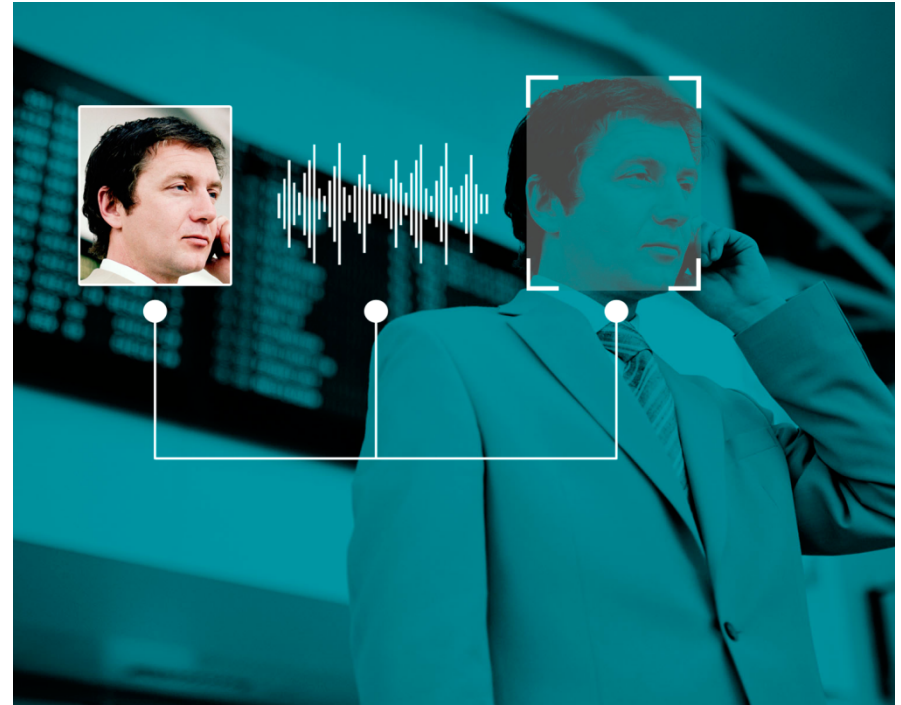


The Case for Bimodal Authentication

Voice Biometric Conference- London

Bryan Chaney- VP of Sales & Marketing



Daddy, I want that!



CURRENT STATE

- ▶ **1.4bn smartphones in use, over 2bn in 2015**
- ▶ **Mobile payments worldwide by 2016: \$617bn**
- ▶ **Growing over 50% per year**
- ▶ **Transaction values increasing over 40% annually**
- ▶ **Huge transaction cost savings: \$7.50 (contact center), \$.40 (IVR), > \$.10 (mobile)**
- ▶ **Very high ROI's in mobile banking investments, (100's of percents)**
- ▶ **50% of smartphone users prefer a mobile app vs contact center for a financial transaction**
- ▶ **84% of people attempting a mobile financial transaction experienced a problem.**
- ▶ **NFC (nearfield communications) driving on-device authentication for user to user payments.**
- ▶ **Memory, cores/processing speed, camera/mic quality more than adequate for biometrics**

CURRENT STATE (cont'd)

- ▶ **Voice Biometrics widely accepted, FA around 0.1%, FR under 2%**
- ▶ **Face Biometrics becoming accepted, FA around 0.1, FR at 2.1**
- ▶ **Fused biometrics: 0.01% FA with FR under 2%**
- ▶ **Apple's Touch ID, Siri, Facebook, cameras, Google Now, toys, brings familiarity, expectation**
- ▶ **Explosion in malware, Android most targeted.**
- ▶ **Also in iOS: iPhone users conduct mobile transactions more frequently than Android**
- ▶ **Passwords "aren't" anymore, must be changed, faster failure.**
- ▶ **51% of consumers switched vendors due to a poor customer experience**
- ▶ **75% used online channels, 33% of these used a mobile device.**
- ▶ **82% feel companies they buy from cannot be trusted with PII and financial information**

