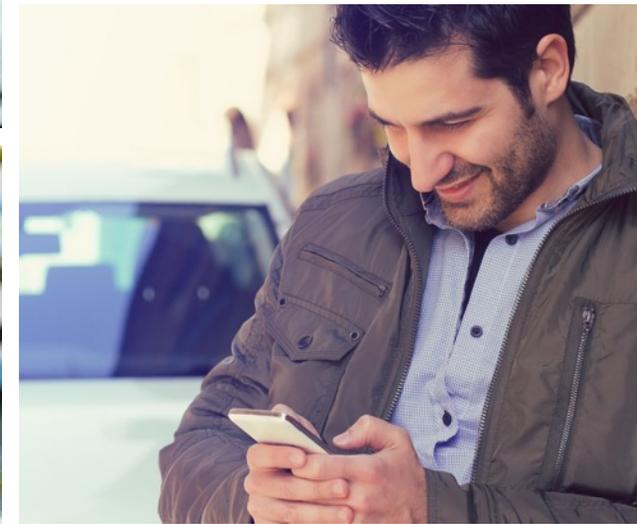




# Leveraging Blockchain to Restore Trust & Security in the Digital Economy

Greg Wolfond, CEO

Salavat Nabiev, Solutions Engineer



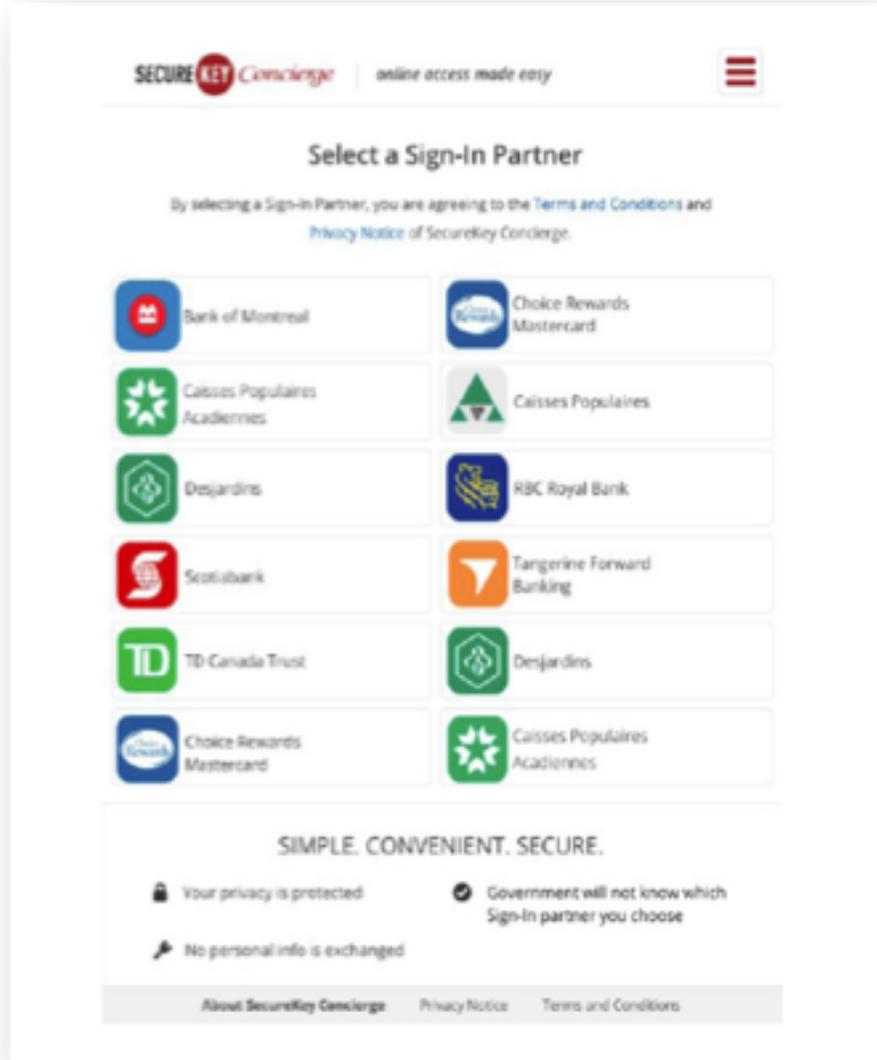
# About SecureKey



- ✓ Founded in 2008
- ✓ Headquartered in Toronto, Ontario; offices in Ottawa, Montreal, Boston, San Francisco
- ✓ **Mission:** to build highly scalable trusted identity networks that enable organizations to quickly and easily deliver high-value online secure services
- ✓ Powering Major National Digital ID Networks in Canada, US and UK
- ✓ World-class group of venture and corporate investors, strategic partners



# SecureKey Concierge



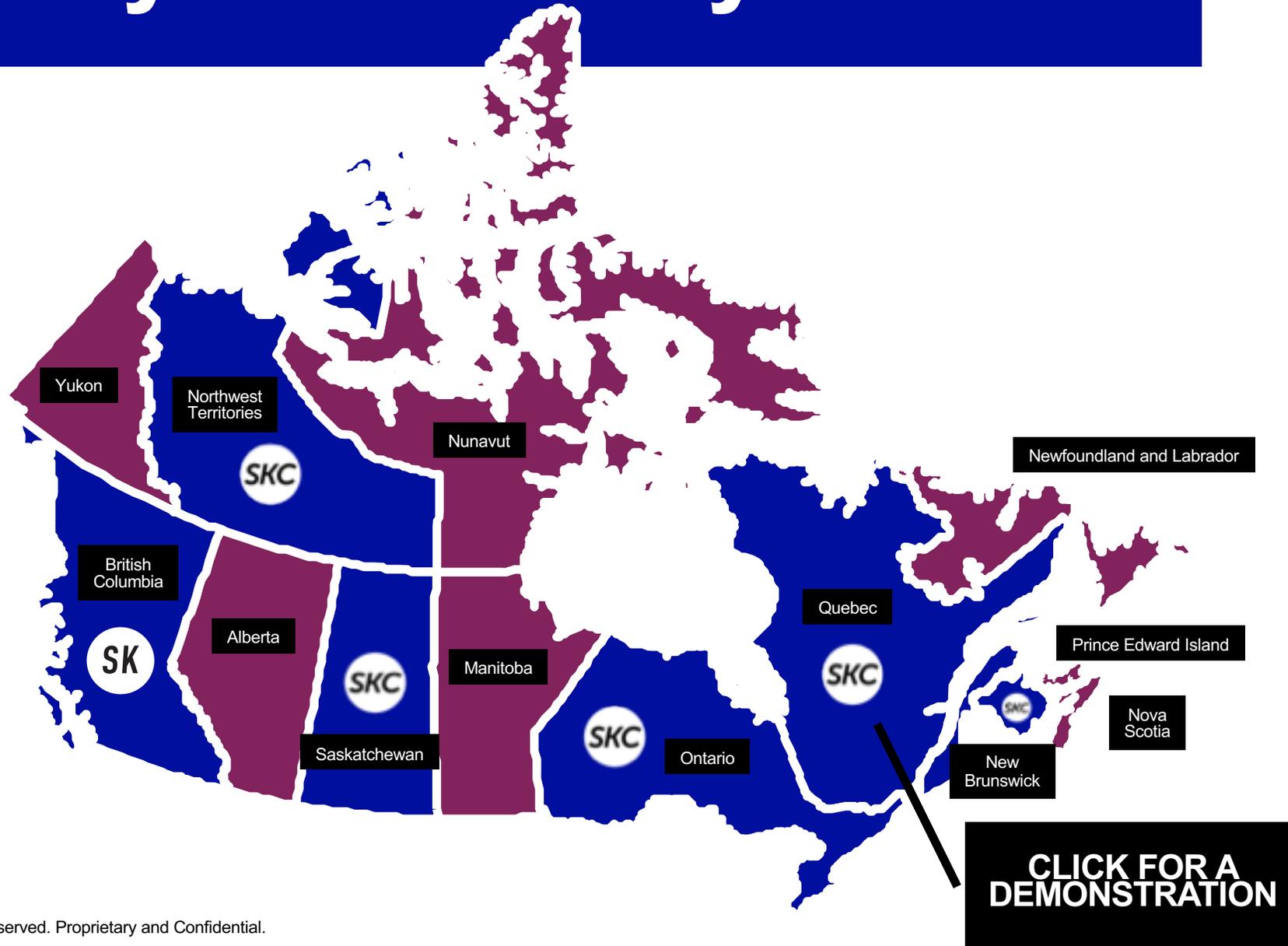
- 80+ departments
- 8 million registrations
- 99.99 availability
- Integrated at Affinity Credit Union, ATB Financial, BMO, Choice Rewards, CIBC, Desjardins, Caisses Populaires, National Bank, RBC, Scotiabank, Tangerine, TD, UNI
- Full customer indemnity agreements, call center support, soft handoffs, operational processes in place.

