



***Air Force and DoD  
Biometrics Partnership***

**U.S. AIR FORCE**

**Chris Crooks  
Booz Allen Hamilton  
2003 Biometric Consortium Conference**

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**UNCLASSIFIED**



# Overview



- AF Biometrics Stakeholders
- Supporting the DoD Biometrics Mgmt Office (BMO)
- Request for Support
- Task Objectives
- Feasibility Study / Lab Scenarios
- Successes / Challenges
- Summary





# Air Force Stakeholders



- ◆ Air Staff (AF/XICI)
  - ✓ Policy
- ◆ Air Force Communications Agency (AFCA/WFP)
  - ✓ Lead Command Designation by AF/XIC, 21 Aug 02
  - ✓ Coordinating activities with Security Forces FOA and ESC
  - ✓ Establishes AF standards, uses and policies
  - ✓ Focused to operationalize biometrics across the enterprise
- ◆ Electronic Systems Center (ESC/DIW)
  - ✓ Provides technical expertise to DoD BMO activities
  - ✓ Performs biometrics quick looks and pilots
  - ✓ Integrates physical or logical access solutions
  - ✓ Provides testing & implementation support
    - ◆ Most support to date has involved physical access
    - ◆ Conducted biometric distribution feasibility study using AFDS



## *Our support to DoD BMO*



- ◆ CAC-BWG tech demonstration team member
- ◆ DoD BMO documentation contributor / reviewer
- ◆ Participate in BMO Enterprise Working Groups
- ◆ Coordinating field test evaluations
  - 141 CF, Region 6 SIPRNET ROSC (Oregon ANG)
    - Fingerprint and Hand Geometry w/PIN
  - 142 ARW (Washington ANG)
    - Fingerprint and Hand Geometry w/PIN
  - 375 SFS
    - Hand Geometry w/PIN
      - 1,900 Users enrolled, 500 Daily Users
  - HQ AFSOC
    - Iris, Fingerprint, and Hand Geometry



**AF recognized as a superior contributor to BMO efforts**



# DoD BMO Request



## ◆ Initial task

- Requested AF support
- Examined feasibility of using directory services for distribution architecture
- Evaluated use of meta-data technology
  - Meta-service
  - LDAP directory
- Leveraged an AF Directory Services lab facility in Mclean VA

## ◆ Evolving task

- Participated in DoD BMO Working Groups
- Provided update briefing & interim report in Nov 02
- Briefed biometric working groups from Dec 02 – Jan 03
- Reported findings to DoD BMO in May 03



