

RSA® Conference 2016

San Francisco | February 29–March 4 | Moscone Center

SESSION ID: BAS-M02

Who Are you? From Meat to Electrons and Back Again



Connect  Protect

Michael Schwartz

CEO
Gluu, Inc
@gluufederation



#RSAC



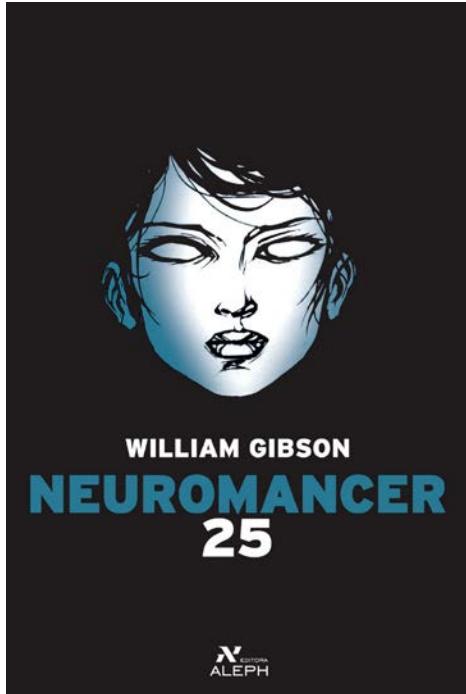
Obama says use two factors...



"...encourage more Americans to move beyond passwords - adding an extra layer of security like a fingerprint or codes sent to your cellphone."

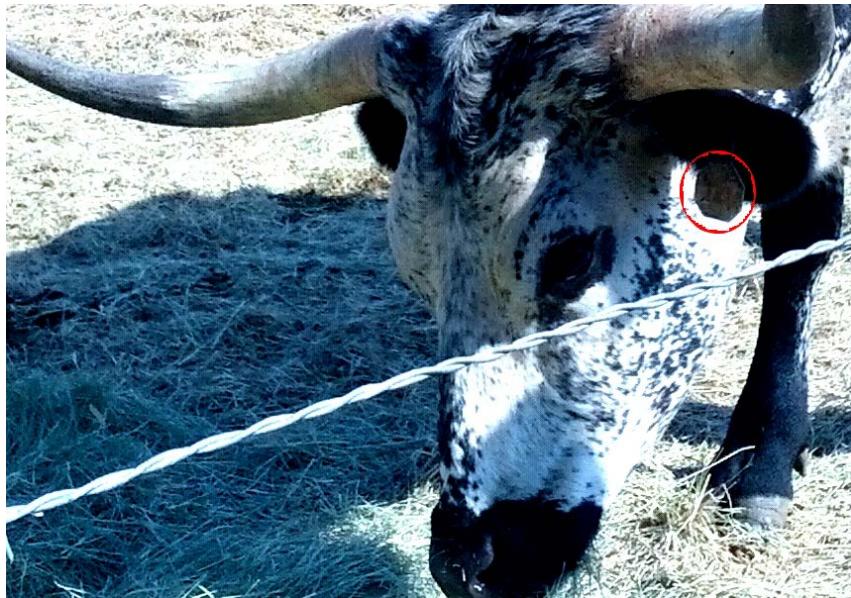
<https://nakedsecurity.sophos.com/2016/02/12/obama-says-passwords-arent-strong-enough-urges-use-of-2fa/>

Neuromancer BY William Gibson, 1984



“Meat space” the physical world where our bodies (“pieces of meat”) move around and do meat-like things

<http://www.amazon.com/Neuromancer-William-Gibson/dp/0441569595>





ID: A648386 **Name:** *PEPPER

Intake Date: 02/26/2013 @ 2:49 pm

Intake Type: STRAY

Tag #: 985112000781931

Sex: S

Weight: 26.75

Age: 3 yrs, 1 mos

Color: BLACK

Breed: CAIRN TERRIER / CHINESE SHARPEI

Markings:

Microchip: 985112000781931

Surg Date: 3/2/13



VACCINATED



or RFID for Racing Pigeons





Disney Meat Cookie

You don't want your privacy: Disney and the meat space data race

by John Foreman, MailChimp JAN. 18, 2014 · 12:00 PM PST

64 Comments +1

A▼ A▲

SUMMARY: MailChimp Chief Data Scientist is at Disney World this weekend wearing his RFID-equipped MagicBand. Here's how he thinks the practice of digitally tracking consumers in the physical world will reach everywhere from theme parks to our homes.



<https://gigaom.com/2014/01/18/you-dont-want-your-privacy-disney-and-the-meat-space-data-race/>



Festival Meat Cookie



<http://musically.com/2014/02/28/how-live-music-is-evolving-with-the-digital-age-by-larm/>



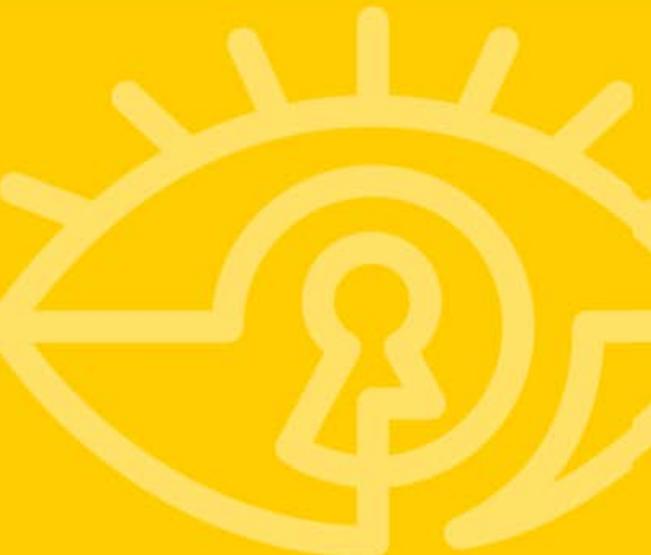
Meat to Electron Technology

- Oldies but goodies
- Biometric
- Cognative
- Tokens
- Wearables
- Mobile
- Other