## Canadian Revenue Agency

<https://www.canada.ca/en/revenue-agency/services/e-services/e-services-individuals/account-individuals.html>

*Selection Option 1 – Sign-In partners >*

# SecureKey Provincially



# BC Services Card

SECURE **KEY**



- EMV chip in the Card
- Enables service for the lowest common denominator
- One Card Vs 2 in the Province
- Eliminated Fraudulent Cards
- Includes the reader software and mobile reader/validator
- 4 million+ cards in market

# Identity validation is broken

It needs to work in:

- ✓ Call centre
- ✓ In person
- ✓ Online



# Data Breaches 2017



2017: A NEW "WORST YEAR ON RECORD" WITH OVER 5,200 BREACHES EXPOSING 7.8 BILLION RECORDS

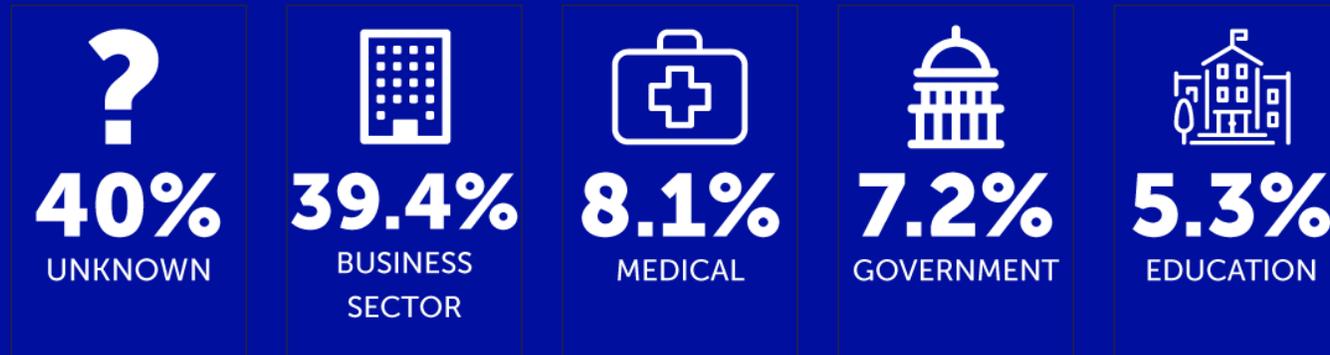
7,800,000,000

**7.8 BILLION**  
records were exposed in  
all of 2017

**5,200** publicly  
reported data breaches  
in 2017

**20,832** published  
vulnerabilities in all  
of 2017

## DATA BREACHES BY INDUSTRY IN 2017



STATISTICS FROM: VULNDB – RISK BASED SECURITY; DATA BREACH QUICKVIEW

# Driver's License: the Gold Standard?



vocativ NEWS SCIENCE TECH CULTURE LIFE

cyber security

## Hackers Spoof Samsung Iris Scanners With A Photo And Contact Lens

The new iris scanner on Samsung's Galaxy S8 makes it painfully easy for criminals to unlock your phone

f t



By Joshua Kessler  
May 28, 2017 at 3:28 PM ET

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The Telegraph HOME NEWS SE

## Technology

News | Reviews | Opinion | Internet security | Social media | Apple | Google

Technology

### Peace sign selfies could let hackers copy your fingerprints

f d t



Savvy fraudsters could recreate fingerprints from photos. [View all](#)

By [Cara McGoogan](#) and [Danielle Demetrio](#), TOKYO  
12 JANUARY 2017 - 11:05AM

Researchers at Japan's National Institute of Informatics (NII) have found that fingerprints can be easily recreated from photos taken up to three metres away without the need for advanced technology. So long as the picture is clear and well-lit, prints can be mimicked.

Forbes / Security / #CyberSecurity

GAP cyber monday 50% OFF EVERYTHING

NOV 27, 2017 @ 05:10 AM 4,332 EDITOR'S PICK

### Apple Face ID 'Fooled Again' -- This Time

Thomas Fox-Brewster, FORBES STAFF  
*Cover crime, privacy and security in digital and physical forms.*  
[FULL BIO](#)



Researchers say Apple Face ID on the iPhone X isn't secure, but others wonder

The Vietnamese hackers who [claimed](#) earlier this month to have fooled Apple's Face ID with a mask costing less than \$150 are back. But this time, their evidence is more compelling.

Whereas in their previous attack researchers from Vietnamese cybersecurity company Bkav didn't show the enrolment process, or how long it took from that point to opening an iPhone X with the mask, in a new proof of concept, they appear to do both. A video shows the Face ID facial recognition enrolment being reset. Then the researcher enrolls his own face and seconds later unlocks it with a mask made of a 3D-printed visage constructed of stone powder, with 2D-printed eyes stuck on.

# Solving Identity Requires...

SECURE **KEY**



**What I Know**



**What I Have**



**What I Am**

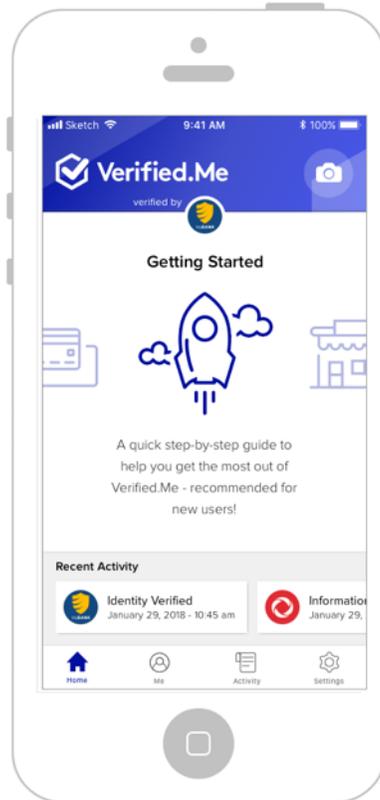
SECUREKEY  
RAISES  
\$30 MILLION  
FROM MAJOR  
BANKS  
TO DEVELOP  
DIGITAL  
IDENTITY  
NETWORK



# Trusted Identity In Your Control

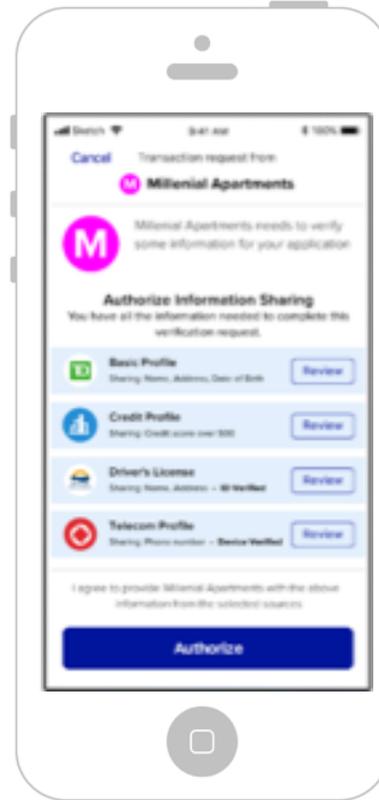


A new service for customers to manage their digital identity



Users connect with their bank and other trusted providers, layering information

Enables safe and secure sharing of personal information



Companies request information, users review and approve for real time delivery directly from trusted provider(s)