TUG-O-WAR BETWEEN CUSTOMER EXPERIENCE AND SECURITY



BIMODAL AUTHENTICATION ON MOBILE:

- ▶ **Devices are READY for it**
- ▶ **Customers are MOVING to it**
- ▶ **The business case is THERE for it**
- ▶ **People EXPECT it**
- ▶ **And Customers have HAD IT with traditional authentication!**

BENEFITS/CHALLENGES

	Voice	Face	Finger
Pro	Ubiquitous hardware (all) Friction of distance Easy, familiar Proven	Ubiquitous hardware Noisy environments Widely deployed	No background noise issue Authentication time
Con	Noisy environments (below 7dB SNR) Enrollment time Usability in quiet environments	Low light situations Privacy concerns	Few devices with reader Liveness detection? Leave it everywhere Political Correctness issues Friction of distance

EVOLUTION OF VOICE BIOMETRICS



- ▶ Customer authorization by voice password: fast verification procedure, can be applied in any environment
- ▶ Voice password is used to verify the customer cross channel: call centers, e-banking, m-banking: one ID – one password
- ▶ Black-list: text-independent identification passive way to reduce fraud attempts
- ▶ Dynamically weightable algorithms

BUSINESS CASE FOR BIMODAL

- ▶ **Lower EER's, lower FA's**
- ▶ **Proliferation of mobile devices, devices with camera and mic**
- ▶ **Customer driven demand on mobile devices**
- ▶ **Mobile device capability**
- ▶ **Password elimination, scalable authentication, contingency processing**
- ▶ **ROI, cost reduction**
- ▶ **Regulatory requirements**
- ▶ **Customer experience competitive differentiator**
- ▶ **Consumer familiarity**
- ▶ **Fast- voice/face authentication can happen simultaneously**

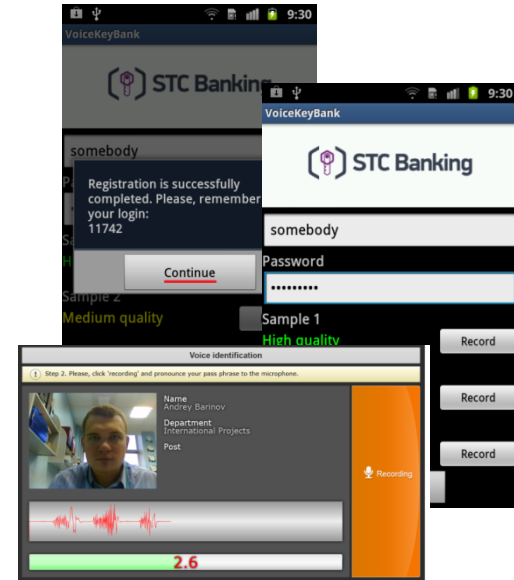


TUG-O-WAR BETWEEN CUSTOMER EXPERIENCE AND SECURITYIS OVER!



Voice+Face ID can provide seamless and secure biometric access to mobile apps

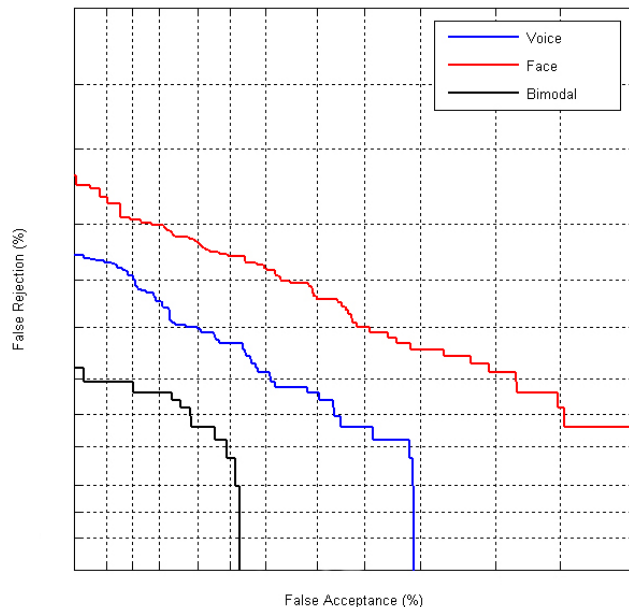
- ▶ Financial institutions: mobile banking & mobile payments
- ▶ e-Commerce, e-Wallets
- ▶ Gaining remote access to secure corporate networks and apps
- ▶ Accessing secure content (online services and subscription content)
- ▶ Gaining secure, easy access to enterprise applications and networks