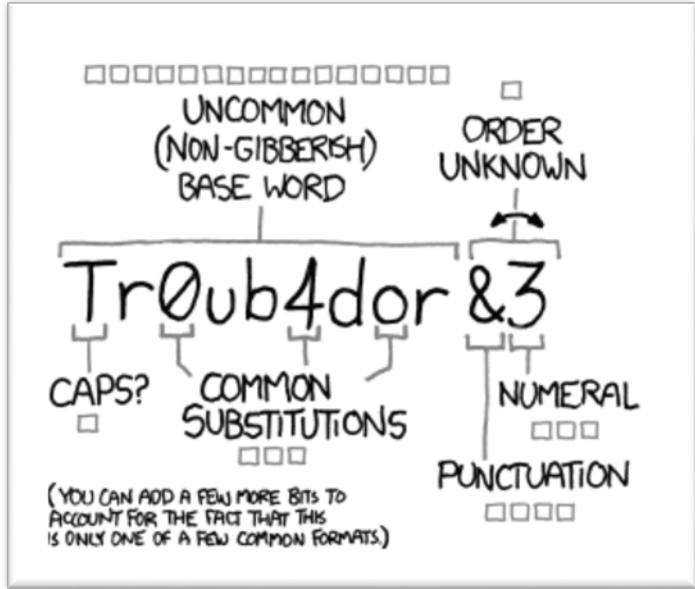
#RSAC

Oldies but Goodies





Password-thentication



<http://xkcd.com/936>



Qwerty-thentication



<http://techcrunch.com/2015/12/07/qwertycards-is-a-wallet-sized-card-that-generate-secure-passwords/>



Phone-thentication

Microsoft Acquires PhoneFactor, The Security Solution That Authenticates Users Via Phone Or SMS

Posted Oct 4, 2012 by Sarah Perez (@sarahintampa)

4 Twitter 362 Share 0



Microsoft has acquired PhoneFactor, a service which provides an additional layer of security during the authentication process, which today typically involves just a username and password (aka single-factor authentication). With PhoneFactor, as its name implies, the additional step it offers involves using a phone to further authenticate users upon sign in via a phone call, text, or mobile app.

The first method calls users on their pre-registered mobile phone asking them to confirm their login attempt, which they then do by pressing the pound (#) key on their handset. Another method has users respond to an SMS text message with a passcode. A third solution involves PhoneFactor's mobile app, which uses a push notification mechanism that prompts users to tap "Authenticate" within the application.

<http://techcrunch.com/2012/10/04/microsoft-acquires-phonefactor-the-security-solution-that-authenticates-users-via-phone-sms-or-mobile-apps>



totp-thentication

SCIENTISTS CRACK RSA SECURID 800 TOKENS, STEAL CRYPTOGRAPHIC KEYS

Scientists penetrate hardened security devices in under 15 minutes.

by Dan Goodin - June 25 2012, 10:20am CDT

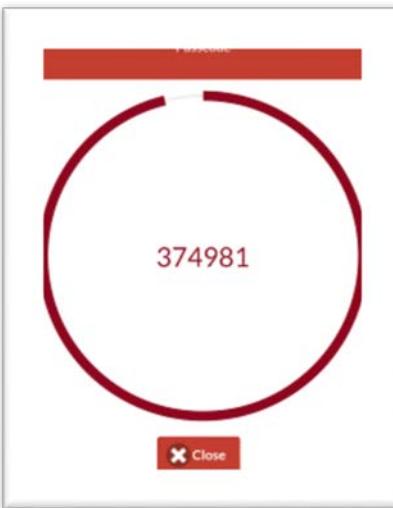
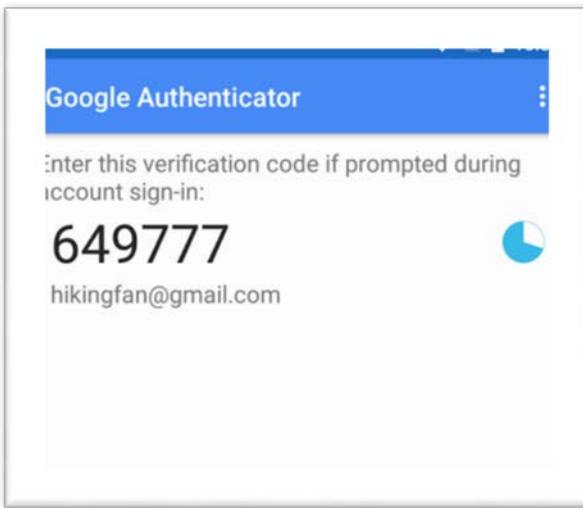
NATIONAL SECURITY WHITE HAT 67



<http://arstechnica.com/security/2012/06/securid-crypto-attack-steals-keys/>



code-thentication



<https://www.wikidsystems.com>



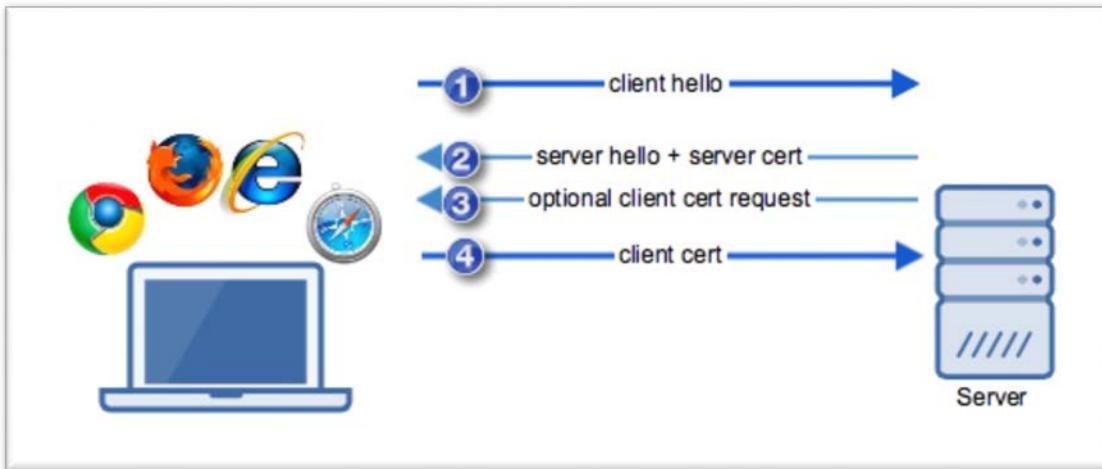
SmartCard-thentication



Hard to forge... contains info like birthday



Cert-thentication



<http://www.jspcape.com/blog/client-certificate-authentication>

<http://blog.klocwork.com/open-source/mutual-authentication-using-apache-and-a-web-client/>