High assurance by combining multiple factors, channels and ID claims

What I Know



What I Have

What I Am

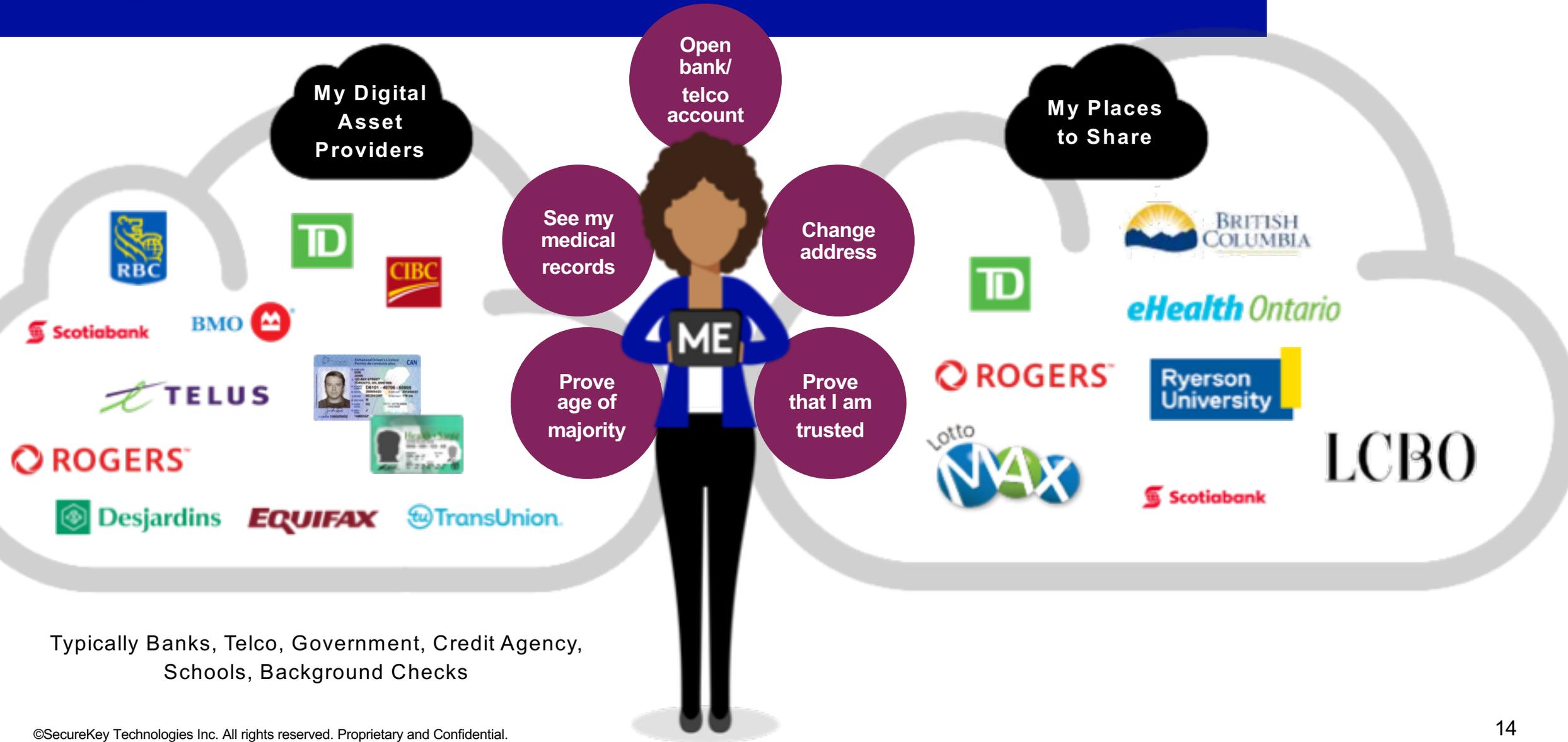


# Identity & Other Claims



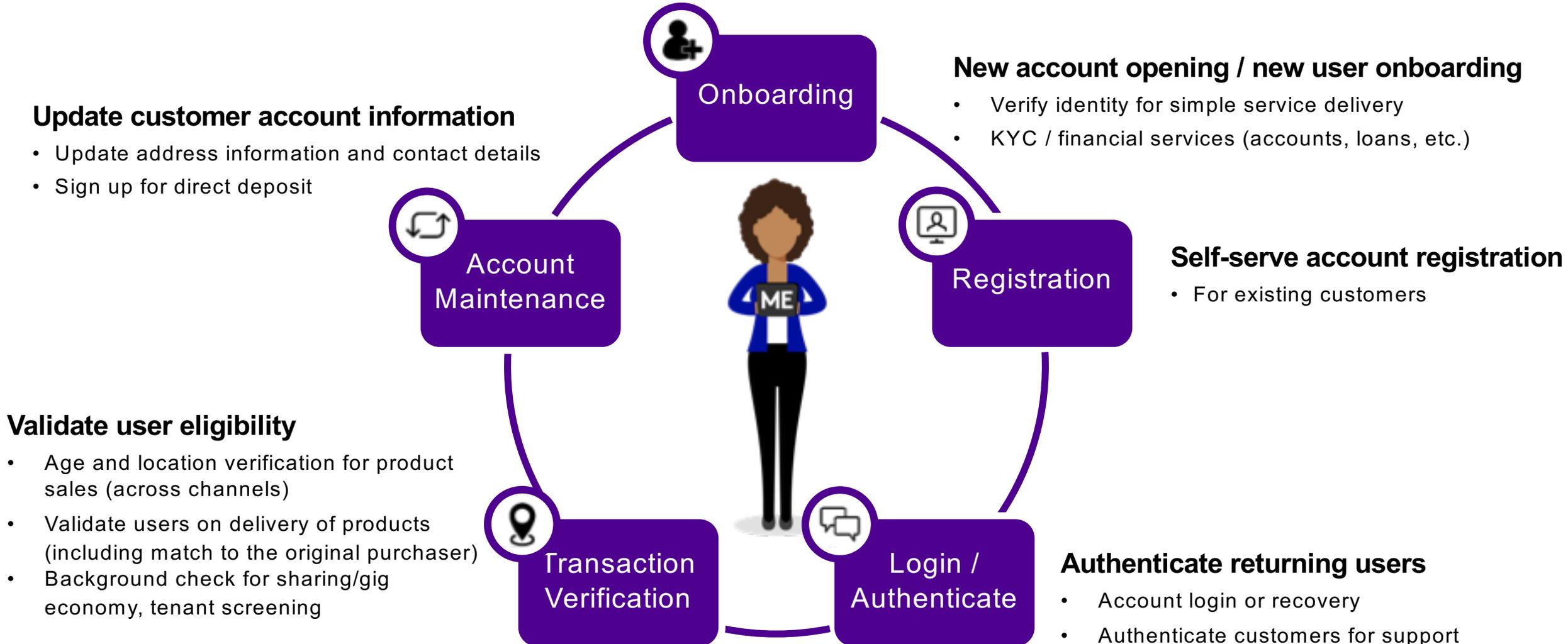
# Digital Assets & Destinations

SECURE KEY



Typically Banks, Telco, Government, Credit Agency, Schools, Background Checks

# Verified Claims matter!



# Where we are

Verified Service



## ✓ Canada

### ✓ Finalizing system and testing with:

- ✓ Banks
- ✓ Telcos
- ✓ Insurance
- ✓ Government
- ✓ Universities
- ✓ Credit Agencies
- ✓ Others.



