



Voice Biometrics

The silent revolution

Commercial and Government success stories

Sep 10, 2016 – Israel's Biometrics and Strong Authentication conference

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Voice Biometrics – The Silent Revolution

Commercial and Government success stories

- Nuance – Brief intro
- Voice Biometrics - state of adoption
- Key to successful implementations
- Selected success stories – Customer\citizen care
- Public safety use cases

Strong customer and brand preference

With leading global relationships, it's rare to go a day without Nuance

Healthcare



Consumer Electronics



Document Imaging



Automotive



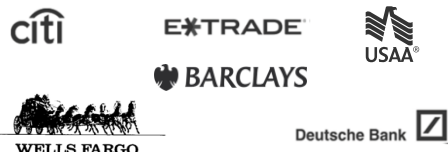
Telecommunications



Government



Financial Services



Travel



Consumer goods



World-class technology portfolio

14 billion

customer
engagements per year

4,300

patents and
applications

40

text-to-speech
languages and voices

80

languages

800 million

mobile keyboards
shipped annually

30,000

mobile app
developers

309 million

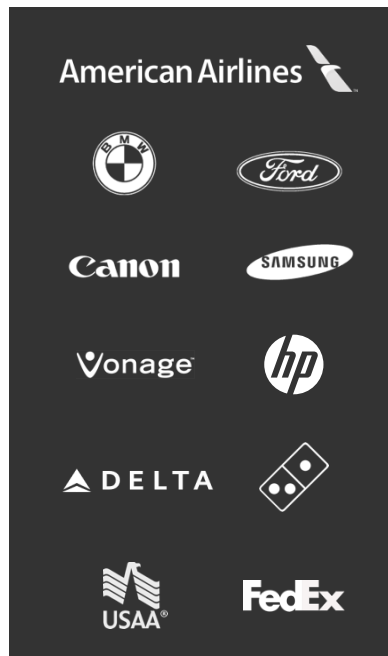
patient stories
shared annually

140 million

voice-enabled
vehicles shipped
globally

6,500

companies use
Nuance Enterprise
solutions



Voice Biometrics Adoption Landscape

117M+

Voiceprints in use
by our customers

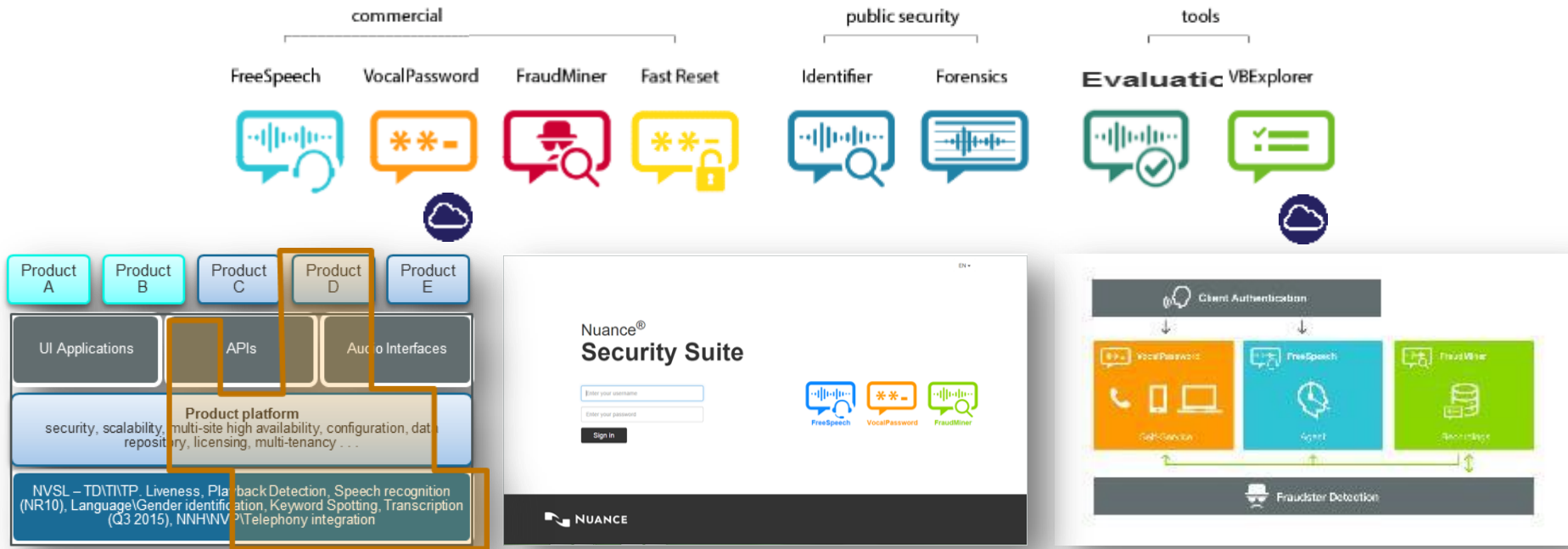
3B+

Verifications worldwide



Voice Biometrics Product Portfolio

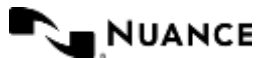
A good biometrics “Engine” just don’t cut it



Enterprise “Platform” approach

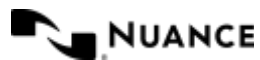
Tools for diversified stakeholders

Addressing authentication and fraud





Commercial success stories



Voice Biometrics deployments

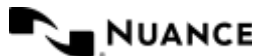
Local examples



Leumi Voice Biometrics @ Leumi

- The first bank in the world to deploy customer facing text independent & text dependent Voice Biometrics applications