Biometric





Fingerprint-thentication

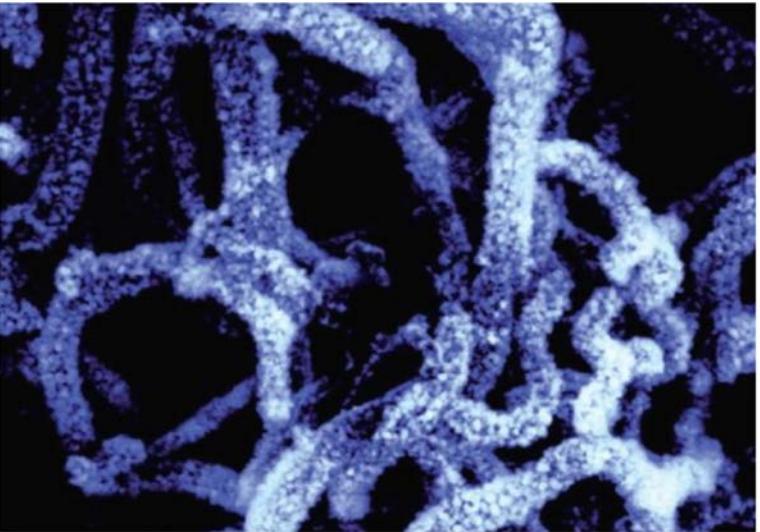


<https://www.youtube.com/watch?v=PMtFLBfyXgc>

<http://hackaday.com/2015/11/10/your-unhashable-fingerprints-secure-nothing>



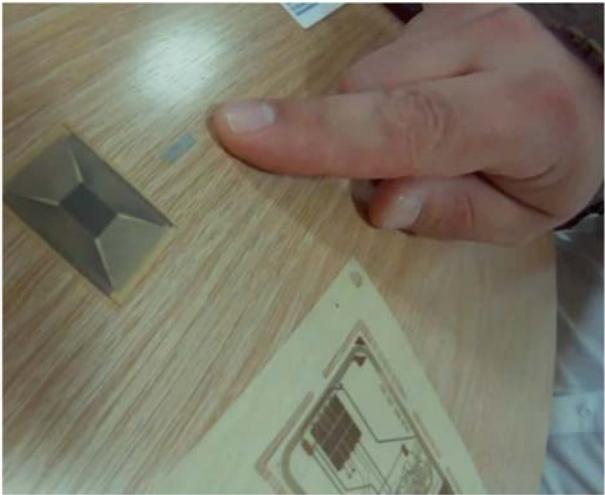
Nano-fingerprint-thentication



<http://findbiometrics.com/nano-structures-authentication-211125>



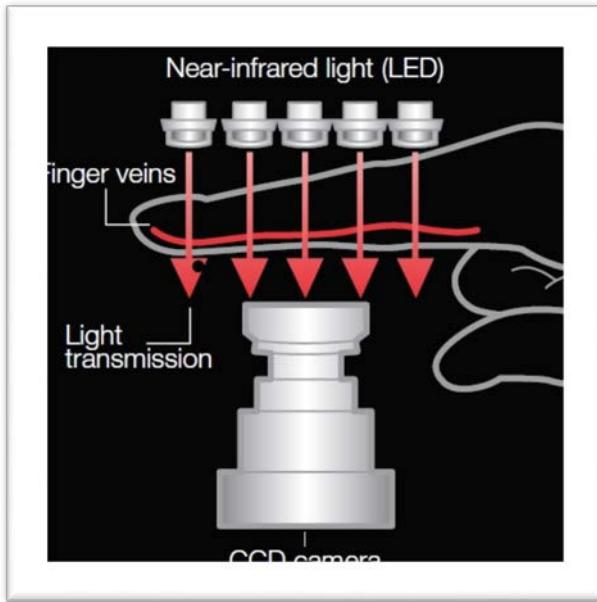
3d-finger-thentication



<http://www.sonavation.com/technology>



Vein-thentication



<http://www.hitachi.eu/veinid/>



Palm-thentication



<http://techcrunch.com/2014/04/14/quixter/>



Face-Thentication

World's first webcam-based personal recognition.
For web and mobile users.
Convenient, reliable, secure.

<https://www.bioid.com>

<https://www.linkedin.com/pulse/biossl-launches-face-recognition-unique-biometric-web-james-fisher>



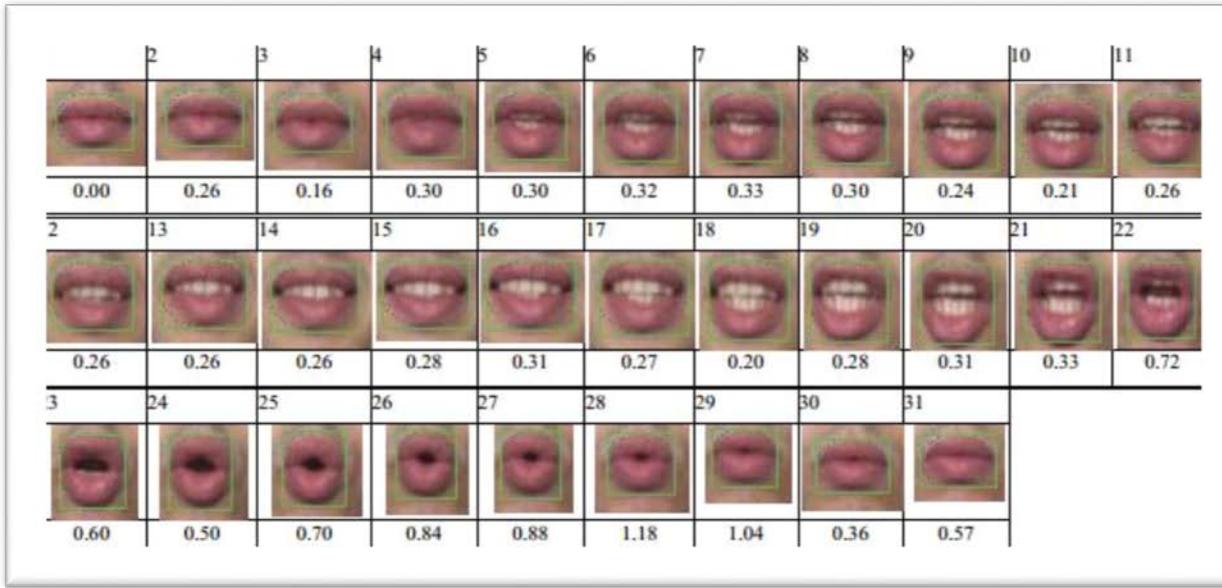
Voice-thentication



<http://www.itnewsafrica.com/2014/01/voice-biometrics-solves-most-authentication-problems>



lip-thentication



<http://www.crazyengineers.com/threads/software-to-read-your-lips-for-secure-authentication-and-access-mutah-university.76872>



Eye-thentication used to identify pigeons..





