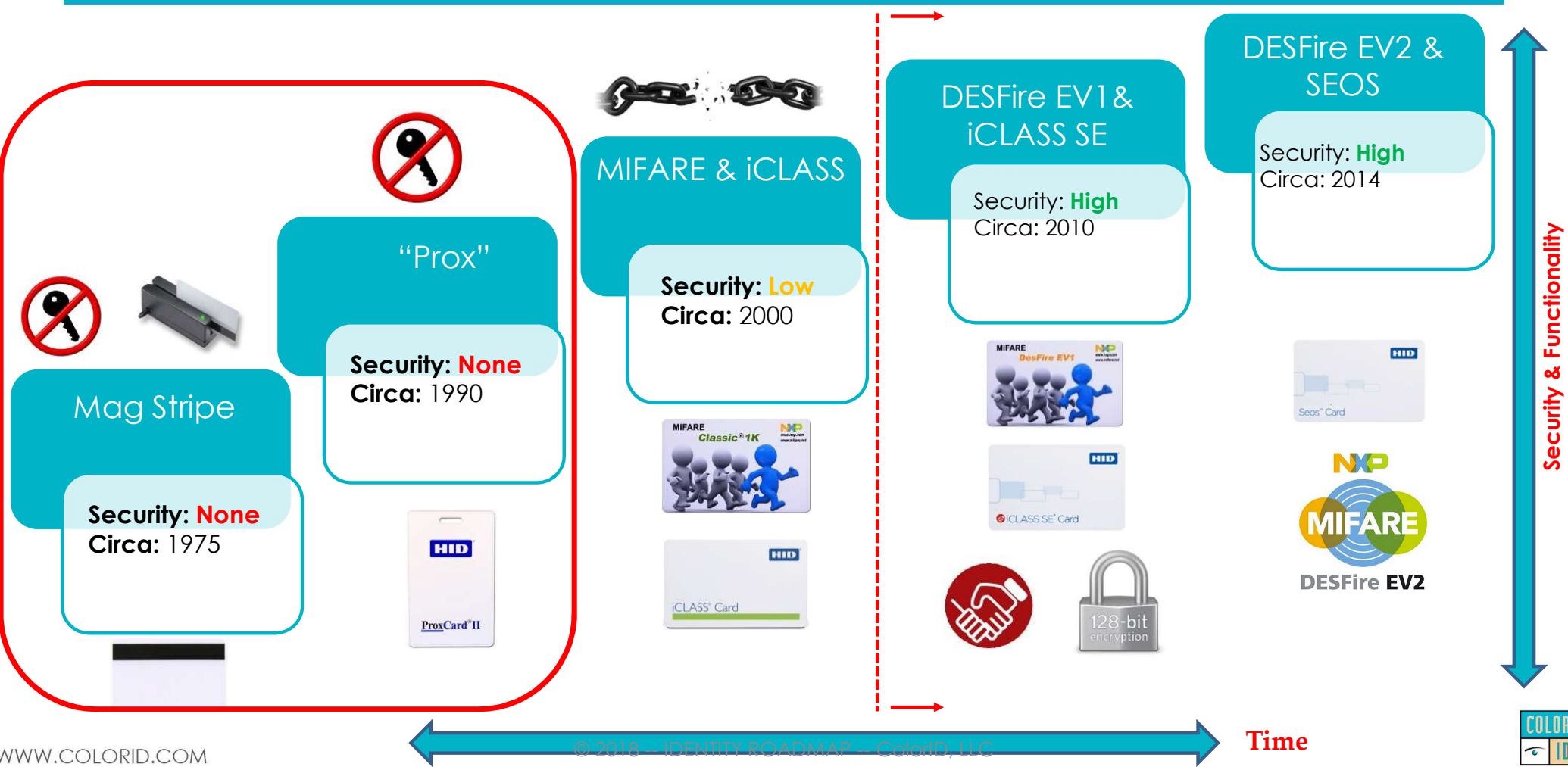
## PROXIMITY

## Prox

- 125KHz, Low Frequency
- Up to 100 bits of memory
- Vulnerability
  - 25 year-old technology
  - No Encryption - Cloning



# COLOR ID CARD SECURITY LEVELS



# HID SEOS

## HID SEOS

- Standards Based Cryptography
- Micro-Processor Card
- Available for many device platforms
- Built-in OTP Engine
- Seos Core (vault) on Card
- Software Based – can be upgraded to combat future security threats
- Can use DESFire emulation



# COLORID MIFARE DESFIRE EV1

## Secure Multi-Application Platform

- AES-128 Encryption
- PICC Master Key – Card Level
- Flexible application and file system
- Each application like a folder in Windows
- Applications and files defined during creation
- Each application manages its own keys
- Access rights defined per file



cbord®





# DESFire EV2

## DESFire EV2

- Released 2016
- Can be backwards compatible with EV1
- Increased Read Range and Speed
- New Features
  - Derived Master Keys
  - Key Rolling

**MISMART  
APP**

Derived master  
keys for secure  
application  
deployment

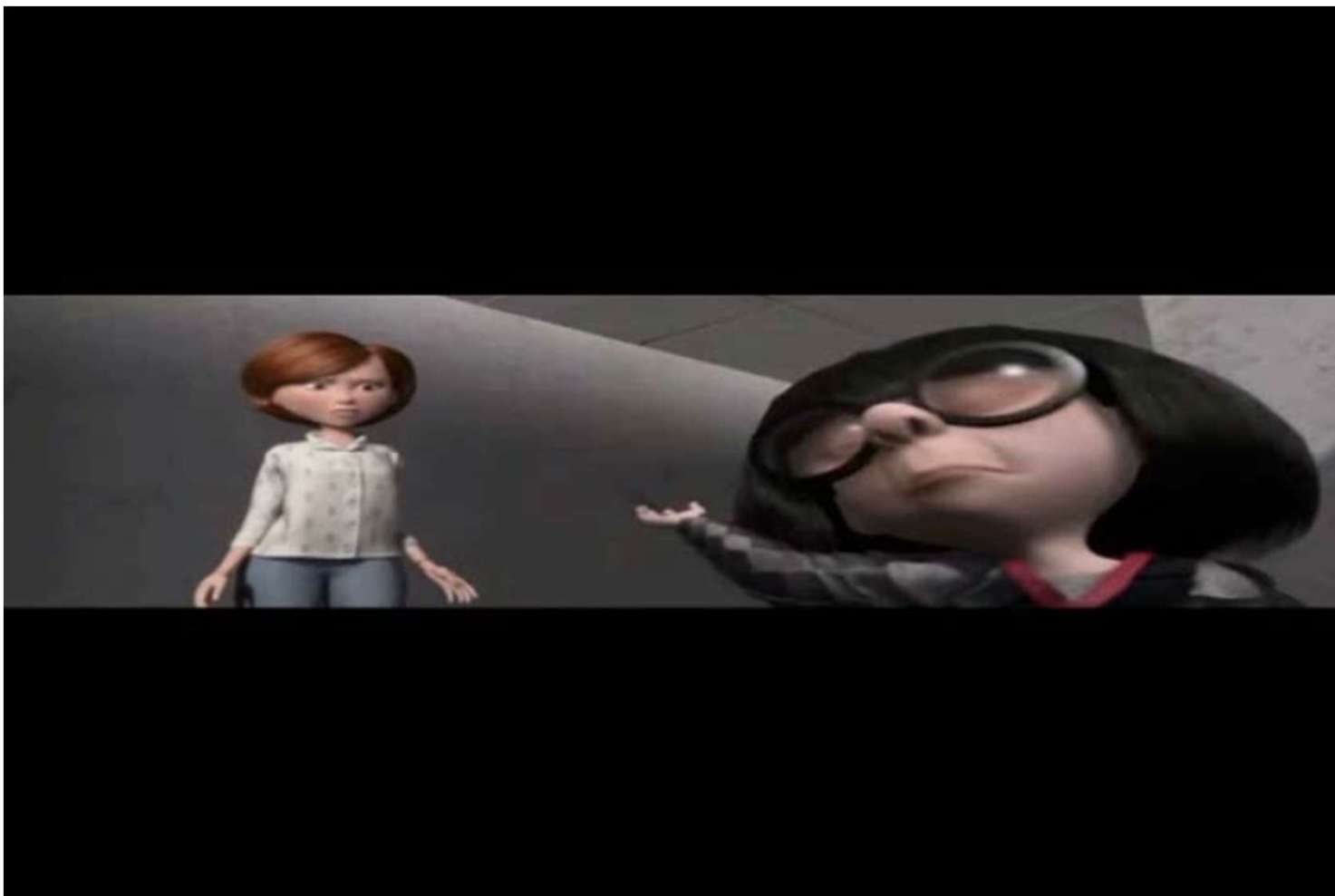


# BIOMETRICS

Who Are You?