FreeSpeech™ Deployment @ First Direct	Free Speech™ deployment @ Leumi Call	VocalPassword™ Banking PW reset	Real Time Fraudsters Detection	New ID&V process Speech + Biometrics + ANI
2001	2005	2006	2009	2010



PIN/Password Reset



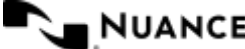
- Fully Automated Contact Center PIN reset (150K resets a month)
- Replaces a LONG manual authentication routine based on 5 questions that fails 14% of the times
- Call duration cut from 7 to 1.5 minutes



Fully automated solution – 400K users



Savings for bank (Top 10 ROI Award)





- 96% enrollment rate
- 48% of all calls authenticated by voice biometrics within 3 months
- 42 seconds in AHT savings
- Authentication performed on 3 seconds of net-audio
- 8.8 / 10 customer sat rating

RBC voice biometrics technology rolls out

1st Canadian company to implement technology to identify client's 'voiceprint'

The Canadian Press - Posted: Oct 05, 2015 10:57 AM ET | Last Updated: Oct 05, 2015 11:01 AM ET



RBC says it is the first Canadian company to implement technology that can create and identify a client's 'voiceprint,' which consists of more than 100 different characteristics such as the client's pitch and accent, in the course of a regular conversation. (Mark Blash/Routlers)

Barclays Wealth Uses FreeSpeech™

Improves Service and Reduces Call Times by 5%

“Our people love it, our clients love it, and it is delivering improved cost to serve.”

**Matt Smallman, Client Experience Strategy and Change
Barclays Wealth and Investment Management**

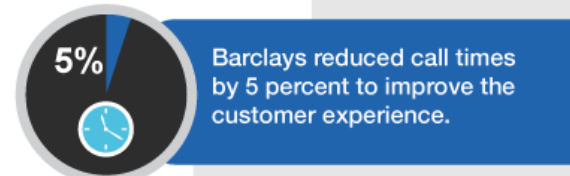
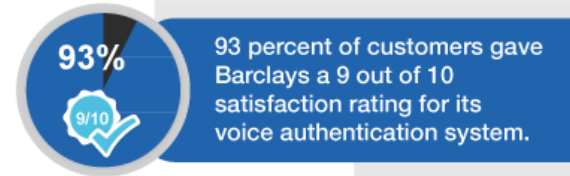
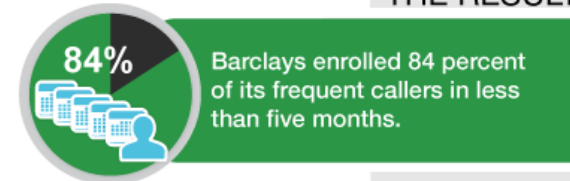


THE SOLUTION

Barclays uses **Nuance FreeSpeech™** with passive voice biometrics to automatically verify customers through natural conversation.



