



CAS Sign On for Windows

Presentation
pour l'OSSIR

12 novembre
2001

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BIOMETRICS OVERVIEW



What is Biometrics ?



The Science of measuring one or more physical or behavioural characteristics unique to a person.



- Face
- Voice
- Fingerprint
- Iris
- Hand
- Signature
- Vein pattern

Common biometric technologies

Technology	Infrastruct.	Cost	Acceptance	Speed	
100%	no	high	low	low	DNA
99%	no	high	fair	good	iris
99%	no	down	fair	good	finger
98%	no	high	fair	good	hand
98%	can	fair	good	good	signature
95/98%	yes	low	good	good	voice
90/95%	can	down	good	good	face

Biometric Transactions

➤ Enrollment

- Transform biometric life data into mathematical model → template

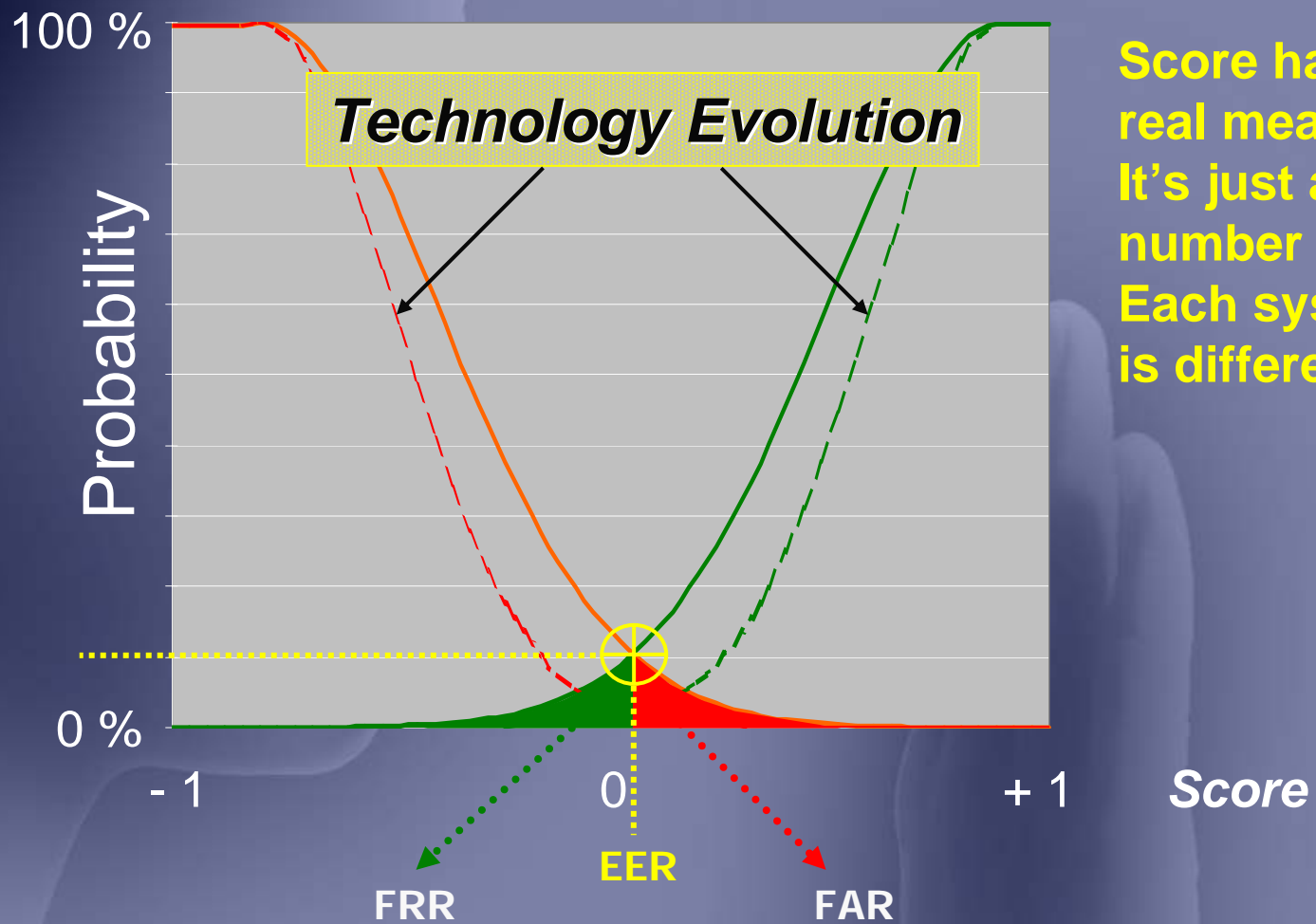