C O L O R I D

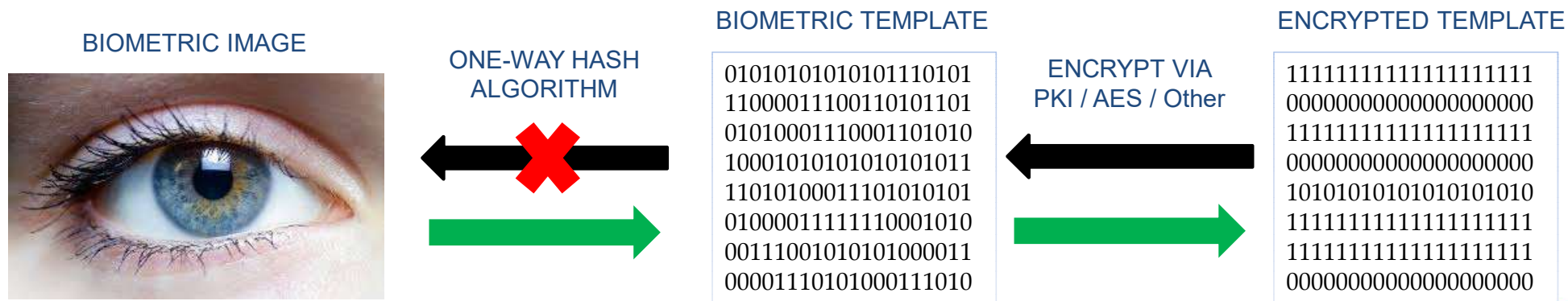
# HOLLYWOOD – BIOMETRIC STIGMA



# BIOMETRICS

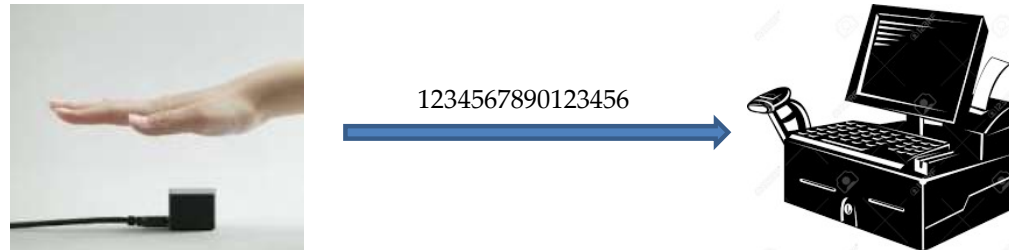
Measuring different parts or behaviors

- Body part is presented to the sensor
- Sensor captures an image
- Image is converted to a template
  - Template is a number
- Template is matched



# COLORID SYSTEM INTERFACE

Biometric system sends card number to PACS, POS, or other software



## Wiegand Interface

- Standard wiring and communication between Physical Access Control Systems (PACS) and readers

## USB Keystrokes

- Emulates a Keyboard
- Same as Magstripe and Contactless readers for POS

## Serial Communication

- RS232 or RS485

## API

- Web Services
- ODBC

# COLORID BIOMETRIC MODALITIES



## Fingerprint

- Most Familiar
- Early Systems didn't work well
- New Sensors – Multispectral, Light Emitting Film
- Smart Phone adoption
- 1/10,000 FAR Normal



## Hand Geometry

- Most Prevalent Biometric System – 1985
- Small amount of data – 9 bytes
- 1:1 Mode typically required
- Time & Attendance, Physical Access



## Vein Pattern

- Infrared scanners – blood absorbs light
- Not really non-contact
- 1:N up to ~4,000
- ATMs, Healthcare (Patient ID)



## Facial Recognition

- Emerging Technology
- Surveillance (Involuntary)
- Border Control
- Current sensors/algorithms good 1:N for ~1000 users, new systems with greater potential

C O L O R I D  
IRIS RECOGNITION

Circular structure in the eye

“Eye color”

Photo of eye

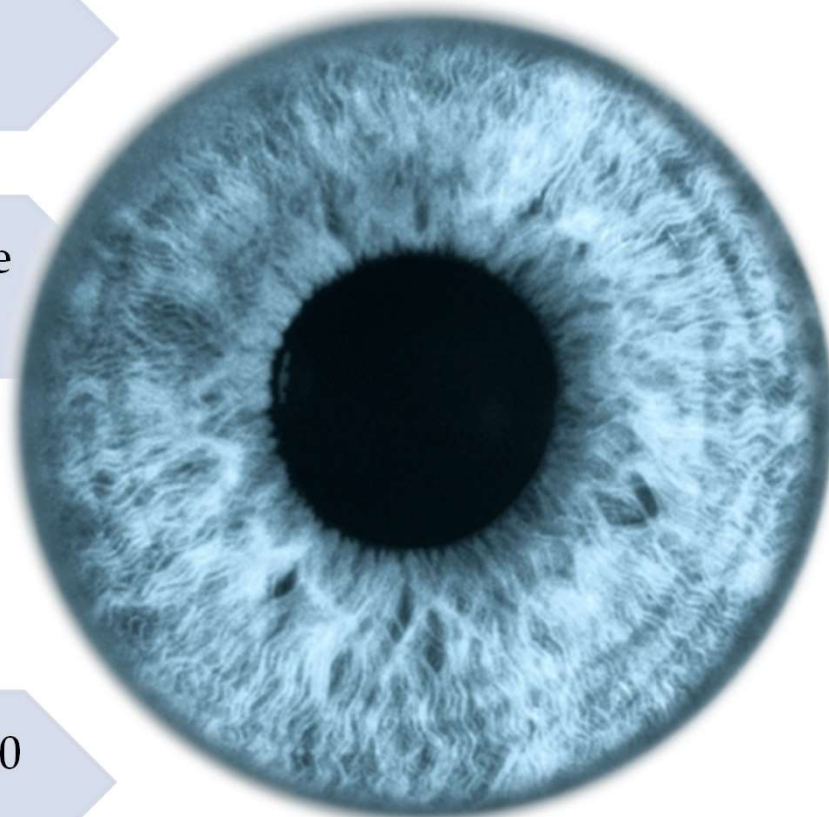
No contact with device required

At least 250 unique points

10X more than fingerprint

Proven to be the fastest form of biometric for matching

1:N Matching of 100,000 Records in <1 second



# CONTINUOUS BIOMETRIC AUTHENTICATION

Voice

- Speech patterns, used by banks, other applications

Keystroke Dynamics

- Logical authentication

Heart Rhythm

- Wearables

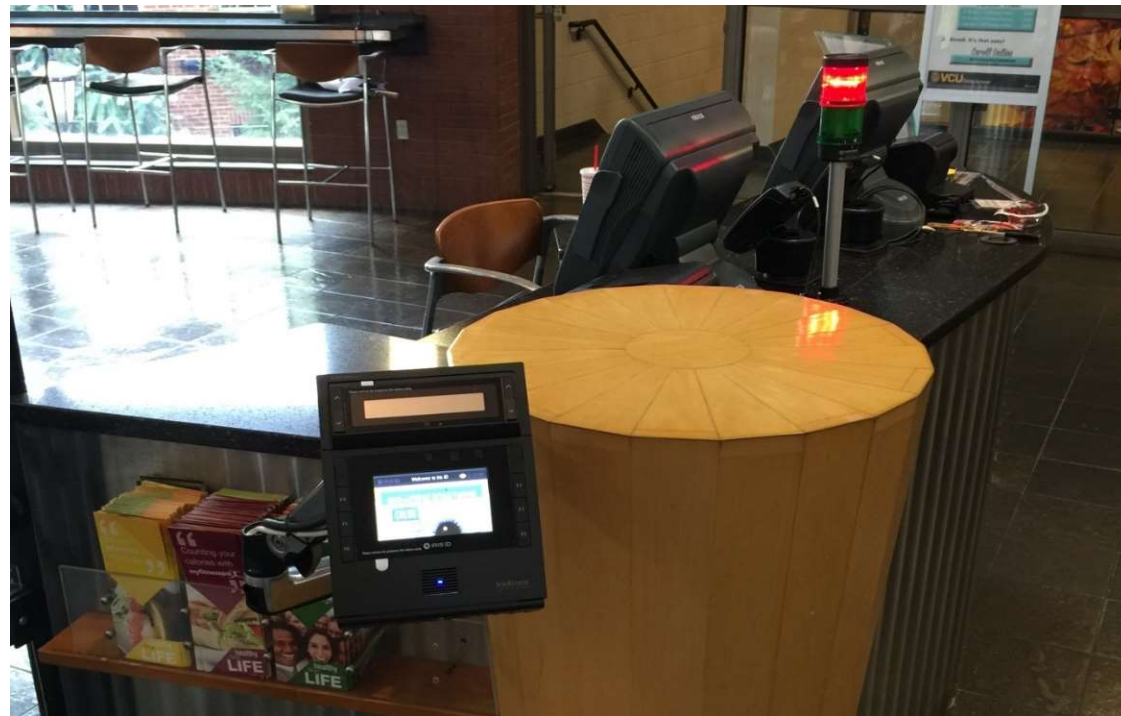
Iris Patterns

- Eye movement and blinking





# COLORID CAMPUS USE CASES



## USE CASE: ATHLETIC FACILITIES

Convenient for Athletes  
(No Card to carry)