Eye-thentication



<http://www.designboom.com/technology/eyelock-dna-authentication-iris-scanner-by-myris-at CES-2014-01-16-2014/>

<http://www.theatlantic.com/technology/archive/2015/05/long-range-iris-scanning-is-here/393065/>

<http://www.eyeverify.com/>



Ear-Thentication



<http://www.theinquirer.net/inquirer/news/2406315/yahoo-is-experimenting-with-ear-based-biometric-authentication>

<http://www.biometricupdate.com/201501/descartes-biometrics-releases-ear-recognition-application-for-mobile-devices>



Heart-Thentication

Nymi, The Heartwave-Sensing Authentication, Launches SDK

Posted Nov 25, 2013 by Natasha Lomas (@riptari)

5 Like 339 Tweet 413 Share 90 ▾



Toronto-based startup Bi launched an SDK for its fc identity-authenticating wi said today that more than have registered their inte software that hooks into t sensing bangle. Thus far, pre-sell more than 7,000 c

<http://techcrunch.com/2013/11/25/nymi-the-heartwave-sensing-wristband-for-id-authentication-launches-sdk-for-6k-developers/>

Apple Invented heart Authentication? Voice too...



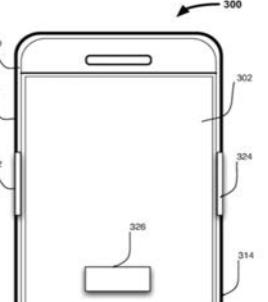
#RSAC

Apple patents “seamless” heart rate sensor for authentication, personalization

By: Brian Dolan | Jan 2, 2014 | [Tweet](#) 93 | [Share](#) 27 | [Share](#) 39

Tags: Apple medical sensors | Apple patents | authentication | digital health patents | digital health security | EKG | heart rate monitor | iWatch | mobile phone EKG |

Last week the United States Patent and Trademark Office (USPTO) awarded Apple a patent for a “seamlessly embedded heart rate monitor” that the company’s R&D department envisions using for authentication, personalization, and other features on imagined future devices. Apple has filed for a number of digital health-related patents over the years. MobiHealthNews rounded up a few way back in 2010. The list back then included sensor-laden clothing, peel-and-stick baby monitors, advanced activity sensing, an earbud for tracking various biometrics, as well as the filing for the patent Apple secured this week.

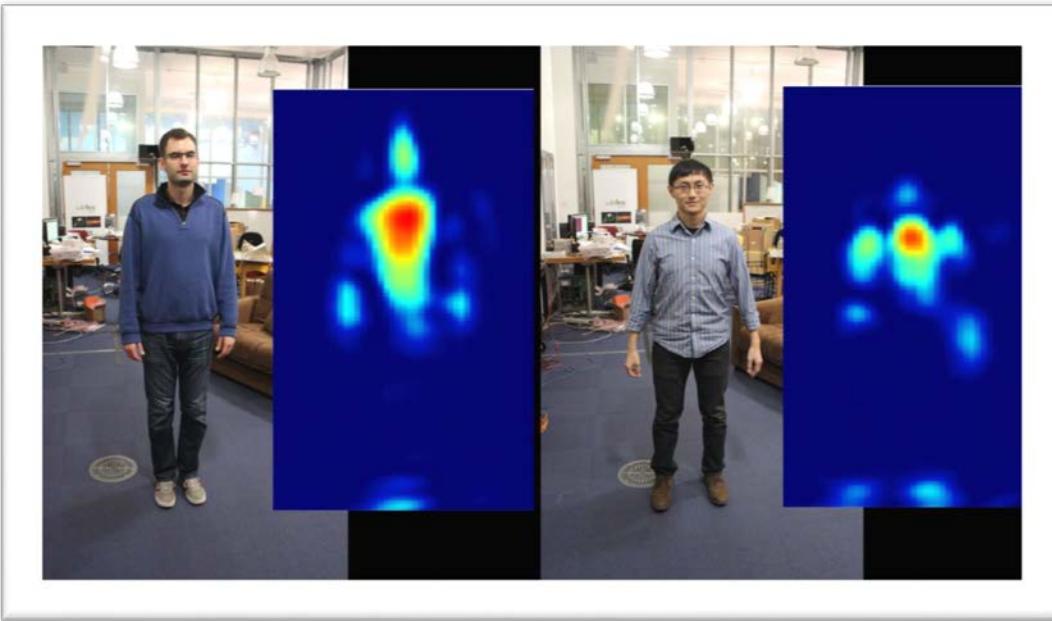


<http://mobihealthnews.com/28349/apple-patents-seamless-heart-rate-sensor-for-authentication-personalization>

<http://recode.net/2014/04/03/apple-confirms-purchase-of-speech-recognition-firm-nouvaris>



Thermal-Thentication



<http://qz.com/536291/mit-researchers-have-developed-a-device-that-can-identify-people-through-walls/>



Aura-Thentication



<http://www.newsweek.com/microbial-cloud-aka-auras-are-basically-real-375010>



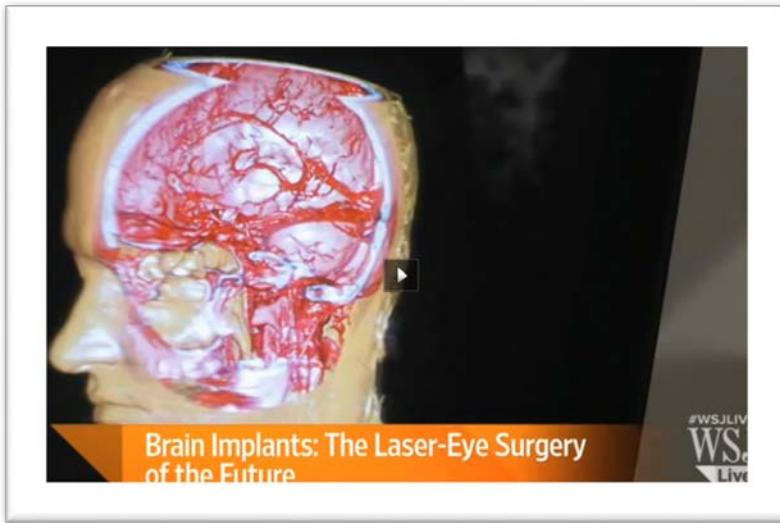
Smell-thentication



Coming-soon!!