➤ Authentication/Verification

- Verify the identity of one person (1-to-1)

➤ Identification

- Find one person in a group (1-to-many)

Biometric Performance

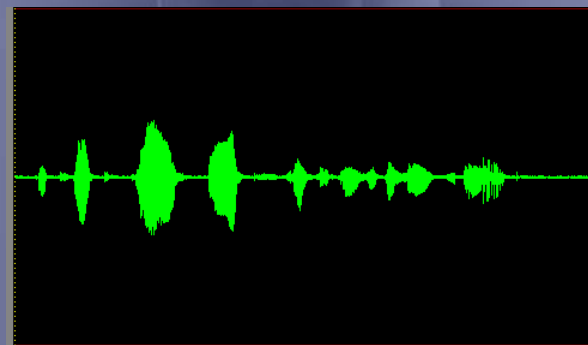
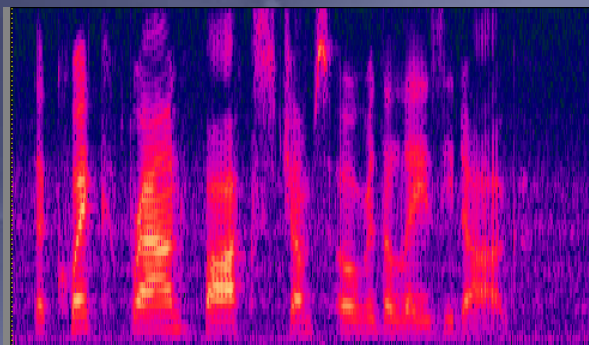


Score has no real meaning :
It's just a number .
Each system is different.

Threshold = minimum score you want during verification

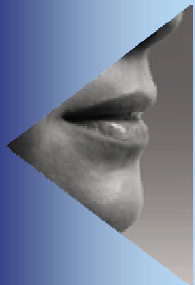
Voice Technology

- Pass-phrase oriented
 - 2 seconds of speech
 - Language independent
 - Text dependent or independent



Voice Technology

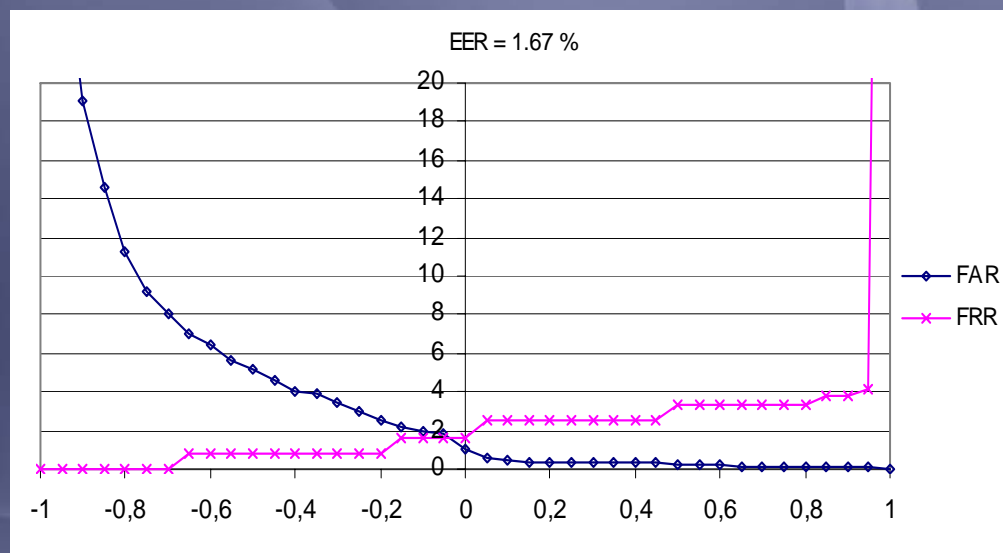
- Environment Influence
 - Noise
 - Microphone/Telephone
- Human Influence
 - Pronunciation
 - › Speed, intonation
 - Illness, Cold
 - Stress & Mood (angry, ...)
 - Aging effect



