



BIOMETRICS
DEPARTMENT OF DEFENSE

Common Access Card (CAC) Biometric Integration Overview

Presented by

Department of Defense Biometrics

DoD Biometrics Management Office

DoD Biometrics Fusion Center

PKI PKE Forum

New Orleans, LA

14-18 June, 2004

www.biometrics.dod.mil



Purpose

To provide an overview of the DoD's efforts to include biometric technologies with the Common Access Card (CAC)



Biometrics and the DoD

Changes in today's military...

- ❑ Global operations
- ❑ Distributed working & warfighting scenarios
- ❑ Increased reliance on information technology
- ❑ Dependence on extensive electronic situational awareness in the battle space

...require a paradigm shift in identity assurance.

- ❑ Connect identity to biometrics
- ❑ Link actions with identity
- ❑ Employ a “human-centric” approach
- ❑ Use biometric, smart card, and PKI technologies



Common Access Card

CAC is a Smart Card that serves as...



Personnel Identification
Replaces the "ID" Card

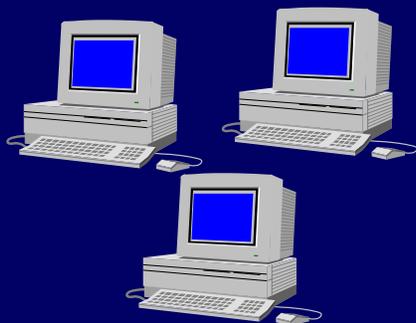
Building Access



Systems & Network Access

with PKI Application Provides:

- Digital Signature
- Data Encryption



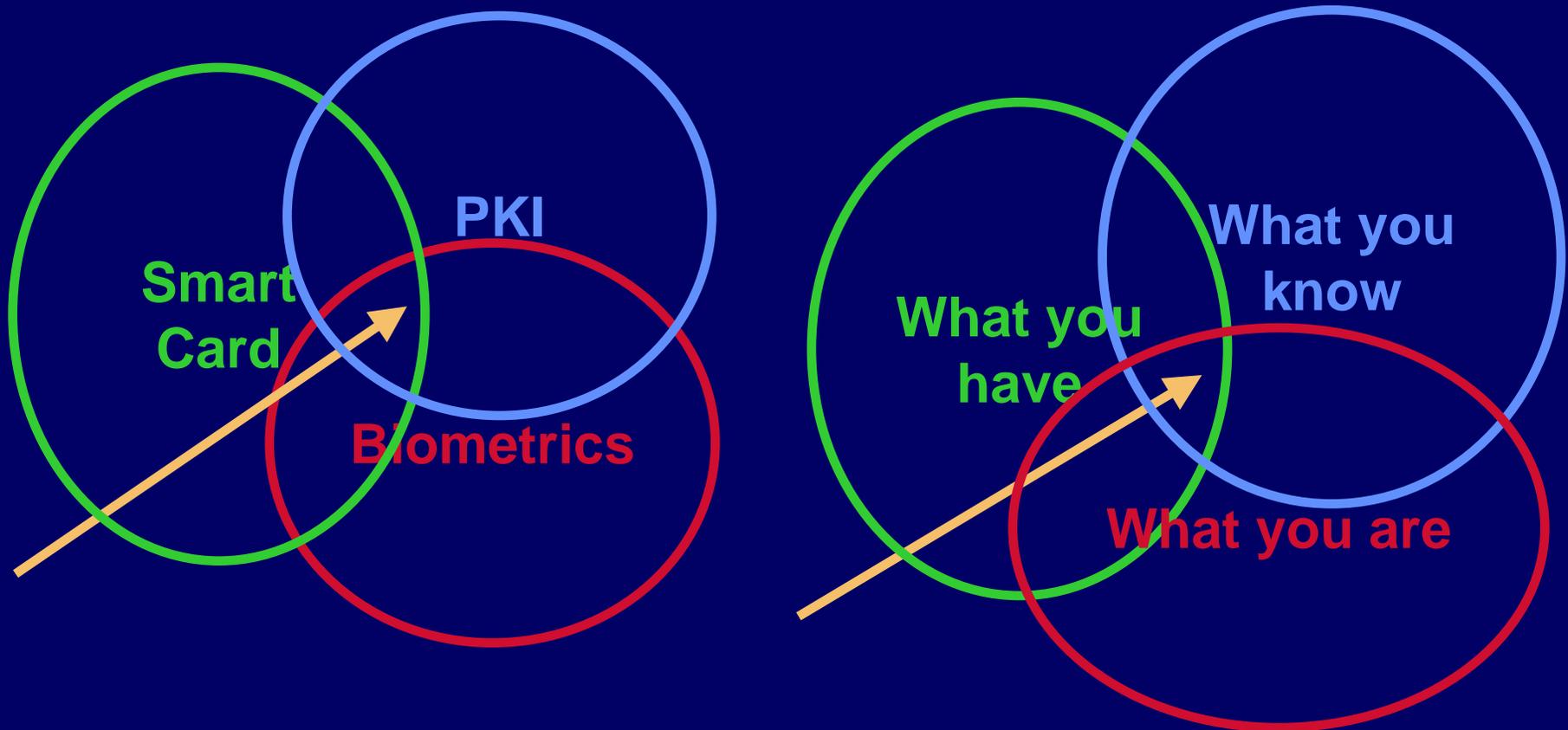


Approaches to Authentication

- Smart Card
- PKI
- Biometrics



Why join Biometric technology with the CAC?