Higher Security

Iris – Non-contact (Dirty  
Hands, Gloves)



## USE CASE: DINING

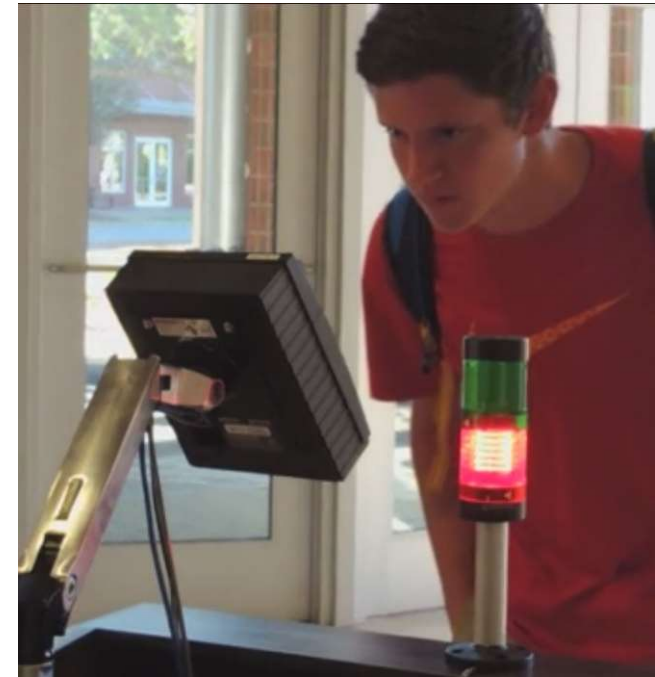
Can be very fast

Secure (1,2, or 3 factor)

Fraud Prevention (Unlimited Meal Plans)

Students can eat when cards are lost

Works like any other card reader



### Example Schools:

University of Georgia  
(HandKey -> Iris)

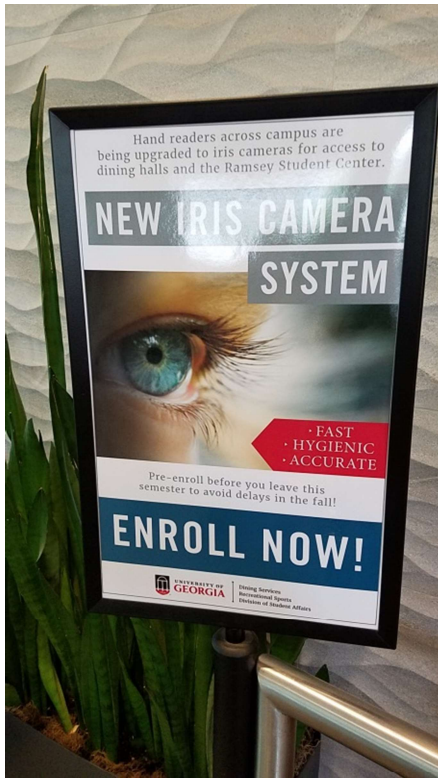
Boston University  
(Fingerprint on iClass)

Georgia Southern University (Iris)

Virginia Commonwealth University (Iris)

George Mason University (Iris)