Voice Technology

➤ Accuracy

- Single password - 1 trial



Threshold $\in [-0.1, 0]$

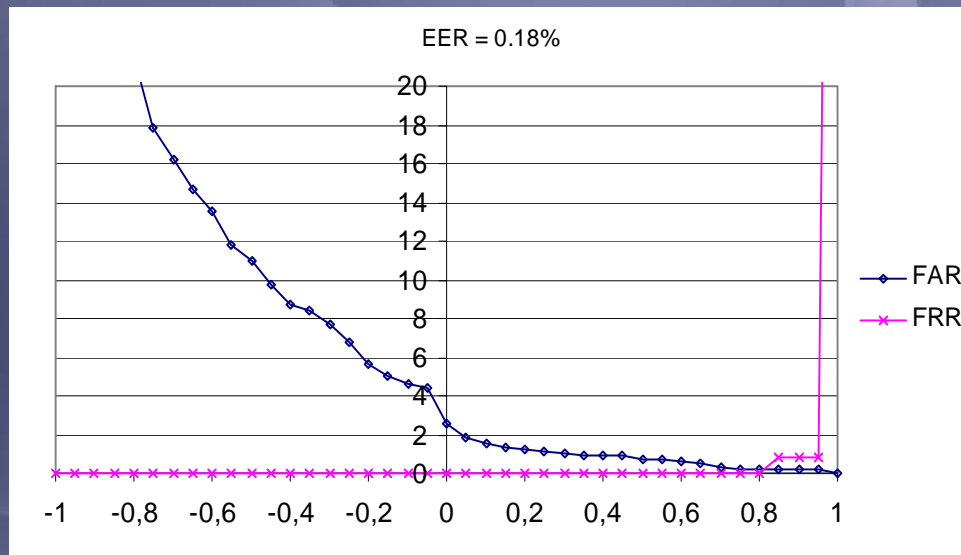
E
x
a
m
p
l
e



Voice Technology

➤ Accuracy

- Single password - 3 trials



Threshold = ± 0.8

**E
x
a
m
p
l
e**



Face Technology

- Face picture oriented
 - Detect face(s) in a video stream
 - Black&White or Color picture taken by digital camera
 - Liveness & Motion detection



Face Technology

➤ Environment Influence

- Light
- Background
- Video hardware quality
- Motion

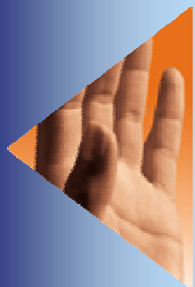
➤ Human Influence

- Eyeglasses
- Skin color
- Beard & Haircut
- Wearing (hat, cap, scarf, ...)



