What Biometrics Can Do For You

From The Realm of Science Fiction
to "Out-of-the-Box" Solutions

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- Competitive Environment

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What Biometrics Can Do For You

From Science Fiction to "Out-of-the-Box"

- State of The Industry
- Benefits of Biometrics
- Biometrics "Out Of The Box"
- Technology Assessment
- Biometrics Today
- Biometrics in The Future
- Conclusions

State of The Industry

It's Not Just Science Fiction Anymore

- Price/Performance Curves Dropping
- Reliability Improving
- Awareness/Acceptance Increasing
- Applications
  - Physical Access   -   Identity Confirmation
  - Logical Access   -   Time & Attendance
- Well Constrained, Small Enrollment
  - < 50,000 Users
  - Closed Loop Solutions
- Shift From Technology to Solutions Focus

Benefits of Biometrics

- Replace Pins/Passwords
  - Can't Be Guessed, Stolen, Shared, Lost, Forgotten, Written Down, Forged
- Accountability/Non-Repudiation
  - Link to Identity Not Possession or Knowledge "something you are, not have or know"
- Provides Audit Trail
- **Prevents Impersonation**
  - Theft/fraud Reduction
  - Protects Against Identity Theft
  - Protects Privacy
- Reduces Paperwork
- Convenience and Control
- Inexpensive

Biometrics "Out Of The Box"

- Finger
- Iris
- Hand
- Face
- Signature
- Applications
  - SSO
  - T&A
  - Access
  - AFIS

A BioSMARTCARD

6

Technology Assessment

Factors	Face	Finger Scan	Hand	Iris	Keystroke	Retina	Signature	Voice
Ease of Enrollment	good	fair	good	good	good	fair	good	good/exc
Identification (1:N)	yes	search only	no	search only	no	search only	no	no
Speed (relative)	good	good	excellent	good	good	good	good	good
Cost	medium	medium	medium	med/high	low	medium	low/med	low
Accuracy: relative;	med/high	med/high	med/high	high	med/high	high	medium	med/high
Invasiveness	medium	medium	low	medium	low	high	low	low
Ease of Use	good	good	good	good	excellent	good	good/exc	good/exc
Ease of Integration	good	good	good	good	excellent	good	good/exc	excellent
Existing Infrastruc-ture	yes	no	no	depends on application	yes	yes	yes	yes
Environmental Affects	lighting, position	temperature, moisture, dirt	none	none	none	none	none	noise, acoustics
Physical Con-	none	clean surface	bulky	none	none	light source	none	none
Human Factor Limitations	beards, glasses, skin tone, cosmetics	worn fingertips	missing fingers, young kids, arthritics	blind	alcohol, stress, loss of fingers	none	emotional state	emotional state, laringitis
Mature Technology (varies by vendor)	no	yes	well established >10years	well estab-lished	well established >10years	yes	no	no
User Acceptability	med/high	associated w/criminals	med/high	medium	high	low/med	med/high	high
Template Size (bytes)	84 (1:N) 1300 (1:1)	250-1200	9	512	1500	96	...	10,000-20,000
Liveness	yes	for some	yes	yes	yes	yes	yes	yes
Unique Identifiers	~128	30-90	96	266 of 400	NA	~192	~10 variables	6 frequencies
Natural Interface	yes	no	no	yes	yes	yes	yes	yes
Stability of Trait	medium	high, as adult	high	high	medium	high	medium	medium

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Case Studies

Organizations	Application	Biometric	Market
Casinos	Surveillance - Non Cooperative	Face	Hospitality
Schiphol Airport	Identity Confirmation - Immigration Trusted Traveler	Iris	Travel
St. Petersburg -Clearwater Airport	Surveillance - Cooperative Watch List	Face	Travel
Union Pacific Railroad	Logical Access - Rail Car Release	Voice	Transportation
Thrift Way, Kroegers, McDonalds	Logical Access - POS	Finger	Retail
Clinical Drug Trials	Logical Access - Researchers	Signature	Pharmaceutical
First Tennessee Bank	Physical Access- Customer Vault	Hand	Financial Services
American Express	Physical Access - Employees	Finger	Financial Services
Pennsylvania Public Schools	Logical Access - POS: School Lunch Program	Finger	Education
Disneyworld	Physical Access - Season Pass Holders	Two Fingers	Entertainment
Fidelity	Logical Access - SSO	finger	Financial Services
Asia, Europe, Africa, S. America	Identity Confirmation - Citizen ID	finger	Government

Biometrics Today

- Transition - High Security to Regulated Industry & Commercial Solutions
- Small Closed Loop Applications
  - Well constrained
  - Less than 50,000 users
- Government Public Safety Initiatives Slow Going
- Security Main Driver

Biometrics in the Near Future

- Ubiquitous Use in Commercial Enterprise
  - Physical & Logical Access, Identity Confirmation, Time & Attendance
- Large Scale Integrated "Public Safety" Systems
  - Transportation, Immigration & Border Control, Citizen Identification
- Legislative & Regulatory Control to Protect Privacy
- Value Proposition and ROI Main Drivers

Conclusions

- **3-5 Years: Biometrics Ubiquitous For Commercial Applications**
  - Public Safety
  - Corporate Security - Physical & Logical
  - Process Improvement
  - Ultimately Supply Chain Efficiency

- **4-6 Years: Biometrics Ubiquitous For Consumer Applications**
  - Home & Auto Security
  - Home Computing
  - Transactions: Financial Services, POS, Online

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