MULTI-MODAL APPROACH DRASTICALLY IMPROVES ACCURACY

MAIN FEATURES

- ▶ In our testing we have yet to have a False Accept
- ▶ Patent pending – Liveness detection through linking speech and face movement during the utterance
- ▶ Single tap authentication
- ▶ Accuracy: FA = 0.01% with FR = 2%
- ▶ Passphrase length: 2-3 seconds
- ▶ SNR: 7dB
- ▶ Mobile devices
- ▶ < 5 second authentication



INTRODUCING VOICEKEY.ONEPASS

- ▶ **Innovative – first in the world**
- ▶ **Multimodal (Voice + Face)**
- ▶ **Non-intrusive**
- ▶ **Hardware agnostic- Mobile, PC, Tablet**
- ▶ **CPE or Cloud-based**

Biometric authentication for web and mobile with existing hardware



HOW DOES ONEPASS WORK?

OnePass access control can be added to existing apps instead of/in addition to traditional password logins.

ENROLL

To enroll, take one picture and record 3 short utterances (passwords).

COLLECT

When a user tries to access a secure service or content, OnePass asks the user to pronounce a password and takes a smartphone picture of their face at the same time - multibiometric data collection in just one click.

PROCESS

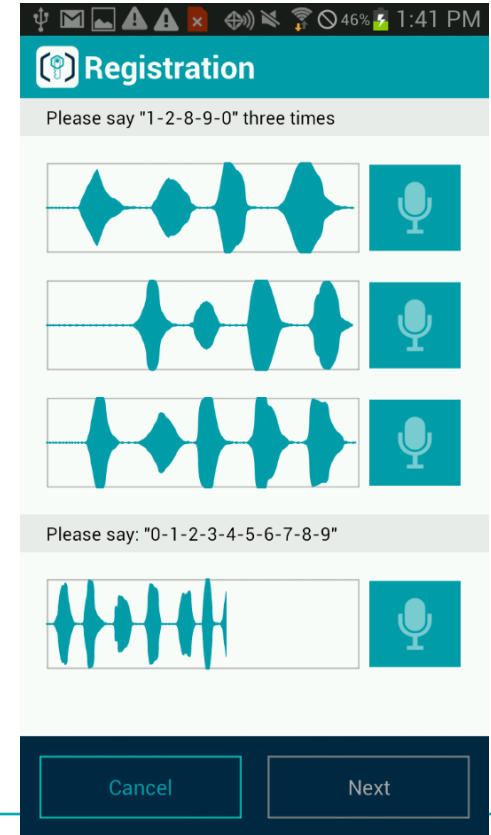
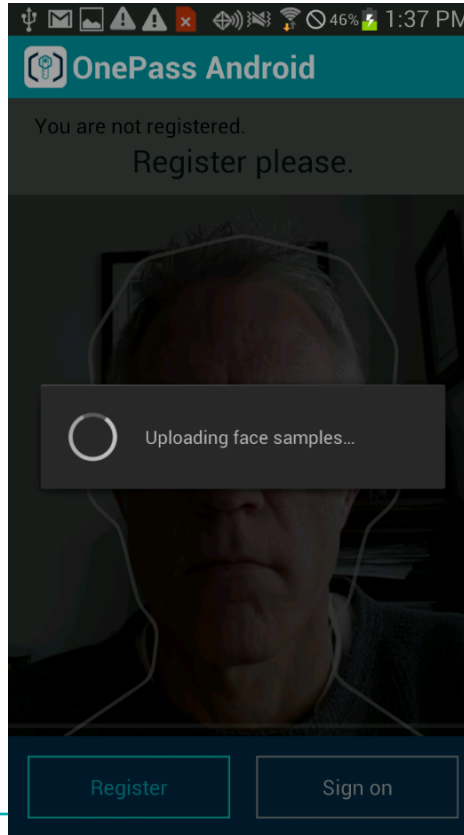
The voice and image templates are formatted algorithmically and sent to the cloud for processing.