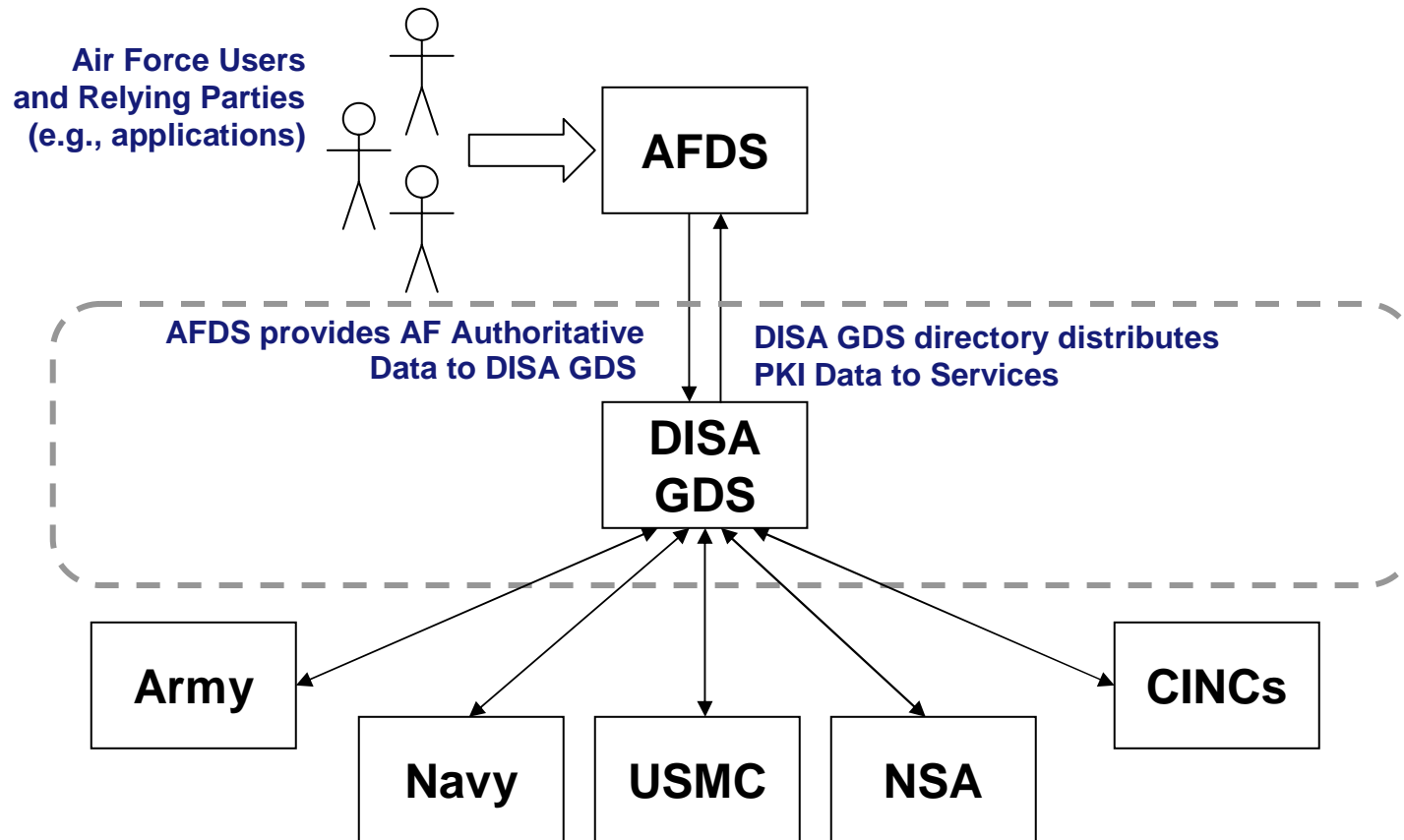
# Task Objectives



- Utilize a distribution architecture to merge biometrics data with other user profile data & credentials
- Examine use of meta-service/directory technology to efficiently manage user data to store/distribute data
- Validate the ability to use directory replication as a distribution source for biometric data
- Baseline scalability and performance
- Protect biometric templates both at rest and in motion

