# EXPERIENCE SIMPLER, STRONGER AUTHENTICATION

# **Data Breaches**
## are out of control

Anthem now says 78.8M were affected by breach

MORE LIKE THIS

Health insurer Anthem
discloses customer and
employee data breach

State-sponsored Chine
hackers suspected in A
breach

U.S. states want Anthem to provide
quickly to customers

on IDG Answers

Mitt Romney thinks we need more H
do you agree?

Simplify IT with
the Cisco Unified

Hacked

JPMorgan Chase Hacking Affects 76 Million Households
by JESSICA SILVER-GREENBERG, MATTHEW GOLDSTEIN and NICOLE PERLROTH   OCTOBER 2, 2014 12:50 PM
528 Comments

JPMORGAN CHASE &
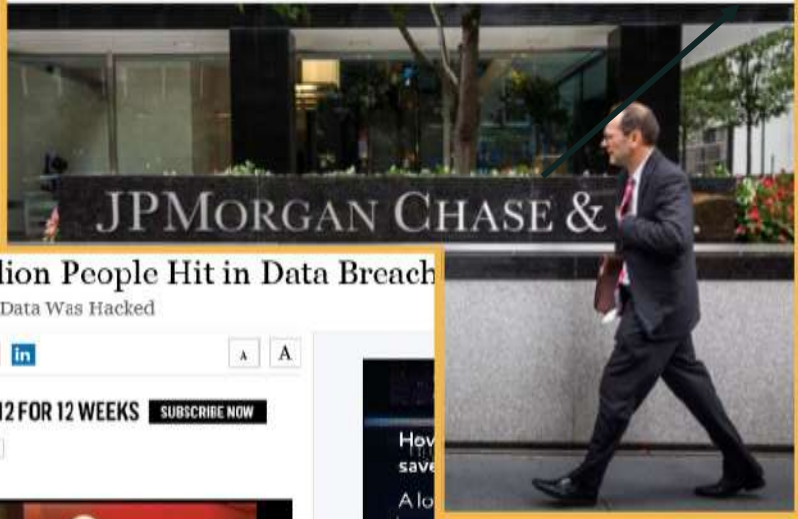
Target Now Says 70 Million People Hit in Data Breach
Neiman Marcus Also Says Its Customer Data Was Hacked

Email   Print   72 Comments

A   A

ARTICLE FREE PASS
Enjoy your free sample of exclusive subscriber content.

$12 FOR 12 WEEKS   SUBSCRIBE NOW

By PAUL ZIOBRO And DANNY YADRON   CONNECT
Updated Jan. 10, 2014 9:30 p.m. ET

expect more,
pay less.

