# Contactless Card Capabilities

*The New Horizon*

# Capabilities Today

- Transit
- Transit “extensions”
- “Pilot-level” Security

# Looking Forward

- Regional Transit
- Financial
- US-wide Security
- World-wide Security (Borders and Ports)
- Interoperability Issues

# Transit

## An End-to-End Solution

Media + Hardware + Business Management

### Card Technology

Magstripe

Disposable Contactless

Contactless Memory

Dual Interface Microprocessor

### Open Reader Architecture

Tri-Reader®

Micro RTD

Master Module

SIB

Win32 Expandable Memory Environment

### Access and Biometric Features

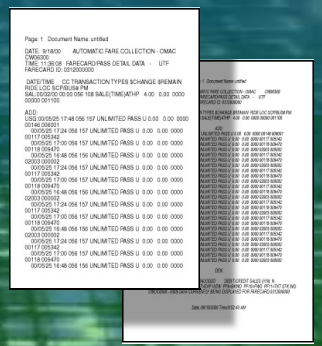
### Central Computer

Secure and Fast Access

Biometric Capabilities

- Local Reports
- Table Requests

Distributed Processing Solution



- High Reliability
- Security
- Disaster Recovery
- Reporting Services
- Smart Card Base Management
- Cardholder Support

# technology & product suite

Tri-Reader

CUB-SAM

Master Module

Micro-RTD

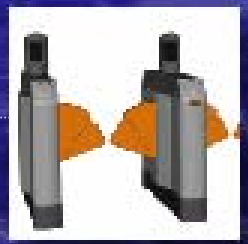
Magnetic Ticket Transports

Unattended Vending

Fareboxes

CICO Validator

Card Media



Turnstiles & Faregates

CUBIC

# Smart Card Technology
## Emerging requirements

- ISO-14443 Standard is in progress, but is not worldwide in application. This standard is primarily focused at microprocessor (µP) based cards not Memory/Logic cards.
- µP cards are still evolving with technology advancements. This type of card exhibits: slow operation, large die size, changing operating system horizon, and costly to purchase.
- Readers need to read/write and comply to levels of supported Smart Card technology.
- The ability to locally encode and distribute cards is necessary.
- Whatever smart card is issued, it must be durable, reliable and secure.
- Magnetic, Memory/Logic and µP cards will co-exist for years to come.

# Contactless Smart Card Standard ISO 14443

Application (i.e.. fare collection)

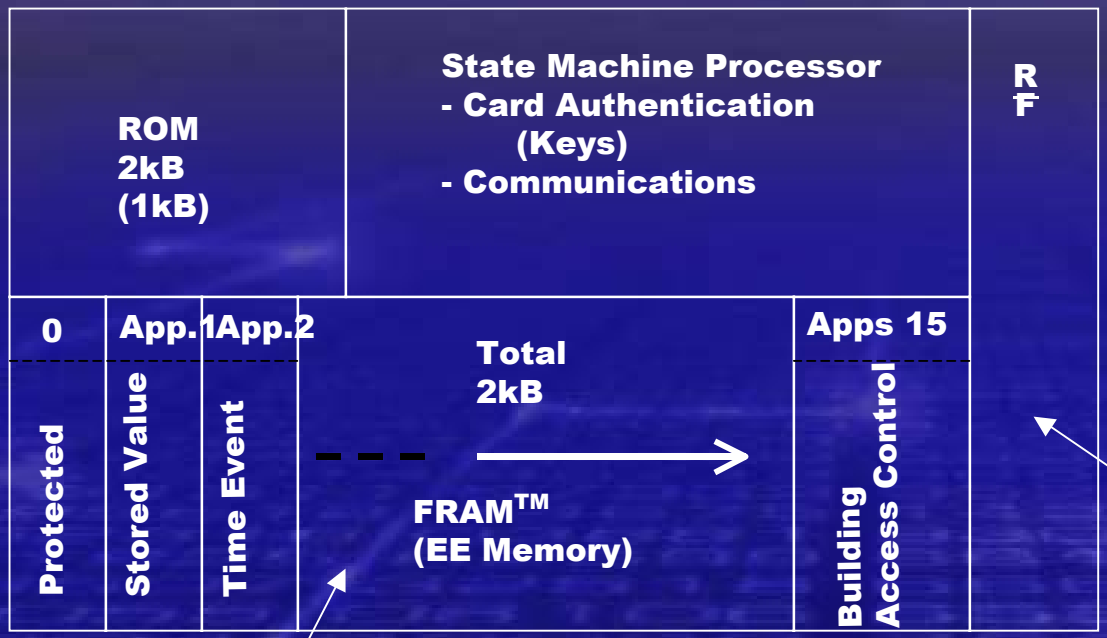
Card OS (Not Included In Standard)