Finger Technology


- Minutia comparison oriented
 - Specific/different finger(s)
 - Liveness detection
 - › Temperature
 - › Blood pressure



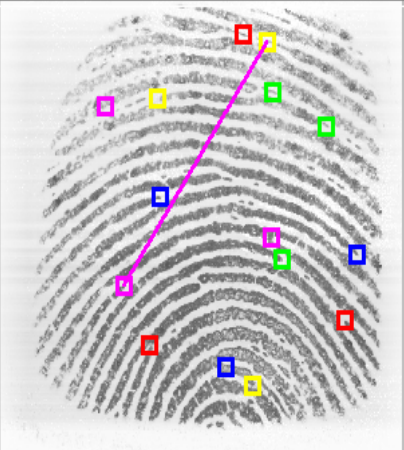
Animation

Animation Speed

Faster
◀
▶
 Slower



Enroll Image
Total number of minutiae: 19



Verify Image
Total number of minutiae: 15

Number of Matching Minutiae: 15

Rotation (in degrees): 0.51

X-axis Translation: 2 Y-axis Translation: 2

Close

Finger Technology

➤ Devices

- Optical Sensors

› Old technologies (Compaq, Sony, ...)

- Silicium sensors

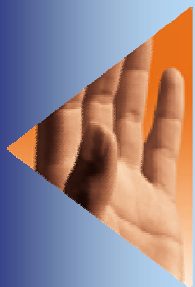
› Square sensor

- Capacitive (FPS110 Veridicom)

- E-field (AF-S1 Authentec)

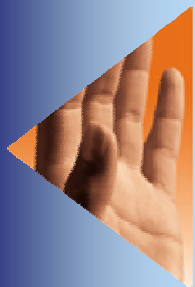
› Sweeping technology

- Thermal (Thomson FingerChip)



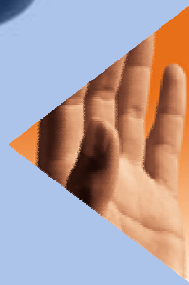
Finger Technology

- Environment Influence
 - Sensor dirtiness
- Human Influence
 - Finger (best : index!)
 - Race & Gender
 - Injury
 - › Burn
 - › Cut in finger
 - Finger moisture & dirtiness
 - Finger position & pressure





Combining biometrics



Combining Biometrics

- Adaptable policies for situational and access terminal requirements
- Additive Performance

By

applying

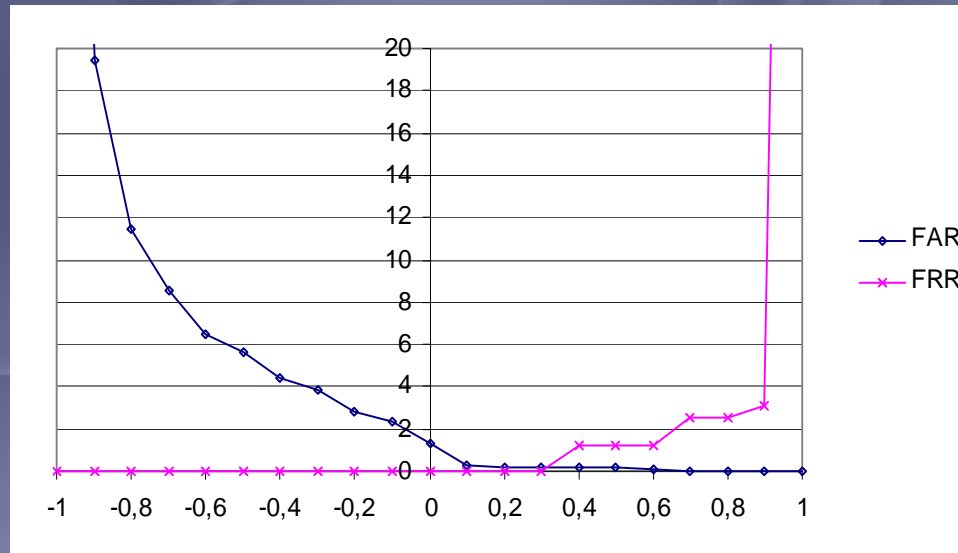
- Multiple biometrics
- Multiple passwords
- Multiple trials
- Decisions
 - Serial
 - Parallel
 - Weighted

Enhanced Security and Usability



Combining Biometrics

- Accuracy improvements
 - Parallel decision :
 - › Single voice password - 1 trial
 - › Single finger - 2 trials