# IN 2014...

**708** data breaches

**82 million** personal records stolen

**$3.5 million** average cost per breach

We have a **PASSWORD PROBLEM**

# TOO MANY TO REMEMBER, DIFFICULT TO TYPE, AND TOO VULNERABLE

Re-used          Phished          Keylogged

Adding more authentication
has largely been **rejected by users**

# ONE-TIME PASSCODES
Improve security but aren't easy enough

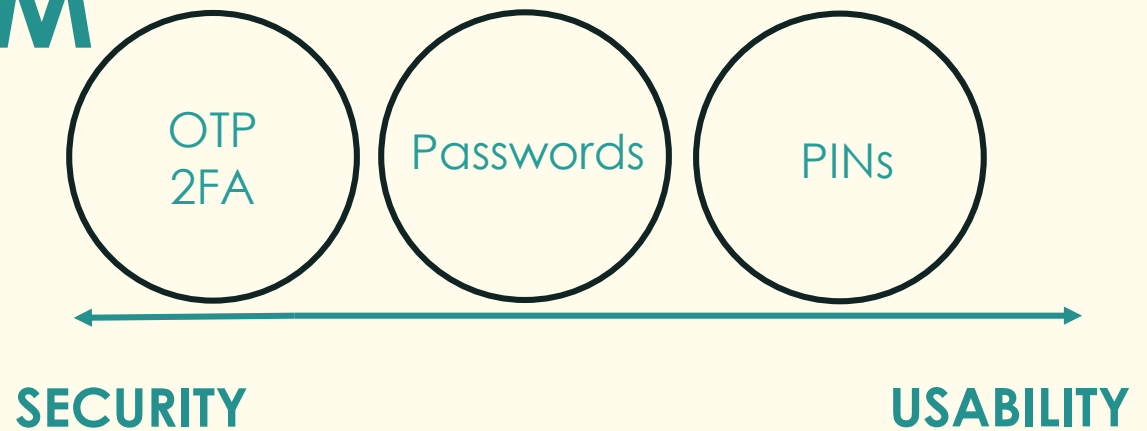SMS Reliability

Token Necklace
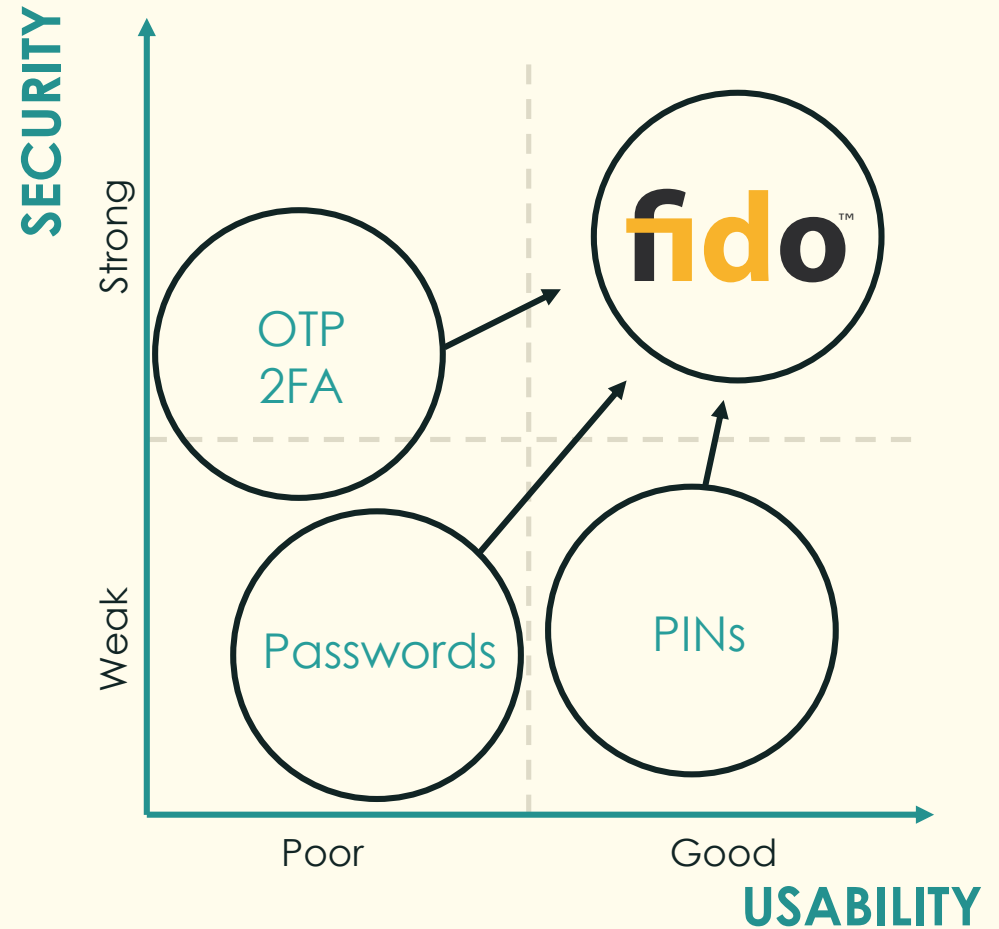
Poor User Experience

Still Phishable

WE NEED A
**NEW MODEL**
**F**ast **ID**entity **O**nline

# THE OLD PARADIGM

OTP 2FA

Passwords

PINs

SECURITY

USABILITY

# THE FIDO PARADIGM

Single Sign-On

Federation

Authentication

User Management

Physical-to-digital identity

MODERN AUTHENTICATION

Passwords | Strong | Risk-Based

11

# HOW DOES FIDO WORK?

USER VERIFICATION
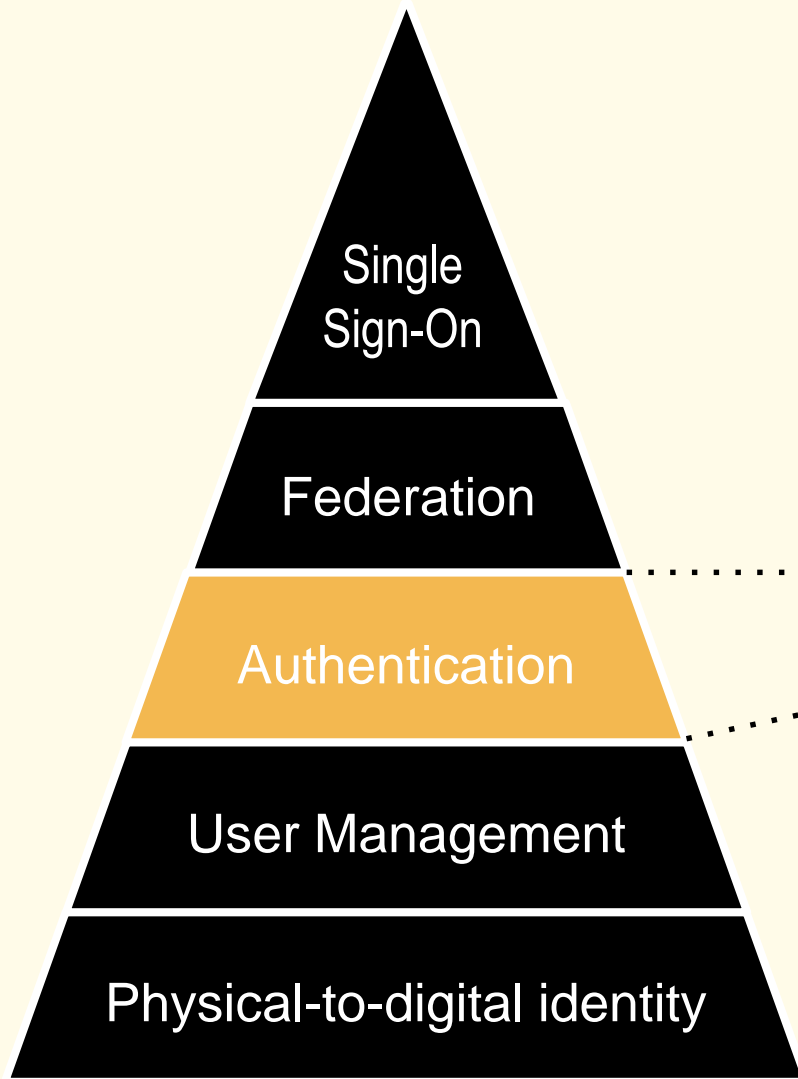
FIDO AUTHENTICATION

AUTHENTICATOR

# Passwordless Experience (FIDO UAF Standards)

**1**

**$10,000** →
Transfer Now

Transaction Detail

**2**

User Authentication

**Success**

**3**

Done
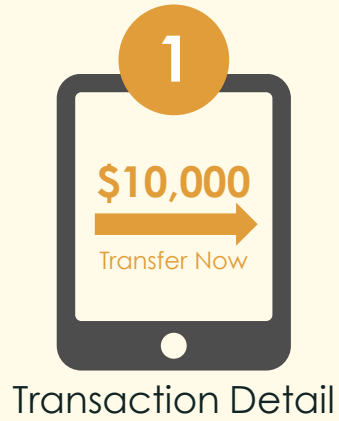
# Second Factor Experience (FIDO U2F Standards)