# COLORID CAMPUS USE CASES



## UNIVERSITY OF GEORGIA





# COLORID CAMPUS USE CASES

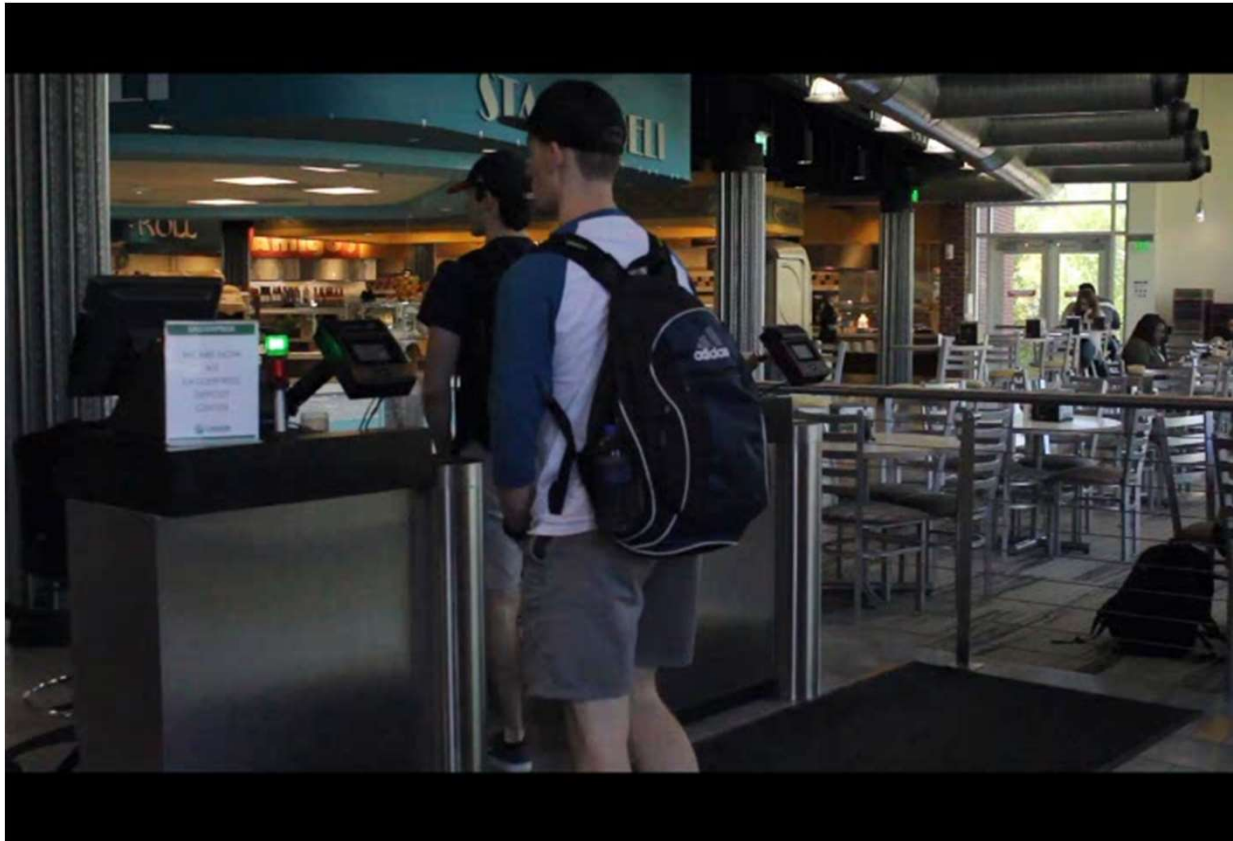


# VCU



C O L O R I D  
**GEORGIA SOUTHERN UNIVERSITY**

Nearly 4 million transactions via Iris into dining halls



# USE CASE: MEDICAL CENTERS



Irradiator  
Rooms /  
Cabinets



Cadaver Labs



Pharmaceutical  
Cabinets / Safes



Medical  
Research

Government  
Funding for  
Iris

Three Factor Authentication often Required

Example  
Schools

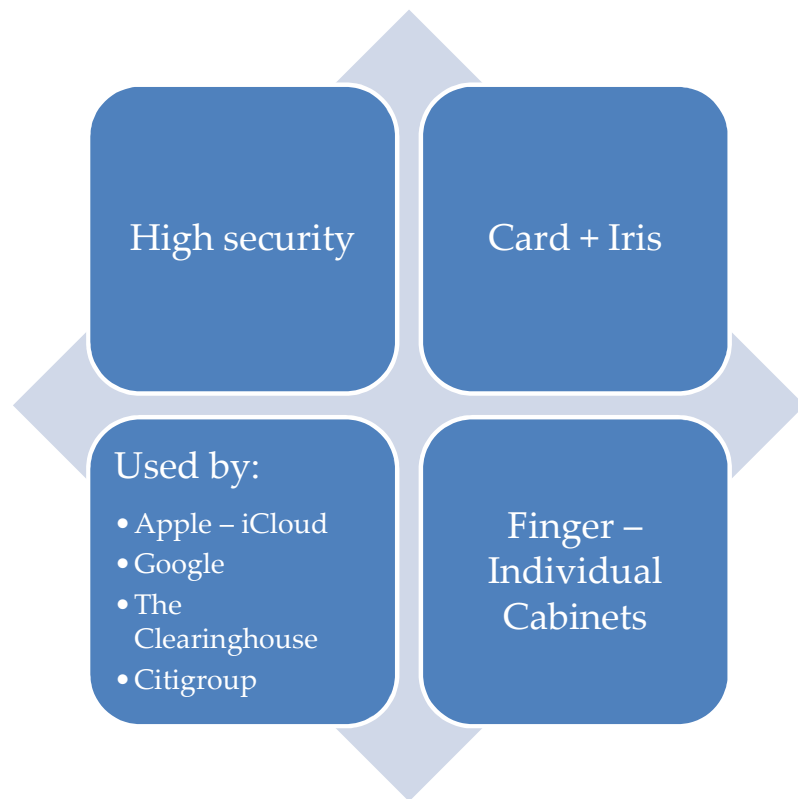
University of  
Colorado-  
Denver

University of  
Texas

Colorado  
State  
University

George  
Washington  
University

# COLORID USE CASE – IT / DATACENTERS





## USE CASE: RECREATION CENTERS

Convenient

- Don't have to carry cards

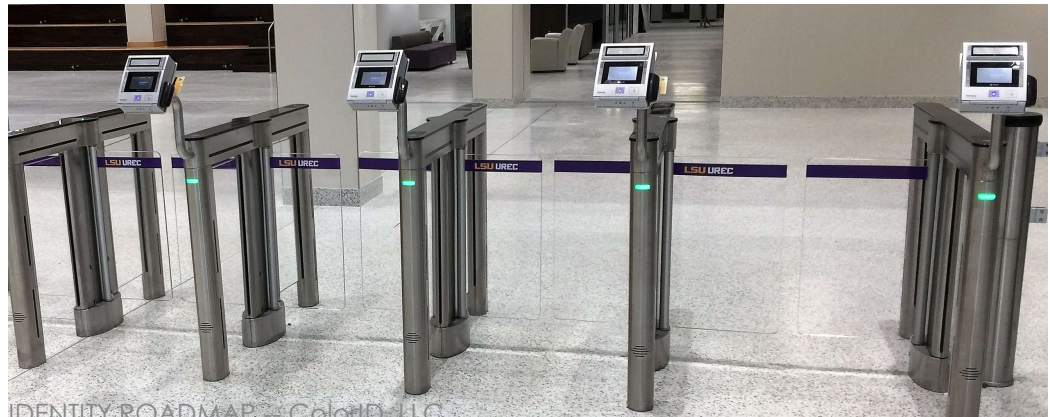
Non-Contact

- Sweat / Germs

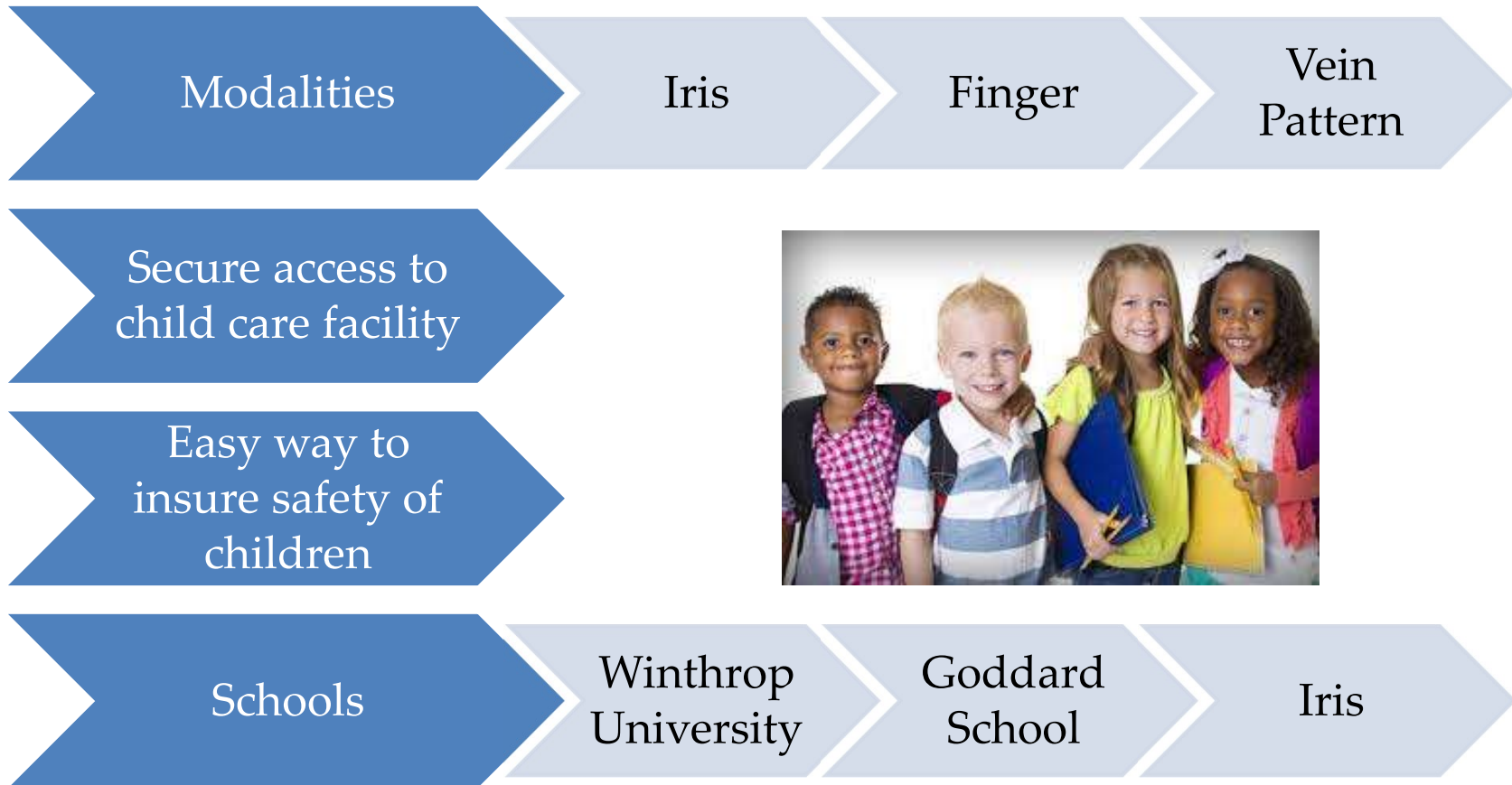
Prevents Fraud

- Card Sharing

Interface with Turnstiles



# USE CASE: CHILD CARE CENTERS



# BIOMETRICS AND PRIVACY

## POPULAR CONCERNS

If my biometric is stolen, I can't replace my body part

Credit card comparison

Identity theft – like a permanent PIN

I don't want the government to have my biometric

Related to opposition to Real ID, national ID

Desire for anonymity

Cultural differences

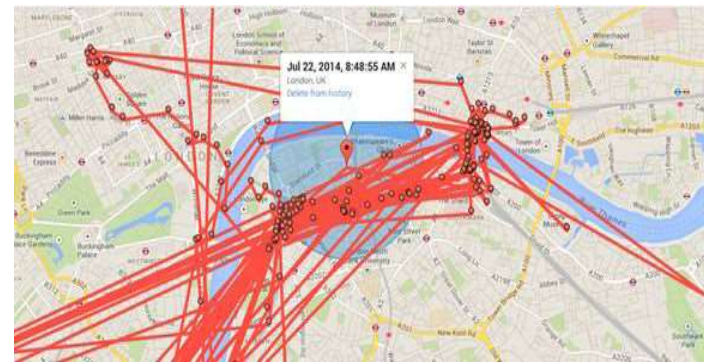
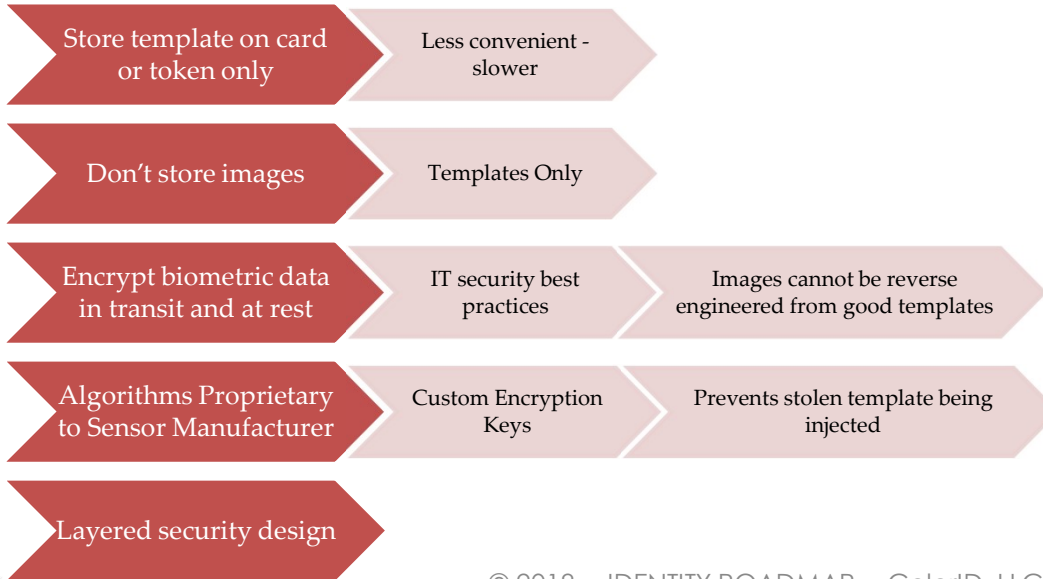
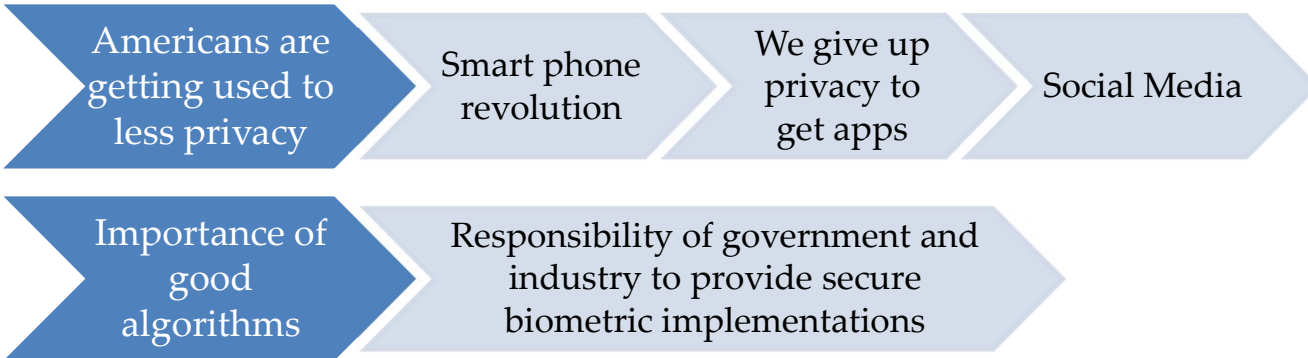
Voluntary vs. involuntary

Known to subject – US-VISIT

Unknown to subject – surveillance cameras



# BIOMETRICS AND PRIVACY - RESPONSES



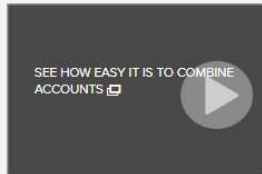
# **PHYSICAL IDENTITY AND ACCESS MANAGEMENT**

# EVERYDAY IDENTITY MANAGEMENT



Find & Reserve | Deals & Packages | Meetings & Events | Our Brands | About Marriott Rewards

## Combine Your SPG and Rewards Account



Marriott Rewards, SPG, and The Ritz-Carlton Rewards now offer you booking, earning, and redeeming at all hotels across all participating brands.

Starting now, you only need one account. Even better, when you combine your SPG and Rewards accounts, you may achieve a new Elite status — Instantly!

### Here's What You Need to Know



If I already "Linked," do I still need to "Combine" accounts?

