



Overview of the ISO/IEC 30107 Project

Anti-Spoofing and
Liveness Detection Techniques

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Remote Authentication in the US Federal Government

- OMB Memo 04-04
 - Describes 4 assurance levels, with qualitative degrees of confidence in the asserted identity's validity:
 - Level 1: Little or no confidence Level 2: Some confidence
 - Level 3: High confidence Level 4: Very high confidence
- NIST Special Publication 800-63-1
 - Technical requirements for remote authentication over an open network in response to OMB 04-04
- Biometrics not included in authentication protocols in this guidance
- Adopted by other countries and standards orgs.

Biometric Security Issues

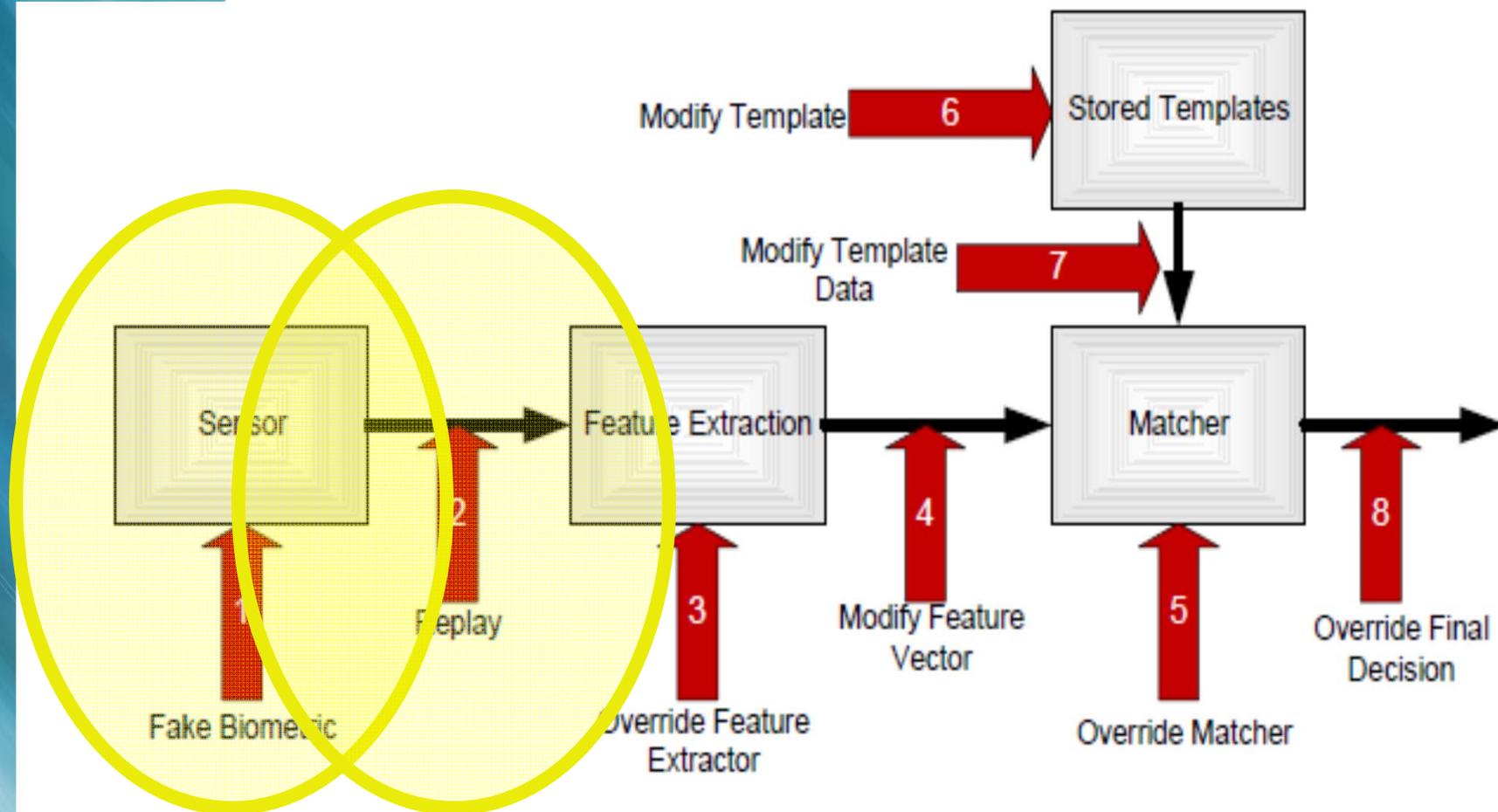


Figure by Nalini Ratha, IBM

Authentication Use Case Comparison

For law enforcement, immigration, etc.