Brain-Thentication



<http://www.wsj.com/news/articles/SB10001424052702304914904579435592981780528>

<http://www.techspot.com/news/60910-brain-activity-may-one-day-replace-modern-biometrics.html>



FBI Biometric Technology Center

FBI: New Biometrics Technology Centre key to future identity management

29 December 2015 10:59 GMT



Senior FBI officials say a new Biometrics Technology Centre opening in West Virginia will have an important impact on inter-agency communication in solving and preventing crime and terror cases.

Speaking to local media in the state, Assistant Director Steve Morris told [*the Exponent Telegram*](#) that the centre will create an expanded mission for the Criminal Justice Information Services Division.

"Our goal is to have about 1,000 employees assigned to CJIS working out of that building," Assistant Director Steve Morris told the newspaper's Jim Davis.

<http://www.planetbiometrics.com/article-details/i/3948/desc/fbi-new-biometrics-technology-centre-key-to-future-identity-management/>



Cognitive

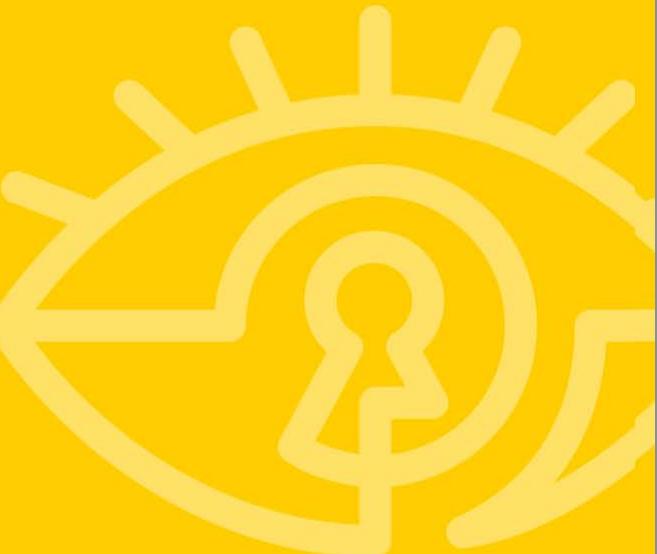




Image-thentication

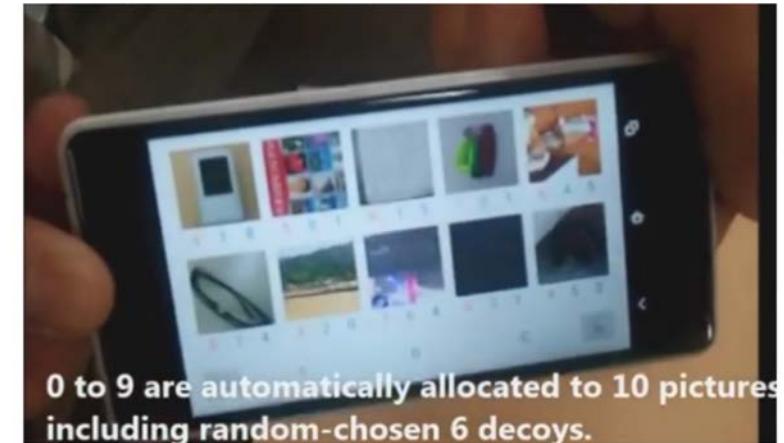


<http://wisepoint.jp/>

<http://www.telegraph.co.uk/technology/internet-security/11675715/Emoji-could-replace-PIN-codes-in-online-banking.html>



PIN-thentication



<https://www.youtube.com/watch?v=cXTYffGHNS4&feature=youtu.be>



snapshot-thentication



<http://pixelpin.co.uk/>



Pattern-thentication

Log on to your personal banking account

Please enter your passcode.

Please enter your username, input the numbers in the grid that match your PINgrid Token.

Username: demouser

Passcode:

Log on



EXAMPLE LOGIN

Username: demouser

Pin code:

	3rd	6th
2nd		5th
1st		4th

<http://authlogics.com/products/pingrid/>



Rhythm-thentication



<http://www.biometricupdate.com/201401/authenware-launches-finger-tapping-rhythm-recognizing-behavioral-authentication-app>



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RSA® Conference 2016

Wearable





NFC Authentication



Adhesive Disc Tag 30mm

A sealed waterproof and dustproof 30mm disc tag with an adhesive layer for quick fixing. Ultralight NFC chip.

10+ Price : £0.84 each



Laundry Tag 14mm Ultralight

Tough, durable 14mm ultralight laundry tag. Specially constructed to withstand heat, pressure and chemicals. Suitable for use in clothing.