**YES!**

By combining your accounts, **your earnings will be added together**. So rather than just a match, you may get a status boost.

Not sure if you combined yet? [View your profile](#)



You'll need your sign in info for both accounts

Make sure you have your sign in credentials including your passwords. You will not be able to use pre-saved or autofill.

**Note:** Combining is a one-time process that cannot be undone. Both accounts need to belong to you and cannot belong to other individuals, including family members. All accounts must follow the programs' **terms and conditions**.

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Why should I combine?

**Simplicity:** One single account log-in and profile.

**Status:** Combined Elite nights could add up to achieving the next level right now.

**Access:** Book and redeem your combined points balance at 6700+ hotels.





C O L O R I D  
DISNEY MAGIC BAND



# Biohax in Sweden

## Business groups in UK raise concerns over microchipping employees

**USA TODAY NETWORK** Brett Molina, USA TODAY Published 11:03 a.m. ET Nov. 12, 2018 | Updated 11:19 a.m.



(Photo: James Brooks, AP)

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Groups in the U.K. representing businesses and workers are questioning plans published in a report Sunday claiming companies were preparing to microchip employees.

According to [The Telegraph](#), a Swedish company called Biohax said it was in talks with multiple British legal and financial companies to provide human chip implants to employees for security.



<https://www.usatoday.com/story/news/nation-now/2018/11/12/microchipped-workers-uk-business-criticize-reported-plans/1975293002/>



# COLORID

## PHYSICAL IDENTITY

- You take up space
- You interact physically with systems
  - Doors
  - Networks
  - Points of Sale
  - Teams and memberships
  - Parking and transit
- Physical persons and possessions have to be safe
  - No tolerance for physical “breach”

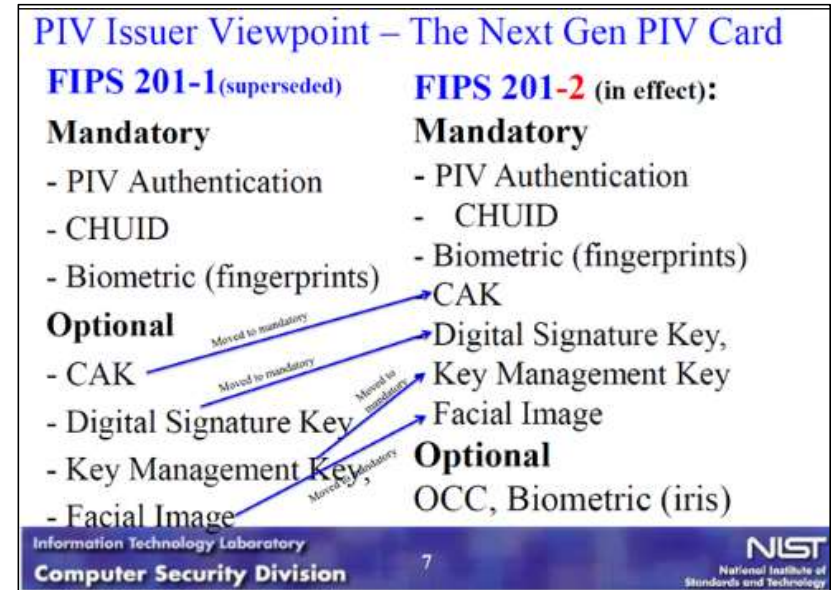


# U. S. GOVERNMENT IDENTITY MANAGEMENT

If you had all the \$\$ in the world...