Combinations of these approaches heighten security ⁶



CAC-Biometrics Approach

Phase I: Technology Demonstrations

**Phase II: Enterprise Solution Suitable
Demonstrations**



CAC-Biometrics

Technology Demonstration Concepts

- **CAC-A – Biometrics/PIN**
- **CAC-B – Template on CAC Application**
- **CAC-C – Contactless with CAC**



Phase I: Technology Demonstration CAC-A

CAC-A

Access to CAC



Biometrics as an
Alternative to the
PIN

Focus on 4 proof-of-concept scenarios:

- Store on Server-Match on Server
- Store on PC-Match on PC
- Store on CAC-Match on server
- Store on CAC-Match on CAC



Access the CAC



Integrated
Circuit Chip
(ICC)

Next Generation CAC

- 64k smart cards
- Contactless capability (TBD)
- Version 2 Applet
- Utilizes the Access Control Applet (ACA)
- Set Access Control Rules to access the CAC

Current Status

- Version 1 Applet
- Must utilize the PIN
- Users often forget their PIN
- Interim CAC PIN Reset (CPR) Solution



Phase I: Technology Demonstration CAC-B

CAC-B



**Biometric
On CAC**



Logical
Physical

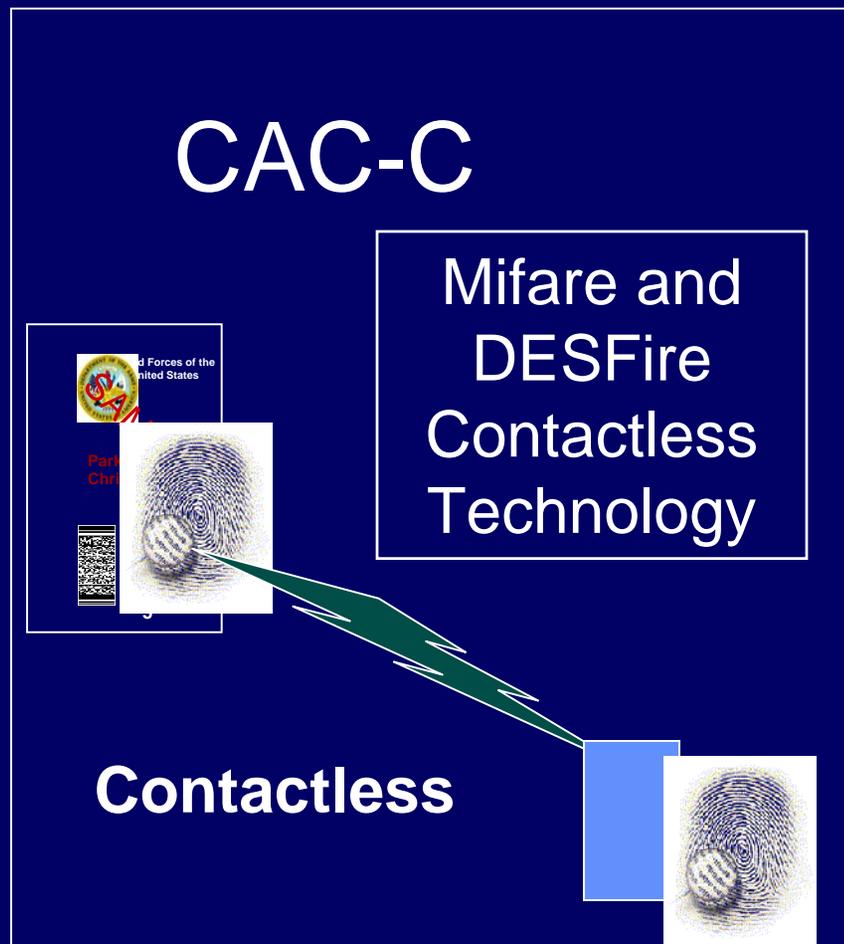
The CAC as a
carrier for the
Biometrics

CAC as a carrier for the biometric

- Follow-on effort from CAC-A “Scenario 3” (Store on CAC-Match on server)
- Focus on placing Biometric Attribute Certificate on the CAC



Phase I: Technology Demonstration CAC-C



Interoperable contactless physical security solution

Focuses on biometric contactless solution:

- **Physical Access System**
- **Portable Physical Access System**
- **Physical Access System that uses a turnstile**



Proposed CAC-A/B Phase II Efforts

- **Merge CAC-A and CAC-B into a single Phase II effort**
- **This effort is a two-part process**
 - Part 1: Concept Refinement**
 - Match on card capability**
 - Match off card capability**
 - Part 2: Technology Development**



Part 1: Concept Refinement

- Focus the scope and evaluate the two distinct capabilities
 - Store Biometrics on Card and perform *Match-On-Card Capability*
 - Store Biometrics on Card and perform *Match-Off-Card Capability*
- Coordinate the Match-On-Card development effort between CAC-BWG and DMDC-West
- Conduct further analysis and study to determine the optimal capability for DoD



Part 2: Technology Development

- Leverage the results and lessons learned from the CAC-Biometrics Phase 1 efforts
- Develop prototype capability that reflects optimized CAC-Biometrics solution for DoD
 - Identify operational and security requirements.
 - Demonstrate the business process and systems architecture
 - Recommend appropriate standards



Potential Applications

- **Biometrics may be used as second factor for authentication (token and biometric must be present)**
- **Biometrics can be used to access/activate the card**
- **Biometrics can be used to unlock secrets on the smart card (private key, certificate, PIN)**
- **Biometric template can be stored on the card, with authentication of the individual against information on the card**
- **Ensures user is legitimate holder of card**



Summary

Biometrics with the CAC may open the door to enterprise use of biometrics throughout the DoD

The use of CAC with the biometrics authentication capability is vital to achieving a secure Information Assurance posture for Defense Identity Management



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