**1**

Login & Password

**2**

Insert dongle
Press Button

**Success**

**3**

Done

# Fido Registration

**1** Registration Begins

User Approval

**2**

New Key Created

**3**

Key Registered using Public Key Cryptography

**4**

# Fido Login



1. Login
2. User Approval — Login Challenge
3. Key Selected
4. Login Response using Public Key Cryptography

**Login Complete**
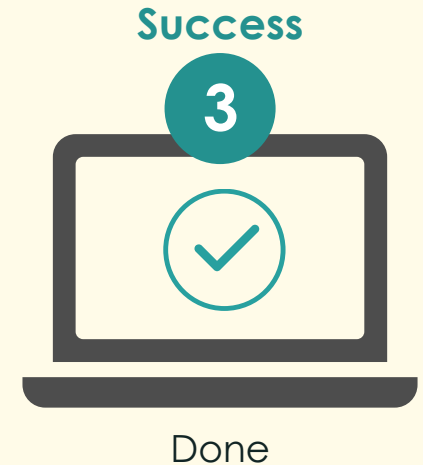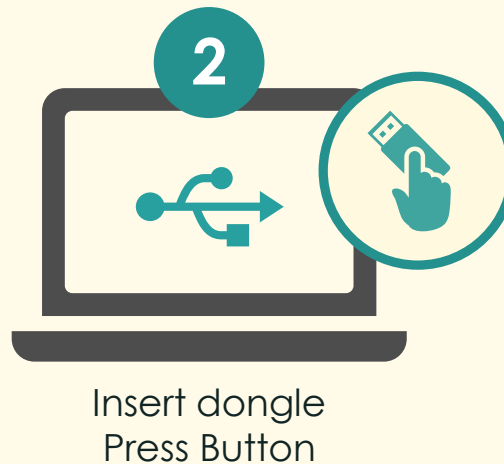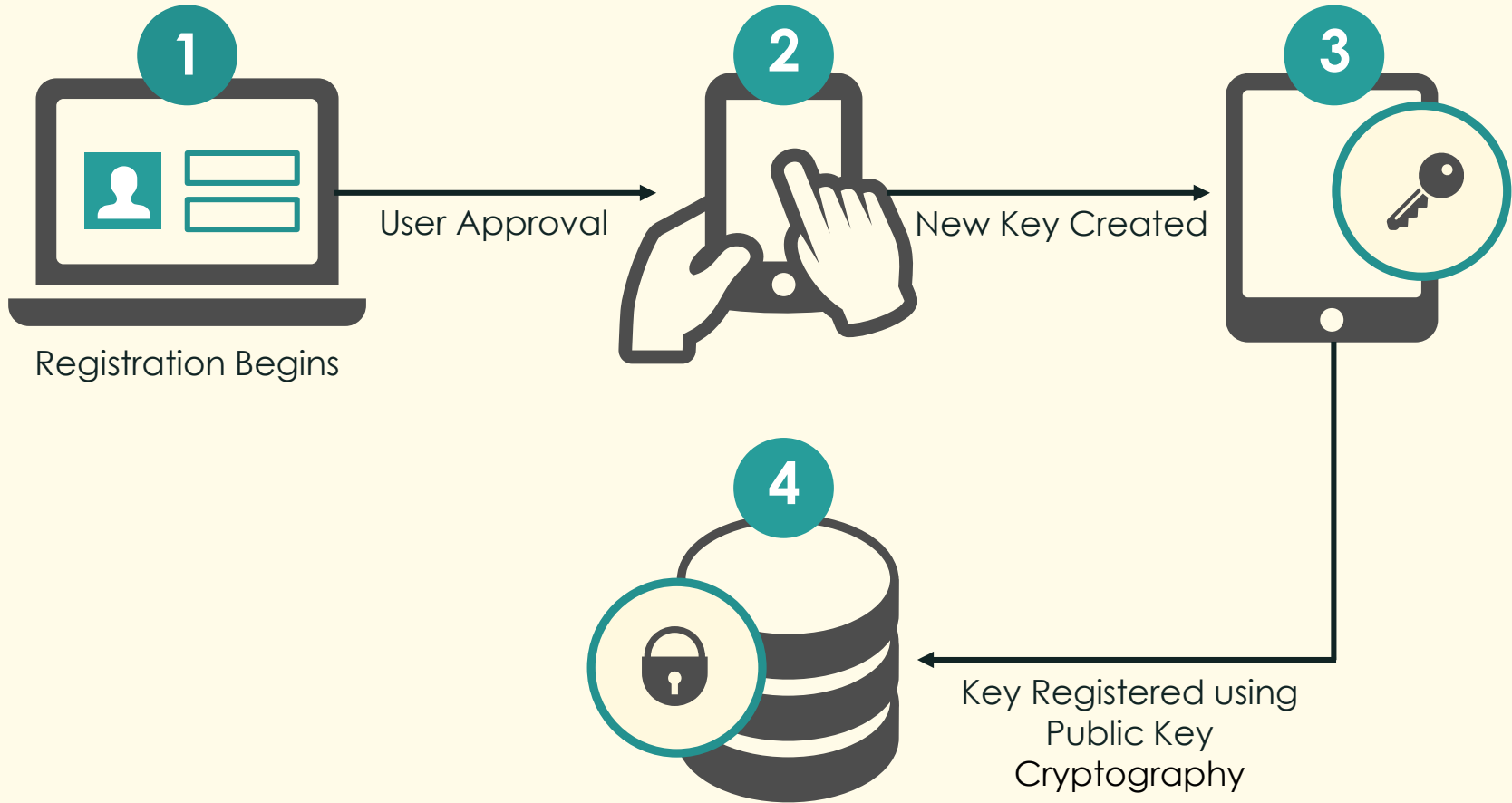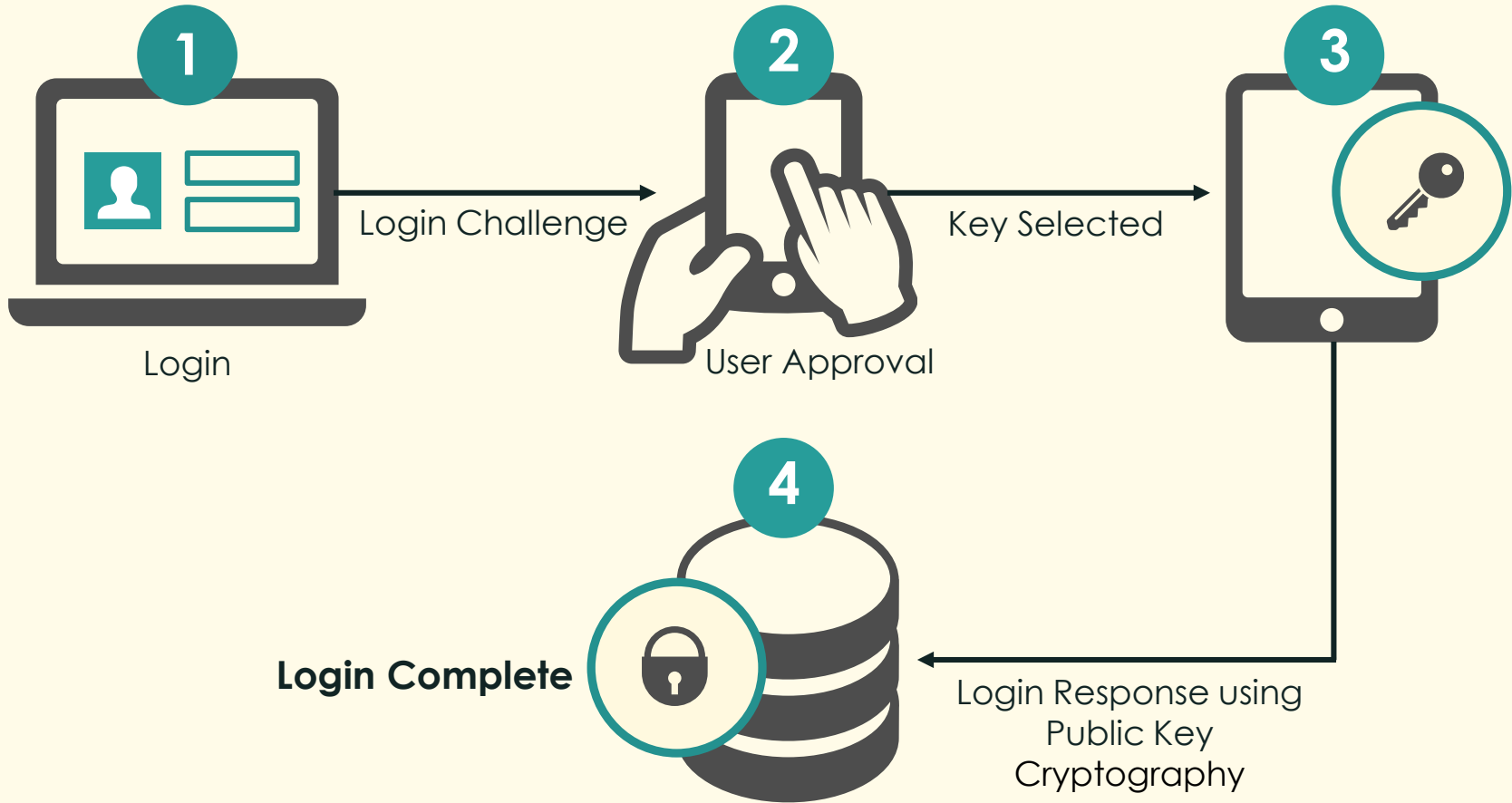
online authentication using
**public key cryptography**
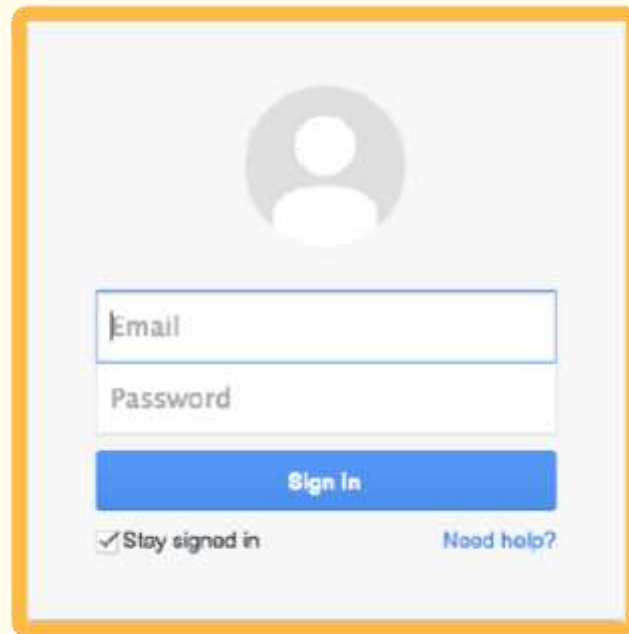
# FIDO UNIVERSAL 2<sup>ND</sup> FACTOR
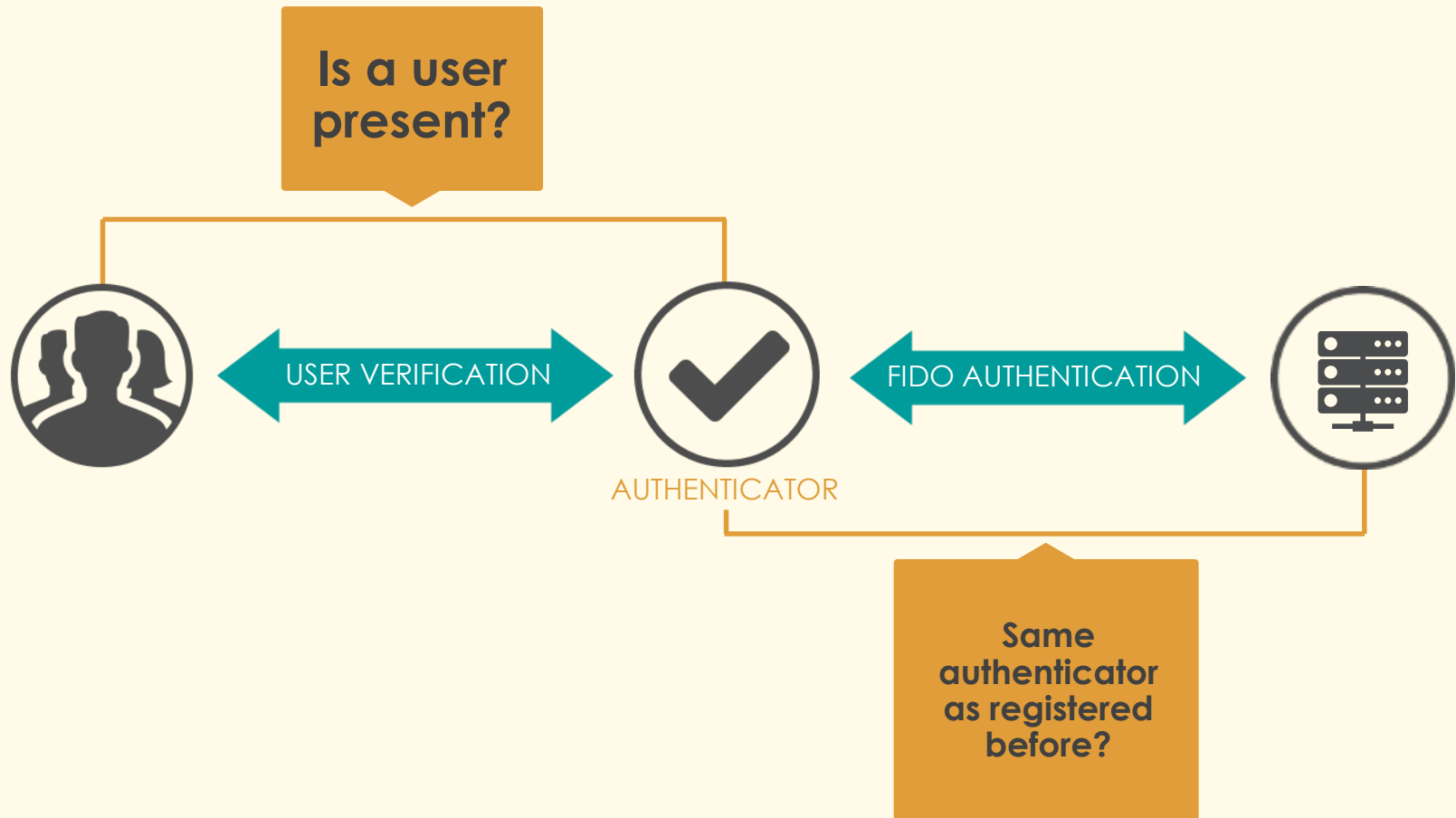
Is a user present?