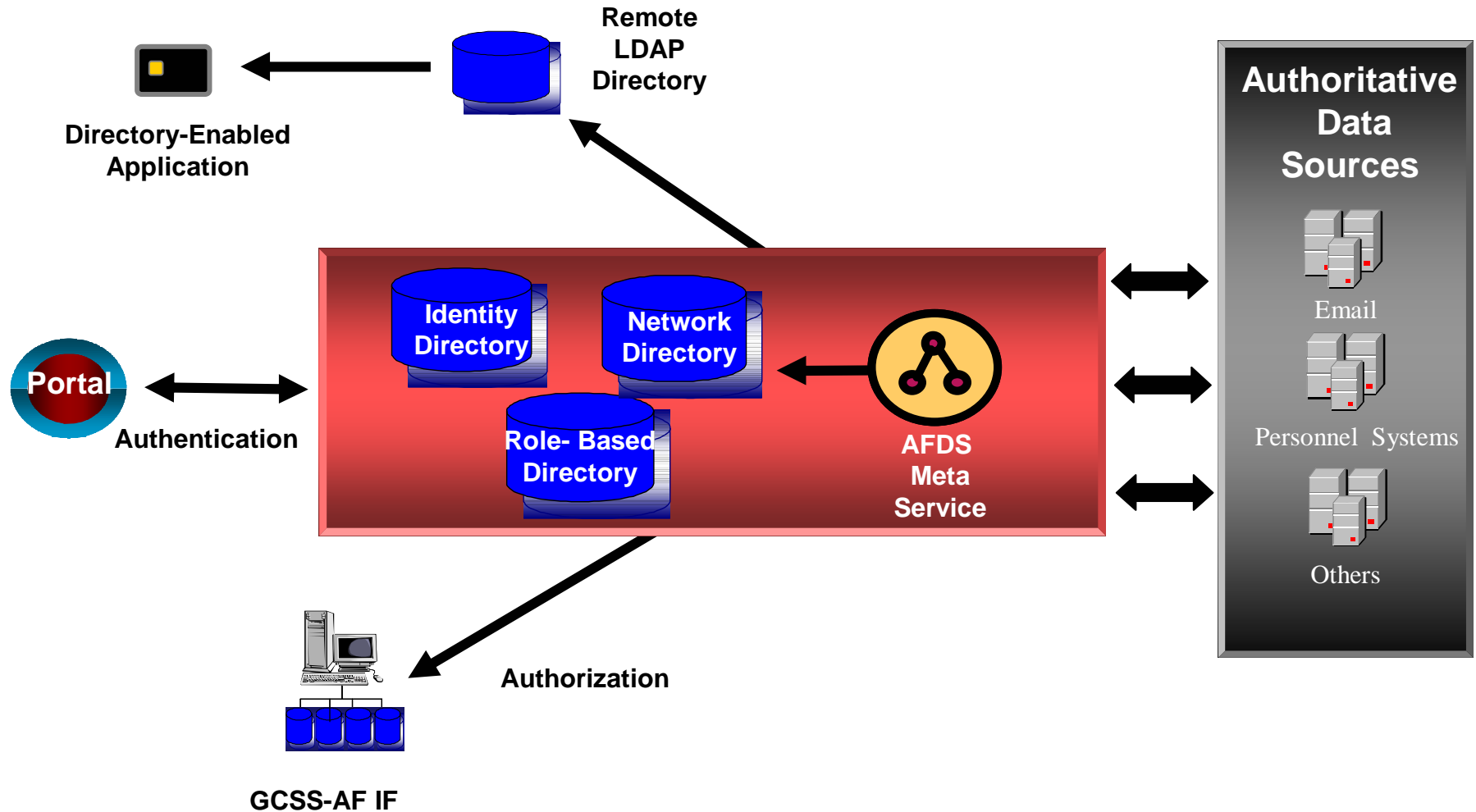


# AF Authoritative Data ...hold & exchange information





# AF Authoritative Sources ...connect and synchronize data





# *Distribution Architecture*



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## Technology

- ◆ Meta-service/directory technology can merge existing user data with biometric data
- ◆ Efficient template storage and distribution for use by communities of interest

## Not solely a technology solution

- ◆ Addresses meta-data issues facing various communities such as central storage, large-scale distributed computing, identity management, and access control
- ◆ Brings different communities together for the technical interchange of ideas related to meta-data