10+ Price : £0.95 each

http://gluu.co/ibm_nfc_two_factor



watch-thentication



<http://gluu.co/watch-thentication>



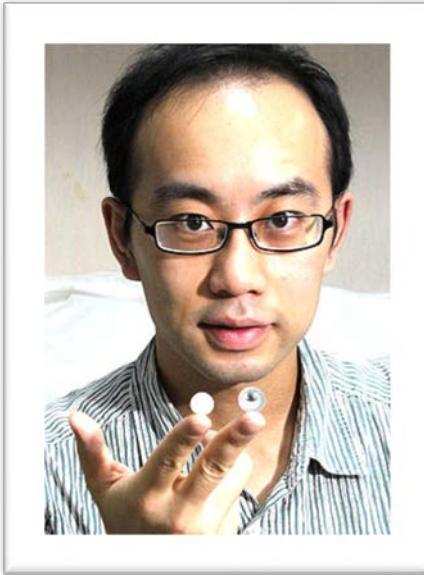
Ring-thentication



<https://www.kickstarter.com/projects/mclear/nfc-ring>



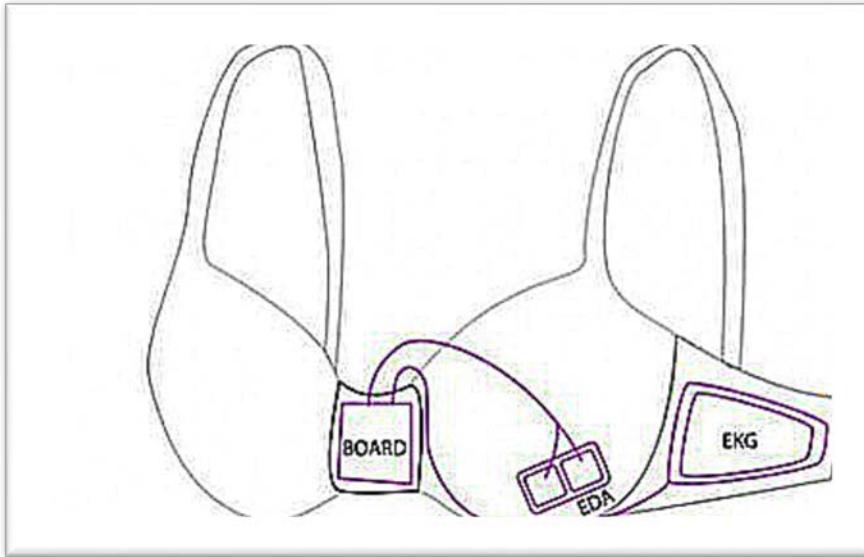
Bling-thentication



<http://www.rfidjournal.com/articles/view?11042>



Bra-thentication



<http://www.rougtype.com/?p=4063>



Pill-thentication

Motorola Is Working On a Password Pill for Once-Daily Authentication

Let's get real: We have a password problem. So why not turn your entire body into an authentication device?

By Doug Aamoth @daamoth | May 31, 2013 | 3 Comments

f Share

f Like 734

Tweet 308

g+ 50

in Share 50

Pin It

Read La

This page has been shared 308 times. View these Tweets.

Let's get real: We have a password problem.

RELATED

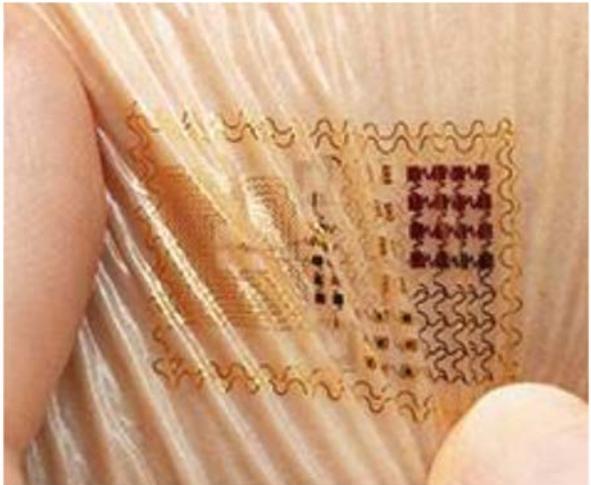
People generally don't use unique passwords for each site they visit. Some people just use plain awful passwords. Even if you use strong passwords, as recommended, sites still get hacked (over and over and over again).

Motorola, the Anti-Good Game at D1

<http://techland.time.com/2013/05/31/motorola-is-working-on-a-password-pill-for-once-daily-authentication-oh-and-a-tattoo-too/>



Tattoo-thentication



<http://techpp.com/2015/11/26/biometric-tattoo-bio-wearables/>

<http://spectrum.ieee.org/biomedical/devices/a-temporary-tattoo-that-senses-through-your-skin>



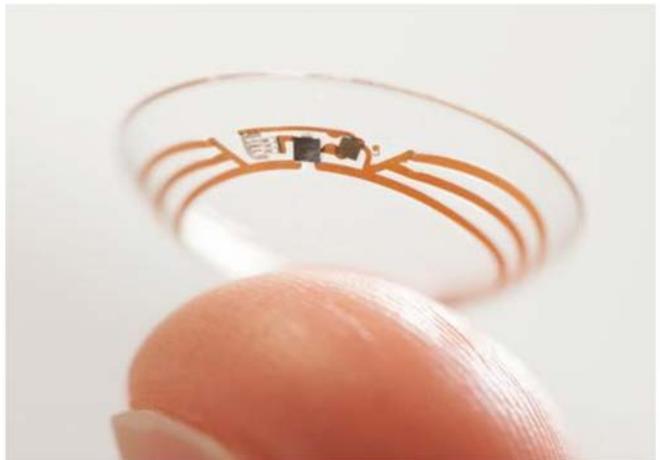
Wobble-Thentication



<http://www.theverge.com/2014/12/15/7393311/gopro-first-person-video-identified-biometric-markers>



Lens-thentication



http://www.informationweek.com/strategic-cio/executive-insights-and-innovation/googles-10-big-bets-on-the-future/d/d-id/1204528? mc=sm iwk edit&image_number=6

<http://techcrunch.com/2014/07/15/google-enlists-novartis-to-ship-glucose-sensing-and-autofocus-smart-contact-lenses-in-as-little-as-5-years/>



Tokens





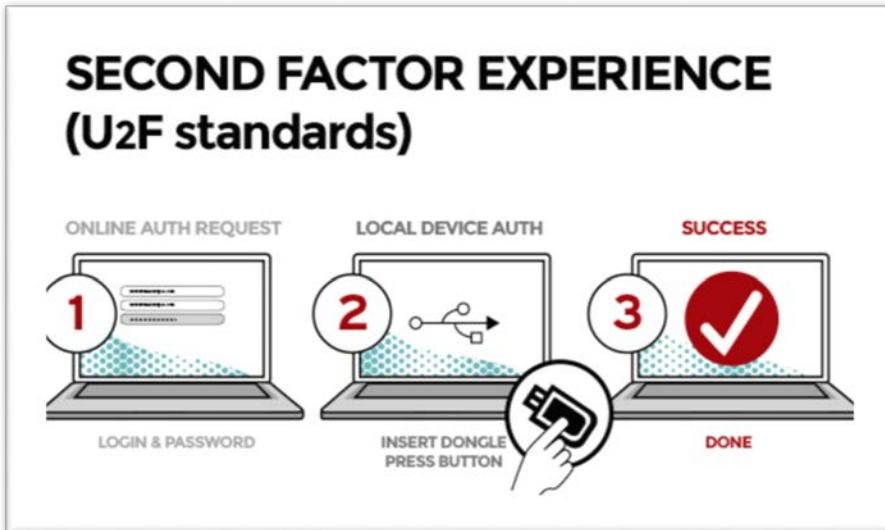
Keys are an ancient trust model



The *Delivery of the Keys* by Pietro Perugino



FIDO-thentication



<http://www.darkreading.com/endpoint/fido-authentication-poised-for-continued-growth-as-alliance-submits-fido-20-web-api-to-w3c/d/d-id/1323247>