PIV card costs \$150

- Background checks verify identity
- Very smart card issued
- For Executive Branch only
  - Federal agency employees
- CAC for Department of Defense



# WHAT'S GOOD ABOUT PIV

- Tamper-proof card is bound to cardholder
- Any change in cardholder status is distributed
- All systems can know a person's status at each point of contact



# COLORID

## IAM – DIGITAL IDENTITY

### Identity and Access Management

- Usually manages credentials for IT and logical access
- Product examples
  - MS Identity Manager
  - Sailpoint
- Not bound to physical person

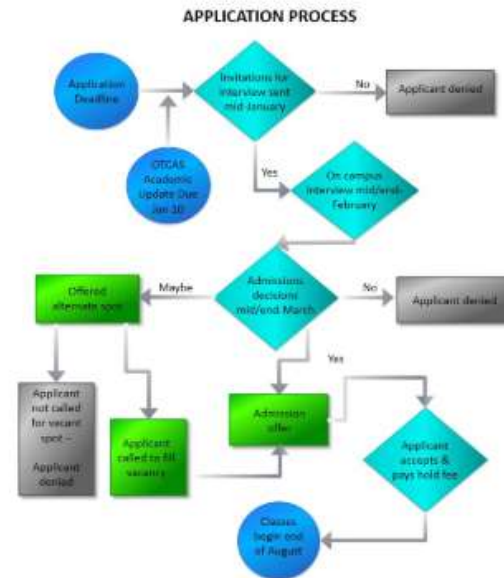
429 people clipped this slide

### The Gartner IAM Program Maturity Model

IAM Program Maturity Level	1 Initial	2 Developing	3 Defined	4 Managed	5 Optimized
<b>Governance</b>	Ad hoc, informal	Subsumed within InfoSec (and InfoSec governance structures)	IAM governance structure defined and accepted	IAM governance structure fulfilled and refined	IAM governance optimization
<b>Organization</b>	Informal, basic roles, responsibilities decentralized	Technical projects sponsored by BUs and CISO; informal inventory of IAM skills	IAM PMO established, IAM roles and training needs defined	IAM PMO active, RACI matrix defined; proactive skill development	Optimal integration with business; skills optimized
<b>Vision and Strategy</b>	Conceptual awareness at best	Certain business drivers identified; tactical priorities set	Business-aligned vision defined; strategic priorities set	IAM vision and strategy continually reviewed to track business strategy	Periodic optimization of vision and strategy
<b>Processes</b>	Ad hoc, informal	Semiformal BU-specific and target-specific processes	Formal processes defined, consistent across BUs and target systems	Formal processes integrated and refined; aligned with business processes	Process optimization
<b>Architecture and Infrastructure Design</b>	Possible use of target-specific productivity tools	Disjoint technical projects; technology redundancy likely	Discrete IAM architecture defined; rationalization and consolidation in hand	IAM architecture refined and aligned with EA	IAM architecture embedded within EA; optimization
<b>Business Value</b>	None measurable	Tactical efficiency and (maybe) effectiveness improvements; low direct value	Sustained, quantifiable improvements tied to GRC imperative; moderate direct value	Sustained, quantifiable contribution to all key business imperatives; high direct value	Business value optimization; transformational direct value
<b>Legacy Program Maturity Level</b>	Blissful Ignorance	Awareness	Corrective	Operational Excellence	

# UNIVERSITY PHYSICAL IDENTITY MANAGEMENT – page 1

- Establishing identity – who are you and how do we know that?
- Admissions offices have many channels for validating new students, faculty, staff
  - Application – self service
  - Mailings - address
  - Emails – digital identity
  - Financial aid - financial
  - Other services – 3<sup>rd</sup> party



U of Utah Health

Meanwhile over at the Card Office -

- Identity data comes from student information systems to the card database
- **“Gotta get a card in their hand”**
- Card data is pushed to various systems at issuance
  - Usually just the number on the card for that system
    - One-card system
    - Access control system
    - Other systems – res, library, parking,
- **Cards stay issued**
  - Students, faculty members, staff could be in systems forever
  - Changes handled manually by Card Office

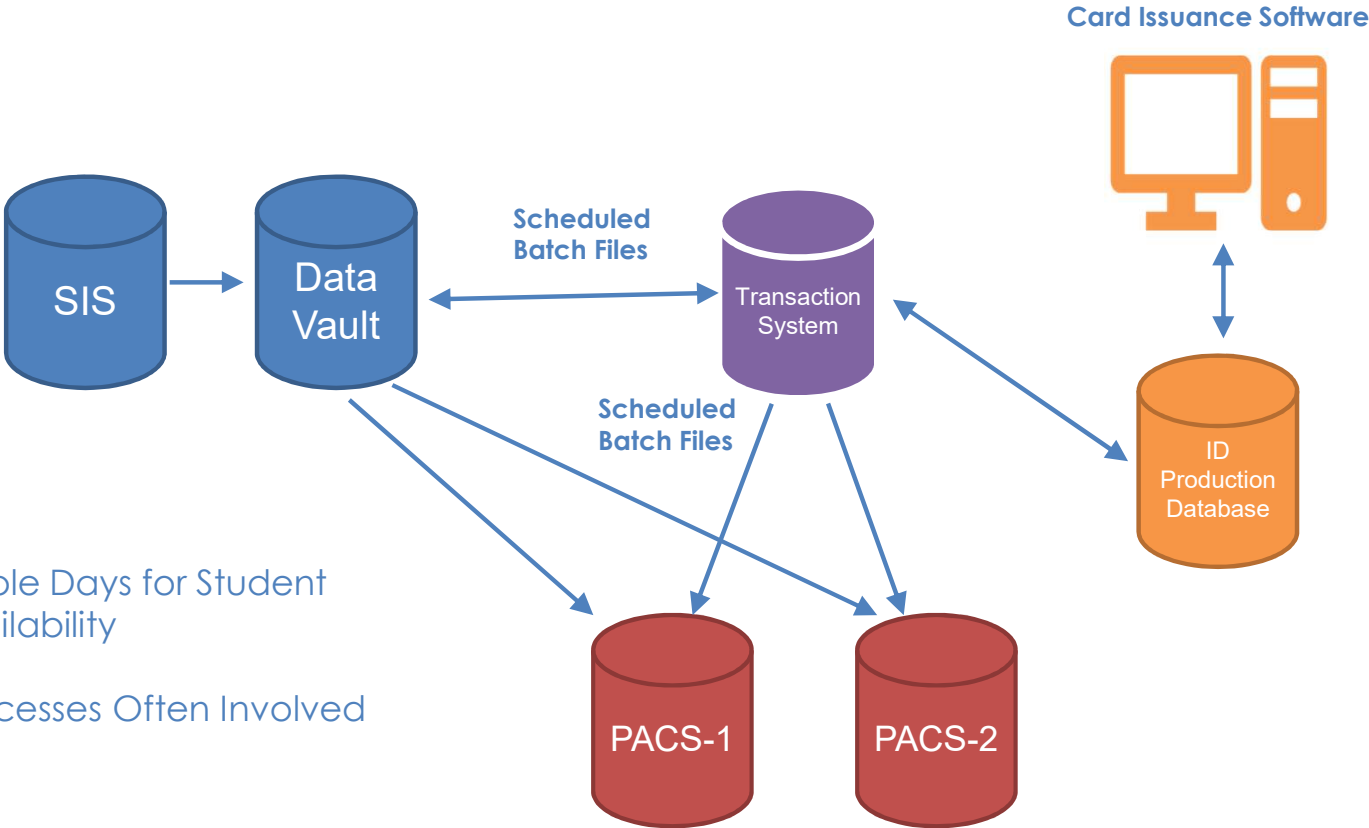


# CREATING A VARIETY OF CREDENTIALS

- How will each system know you are who you say you are?
- Issuing and managing multiple credential types
  - Card/cards
    - Multiple credentials on each
  - Mobile credentials – doors, POS
  - Biometrics – really physical access!



