

DARPA Active Authentication Program

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Moving Beyond Passwords

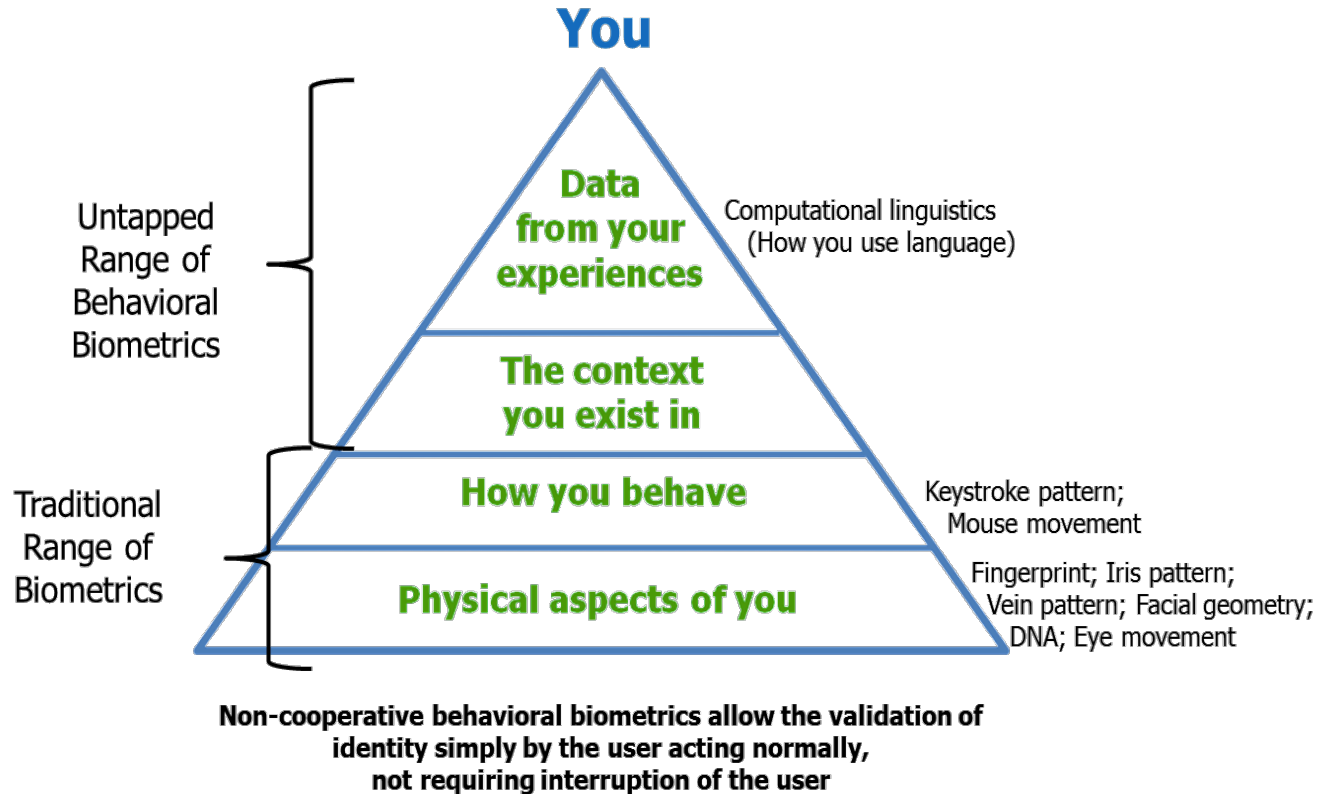
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Program Overview