**Requirements, Organizations, Processes**



# Directory Replication Technology



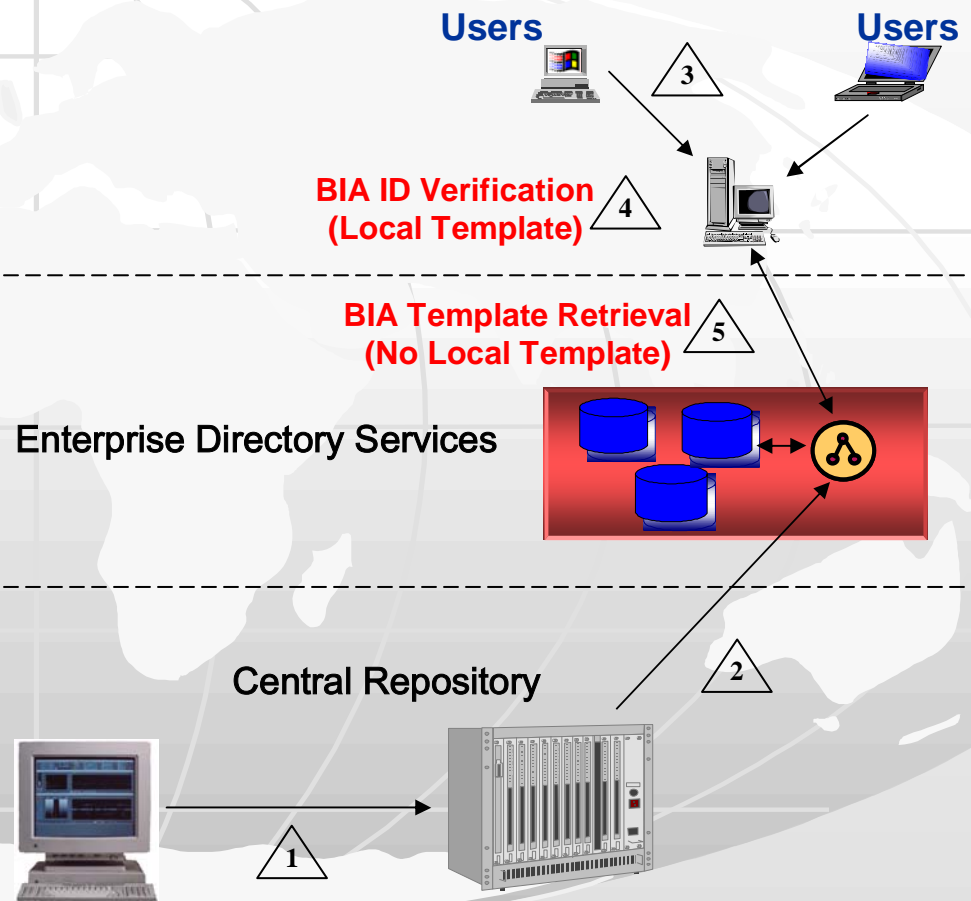
- ◆ Hierarchical data structure
- ◆ Optimized for search and retrieval (10% writes and 90% reads)
- ◆ Designed to supply smaller sets of data to large groups of customers
- ◆ Designed to replicate data out from specific nodes
- ◆ Security more granular - individual containers have access control lists
- ◆ Designed to support authentication services



# Lab Demonstration: Enterprise “Life-Cycle” Scenario



- Created three layers
  - Central Repository
  - Directory Services
  - Biometrics Integration Application (BIA)
- Master authoritative source
- Utilized three factor user verification (Token, PIN, and Biometric)