ACCESS

If the matching results are positive, the user gains access; if not, access is denied

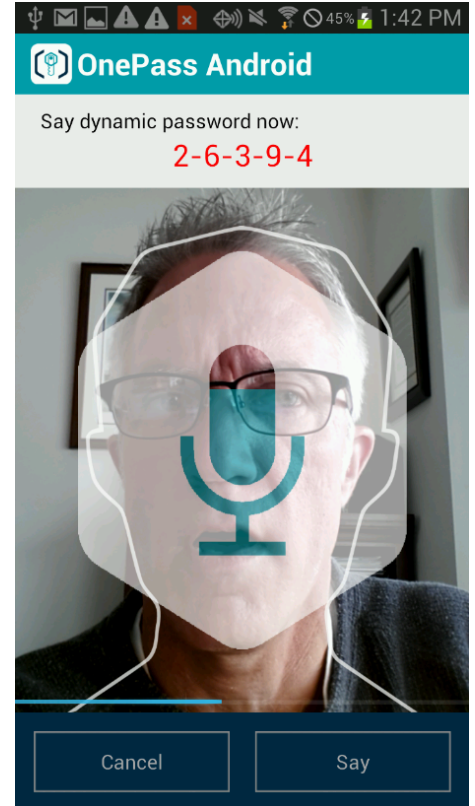
VoiceKey.OnePass: Enrollment

- ▶ **Align face in outline**
- ▶ **Press Register**
- ▶ **Speak passphrase 3x**
- ▶ **Speak number series**

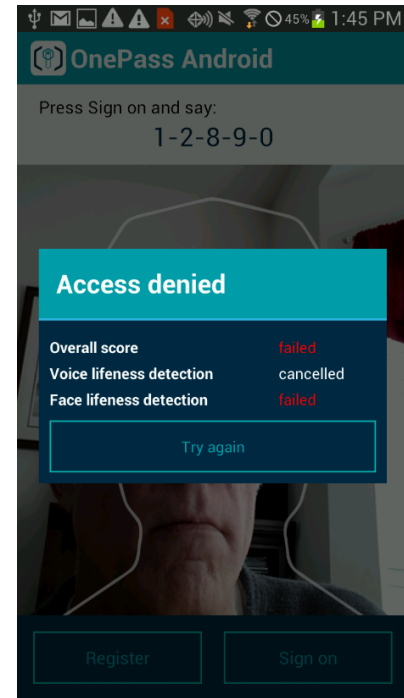
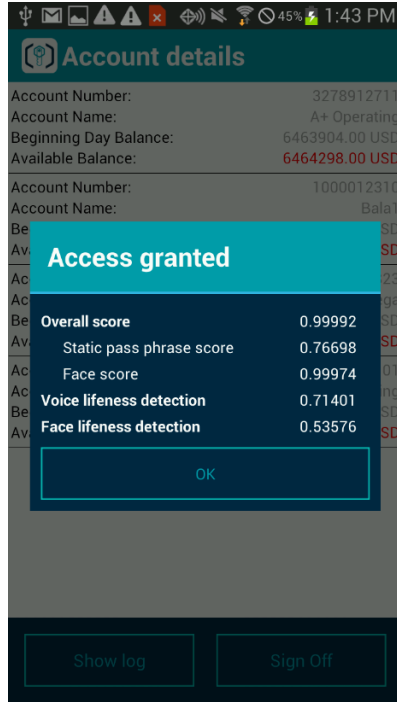
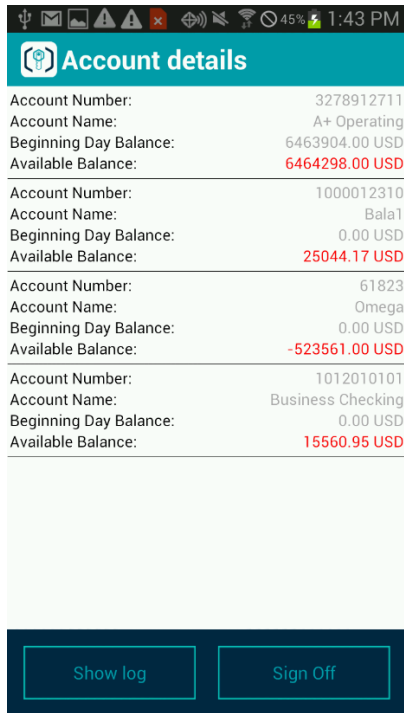