<https://fidoalliance.org/specifications/download/>



Yubi-thentication



<https://www.yubico.com/2015/11/why-yubikey-wins/>



U2F-thentication



http://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Dcomputers&field-keywords=u2f



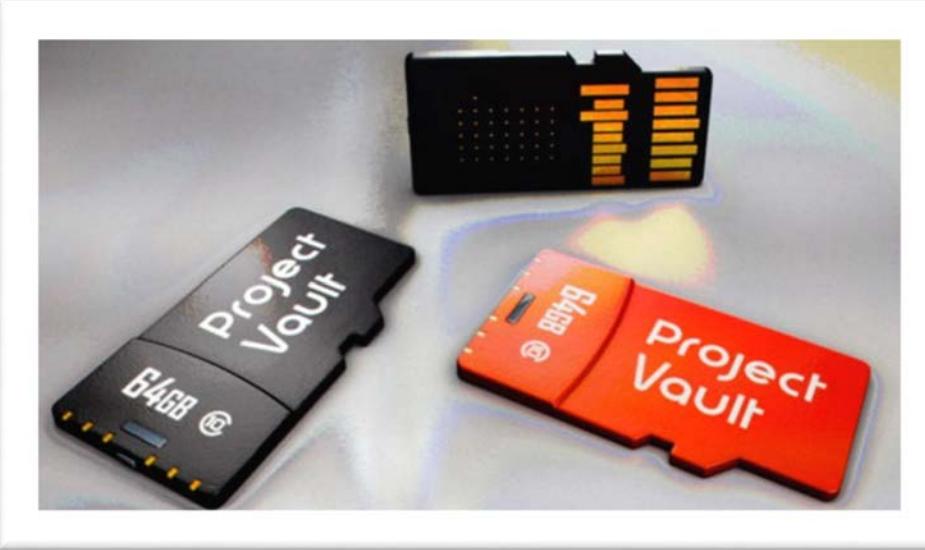
open-hardware-thentication



<https://www.indiegogo.com/projects/nitrokey-storage-usb-security-key-for-encryption#>



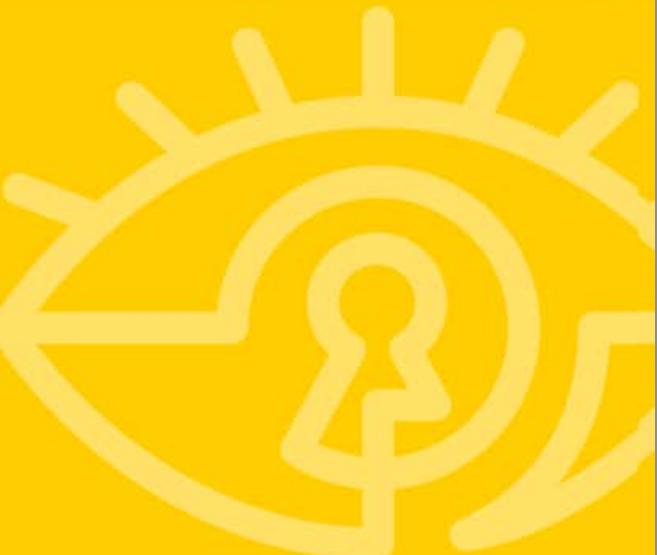
Vault-thentication



<http://thehackernews.com/2015/05/google-vault-microsd.html>



Mobile





Phone-NFC-thentication



<http://www.cnet.com/news/using-nfc-ibm-brings-dual-factor-authentication-to-mobile/>



Ambiant-sound-thentication



http://www.slate.com/blogs/future_tense/2015/08/14/sound_proof_app_two_touch_authentication_made_easier_with_ambient_sound.html



Gesture-thentication



<http://www.dailytargum.com/article/2014/11/professor-develops-gesture-authentication-to-secure-privacy>

<http://www.casserlyconsulting.com/casserly-blog/entry/your-computer-can-identify-you-based-on-how-you-move-your-mouse.html>



gyro-thentication



<http://techcrunch.com/2014/09/02/mobile-authentication-tech-startup-airsig-gets-2m-from-foxconn/>



Bio-mobile-thentication

The future has landed

Ushering in a path for biometric authentication in a mobile world.

Secure your mobile apps by providing a frictionless experience to your customers - all with a single integration.



<http://maximid.com/>



QR-thentication



<http://www.securityweek.com/no-card-no-pin-needed-cloud-managed-atm-dont-forget-your-phone>



Duo-thentication

The image consists of two side-by-side screenshots. The left screenshot shows a hand holding a white iPhone displaying a 'Login Request' screen from 'Acme, Inc. Development Server'. The screen includes the ACME logo, the user name 'johnquser', the IP address '192.0.2.24', the location 'Kalamazoo, MI', the timestamp '11:07am EST', and the date 'January 29, 2014'. At the bottom are green 'Approve' and red 'Deny' buttons. The right screenshot shows a separate interface titled 'ACME, INC. Development Server' with the same information: 'johnquser', '192.0.2.24', 'Kalamazoo, MI', '11:07am EST', and 'January 29, 2014'.