Validate the identity using the data already available on the platform

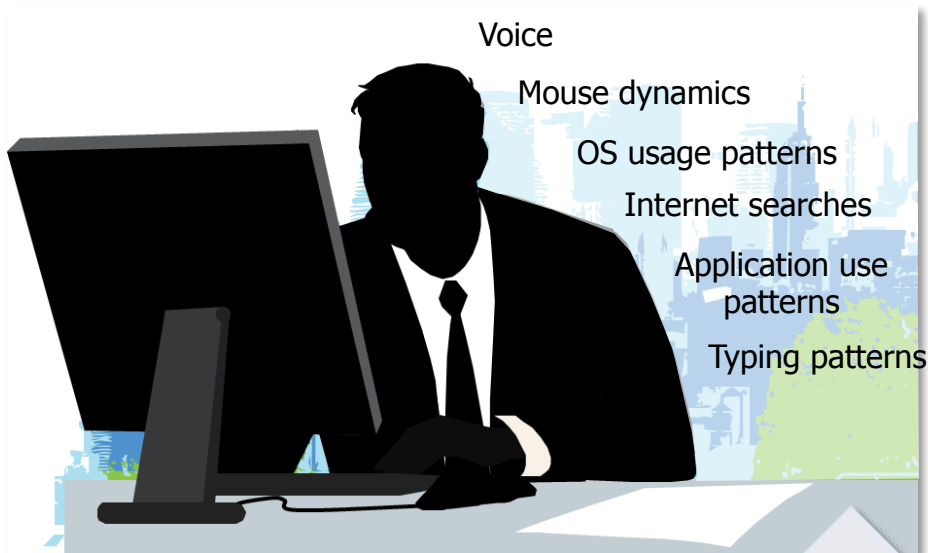


New authentication methods (biometrics) to identify aspects of an individual through their cognitive behaviors

A desktop platform that fuses multiple biometrics to create a level of confidence the user is who they claim to be.



Active Authentication – Cognitive Biometrics



Shared platform solutions

Cognitive/Behavioral Patterns

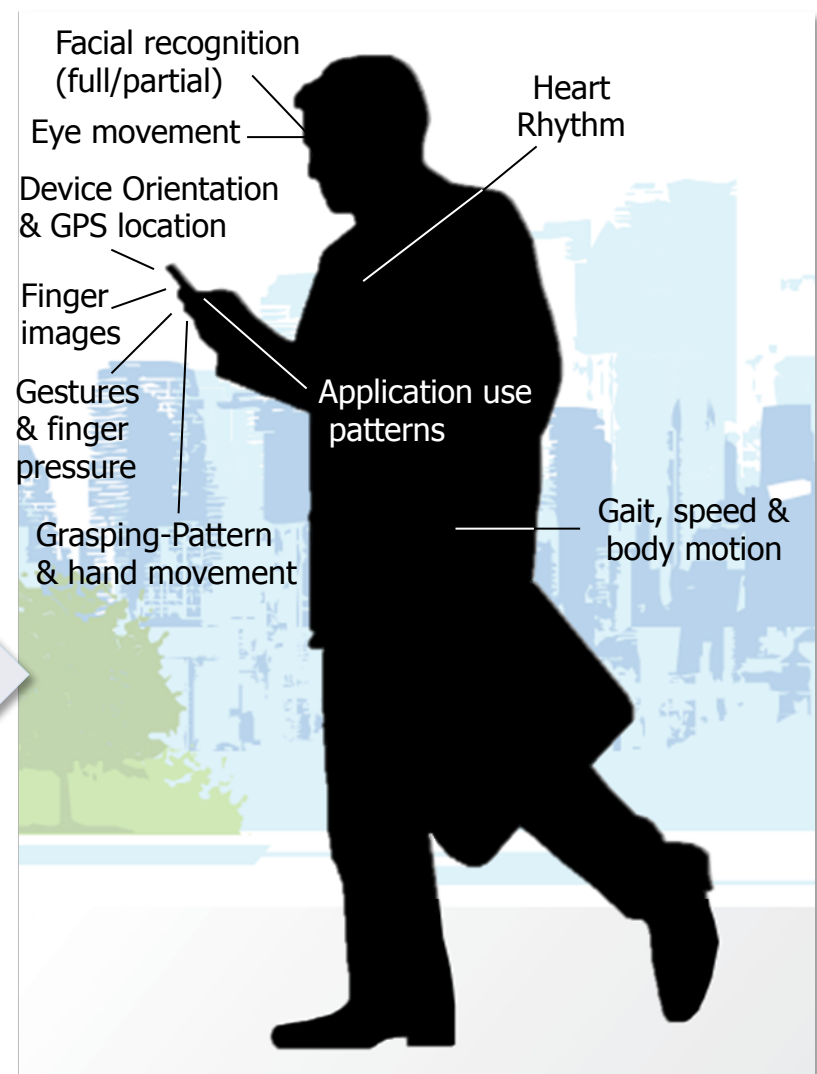
- Thought processes
- Social programming
- Belief structure