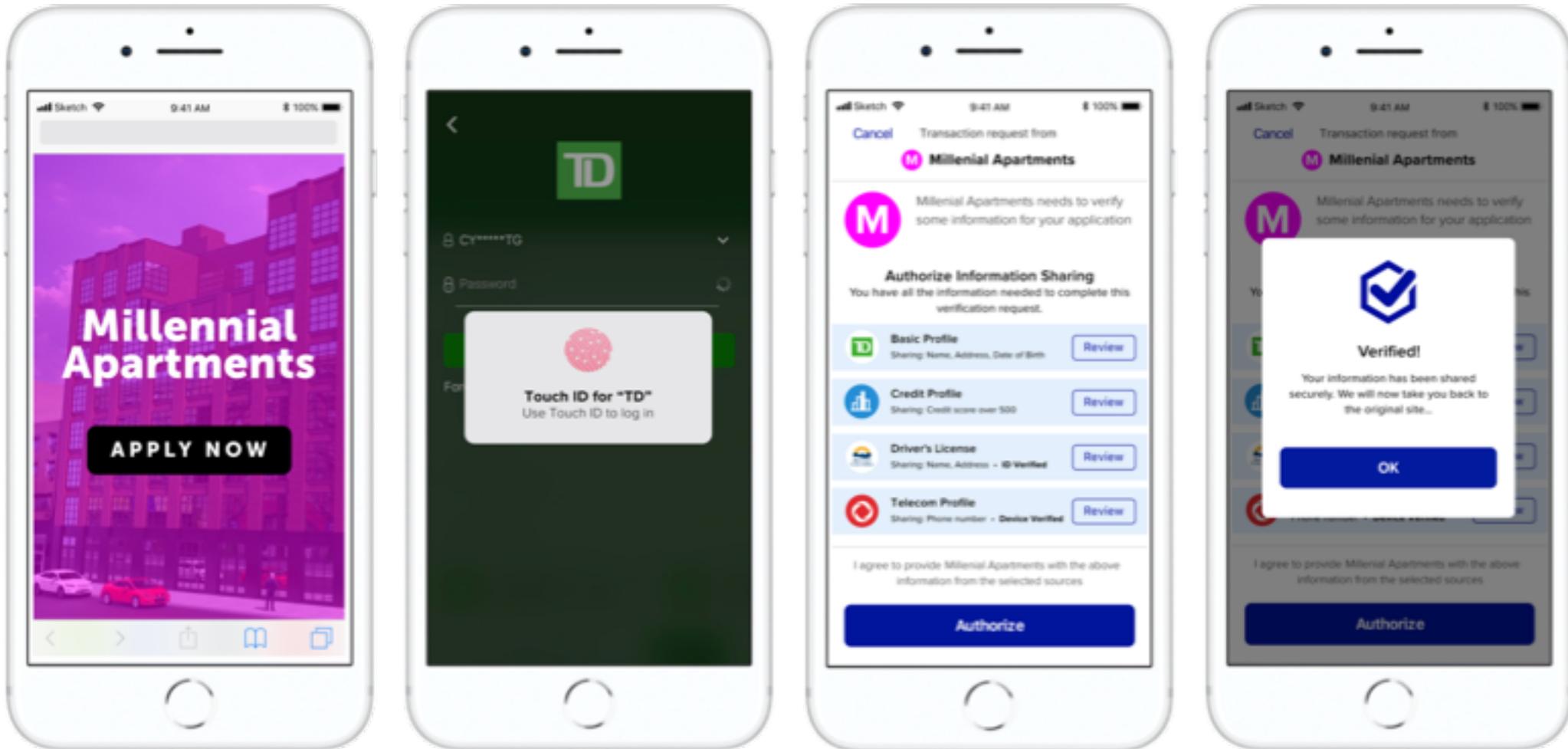
### ✓ Q3 2018 commercial launch



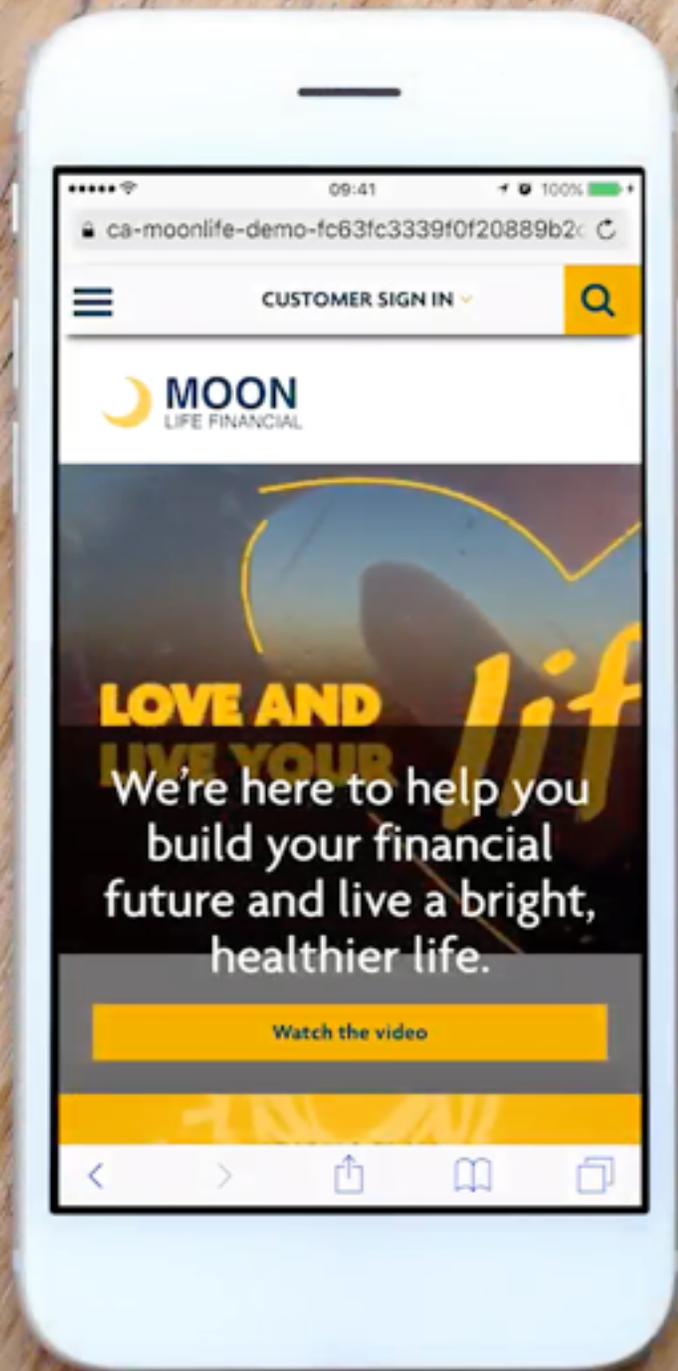
**SECURE** **KEY**

**DEMOS**

# It Has to Work Online







09:41 100%

ca-moonlife-demo-fc63fc3339f0f20889b2

CUSTOMER SIGN IN

MOON  
LIFE FINANCIAL

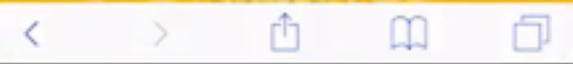
LOVE AND

LIVE YOUR

life

We're here to help you  
build your financial  
future and live a brighter,  
healthier life.

Watch the video





## LOGIN

USERNAME

PASSWORD

[FORGOT YOUR USERNAME?](#)  
[FORGOT YOUR PASSWORD?](#)

[LOGIN](#)

New to **MyChart™**? It's easy to start

[REGISTER](#)

Please [CLICK HERE](#) for further information on how to become a **MyChart™** member.

# REGISTRATION

Please choose the organization you are registered with:

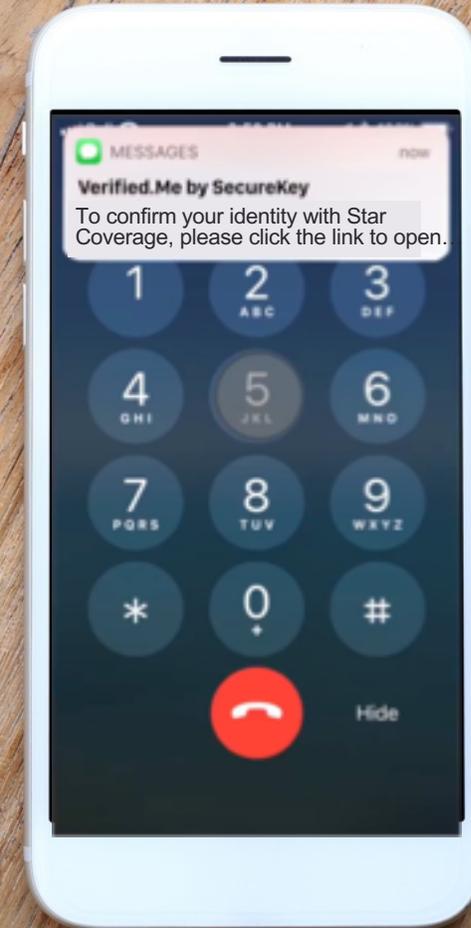


# It Has to Work in the Call Centre



“ Please enter your mobile phone number, and remain on the line.