Threshold = ± 0.3

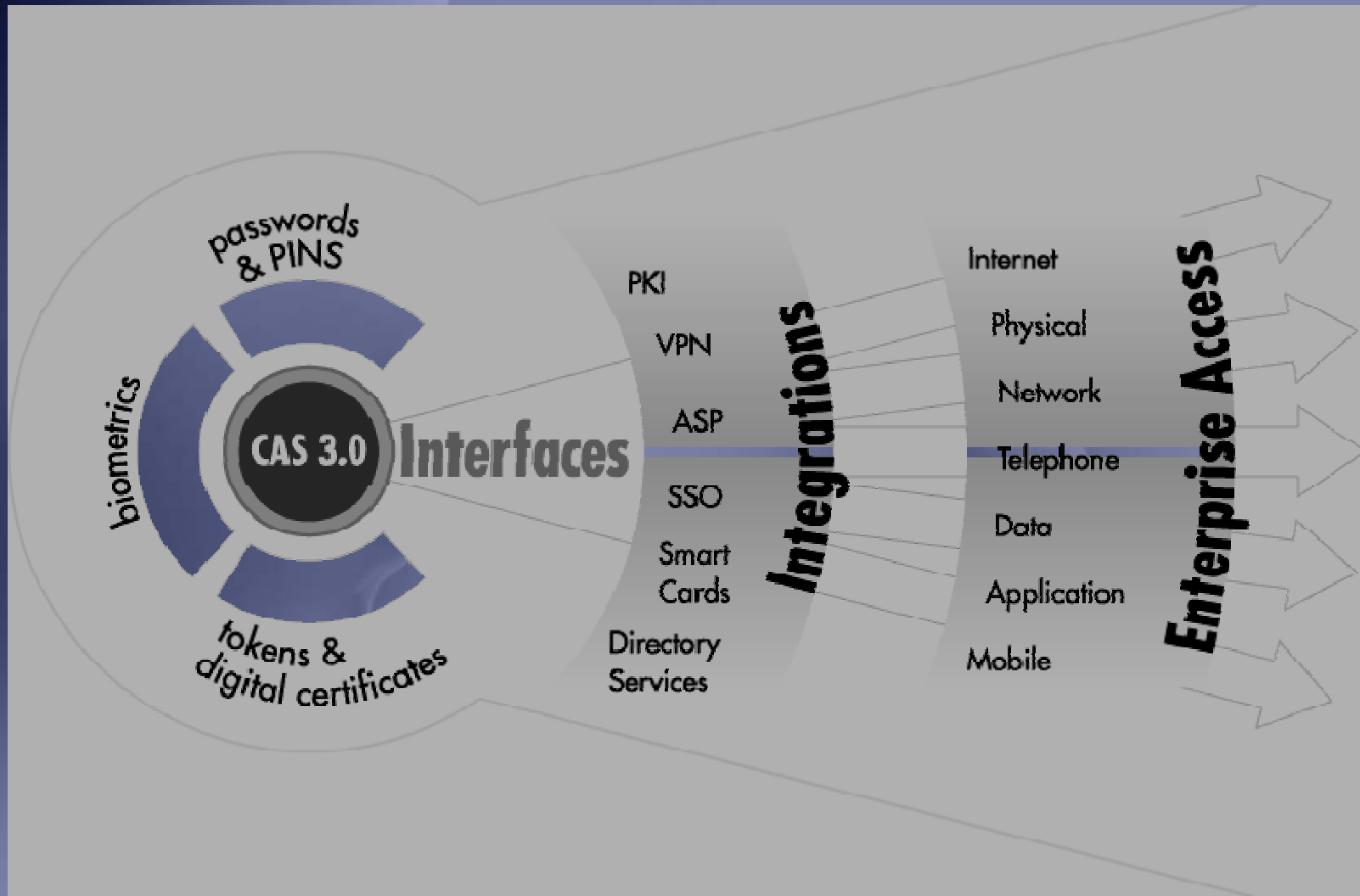




Keyware solutions



Keyware Enterprise Solutions

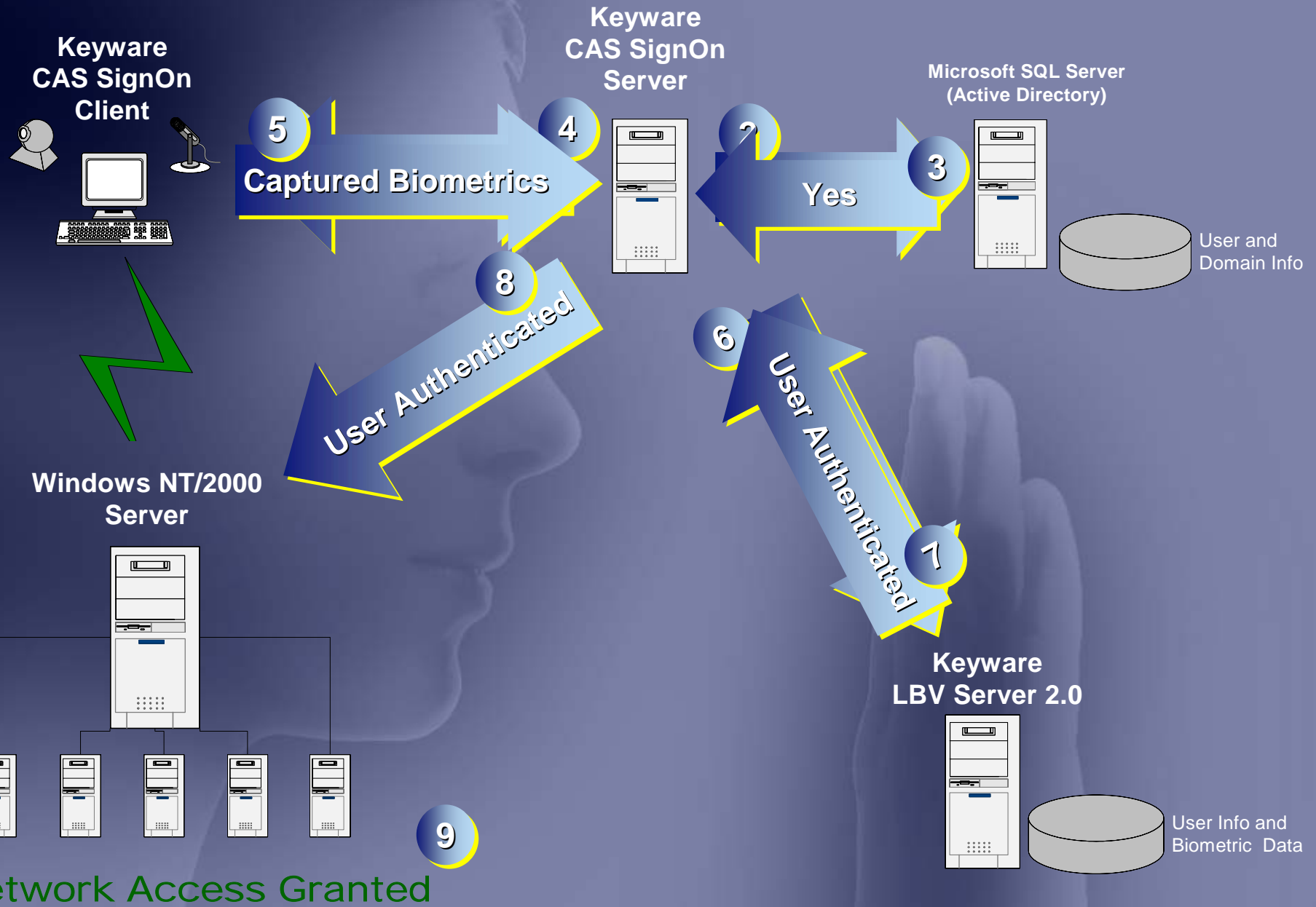


CAS™ SignOn for Windows

Protecting your Network with Biometrics

- Client/Server Architecture
- Powered by LBV technology
- Multi-Factor Layered Biometrics
- Domain-based Policies
- Multi-Finger support
- Unattended user enrollment
- Support Windows NT and Windows 2000