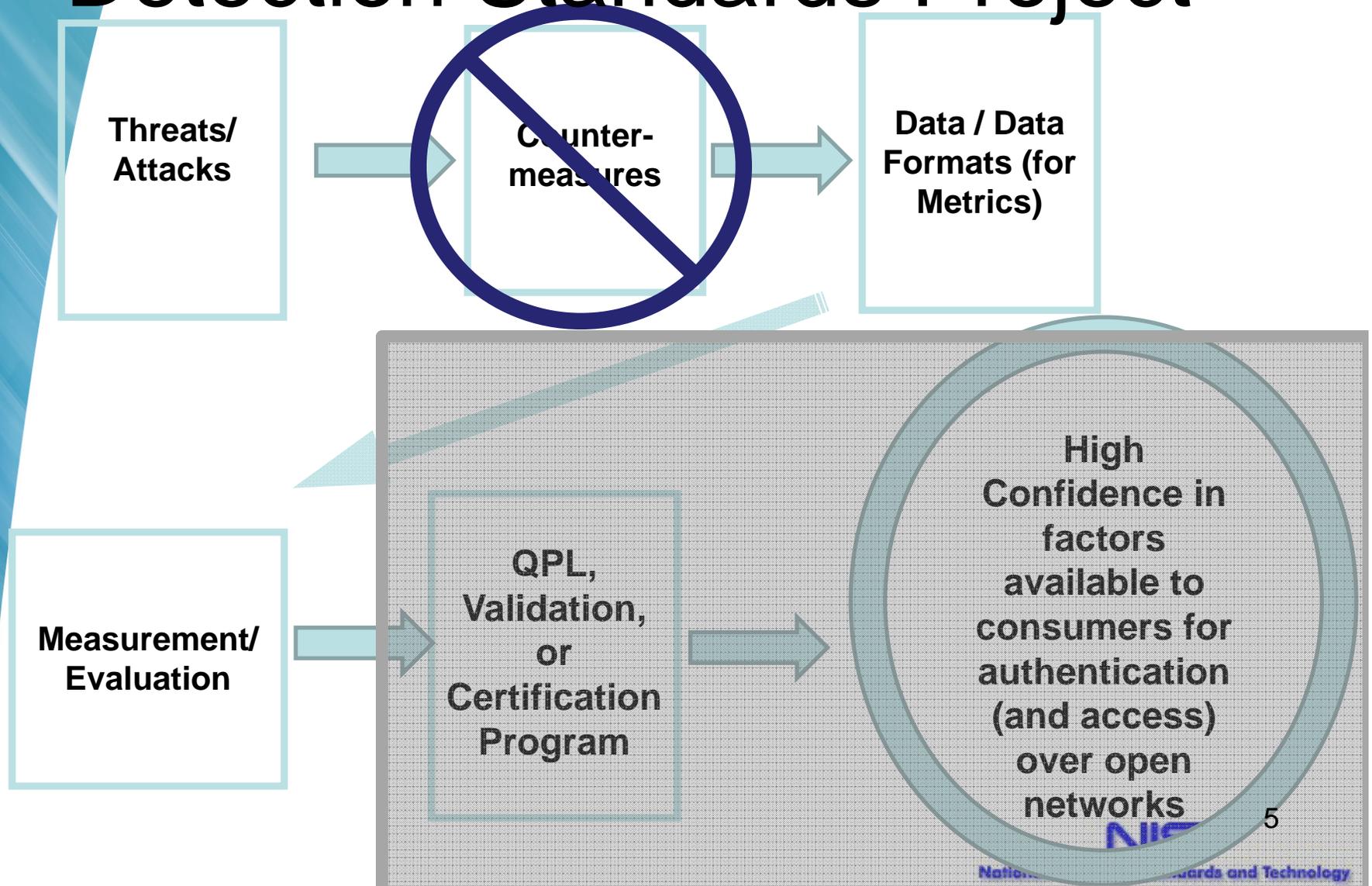
- Enrollment and subsequent recognition attempts
 - highly controlled
 - Supervised / Attended
- Successful recognition
 - Answers the question, “Has this person been previously encountered?”
 - Is a unique pattern

For online transactions, e.g. banking, health, etc.

- Enrollment
 - Less controlled
 - Probably not in person
- Subsequent recognition attempts
 - Unattended
- Successful recognition
 - Answers the question, “How confident am I that this is the actual claimant?”
 - Is a tamper-proof rendering of a distinctive pattern