In a few moments we will send you a text message with a link to create or verify your Star Coverage account using our digital identity partner app, Verified.Me. ”



Cancel

### Request from STAR COVERAGE



Please share your information  
with STAR Coverage



Credit  
Profile



Base  
Profile



Ready  
to Share



**My Bank**

Sharing: Base Profile

Review

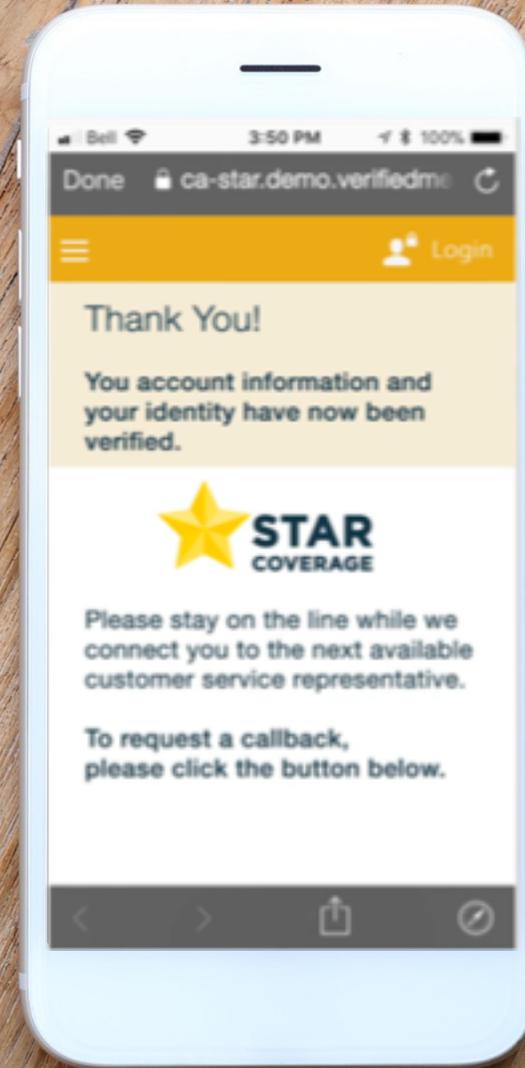
By tapping **Submit**, you agree to share information  
from the above sources with

Submit

“

Thank you. We have verified your identity and policy details. Please stay on the line, a customer representative will be with you shortly.

”







verified **me**

### In order to connect you need to scan your Health Card!

You are about to make a connection to Verified.Me. This will allow you to provide Document information to other Identity Consumers

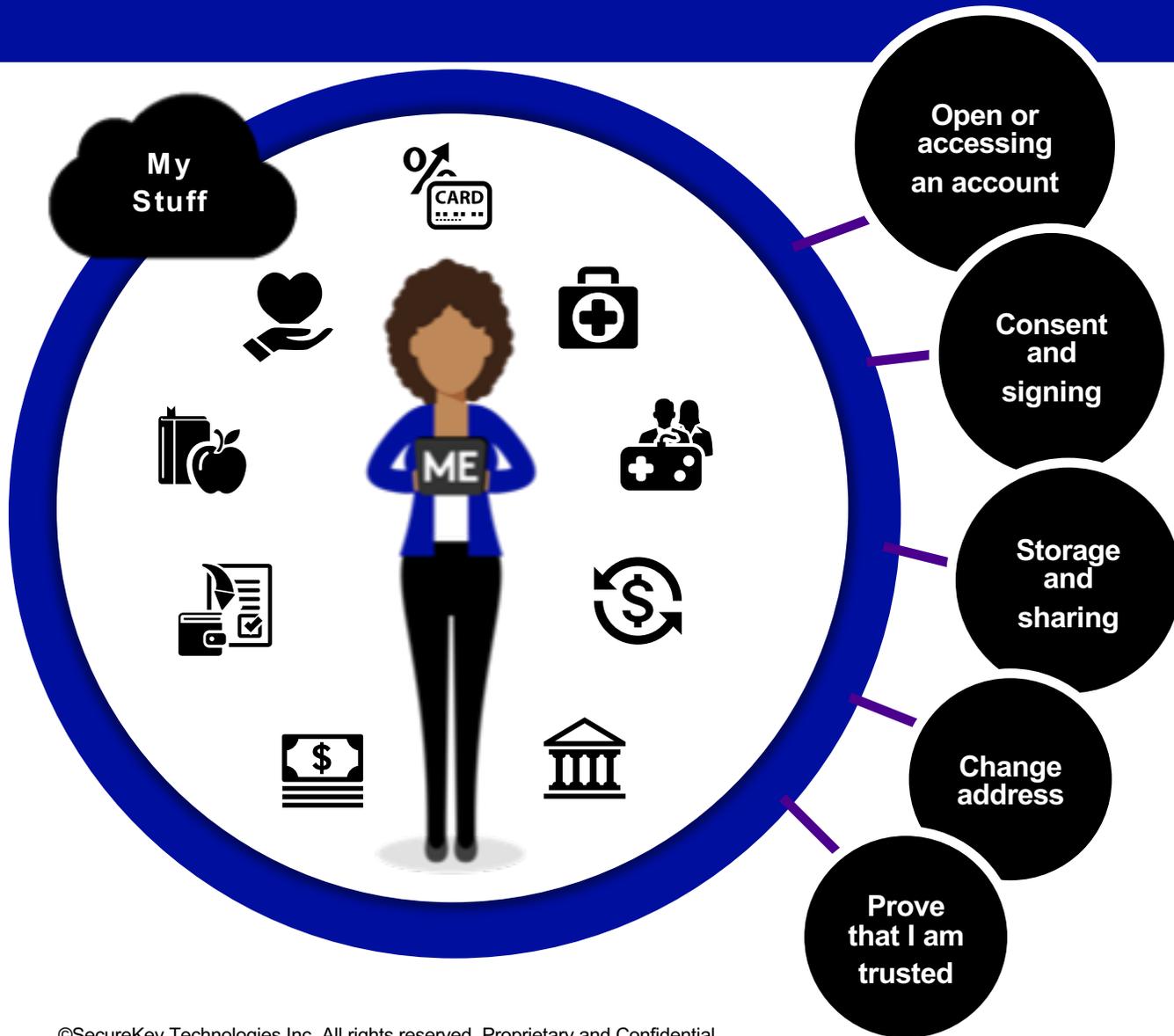
What kind of information can I provide?

Cancel

Scan Document

# You Are You

SECURE **KEY**



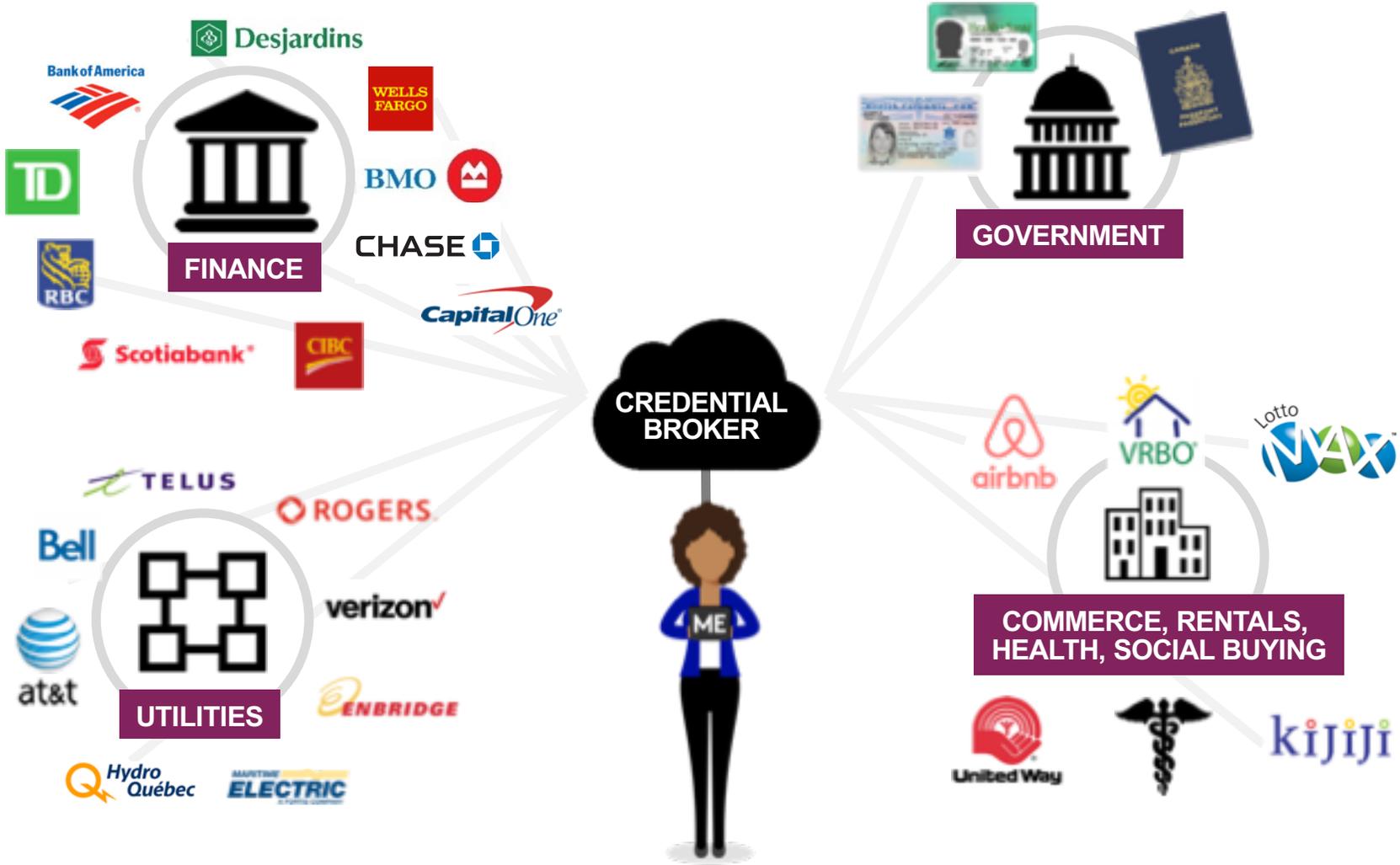
- ✔ Putting consumer in middle
- ✔ Frictionless experiences
- ✔ Strong ID Validation
  - Multiple sources
- ✔ Strong Auth:
  - What I know
  - What I have
  - What I am
  - Privacy first