USER VERIFICATION

AUTHENTICATOR

FIDO AUTHENTICATION

Same authenticator as registered before?

# Step 1
## U2F AUTHENTICATION DEMO EXAMPLE

# Step 2
## U2F AUTHENTICATION DEMO EXAMPLE

# Step 3
## U2F AUTHENTICATION DEMO EXAMPLE



2-Step Verification

Tip: You may need to tap or re-insert your security key.

Confirm using your security key

Use a verification code instead

☑ Don't ask for my security key again on this computer

# Step 4
## U2F AUTHENTICATION DEMO EXAMPLE

# FIDO UNIVERSAL AUTHENTICATION FRAMEWORK UAF

Same User as enrolled before?

Same Authenticator as registered before?

USER VERIFICATION

FIDO AUTHENTICATION
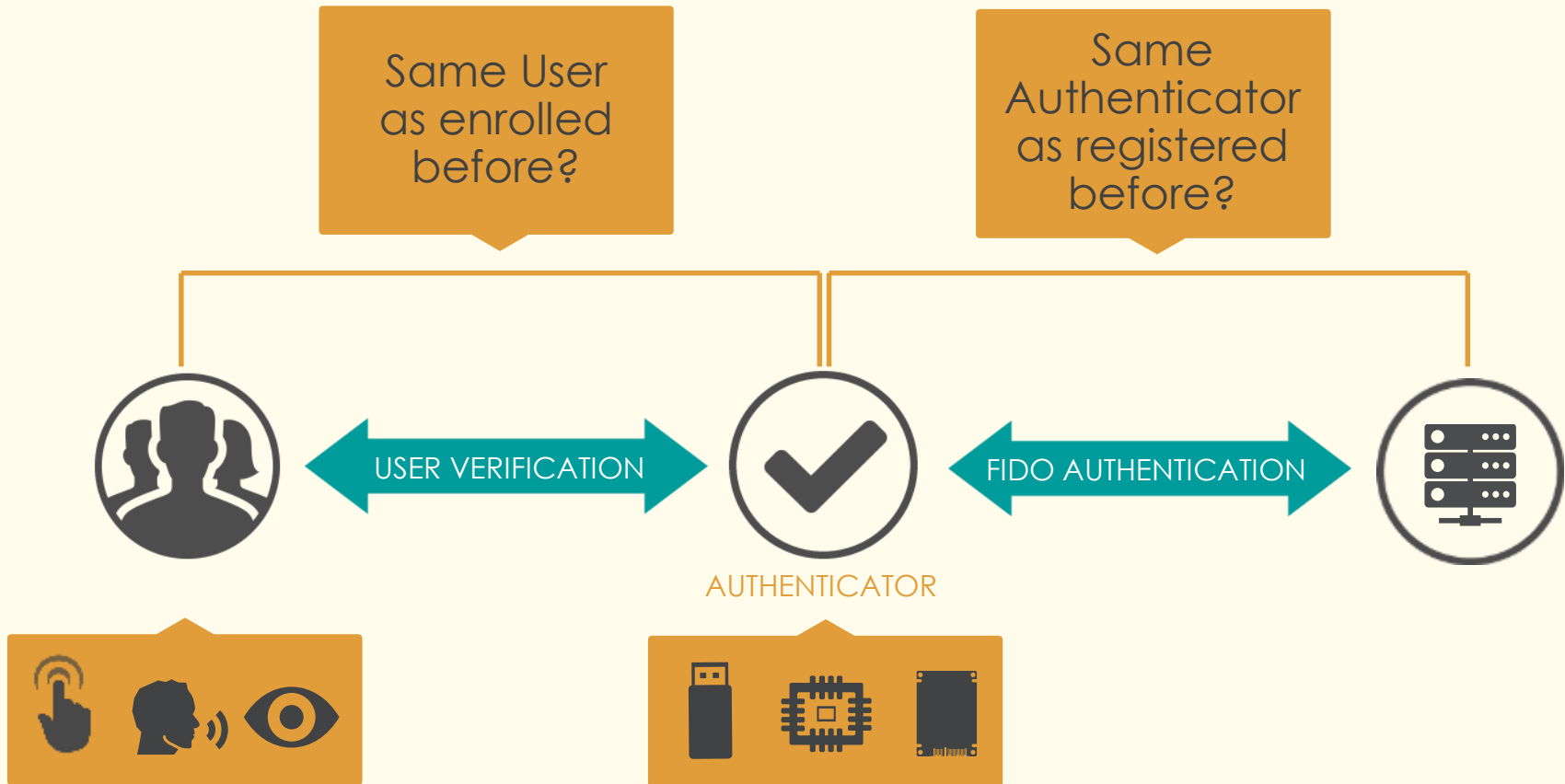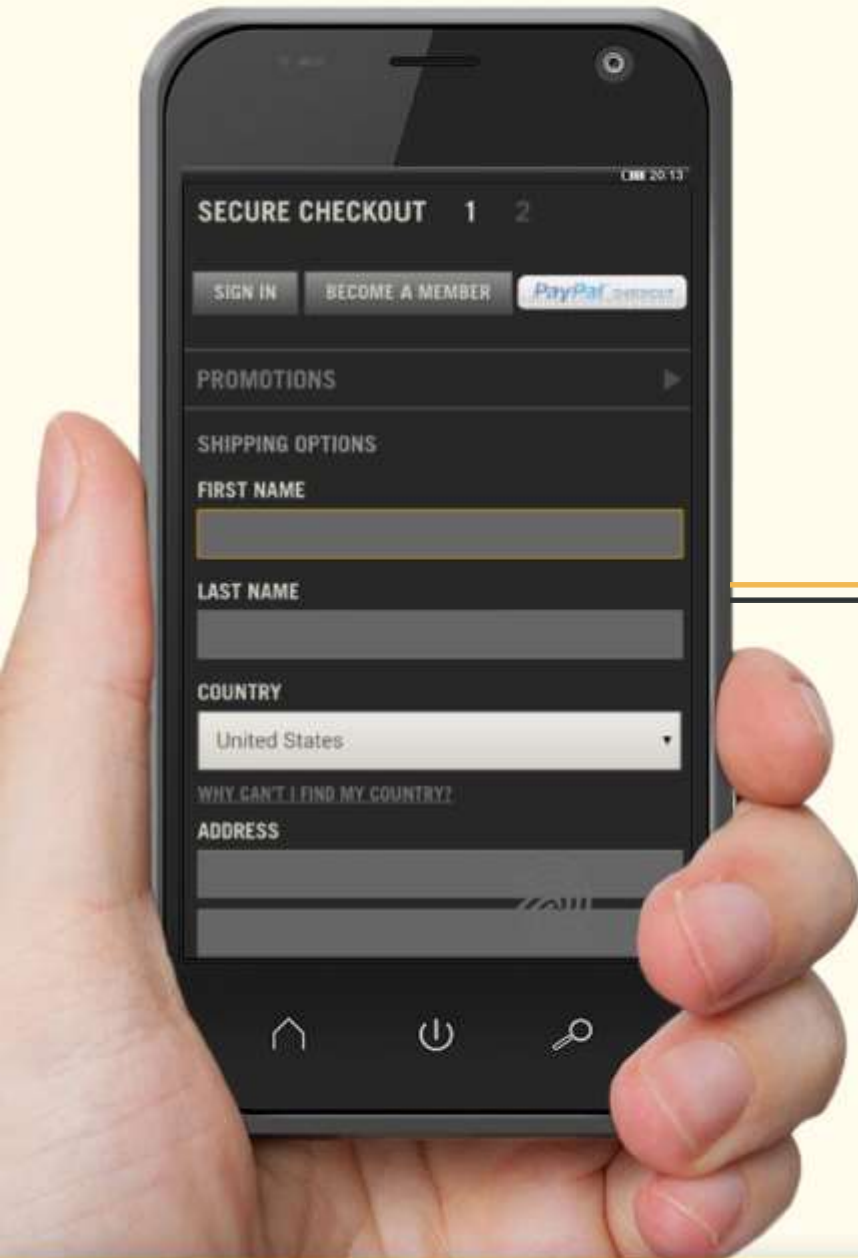
AUTHENTICATOR