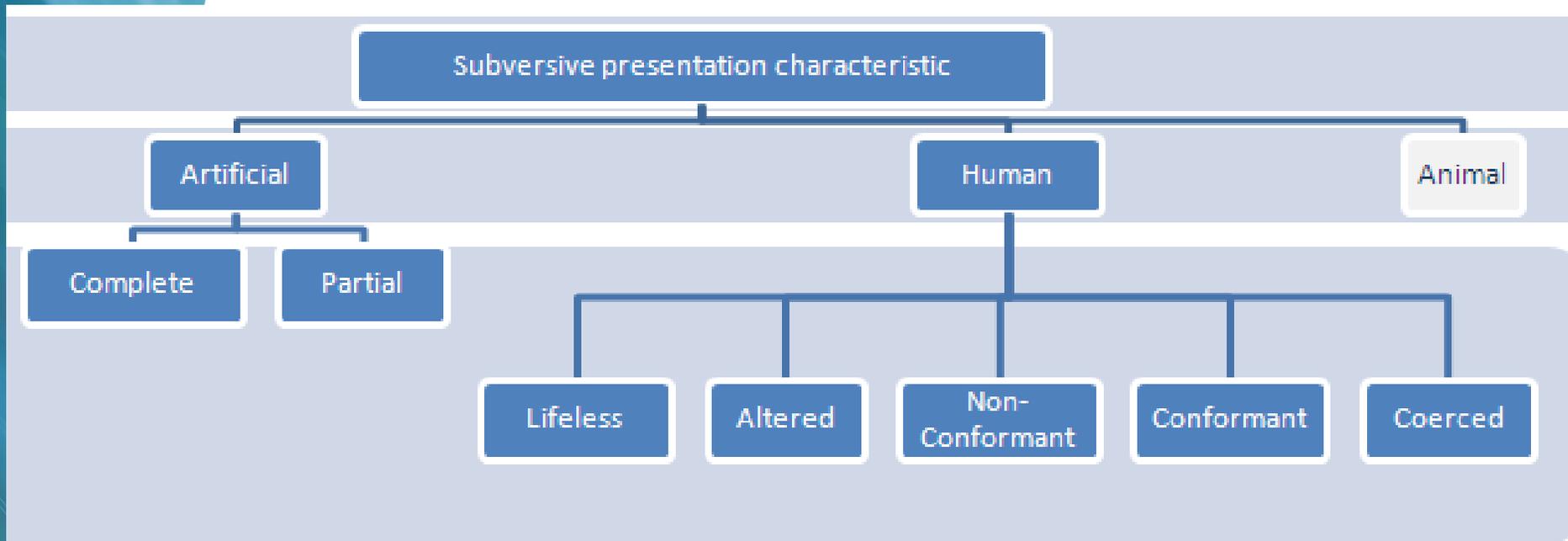


Anti-Spoofing/Liveness Detection Standards Project





Types of Biometric “Spoofing”*



From the 3rd Working Draft of IS Project 30107



Types of Detection

<i>Through a biometric system</i>	Artefact Detection
	Liveness Detection
	Challenge-Response
	Alteration Detection
	Non-conformance Detection
	Coercion Detection
	Obscuration Detection
<i>Through system security policies</i>	Failed attempt detection
	Geographic
	Temporal

From the 3rd Working Draft of IS Project 30107



Examples of Data Fields for Detecting Suspicious Presentations*

- Is there a local check for SPD (yes/no)?
- The local SPD decision (pass/fail)
- A score between 0 and 100 provided by the spoof detection mechanism, with lower scores being indicative of spoofed samples
- technique specific data and their units;
- level of supervision / surveillance during capture (qualitative categories)

(In addition to: vendor ID, algorithm ID, and sensor ID.)

**From the 3rd Working Draft of IS Project 30107*



How to Participate in the Development of 30107

- In the US, interested parties participate through INCITS M1
 - <http://standards.incits.org/a/public/group/m1>
- In other countries, interested parties participate in their country's Technical Advisory Group (TAG) to ISO/IEC JTC1 SC37



If you liked this...

*Join us Friday for Satellite Workshop II:
Artefact, Liveness, & Suspicious
Presentation Detection*

*Where we will discuss testing, error
rates, and terms and concepts.*

- ***Location: Portrait Room, NIST***
- ***Time: 09:00 - 12:00, Friday March 9, 2012***



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Thank you

Questions?

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Examples of Artificial and Human Subversive Presentation Characteristic Types

Artificial	<i>Complete</i>	gummy finger, latex finger, photo of face, photo of iris, recording of voice, video of face, artificial hand, custom contact lens, artificial/patterned contact lens, facial mask (ski, theatrical, Halloween), opaque or theatrical contact lenses
	<i>Partial</i>	glue on finger, false facial hair, cosmetics, removable implants, sunglasses
Human	<i>Lifeless</i>	cadaver part, severed finger/hand
	<i>Altered</i>	nose job, face lift, amputation, mutilation, surgical switching of fingerprints between hands and/or toes
	<i>Non-Conformant</i>	voice mimicry, hand shape control, forged signature, facial expression/extreme, tip or side of finger, falsetto voice
	<i>Conformant</i>	zero effort imposter attempt
	<i>Coerced</i>	unconscious, under duress, drugged