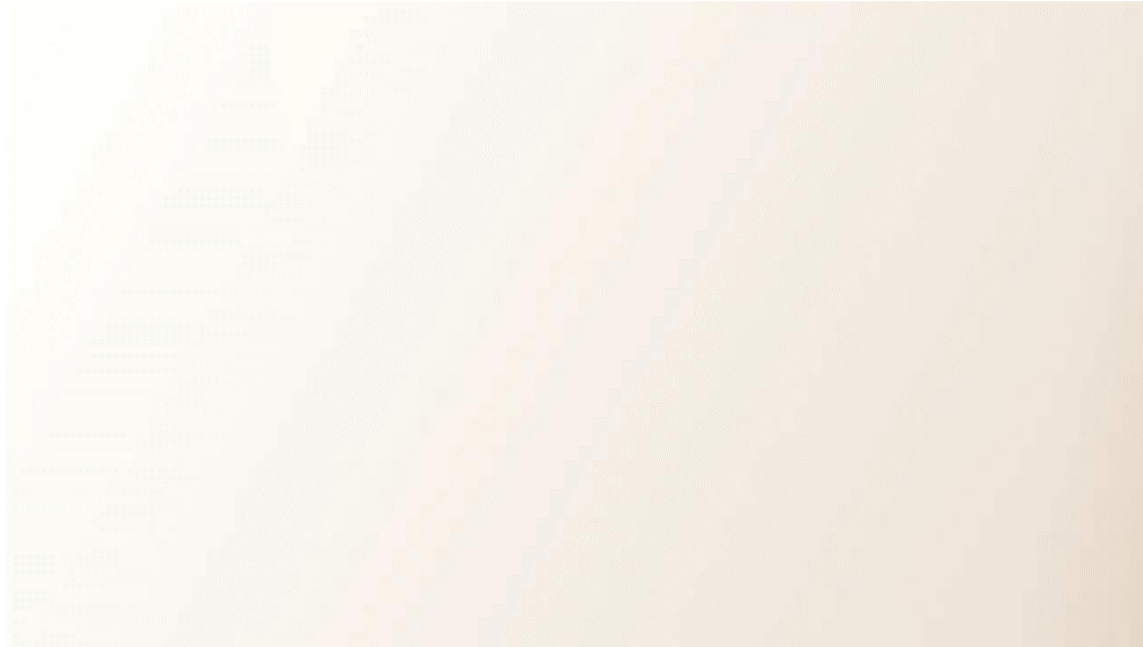
THE RESULTS



Barclays Use Case



TalkTalk launched TalkSafe



TatraBank Uses Nuance FreeSpeech



- 100,000 users enrolled in 3 months
- 30 seconds shorter AHT in average
- Significant reduction in fraudulent transactions
- 97% of all caller verifications are automated
- Customer satisfaction increased from NPS 41% to 62%



Reduced
Call
duration



Reduced
Fraud



Increased
Customer
Satisfaction

Decreased Fraud Reported by FIs

One of the Top UK
credit card issuer

59%

decrease in account takeover
within 30 days of deployment

£1m

in monthly savings
Unprecedented ROI

One of the Top 5
US Banks

\$6.2m

in annual fraud losses prevented

Daily successful detection of over
10 calls that would have resulted
in an account takeover without
voice biometrics

Barclaycard Wins Award for FraudMiner Deployment

Best Security or Anti-fraud Development Winner

Barclaycard for Negative Voice Biometrics

Category Sponsors
FICO



FINALISTS

- Barclaycard - Barclaycard Strategic Transfer to Bank
- Barclaycard - Negative Voice Biometrics
- Barclays with Ethoca - Barclays Combats Fraud and Reduces Costs in the UK
- Lloyds Bank Commercial Cards - Customer Friendly Anti-fraud Solutions
- MBNA - MBNA Digital Communications Hub
- Barclaycard - Negative Voice Biometrics



Sentenced to 2¹/₂ years

Name: Lee Chisholm

Age: 44

Chisholm repeatedly made call pretending to be the customer gathering personal information to allow him to take control of accounts. He then used the cards to make a variety of purchases which he would sell on. He specialised in garden furniture, Christmas hampers and hairdressing products.