# STEP 1

## UAF AUTHENTICATION DEMO EXAMPLE
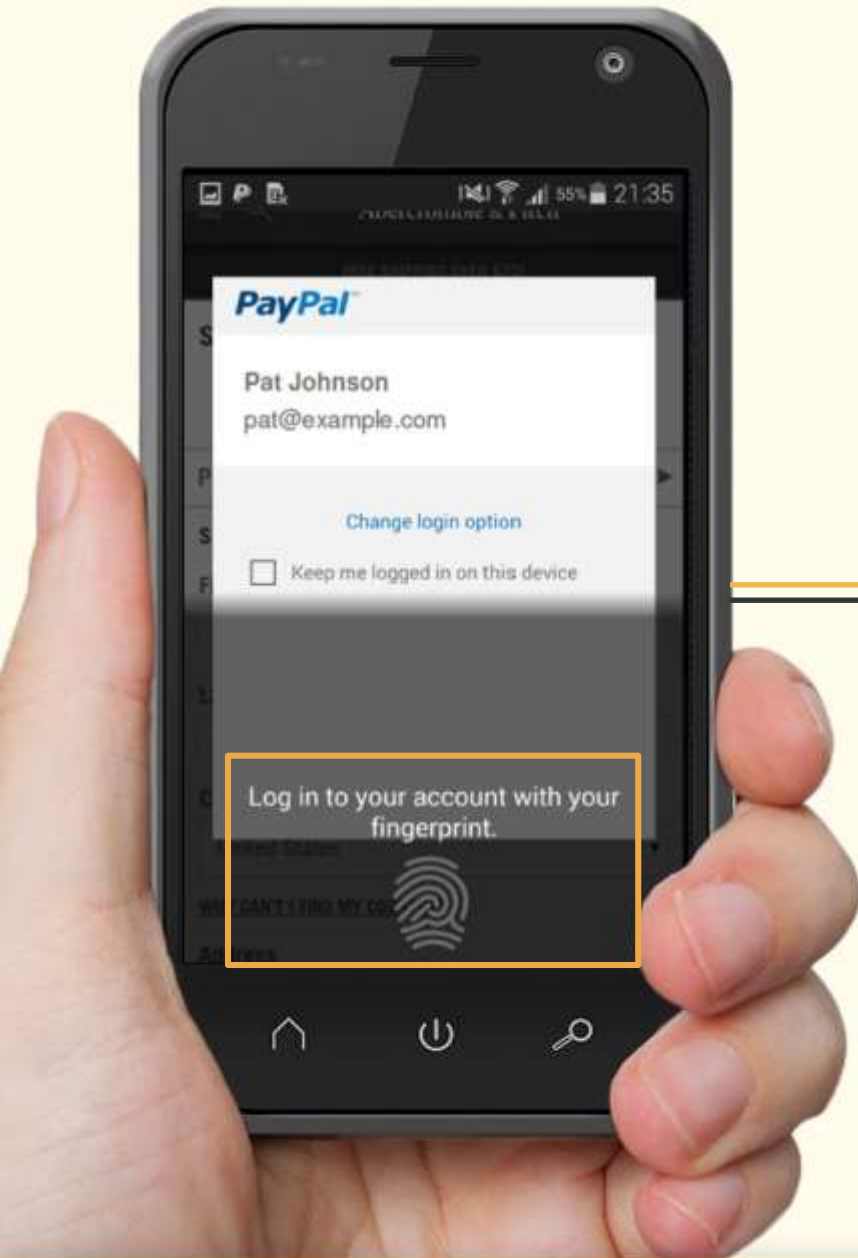
# STEP 2

## UAF AUTHENTICATION DEMO EXAMPLE

# STEP 3

## UAF AUTHENTICATION DEMO EXAMPLE
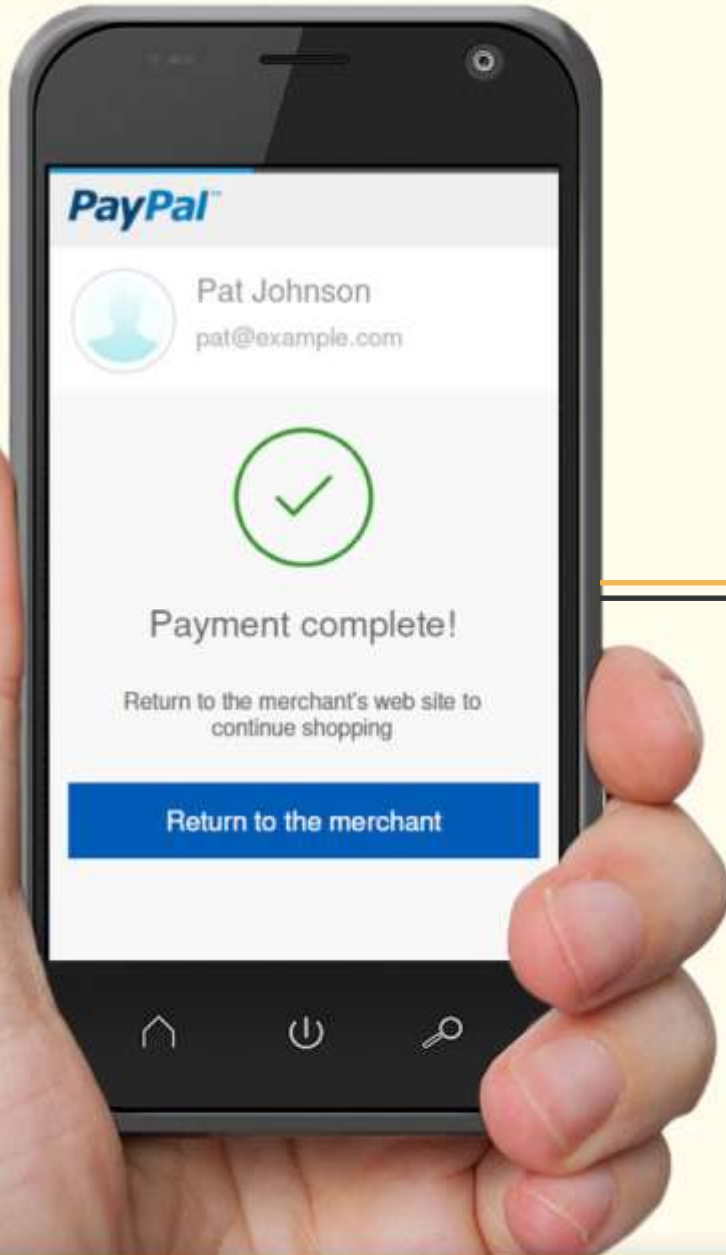
# STEP 4

## UAF AUTHENTICATION DEMO EXAMPLE

# USABILITY, SECURITY and **PRIVACY**

No 3rd Party in the Protocol

No Secrets on the Server side

Biometric data (if used) never leaves device

No link-ability between Services or Accounts

Better Security for **online services**

Reduced cost for the **enterprise**

Simple & Safe for **consumers**

The FIDO Alliance is an open association of more than 180 diverse **member organizations**

- ✓ Online Services
- ✓ Chip Providers
- ✓ Device Providers
- ✓ Biometrics Vendors
- ✓ Enterprise Servers
- ✓ Platform Providers