# UNIVERSITY CARD DATA EXAMPLE



- Often Multiple Days for Student Service Availability
- Manual Processes Often Involved



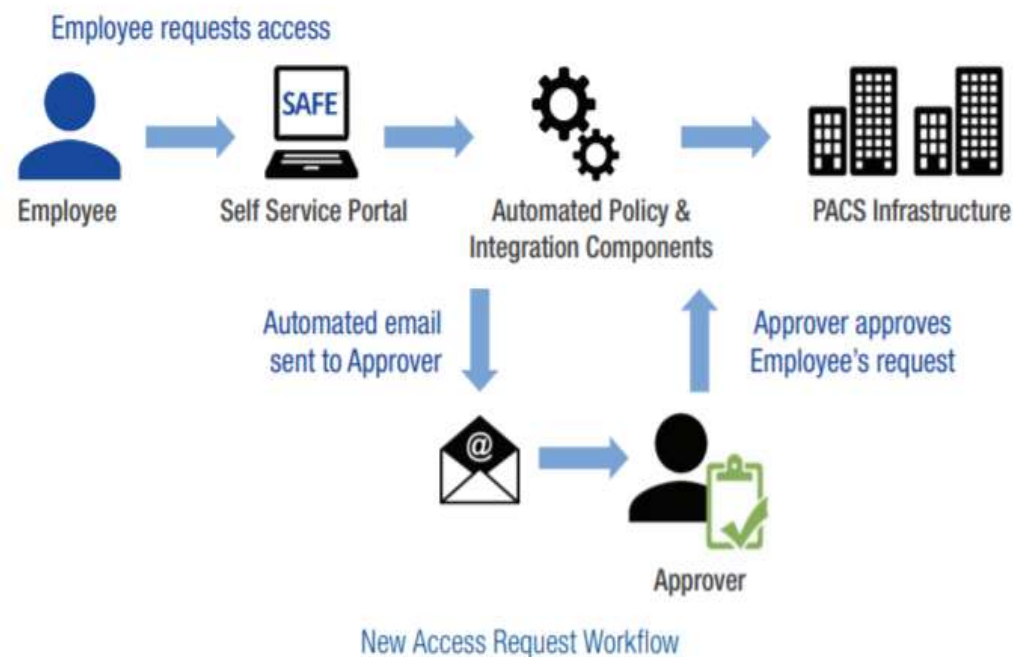
# COLORID

## MANAGING IDENTITIES

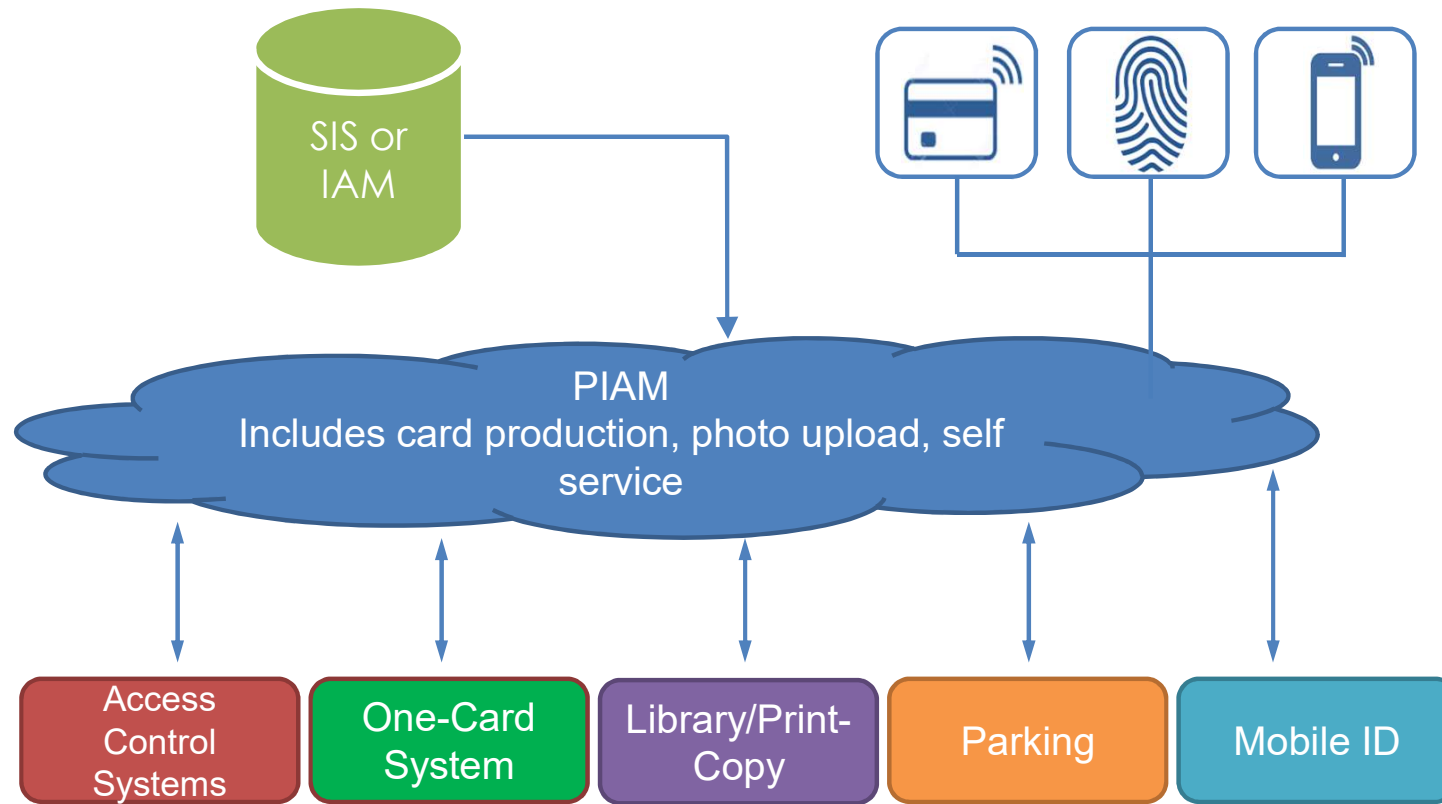
- What if someone loses their card or key or credential, or they leave the school?
  - “We have thousands of expired users in our databases”
- Manual processes
  - Removing privileges once student or staff leave campus
  - Updating permissions, re-issuing cards, managing dataflow
- Identity data silos – lack of consolidated view of identities, access rights, etc.

# COLORID CREDENTIAL ISSUANCE IN PIAM

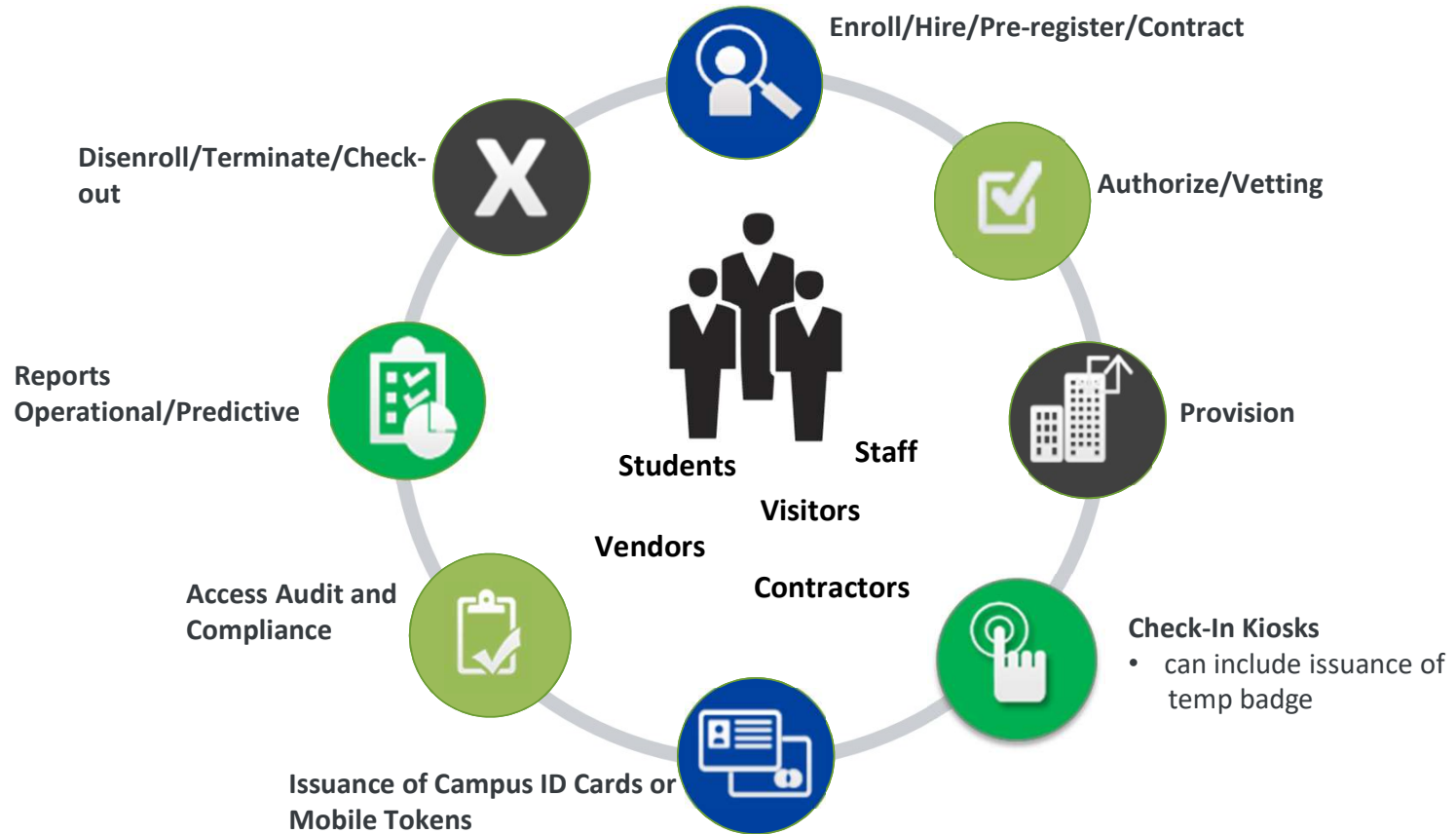
- Physical access control example:
- HID SAFE has intelligence built in
  - Policy
  - Integration
- Ensure each identity has the right access, to the right areas, for the right length of time