Search Patterns

- Files and Programs

Stylometry

- Text
- Pauses
- Revisions
- Speed
- Syntax





Capability Objectives

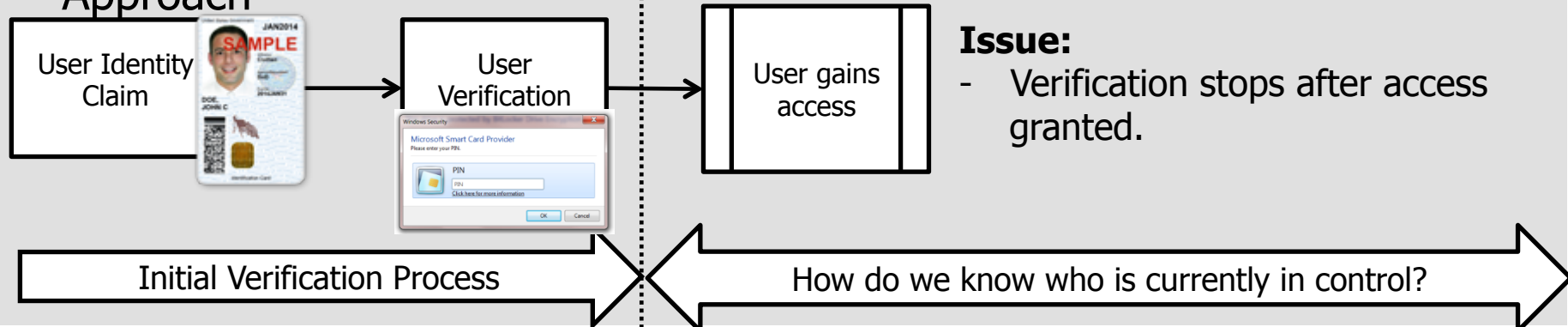
Develop more effective user identification and authentication technologies for desktop/mobile using data already available

- Phase 1: Develop a framework that allows integration of multiple continuous authentication solutions on desktops
- Phase 2: Develop new continuous and point authentication solutions for mobile applications.
- Phase 3: Demonstrate the successful fusion of 2 desktop modalities on the AA platform and openly publish the SDK