Security (Not Included In Standard)

| | |
|---|---|
| aft Submitted. Debates ongoing. | Part 4 -Protocol |
| ISO Committee debating this. | Part 3 - Initialization & Anti -collision (Type A and Type B) |
| ISO Committee vote complete. | Part 2 - RF Power & Signal Char's (Type A and Type B) |
| ISO Committee vote complete . | Part 1 - Physical Card Characteristics |

*Back to technology & product suite*
*click on Tri-Reader*

# Memory / Logic Cards




~ 0 - 6.5cm
(Standard Antenna)

13.56 MHz
10% AM (100% AM)

115 k Baud (106 k Baud)
Single Carrier (Subcarrier)
FCC Article 15
Certified - GO CARD®

Each Application Memory Usage
7 User Pages (16 bytes)
1 Key and Page Application Type

™ - Ramtron

# Contactless Smart Cards

- Provides expanded flexibility over magnetic
- More memory and Higher Security
- Faster Transactions and Lower Maintenance
- Published Standards...Multiple Suppliers
- Better, Cheaper & Faster

# The Production Process

- ASIC/Microprocessor Design
- Semi-Conductor Fabrication
- Wafer Processing
- Module Assembly
- Card Production

# The Players

- Production Process typically managed by 2 to 3 primary participants:
  - Semiconductor House (with or without ASIC designer)
  - Card Manufacturer
  - Operating Systems Developer

# Leading Semiconductor Houses

- Philips
- ST Microelectronics
- Infineon
- Atmel
- Fujitsu
- Samsung
- Toshiba

# Leading Card Manufacturers

- Schlumberger
- Gieseke & Devrient
- GemPlus
- Orga
- Oberthur
- ASK
- Toppan

# Leading Operating System Developers

- IBM
- Keycorp
- Schlumberger
- Gieseke & Devrient
- GemPlus
- Mobile Mind

# Out-of-system sales

3rd Party Kiosk

Web Server

WAP Phone
(“coming soon”)

Transit Store

Internet User

Customer Service
Operations

**NBMS**

Transit Kiosk (MRM)

Consumer

ATM

Retail POS

# financial services

Cash Collection & Reconciliation

EFTPOS Acquiring

General Accounting

Settlement & Reconciliation

Funds Pool Management

Electronic Funds Transfer

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# Bus Link

- The “contactless” Smart Card eliminates the need for correct change and significantly reduces boarding time.

# Why Regional Transit?

**Experience permits us to meet transport-security needs with a turn-key solution at a regional level**

- Smart card technologies at all transit ports
- High-volume access control systems and biometrics at transit buildings
- Central systems updated to support regional access

Federal

Transportation

Intermodal

# Regional Integration Process…

- The "End Game" of Fare Policy Evolution.
- A Common Fare media and Fare Product set across Multiple Operators.
- Allows for Seamless Travel and Regional Transportation Planning.
- Provides Consolidated Regional Ridership and Revenue Reporting.
- Allows Linked service Promotional Strategies across Operators.

# US Security Market Exploding…

- Federal Buildings
- US Visit / Borders
- Seaports and Airports

security

CUBIC SECURITY
A member of the Cubic Corporation family of companies

# Security Applications

- Transit
- Borders
- Ports
- Hotels
- Office Buildings

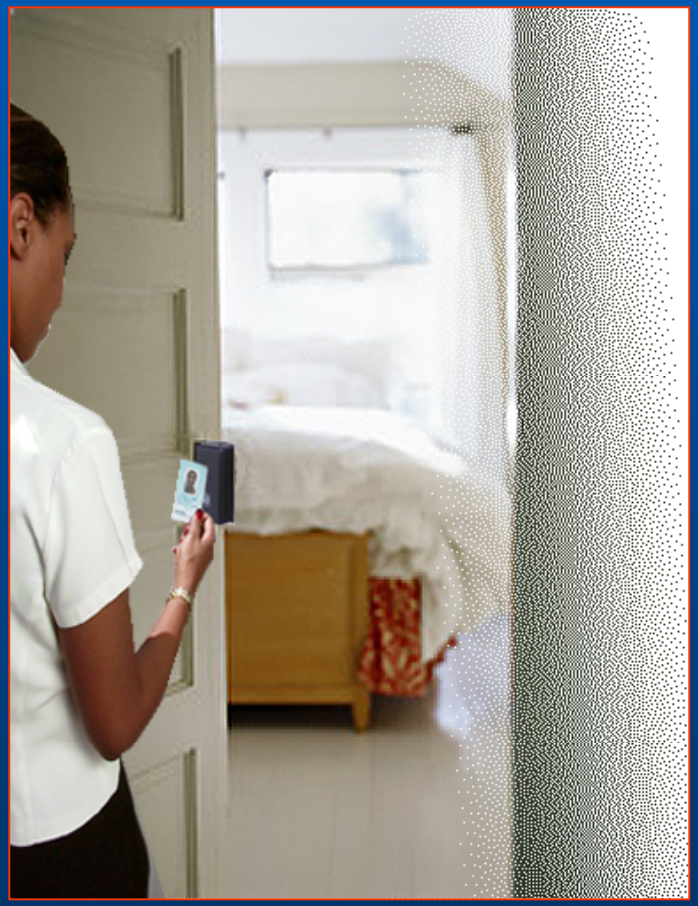
# U.S. Entry Exit "Enhanced" Credentials For Pedestrians and Vehicles