Using **voice biometrics**, we managed to track his exploits preventing £370,000 of financial loss



Sentenced to 7 years

Name: Maxwell Parsons

Age: 49

Defrauded the banking industry of £2.5m
Parsons devised computer software to reverse bank transactions enabling him to spend money repeatedly from a number of Banks. At the peak of their activities, police said the gang had "laundered" up to £50,000 a day.

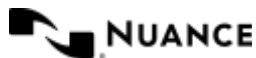
One of the Top
UK credit card
issuer



Australian Government Australian Taxation Office

Australian Tax Office extends voice biometrics to mobile apps for citizen engagement

Expansion of the government agency's voice recognition technology use is just one example of how voice-activated technology can be used for consumer interactions



Join 1.5 million Australians now using their voice to confirm their identity with us! Info @ ato.gov.au/app



RETWEETS 9
LIKES 5



1:04 AM - 15 Jan 2016



Leading experience: Australian Taxation Office



Providing new and engaging customer service experiences that are simple and secure

42 sec

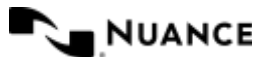


Decrease in agent AHT (Average Handle Time)

- Problem:** Over 6.7M calls per year require lengthy manual authentication by agents, who spent approximately 75,000 hours each year verifying customers
- Solution:** VocalPassword and FreeSpeech in the call centre
- Result:** Increased call completion rates and security
760,000 Australians enrolled in first 10 months
584,000 successful biometric verifications

“With Nuance’s voice biometrics, we have introduced a secure, fast, and easy way to verify a customer’s identity, providing a **greatly improved experience for our customers and our staff**. The streamlined authentication has allowed the ATO to quickly **boost call completion rates while improving security**”

– John Dardo, Acting Deputy Commissioner, ATO



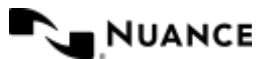
Voice Biometrics for Proof of Life



<http://youtu.be/-1kjidlDk8o>



Voice Biometrics use cases for public safety



Use cases & Applications



Use case	Calls\recordings	Voiceprints
Filtering (Interception)	Many (millions)	Many (100s, 1000s)
Investigation\validation	One	One
Identification	One	Millions

Nuance Forensics

Investigation and voice evidence



Questioned Audio

Suspect Speaker



Forensics tools for biometric analysis, including court evidence



The screenshot displays the Nuance Forensics web application. The top navigation bar includes the 'Forensics' logo, a search bar, and user information. The main content area shows a table of assessments with columns for 'Timestamp / Name', 'Suspect', 'Ref populations', 'Background Model Reports', 'Results', and 'Verdict'. A detailed 'Assessment Report' is overlaid on the right, featuring a 'Log Likelihood Ratio' table and a 'Log Likelihood Ratio - Result Analysis' graph. The graph plots two distributions: a grey one for the 'Suspect' and a green one for the 'Reference'. Below the graph are two boxes: 'New Speaker Results' and 'US Male Speaker Results', each with numerical values for 'Score', 'Rank', and 'STD'.



ensures accuracy of identification and normalizes for audio quality and variability.

Forensic References

History of Successful Stories



<http://ekspertize.vp.gov.lv/>



Georgian National Forensics Bureau

<http://www.forensics.ge/>



Raggruppamento Carabinieri Investigazioni Scientifiche
Reparto Investigazioni Scientifiche di Roma, Parma (Italy)
Sezione di Fonica e Audiovideo



Forensic LAB of Shanghai Police Station
Crime research center



Israeli police Forensic lab

Interception – Investigation – Prosecution – Post Conviction



the guardian

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News | World news | Islamic State (Isis)

Security services close to identifying jihadi killer of James Foley

UK ambassador to US says voice recognition technology has been used to pin down identity of Isis militant who beheaded journalist

Alexandra Topping, Joanna Walters in New York, and Richard Norton-Taylor
The Guardian, Sunday 24 August 2014 21:12 BST

Jump to comments (1655)



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Islamic State (Isis)

UK news
UK security and counter-terrorism

Politics
Counter-terrorism policy

Media
James Foley

US news

More news

THE WALL STREET JOURNAL.