<https://duo.com/>



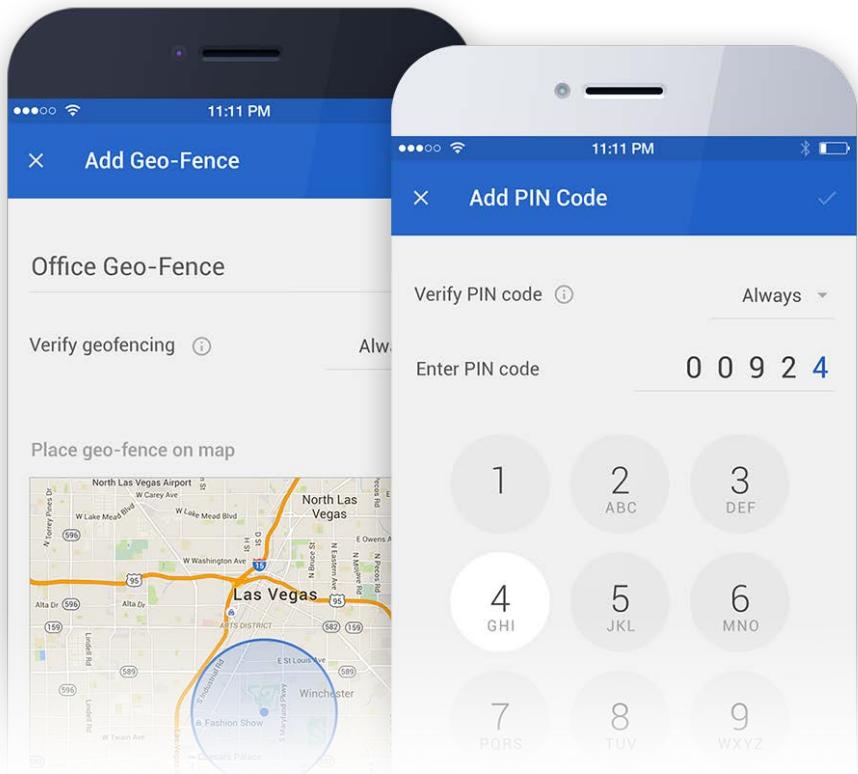
Tozny-thentication



<http://tozny.com>



Location-thentication



<http://launchkey.com>





microSD-Thentication



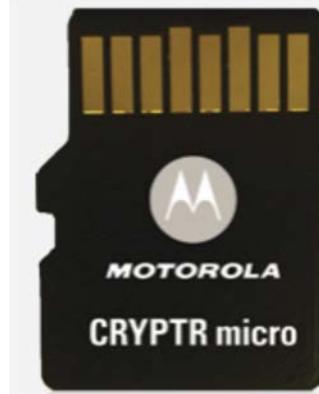
3

Embedded chip



Cards are removable

Chip wired into phone



http://www.motorolasolutions.com/content/dam/msi/docs/business/products/two-way_radios_-_public_safety/encryption/ame1000/cryptr_micro_encryption_unit/cryptr_micro_spec_sheet.pdf



foss-thentication



<https://github.com/GluuFederation/oxPush2>



geoFence-thentication

DrupeLooMEE is poised to evolutionize mobile security



by Ryan Faas
Follow Me +
December 19, 2013 4:15 PM





The Future of Biometrics

"You are a 1000 points of data, that collectively reflect you. The more the phone can learn about you, the better it can recognize you. You are the key..."

Skooks Pong, VP of Technology
Synapse Product Development
SXSW 2014



Graph-thentication

The screenshot shows the BioCatch website homepage. At the top, there is a navigation bar with the BioCatch logo on the left and 'Home' and 'Technology' links on the right. Below the navigation bar is a large, dark blue rectangular area containing white text. The text reads 'Fighting Cyber Threats - without the Friction'. At the bottom left of this area is a 'Read More >>' link. Below this main section is a horizontal line and the text 'BioCatch – Cognitive Behavioral Profiling'.

<http://www.biocatch.com/>



Other ?





Html5-thentication



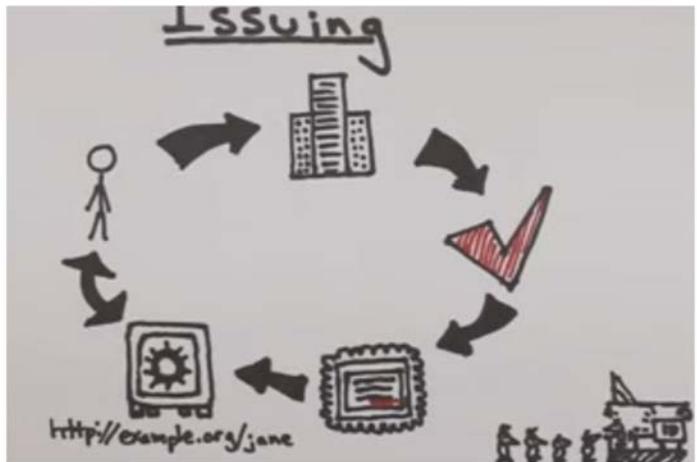
inWebo
authenticator



<http://inwebo.com>



OpenCreds



<http://opencreds.org/>



Quantum-thentication



<http://www.scmagazineuk.com/quantum-physics-behind-unhackable-security-authentication/article/388770/>

Microsoft Research



<http://research.microsoft.com/pubs/161585/QuestToReplacePasswords.pdf>



"Some are more secure, some are more usable, but every scheme does worse than passwords on deployability. Marginal gains are often not sufficient."



Question

- If there is no lack of alternatives to passwords, how do we overcome the "deployability" problem?

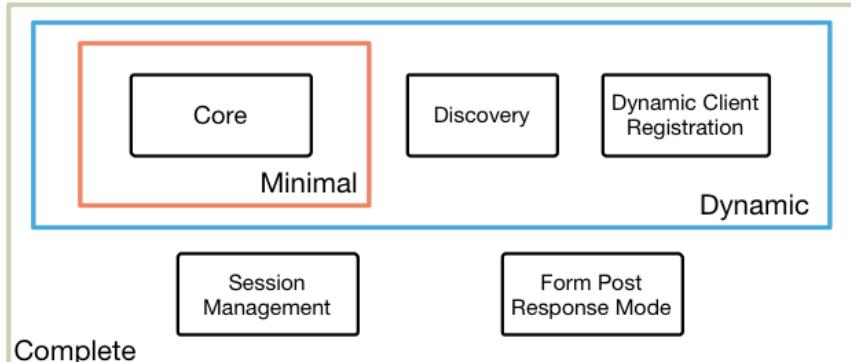


OpenID Connect

OpenID Connect Protocol Suite

4 Feb 2014

<http://openid.net/connect>



<http://openid.net/connect>

Underpinnings





Conclusion

- We don't have any shortage of ways to authenticate a person.
- There will never be any one authentication technology that is right for every device, person, and transaction.
- Passwords are not the problem, over-reliance on any one kind of authentication is the problem.



Action Item

- Deploy stronger, more convenient authentication mechanisms—but avoid “one-off” integrations. Use standard API’s like SAML and OpenID Connect to interface to applications.



Action Item

- Offer more than one strong authentication technology, or you will not be able to implement “password reset”—or more accurately “credential reset.”



Action Item

- Don't use strong authentication—unless you have to. Implement both “adaptive authentication” and “trust elevation”—attend my talk on Friday to learn more!



Action Item

- Be skeptical if anyone tells you that a new authentication technology is the solution to digital identity management.



Thank You!

Happy-thenticating !

...and support Open Source!

Please follow [@gluufederation](#)