# Faster Security Checks

- Smart Card enabled biometrics provide multiple “layers of personal identification” for the trusted passenger reducing the need for more time - consuming inspections.

# Access Security

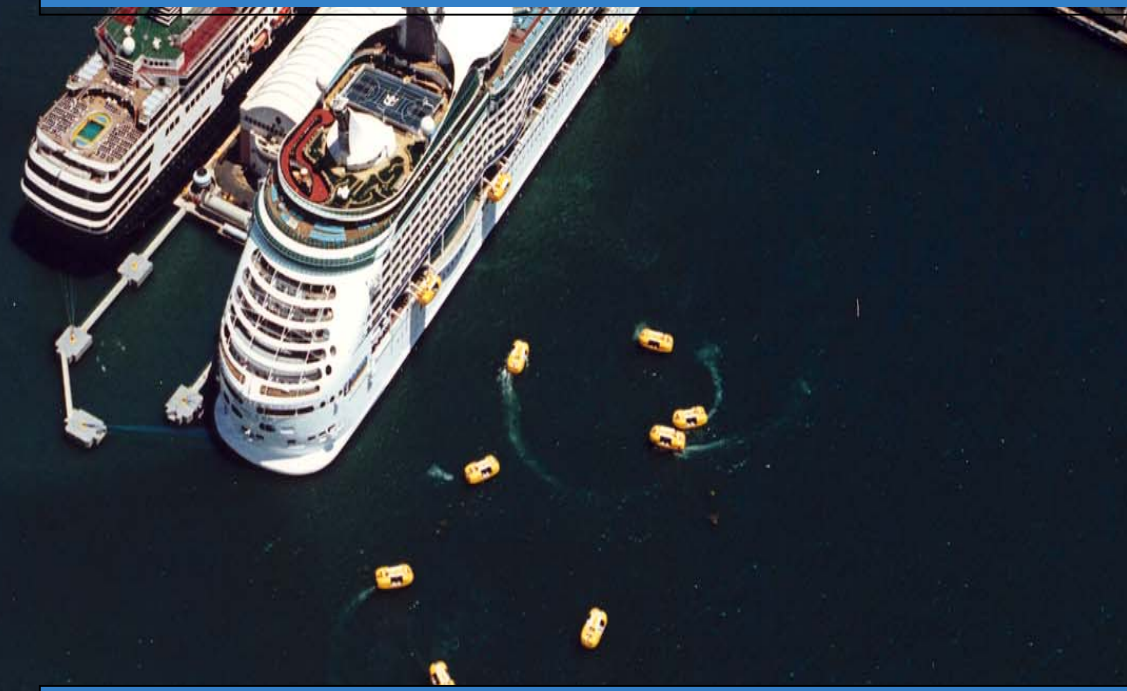
- Hotel reservations, payment, and office access are all facilitated by fast, secure, reliable contactless cards



# Intermodal Port of the Future

*Briefing to the*

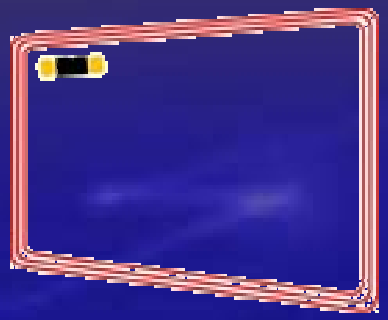
Ship Operations Cooperative Program



*Presented by the*

**Puerto Rico Ports Authority**

# Passport Concept



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- Embedded Contact-less Technology
- Millions in production for transit
- Fast (70 ms)

# Next Twelve Months…

- TWIC specifying Port standards for compliance…add contact less to demos
- Border programs consideration of contact less for fast, secure access
- Gov't RFP's exist for contact less "Hybrid" card
- Both finger and face biometrics verified with contact less memory cards
- Transit / USDOT paved the way…continuing with transit extensions for financial and security