## Board Members
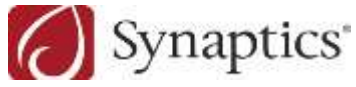
# FIDO TIMELINE
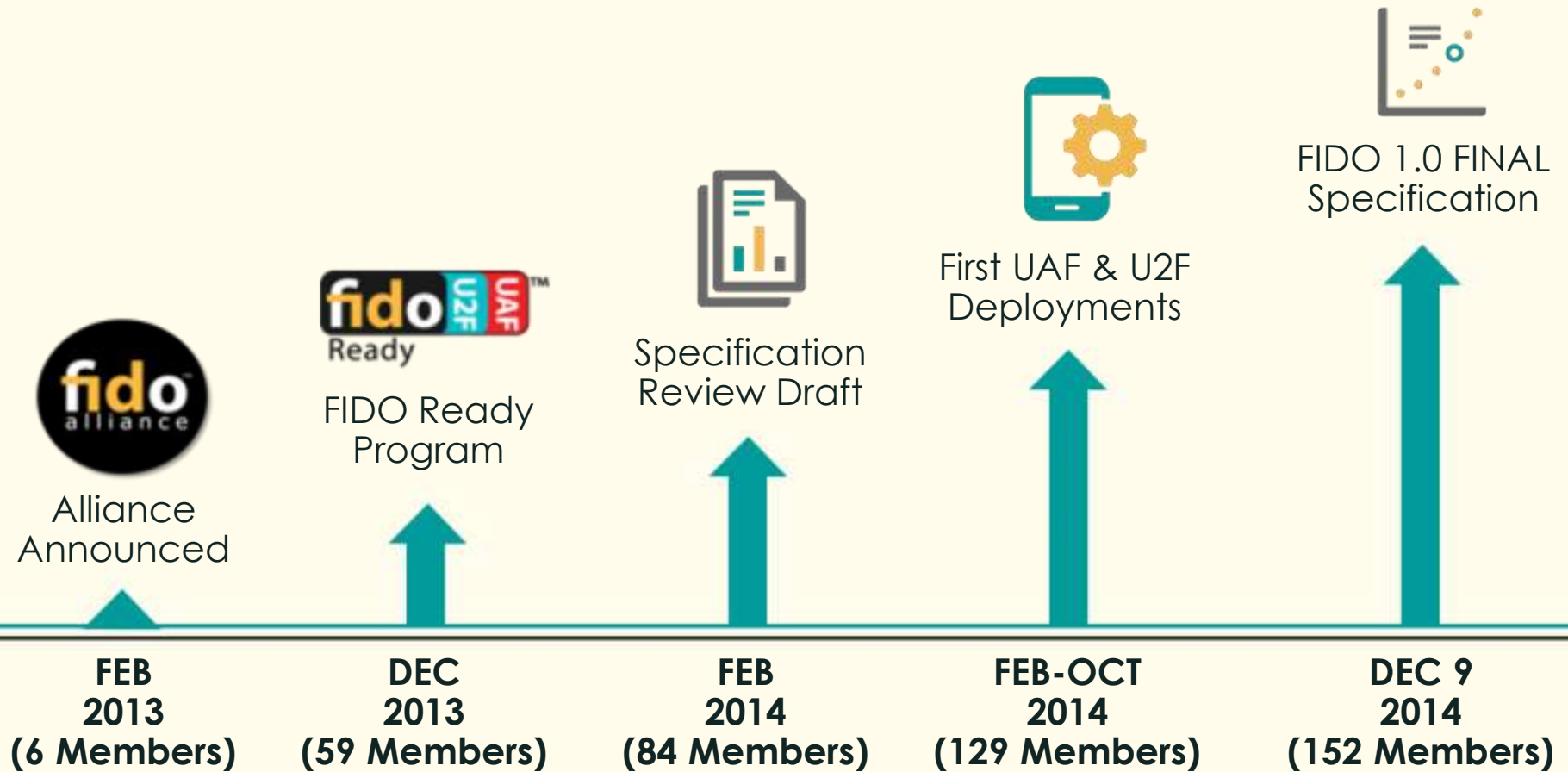


| FEB 2013 (6 Members) | DEC 2013 (59 Members) | FEB 2014 (84 Members) | FEB-OCT 2014 (129 Members) | DEC 9 2014 (152 Members) |
|---|---|---|---|---|
| Alliance Announced | FIDO Ready Program | Specification Review Draft | First UAF & U2F Deployments | FIDO 1.0 FINAL Specification |

A range of
**FIDO PRODUCTS**
is now available

| | |
|---|---|
| Online Services | Alibaba.com  PayPal  Google  PushCoin |
| Chip Providers | ARM  Infineon  NXP  ST |
| Device Providers | GO-Trust  SAMSUNG  FEITIAN  yubico  Sonavation  lenovo  plug-up  NEOWAVE  H |
| Biometrics Technology Providers | AGNITIO  CrucialTec  DIAMOND FORTRESS  DDS  Sonavation  egis  Synaptics  eyeLock |
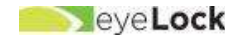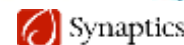
# Implementing 1.0 Specifications
## (this is only a subset of active implementations)

| | |
|---|---|
| Enterprise Servers | Nok Nok LABS  DUO  Entersekt  RCDevs  SurePass id  StrongAuth |
| Open Source | Google  yubico  WordPress |
| Mobile Apps/Clients | SAMSUNG  Nok Nok LABS  Entersekt  Google  android |
| WWW Browsers | Chrome  Firefox |

- ✓ **PayPal** continues FIDO enablement in improved mobile wallet app.
- ✓ **Google** has FIDO in Chrome and 2-Step Verification.
- ✓ **Samsung** adds FIDO enabled Touch authentication to Galaxy® S6

**2014 Deployments**

2-Step Verification

Tip: You may need to tap or re-insert your security key.

Confirm using your security key

Use a verification code instead

☑ Don't ask for my security key again on this computer

**PayPal**

Pat Johnson
pat@example.com

Change login option

☐ Keep me logged in on this device

Log in to your account with your fingerprint.

Samsung Galaxy S6 will feature touch sensor for fingerprint scanning

# FIDO in 2015

The significance of early 2015 announcements

- ✓ Windows used by 1.5 billion users
- ✓ Windows 10 in 190 countries by Q3
- ✓ Free upgrade for consumer



Microsoft

FIDO in Windows 10



THE VERGE

TRENDING NOW
NASA's wild experimental plane wing has 18 propellers attached to it

LOG IN | SIGN UP    LONGFORM    VIDEO    REVIEWS    TECH    SCIENCE    ENTERTAINMENT    DESIGN    BUSINESS    US & WORLD    F

PREVIOUS STORY
FCC chairman tries to convince Congress that Obama doesn't have a secret plan...

NEXT STORY
US scientists can soon run experiments on marijuana

MICROSOFT   TECH

Windows Hello lets you sign into Windows 10 devices with your face or finger

By Tom Warren on March 17, 2015 12:00 pm    @tomwarren

Windows

HOME   BLOGS   VIDEOS   WINDOWS.COM   NEWSROOM

Windows For Your Business

Microsoft Announces FIDO Support Coming to Windows 10

February 13, 2015 by Dustin Ingalls   PC   6 Comments

- ✓ Market leader to ship FIDO client
- ✓ 85+ OEMs as of Q4
- ✓ >1 billion Android devices shipped
- ✓ Innovative sensor

**QUALCOMM**

Nok Nok
LABS

## FIDO in Snapdragon

**ZDNet**

White Papers · Hot Topics · Downloads · Reviews · Newsletters

US Edition | Security · Data Center · Research · Windows · IoT and Big Data · Storage

MUST READ *The computers that will help scientists step closer to t*

Topic: *Emerging Tech*

Follow via:

## Qualcomm launches Snapdragon fingerprint scanning technology

**Summary:** *Based on government-grade technology, Qualcomm's Snapdragon Sense ID is said to go far beyond current biometric scanners.*

By Charlie Osborne for Between the Lines | March 2, 2015 -- 10:57 GMT (02:57 PST)

Follow @ZDNetCharlie  6,185 followers    Get the ZDNet Insights newsletter now

**Qualcomm Snapdragon**

**Qualcomm snapdragon**

| | |
|---|---|
| Produced | From 2008 to 2015 |
| Designed by | Qualcomm |
| Instruction set | ARM |
| Microarchitecture | Cortex-A8 / Cortex-A15 |
| Cores | 1/2/4 |
| Application | Mobile SoC |
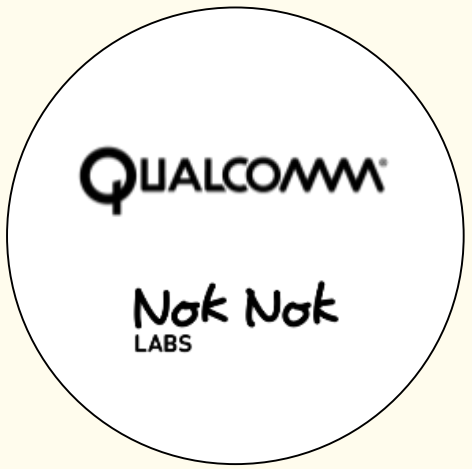
Most Popular · Lists · Video · Subscribe to Forbes · Search