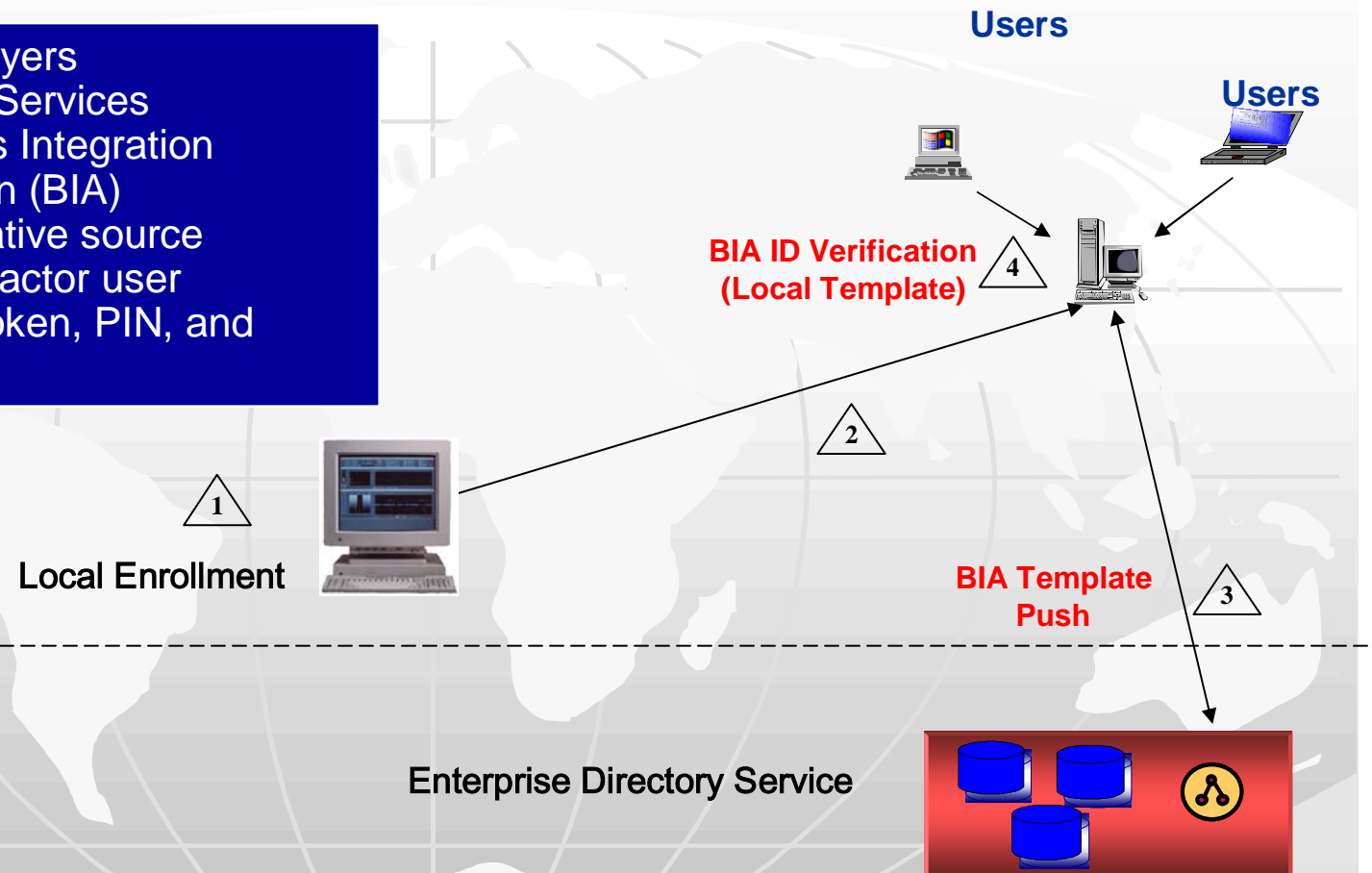




# Lab Demonstration: Local “Life-Cycle” Scenario



- Created two layers
  - Directory Services
  - Biometrics Integration Application (BIA)
- Local authoritative source
- Utilized three factor user verification (Token, PIN, and Biometric)





# Successes



- ◆ Demonstrated pulling biometric data across a distributed architecture in a closed environment
- ◆ Merged biometric data into an identity repository
- ◆ Demonstrated successful retrieval of biometric templates for application authentication



# Challenges



- ◆ Availability of COTS biometric applications that are designed to work with LDAP directories
  - Vendor community likely to provide products as DoD BMO establishes an enterprise architecture
- ◆ Maturity of biometric open standards
  - DoD needs to establish policy on standards usage



# Summary



- ◆ Successfully demonstrated merger of biometric templates into an identity directory to store and distribute
- ◆ Further investigation areas
  - In-depth comparative analysis - centralized vs. distributed architecture
  - Evaluate biometric data security alternatives – at rest, in motion
  - Develop tech demo that utilizes encryption technologies
- ◆ Points of Contact
  - AF Directory Services Lead Command: Kenny Lintner, AFCA/ITLD  
Kenny.Lintner@scott.af.mil
  - AF Biometrics Lead Command: Ed Thoman, AFCA/WFPL  
Edward.Thoman@scott.af.mil