**BUILT ON  
HYPERLEDGER FABRIC**

# Identity in the Present

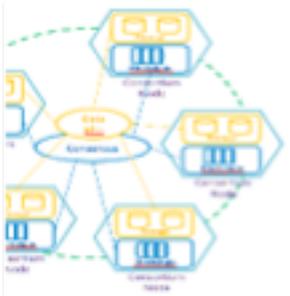
## Central Credential Broker



- PROS**
- Easier to connect
- CONS**
- Honest but Curious
  - Single Point of Failure
  - Often requires or builds honeypots of data (big fraud target)
  - User Tracking
  - Central mapping opens the data – relying on controls

# Identity in the Future

Utilizing Strong Distributed Ledger Capabilities



- PROS**
- No Data visible to network operator
  - No central database or honeypots
  - No central point of failure
  - Triple Blind – PRIVACY
  - Cannot track user across relying parties
  - Scalable
  - Resiliency to DDOS

# Building the Future of Identity



- ✓ Resiliency against denial of service attacks
- ✓ No honeypots of data
- ✓ Consumer centric with a strong consent model
- ✓ Separation of Authentication and Attestation Service Providers
- ✓ Triple blind privacy matter – where Data Providers and Data Consumers are blinded from each other and Broker Operator can not observe data
- ✓ Standard - OAuth 2.0 / OpenID Connect
  
- ✓ **Needed Blockchain**

# BASIS FOR VERIFIED PRIVACY ARCHITECTURE

Verified  
Service

## Regulations, standards, guidance...

### NIST

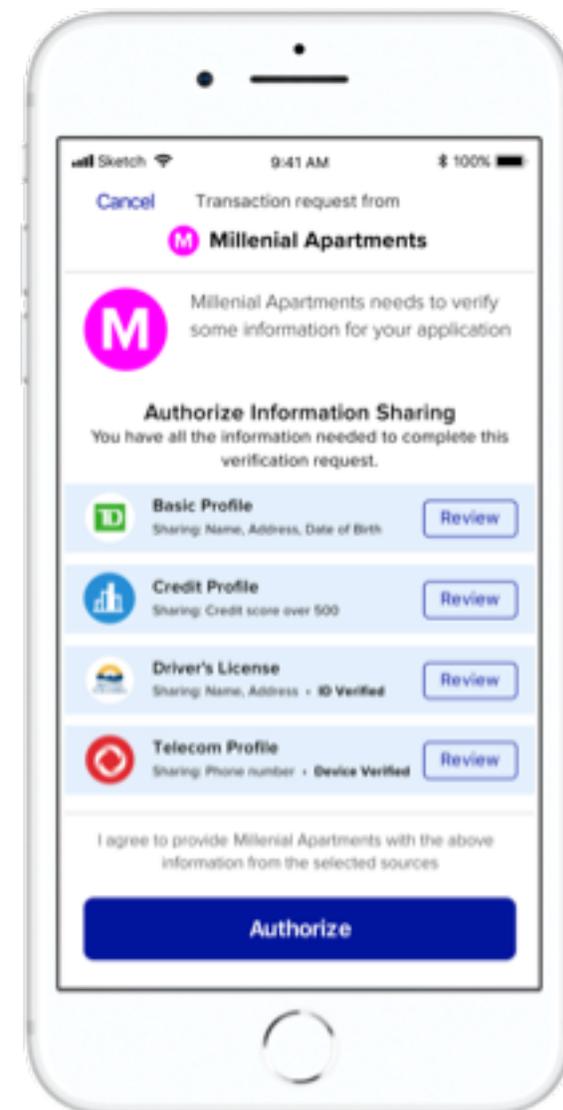
-  Privacy Enhanced ID Federation Building Block
-  SP 800-63-3 Digital Identity Guidelines
-  NISTIR 8062 An Introduction to Privacy Engineering and Risk Management in Federal Systems

### Privacy by Design

-  Global recognition

### GDPR

-  Modifications took effect May 25, 2018



“ The Department of Homeland Security (DHS) Science & Technology Directorate (S&T) is funding a project with SecureKey to help develop the framework of an identity ecosystem. This partnership with Digital ID & Automation Council of Canada (DIACC) and the Command Control of Interoperability Center for Advanced Data Analytics (CCICADA) ensures privacy and security are of the utmost importance.

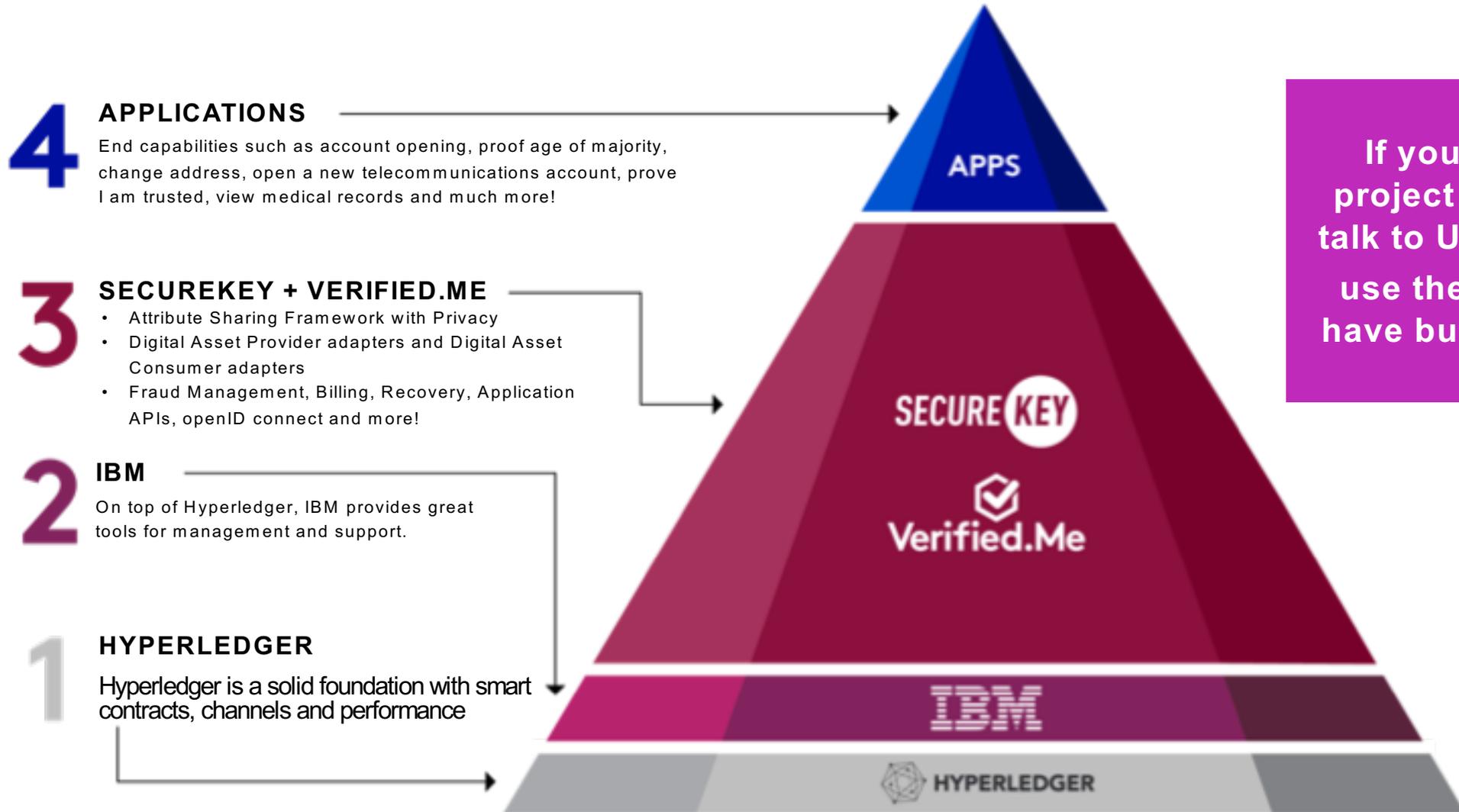
SecureKey’s DHS S&T-funded research and development (R&D) work allows multiple parties to strengthen authentication and provide identity attribute validation. This R&D award is addressing the capability gaps S&T discovered in the current identity ecosystem and DLT/blockchain implementations based on delving deeper into blockchain security and privacy over the last couple of years. DIACC and SecureKey’s model provides real-time data from a source and could be safer than other approaches. This model, which allows great usability and efficiencies, is coming soon to the U.S. ”