Court to Rule on Voice Analysis in Terrorism Trial

Prosecutors seek to use voice comparison technology in trial of man charged with providing support to al-Shabab.



In a surprising move earlier in December, federal prosecutors sought to use voice comparison technology to prove that the man charged with the crime, a Swedish national, had been involved in fighting for Somalia-based militant group al-Shabab and urging young men abroad to join the militant group.

Use cases & Applications



Use case	Calls\recordings	Voiceprints
Filtering (Interception)	Many (millions)	Many (100s, 1000s)
Investigation\validation	One	One
Identification	One	Millions

SIIP – Pan European Speaker Identification Project

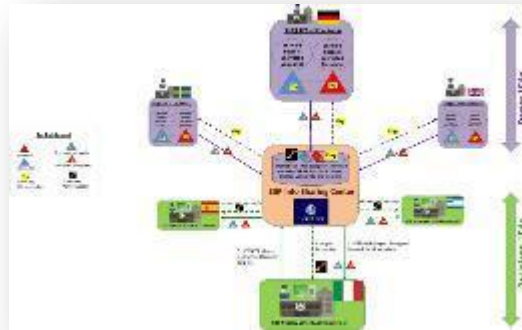
Consortium includes tech firms (i.e. Nuance, Verint), Interpol and agencies from Germany, Italy, UK and Portugal, legal firms, and research institutes

SIIP
Speaker Identification and Privacy-Guarded Speaker Identification (SIGS) Project

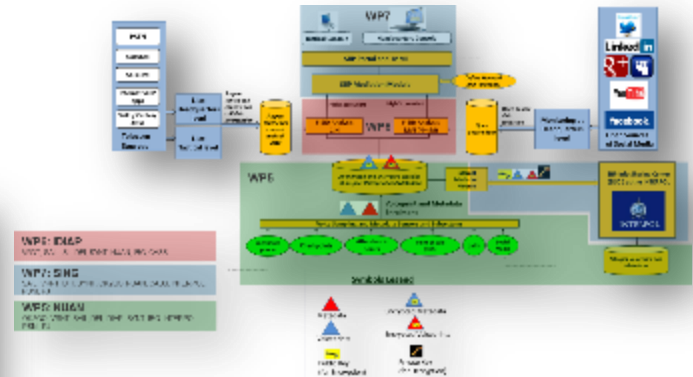
Home | SIIP Overview | Privacy | SIIP Overview | Contact Us

SIIP Speaker Identification Integrated Project

News & Updates

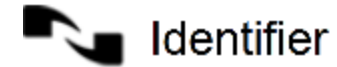


Voiceprint sharing exchange



Integrated approach, social media interfaces

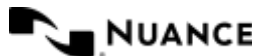
Nuance Identifier



The screenshot displays the Nuance Identifier web application. At the top, there are buttons for "New profile" and "New search". Below this, a speaker profile is shown for "speakerID123456" with a photo and "Audio Source" options: Microphone, Tap extension, Place phone call, and File. A central window displays an "Identification Report - Top 10 Results" with a table of search results. To the right, contact information is visible: phone numbers (555-1212, 324-5512), an email address (jonesdomains.com), and a green checkmark icon. At the bottom, three mobile devices show the application's interface on their screens.

PHOTO	SPEAKER	VOICEPRINT	SCORE	LANGUAGE	UNUSUAL FEATURES
	30411-00011 E. Lee Jackson DOB: 8/11/1980 Male London & Peter County	Voiceprint	90	Male	Vocalized Males
	31011-00011 B. Lee Jackson DOB: 8/11/1980 Male London & Peter County	Voiceprint	85	Unrecorded	Vocalized Males
	30411-00011 E. Lee Jackson DOB: 8/11/1980 Male London & Peter County	Voiceprint	80	Male	Vocalized Males
	31011-00011 B. Lee Jackson DOB: 8/11/1980 Male London & Peter County	Voiceprint	75	Unrecorded	Vocalized Males