## Qualcomm Is The No.1 Player In The The Global Baseband & Application Processor Market

Qualcomm is currently the leader in the global cellular baseband chip market as well as the smartphone applications processor market, with a 64% and 51% share in the two segments, respectively. According to research firm Strategy Alalytics, LTE basebands

- ✓ First healthcare deployment
- ✓ Physician access to health records
- ✓ up to 50 million Healthcare users



FIDO in Healthcare



FIDO Alliance Members MedImpact and Nok Nok Labs to Deliver FIDO Authentication to Physicians, an Industry First for Healthcare
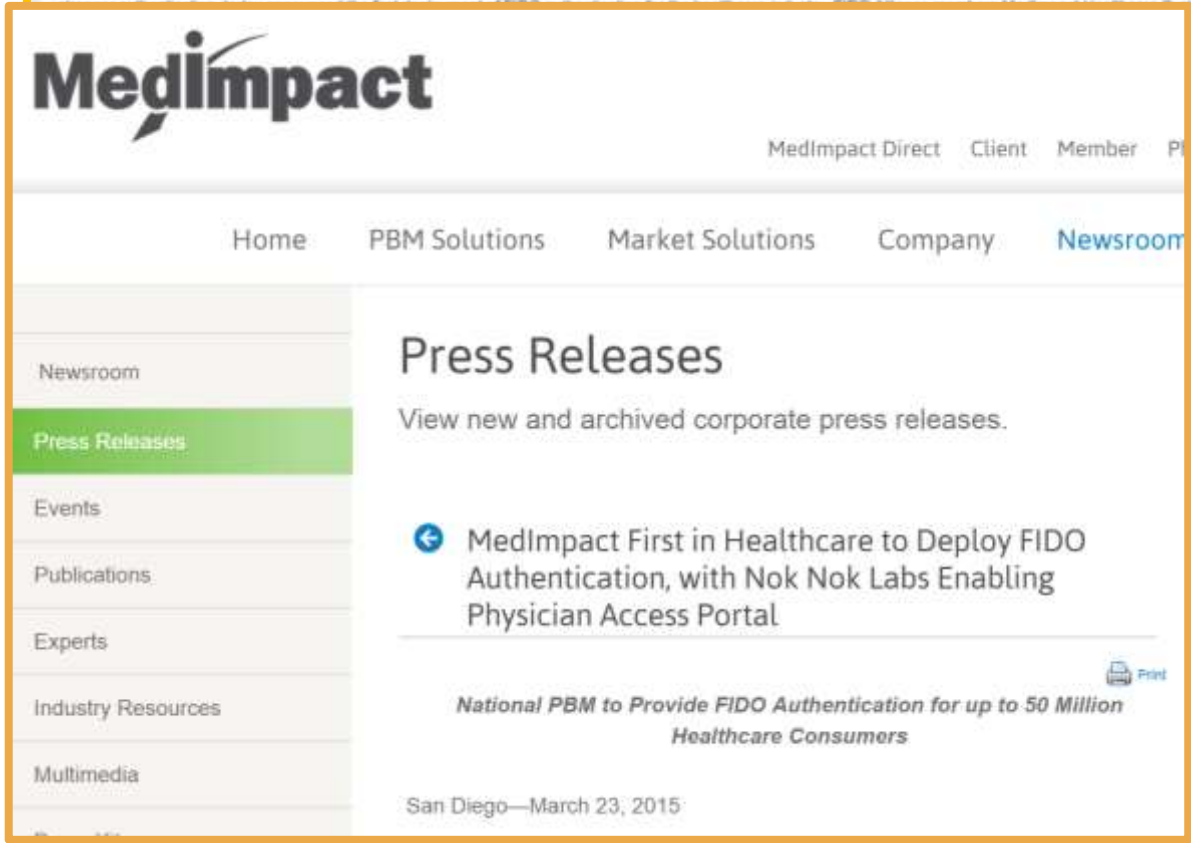
March 23, 2015: 10:00 AM ET

MARKETWIRED

The FIDO (Fast IDentity Online) Alliance (https://www.fidoalliance.org/), an industry consortium launched in 2013 to revolutionize online security with open standards for simpler,

**MedImpact**

MedImpact Direct    Client    Member    P

Home    PBM Solutions    Market Solutions    Company    Newsroom

Newsroom

Press Releases

Events

Publications

Experts

Industry Resources

Multimedia

Press Releases

View new and archived corporate press releases.

● MedImpact First in Healthcare to Deploy FIDO Authentication, with Nok Nok Labs Enabling Physician Access Portal

🖨 Print

National PBM to Provide FIDO Authentication for up to 50 Million Healthcare Consumers

San Diego—March 23, 2015

- ✓ **Google for Work** announced Enterprise admin support for FIDO® U2F "Security Key" – April 21
- ✓ Google for Work is used by over 5 million businesses worldwide
- ✓ "The Security Keys are a great step forward, as they are very practical and more secure." – Woolsworth IT

## FIDO in Enterprise



### The Key for working smarter, faster and more securely

Posted: Tuesday, April 21, 2015

Posted by Eran Feigenbaum, Director of Security, Google for Work

It's easier than ever to share ideas across the world. But as technology keeps advancing to connect us, so do the techniques of those with bad intentions. The number of records breached in 2014 was staggering; weak usernames and passwords remain the leading cause. The introduction of 2-Step Verification added a layer of security for your Google Account, but we knew more could be done.

That's why Google, working with the FIDO Alliance standards organization, developed the Security Key — an actual physical key used to access your Google Account. It sends an encrypted signature rather than a code, and ensures that your login cannot be phished. And using this key saves you time — when you need to verify your Google Account on a Chrome browser, the key's light will flash. Just tap it and the signature sends automatically. In fact, when we rolled the Security Key out to Googlers last year, they loved that it was so much faster than when they had to enter a code.

New Google Apps controls to manage Security Keys

Businesses like Yelp and Woolworths started piloting the Security Key at work and have been looking for ways to

amazon Prime

1-16 of 18 results for ""FIDO U2F Security Key""

FIDO U2F Security Key by Yubico

$17.99 Prime
In Stock

More Buying Choices
$10.00 new (2 offers)

FIDO U2F Security Key by Plug-up International

$5.99

More Buying Choices
$5.99 new (2 offers)

- ✓ Governments worldwide are looking at FIDO
- ✓ FIDO featured at White House Summit
- ✓ **New** collaboration framework…



## FIDO & Government



**Governments Prioritize Strong Authentication in Cybersecurity and Consumer Protection**

by Ramesh Kesanupalli, FIDO Alliance Vice President

*2013 Data Breach Investigations Report (conducted by Verizon in concert with the U.S. Department of Homeland Security) noted that* <u>*76% of 2012 network intrusions exploited weak or stolen credentials*</u>.

**-- NIST Roadmap for Improving Critical Infrastructure Cybersecurity**,12-Feb-2014

Announcing…
**New Government Membership Class**

➤ Reflecting an increased focus on Government collaboration worldwide

➤ Details to be published early next quarter when legal framework is finalized

JOIN THE
**FIDO ALLIANCE**

# EXPERIENCE SIMPLER, STRONGER AUTHENTICATION