VoiceKey.OnePass: Verification

- ▶ **Align face in outline**
- ▶ **Press Sign on**
- ▶ **Speak random numbers**



VoiceKey.OnePass: Verification- Success and Failure



ONEPASS EVOLUTION

- ▶ **Current: Mobile app (iOS, Android) captures face/voice, sample creation and comparison done on server**
- ▶ **Future: Mobile app (iOS, Android) captures face/voice, voice sample creation on device, face sample and all comparisons done on server**
- ▶ **Future: Mobile app (Android) captures face/voice, all samples created on device, all comparisons done on server**

POSSIBLE FEATURES

PC and WEB Access

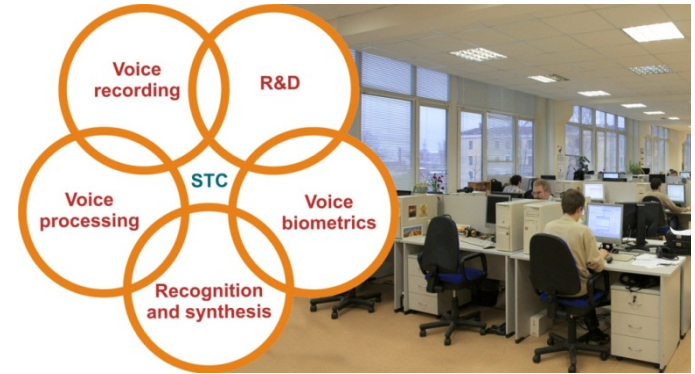


Physical access



SpeechPro: World Leader in Voice Technology:

- ▶ Developer of voice biometric, recording and audio processing solutions for commercial and government customers
- ▶ Established in 1990
- ▶ Fully Certified ISO-9001:2008
- ▶ Offices in US, Mexico, Germany, Finland and HQ in St. Petersburg Russia (US HQ in New York City)
- ▶ Deployments in 75 countries
- ▶ R&D focused: 400 staff
- ▶ 150 scientists and developers
- ▶ 30 PhDs
- ▶ Academia: ITMO St. Petersburg State University



Leveraging Law Enforcement and Audio Forensics to the Enterprise

1995-2005:

Leading forensic audio analysis provider

2005-2010:

1st automatic voice ID products. Evolution of expert identification to automated systems

2010+:

Mexico- Country-wide voice ID system

Ecuador- Bimodal nationwide identification system

Russian Railways- 2500 agent contact center, call recording/speech analytics



Microsoft



GENESYS



Canada



СЕВЕРО-ЗАПАДНЫЙ
КАЛИНИГРАДСКИЙ ФИЛИАЛ
ТЕЛЕКОМ

ПЕТЕРСТАР



Sonora

بنك الجزيرة
BANK ALJAZIRA

РЖД

ТрансКредитБанк

AEROFLOT
Russian International Airlines

NASCAR

swatch

КомпьюЛинк

QUESTIONS?