– Anil John

**Program Manager, Identity & Privacy R&D  
DHS Science & Technology Directorate**



# Hyperledger is a Great Foundation

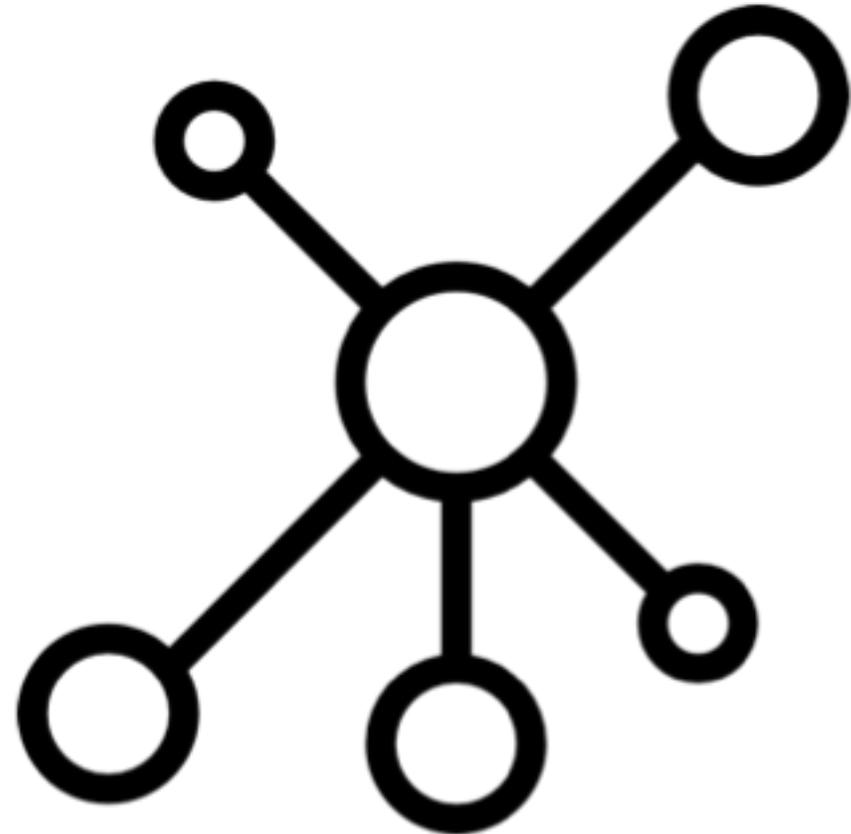


If you are building a project on Hyperledger, talk to US to learn how to use the capabilities we have built out of the box.

# Key Technology Principals

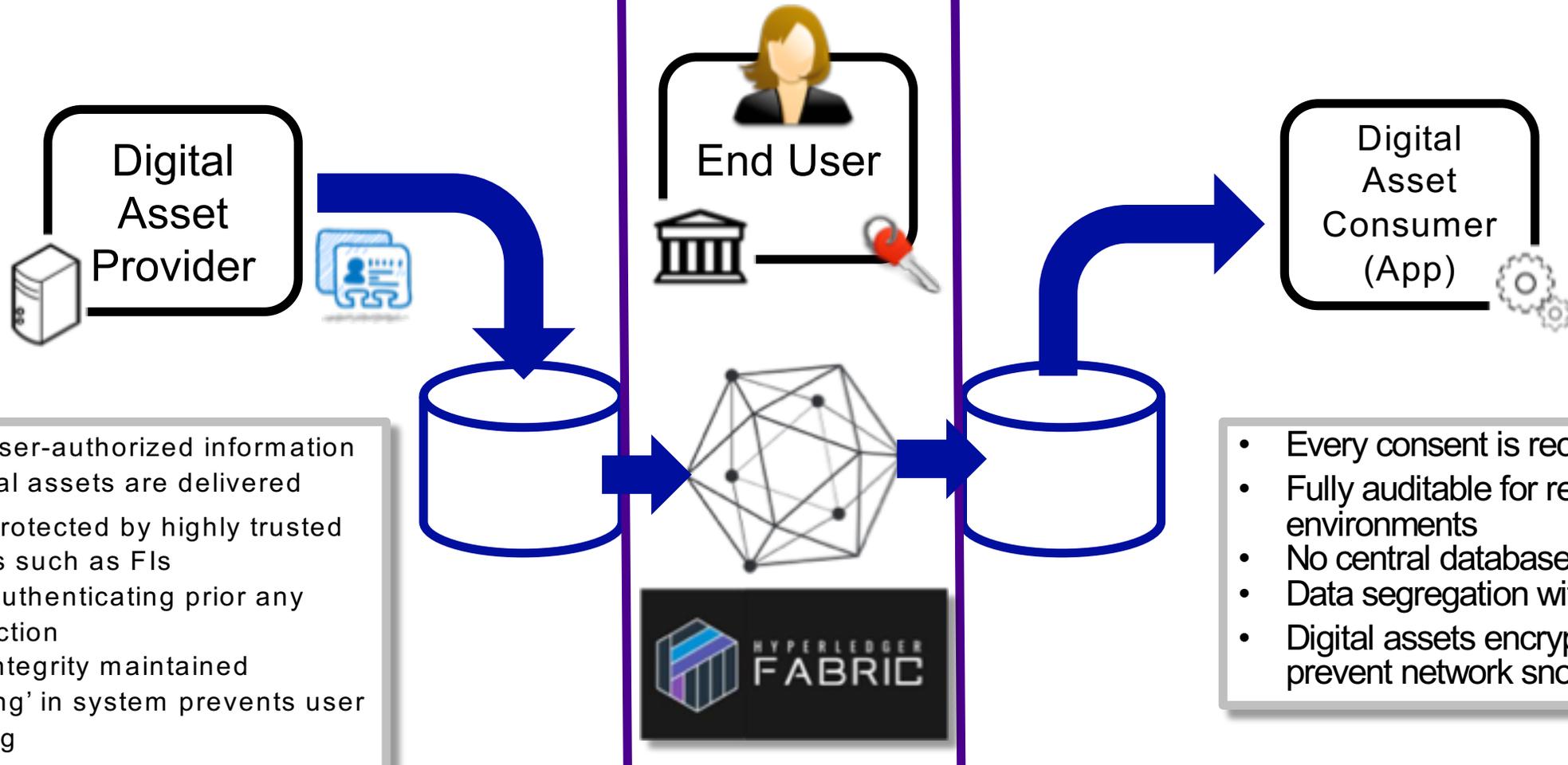


- **Efficiency** – to onboard partners fast and manage project costs and timelines.
- **Standards** – to enable interoperability with different existing technologies.
- **Security** – to protect the network from unauthorized use and rogue attacks.
- **Collaboration** – to build collective value and manage collective risks.