# PIAM MOVES CREDENTIAL DATA



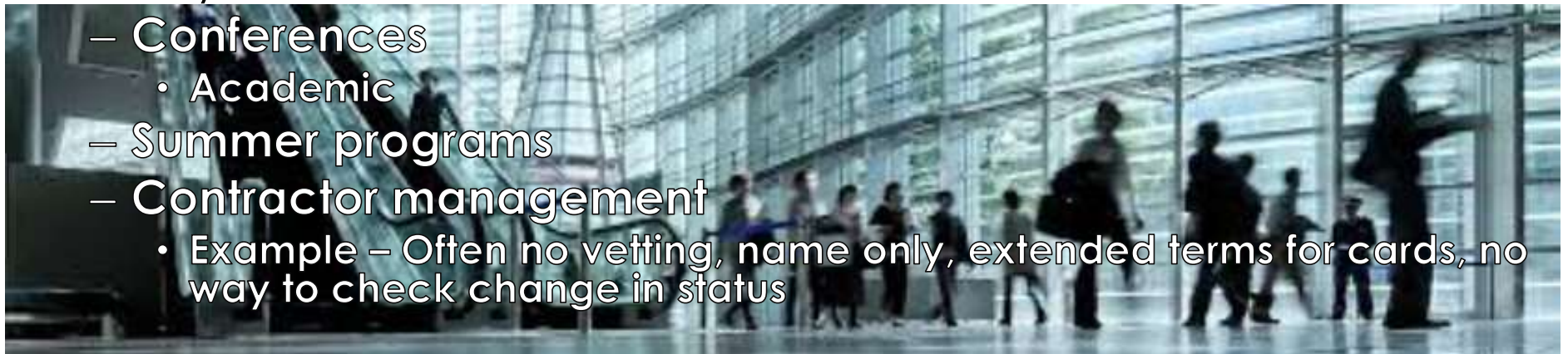
# PIAM MANAGES FULL IDENTITY LIFECYCLE



# COLORID

## TEMPORARY IDENTITIES

- How do we create and manage identities for visitors, conferences and events?
- Timed events
  - Visitors to residence halls
  - Any other visitors



# EU GDPR – GENERAL DATA PROTECTION REGULATION

- May, 2018
- Covers any data stored for EU persons
- Requires personal consent to use data
- Requires data removal after use
- Fines for non-compliance





# COLORID IDENTITY ANALYTICS

- Manage risk profiles per person
  - These can change after enrollment
  - Observed behavior on campus
    - Files accessed
    - Doors accessed
  - Behavior off campus
    - External databases log this
  - Manage threats
    - Insider cyber attacks
    - Physical attacks

RISK ASSESSMENT MATRIX				
SEVERITY \ PROBABILITY	Catastrophic (1)	Critical (2)	Marginal (3)	Negligible (4)
Frequent (A)	High	High	Serious	Medium
Probable (B)	High	High	Serious	Medium
Occasional (C)	High	Serious	Medium	Low
Remote (D)	Serious	Medium	Medium	Low
Improbable (E)	Medium	Medium	Medium	Low
Eliminated (F)	Eliminated			

## THE IDENTITY QUESTIONS

1. Establishing identities – who are you and how do we know that?
2. Creating credentials – how will each system know you are who you say you are?
3. Sharing identities and related credentials – how are the credentials and the permissions that go with them shared with campus systems?
4. Managing identities – what if someone loses their card or key or credential, or they leave the school?
5. Temporary identities – how do we create and manage identities for visitors, conferences and events?
6. Reporting – we need to know who, what, when, where, and maybe why, identities and credentials were created, used and revoked.



# MOBILE DEVELOPMENTS

What's going on with phones?

# COLORID CURRENT MOBILE USE CASES

Physical  
Access – from  
Reader Mfr.

Point-of-Sale

Supplemental  
Credential

Revenue  
Generation –  
Additional  
Fees



## MOBILE-ONLY SHORTCOMINGS

Lack of visual identification

Sense of belonging with ID card

Legacy Readers: Mag and Barcode Systems



## CONSIDERATIONS WITH MOBILE ID

### Consider This

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In many cases, mobile credentials can be more expensive than traditional cards

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Current hardware decisions **MUST** be made with mobile in mind

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Determine which solutions and technologies work best in your environment

C O L O R I D

# MOBILE CREDENTIAL SOLUTIONS

Examples of Mobile Solutions on the Market,  
Many different solutions available



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# C O L O R I D

## APPLE MOBILE NEWS



### University of Texas student government pines for mobile ID

02 November, 2018 By: Andrew Hudson

CATEGORY: CARD ISSUANCE, DIGITAL ID, MOBILE

News of Apple devices now supporting mobile credentials on the iPhone and Watch has turned quite a few heads. Now, a student government push at the University of Texas at Austin wants to usher in the era of mobile IDs.

As reported by [The Daily Texan](#), the university's student government has started an initiative to bring mobile IDs to UT after being inspired by an article detailing the Blackboard Mobile Credential at Duke University, the University of Oklahoma and the University of Alabama. A representative for Texas' student government has even gone so far as to reach out to Apple directly to find out how to incorporate mobile IDs on UT's campus.

<https://www.cr80news.com/news-item/university-of-texas-student-government-pines-for-mobile-id/?tag=email>

# COLORID HID MOBILE ACCESS

Powered by SEOS

NFC or BLE technology - Long range; iOS, Android

Web portal or software integration -email

Secured with SIO

iCLASS SE readers

BLE Module in SE readers

5427CK USB Reader available for POS, Print/Copy, Etc.

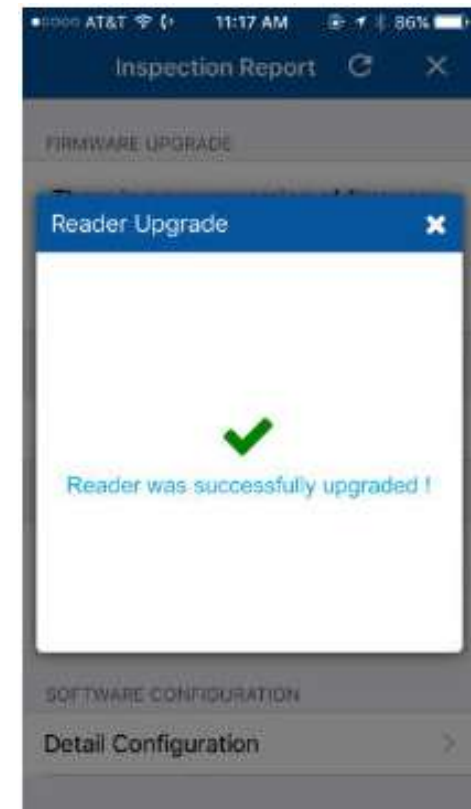




# COLORID HID READER MANAGER

## Reader Manager App

- Allows retrofit of iClass SE Readers
- Upgrade Reader Firmware OTA
- Manage Mobile Keys
- Configure Reader Characteristics
- Simplify Reader Upgrades & Reduce Costs



C O L O R I D

THANK YOU