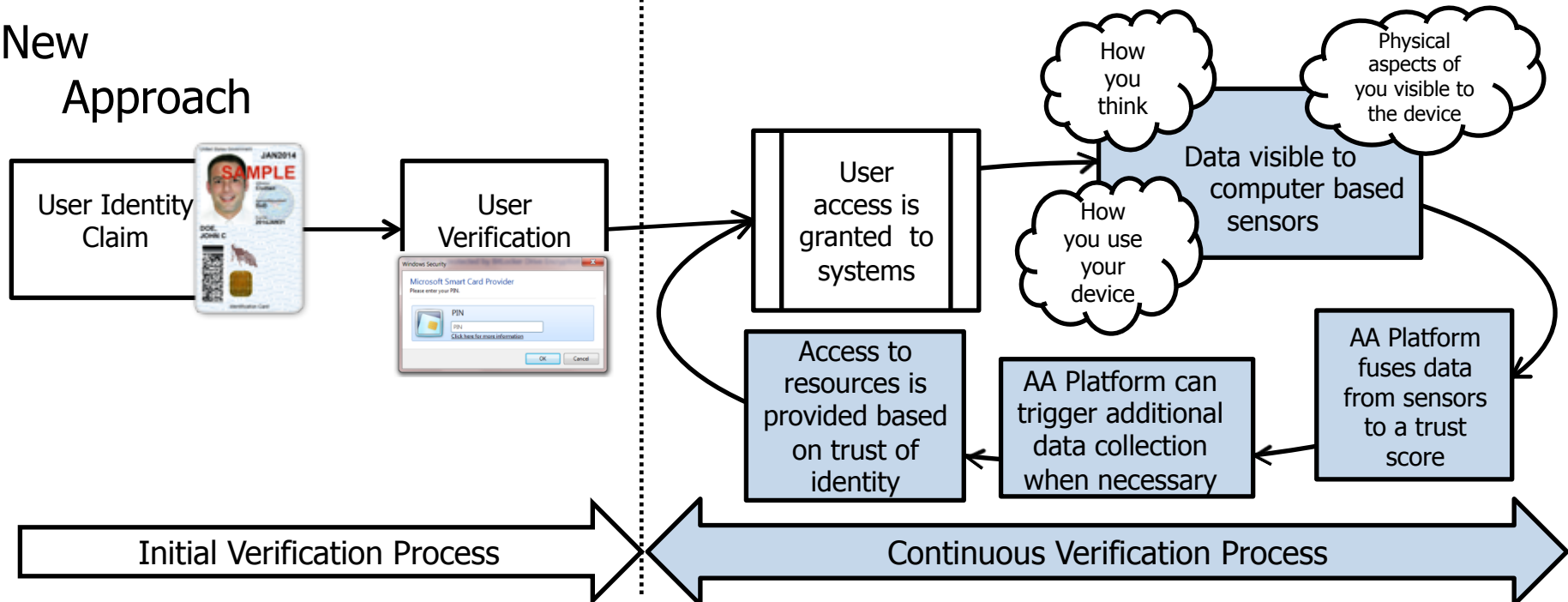


Technical Approach and Challenge

Current Approach

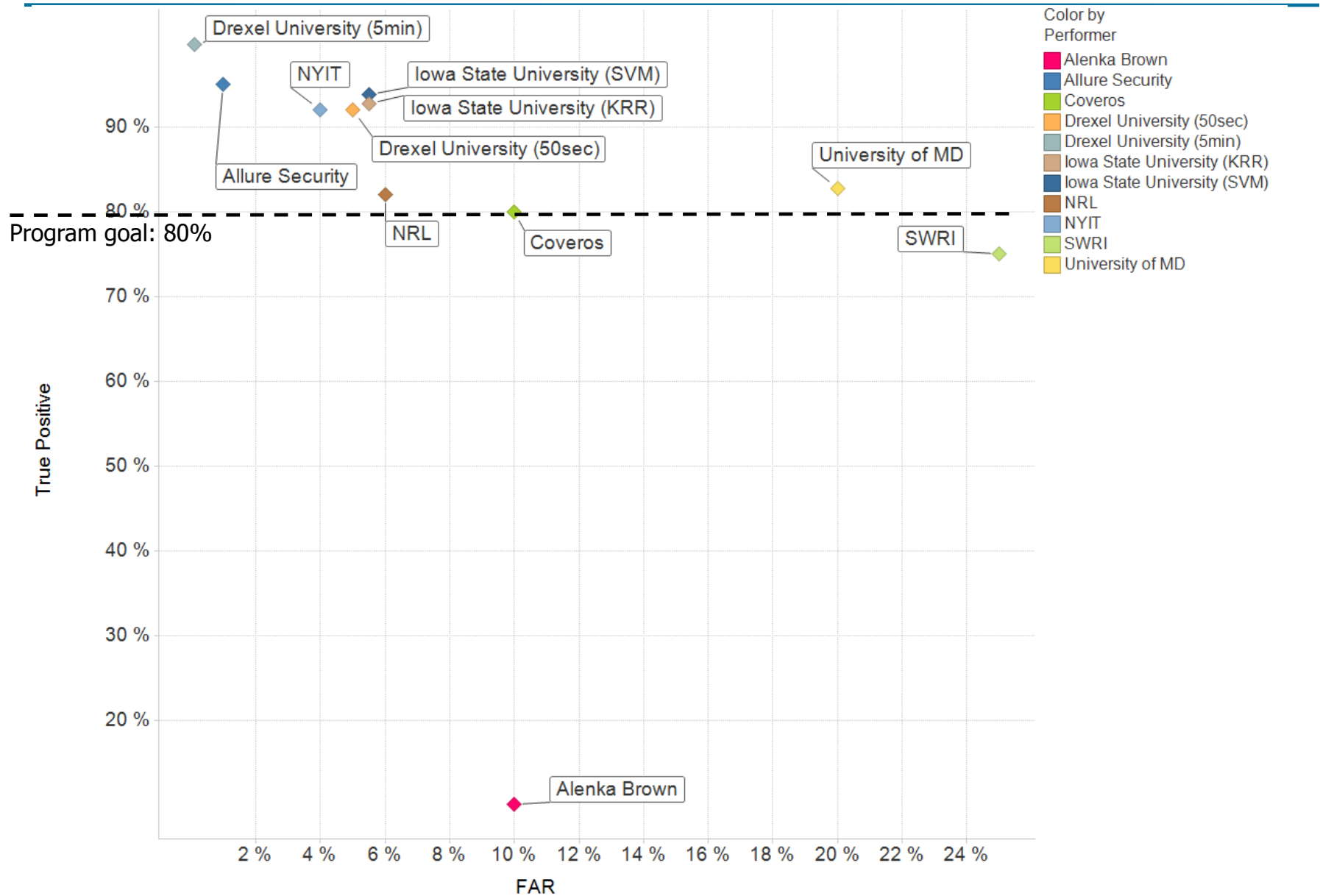


New Approach



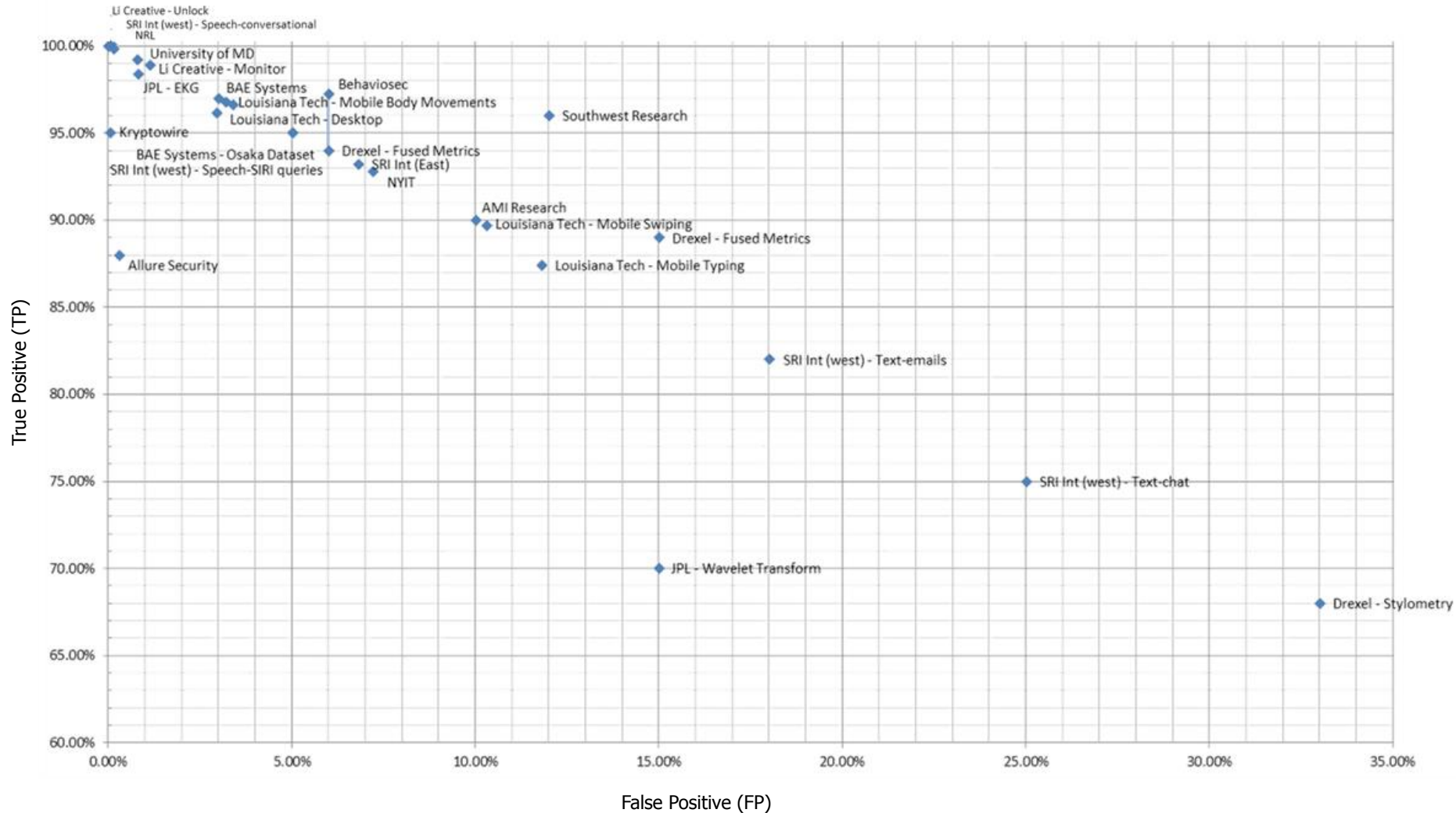


Accuracy (TP vs FAR) for Phase 1 Performers





Accuracy (TP vs FP) for Phase 2 Performers





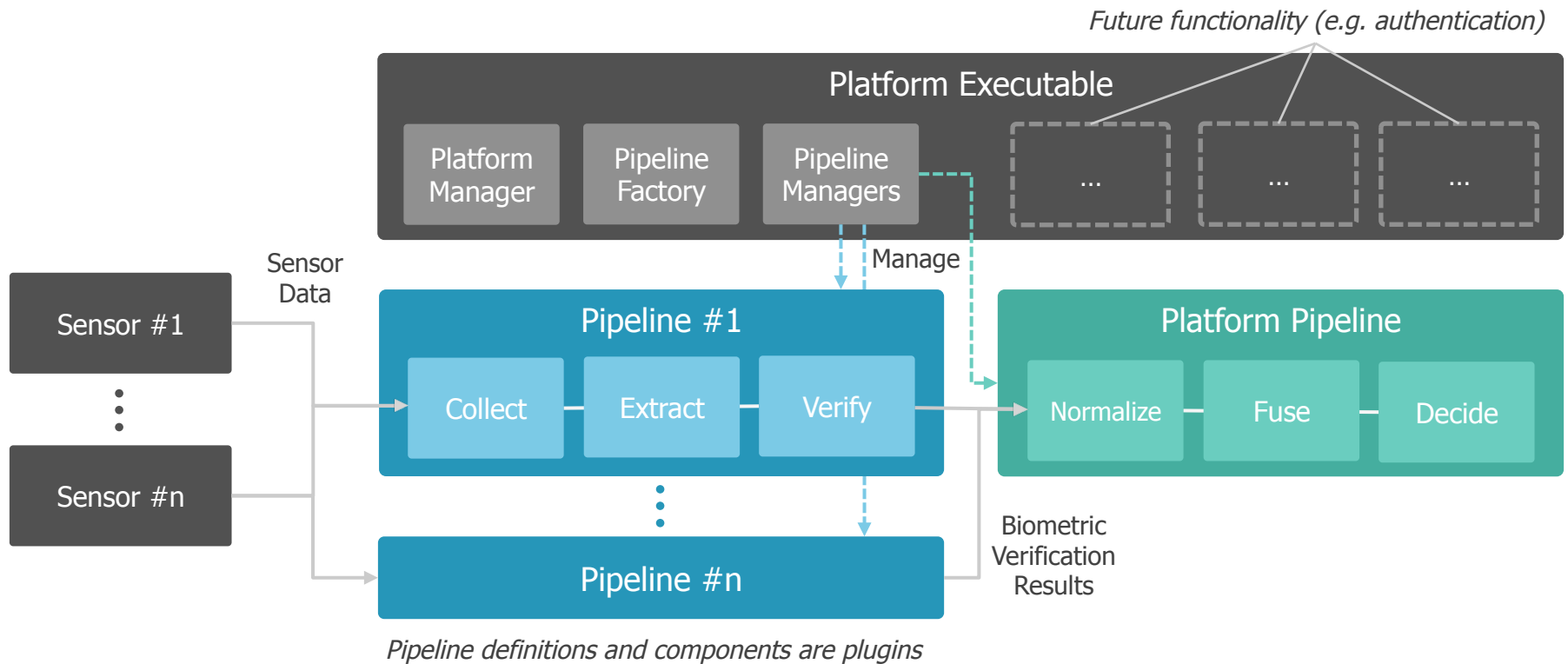
Active Authentication Desktop Platform



- Windows-based executable platform and SDK
 - Starts the configured biometric modalities
 - Fuses the output from every available biometric
 - Produces final confidence level in user's identity
 - Responds to changes in confidence level (e.g. lockout user)
- Biometric modalities are built using the Platform SDK
- Supports any type of biometric (physical, behavioral, etc.)
- Target environment is the hypervisor solution (not required)



Desktop Platform Architecture



Plugin pipeline architecture provides continuous, multithreaded analysis and fusion

- **Sensors** provide raw input (e.g., keystrokes) to the biometric modalities
- Multiple **Pipelines** execute the biometric modalities
- A **Platform Pipeline** fuses the verification output from all the Pipelines
- The platform builds, starts and manages the Pipelines



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