Server Administration

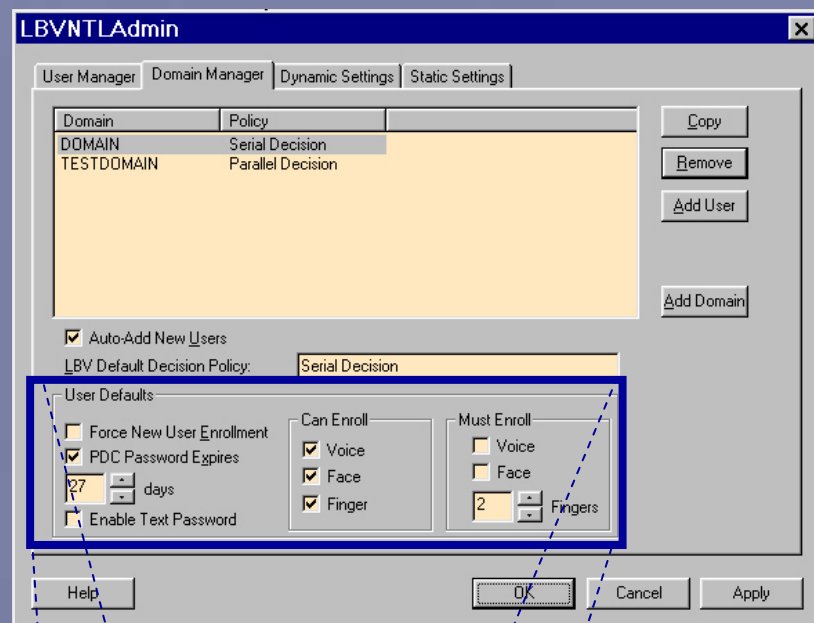
➤ Server Settings

- Hidden Domain Controller password replacement
 - › random generation, 14 complex character sequence
 - › password expiration settings
- Support for SQL Server or Active Directories
- Dynamic server changes without restart/reboot
- Authentication logging accessible through the Windows Event Viewer

Domain Administration

➤ Domain Management

- Domain policy assignment
 - › Policy options for serial, parallel, or score-weighted intelligent decision processes
 - › Domain-based policies with customizable matching thresholds
- Auto-add domain registration
- Set enrollment requirements



Controls user enrollment

User Administration

- Which biometrics are optional or compulsory for enrollment
- Minimum number of fingers
- Self-enrollment allow users to enroll at own pace
- Can also force enrollment
- Temporarily disable biometrics for individual users
- Text password can be added

User Defaults

Force New User Enrollment

PDC Password Expires

27 days

Enable Text Password

Can Enroll

Voice

Face

Finger

Must Enroll

Voice

Face

2 Fingers

Enrollment Status

Voice Enrollment | Face Enrollment | Fingerprint Enrollment | Enrollment Status

Enabled

Voice

Face

Finger

Required

Voice

Face

Fingers 2

Enrolled

Voice Right Index Left Index

Face Right Middle Left Middle

Right Ring Left Ring

Right Pinky Left Pinky

Right Thumb Left Thumb

Status

No Enrollment Performed yet

Help OK

TestUser Recording Device: Yamaha Sound 0%

Limitations

- NTLM authentication only, no support for Kerberos
- Text password based access is impossible due to the replacement of the PDC password

Roadmap

- New version due for release end of this year with:
 - New version of the underlying CAS Server
 - CAS SignOn Server available on Linux
 - LDAP support
 - New and unique web-based administration tool
 - 'shadow account'
 - Support of iris



DEMO



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THANK YOU!