- National Voice Identification System (AFIS-like)
- Fast search in millions of voices
- Diversified audio acquisition mechanism dedicated web-enabled application for enrollment
- Field enrollment and identification through Mobile Identifier (Android-based)
- Scalable, Secure, and resilient Multi-site architecture
- Underlying platform drives Nuance commercial voice biometrics products (Over 40M voiceprints deployed)



Use cases & Applications



Use case	Calls\recordings	Voiceprints
Filtering (Interception)	Many (millions)	Many (100s, 1000s)
Investigation\validation	One	One
Identification	One	Millions

Prison Monitoring

IPS use of Voice Biometrics

- Inmate identity validation
 - Passphrase for accessing outbound calls
- Conf (multi-speaker) call detection
- On-going voice monitoring
- Investigation
- Over 1800 extensions monitored
- Real and significant crime detected/solved



מסמך מס' 1000/18	תאריך: 10.10.2018
מס' 1000/18	תאריך: 10.10.2018

מסמך מס' 1000/18

2.1. הסיבות להתקנת המערכת החדשה

בדיון הוועדה לפניית הציבור ביוני 2012 הצדיקו נציגי שירות בתי-הסוהר את הצורך בהתקנת מערכת "שחף" בכמה נימוקים, כמפורט להלן:¹¹

- מערכת הטלפונים הנוכחית אינה מבוקרת ואינה מנטרט;
- אסירים מנצלים את הטלפונים כדי להורות על ביצוע פשעים מחוץ לכותלי בית-הכלא;
- אסירים מנצלים את הטלפונים לקיום שיחות ועידה, שהן אסורות;
- אסירים מנצלים את הטלפונים כדי להטריד גורמים שונים מחוץ לכלא או לאיים עליהם. הוזכר המקרה שבו אסיר הזמין פיצה לראש הממשלה מתוך הכלא;
- אין לשירות בתי-הסוהר יכולת להציב סוהר ליד כל אסיר שמשתמש בטלפון ולהשיג עם מי הוא משוח;
- סוהרים חשופים לאיומים של אסירים באגפי הפרדה אם הם מנסים להגביל את זמן השיחה שלהם לפי הנהל ואינם מצליחים להפסיק שיחת טלפון של אסיר באמצעים פיזיים;
- לשירות בתי-הסוהר אין דרך לנטר תקלות במערכת הקיימת;
- המערכת החדשה תאפשר שליטה ובקרה על שיחות האסירים, אולם התכונות המיוחדות שלה לא יופעלו דרך קבע, אלא רק לפי החלטה מראש ובאופן פרטני כלפי אסירים מסוימים.

האסירים מוחים על האזנה לשיחותיהם – בקלות

גורל חיובי ודו-שיח מאפשרים למוזכרים בקלות לפי תחילתה של שיחות טלפון, הפיקוחות קרויי בית הסוהר "המסל" אבנר הררי מתח על המה – הקולט קולדה נכסית נגד הסוהרים החזיר

מסמך מס' 1000/18



10.10.2018

"אני מבקש להתקשר החוצה עכשיו" – זהו המשפט שאסירים נדרשים לומר לאחרונה על מנת שקולם יזוהה והם יוכלו לטלפן לתיישבו שנמצא מחוץ לגבולות הכלא. אם לא יאמרו זאת בדרך זו, שיחותיהם ייחסמו. כך קרה גם במקרה של אבנר הררי, מי שבעבר נחשב ל"מסל" של ארגון הפשיעה של יצחק אברג'יל. בדיון בוועדת הפנים של הכנסת היום (רביעי) נחשף כי שיחות בני הסוהר דורש מאסירים לתת חתימות קול ביומטריות מאסירים, מבלי שהוסמן לכך בחוק. המהלך החדש גרם להתנגדות בקרב האסירים, ואחד מהם החליט למחות עליו. בדיון היום הושמעה שיחה של הררי, שבה במקום לומר את המשפט הנדרש, אמר: "אני מבקש להתקשר החוצה עכשיו, יא ממ" בתחת".



אבנר הררי בבית המשפט (פילום ארכיון: אורי קצין)



Voice Biometric

Experience learned with over 300 Deployments