# Decentralized Audited Brokering With Privacy

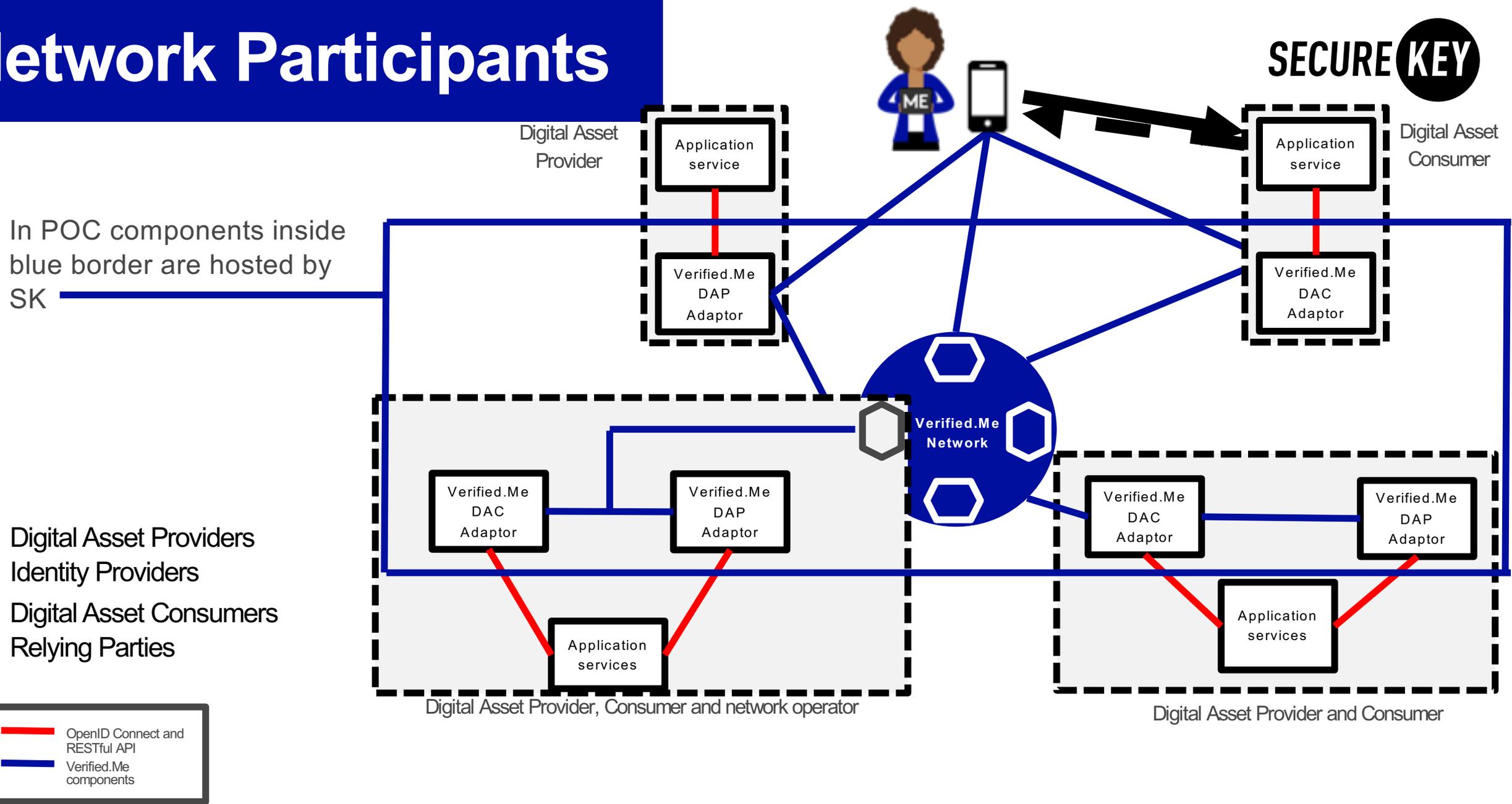
SECURE **KEY**



- Only user-authorized information & digital assets are delivered
- User protected by highly trusted entities such as FIs
- User Authenticating prior any transaction
- Data integrity maintained
- 'Blinding' in system prevents user tracking

- Every consent is recorded
- Fully auditable for regulated environments
- No central database or honeypot
- Data segregation without SPOT
- Digital assets encrypted to prevent network snooping

# Network Participants



# Easy way to Integrate for DAPs and DACs



## Data Providers

- OIDC for authentication
- RESTful API for data transfer
- All data encryption is done by DAP adapter

## Data Consumers

- RESTful API for data request and feed
- All data decryption and request communication is done by DAC adapter

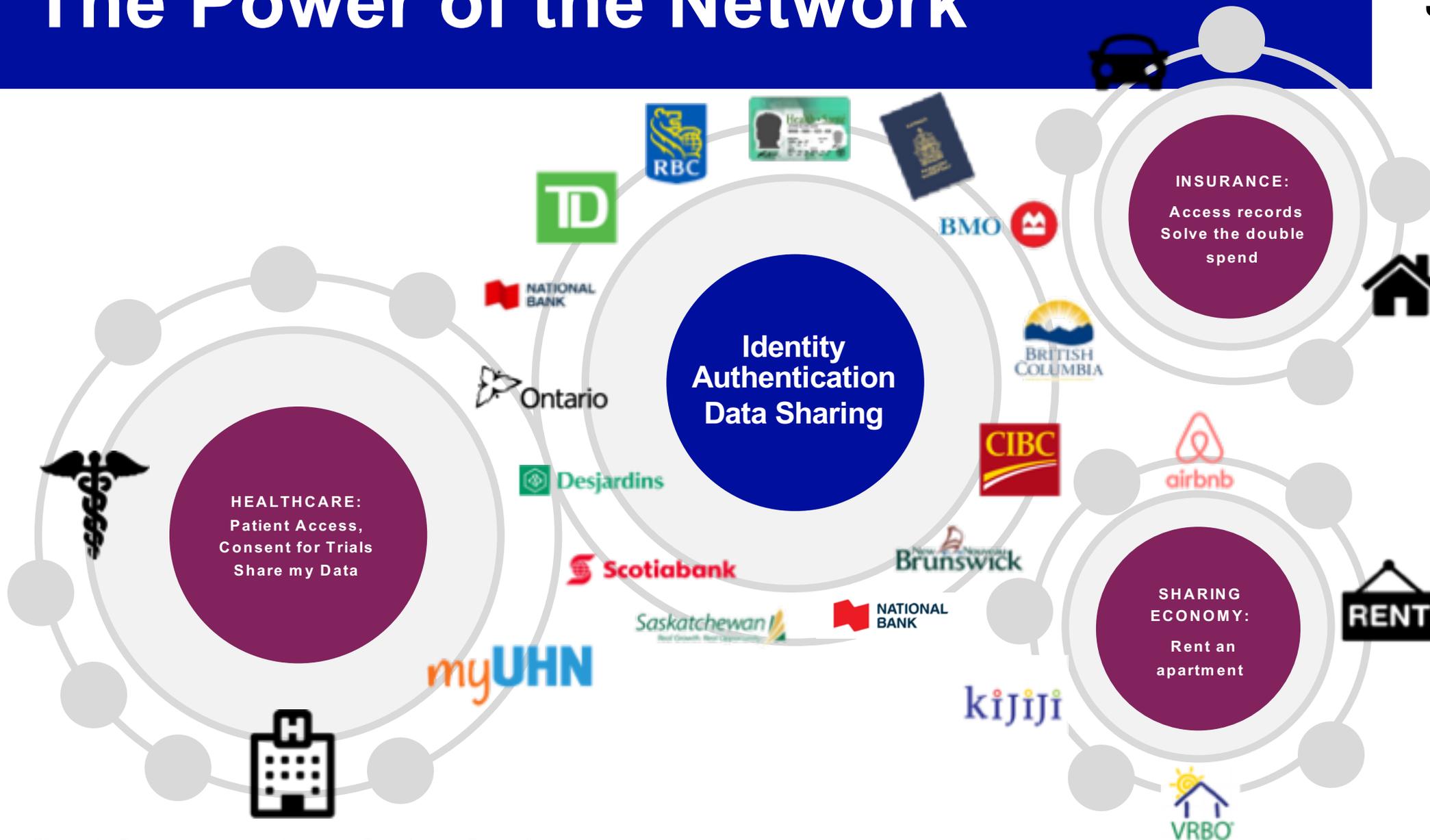
# Adapters and Protocols



- ✓ Web-API provides major functions against the Network.
  - ✓ No need to implement complex clients or functions.
  - ✓ Ensures data is processed properly before being submitted to the Network.
  - ✓ Minimalizes impact on existing DAP systems and processes. DAP just manage the User's network ID.
- ✓ Different Adapters for the different functions.
  - ✓ DAP /DAC / Reporting tools / Admin tools are all independent, but follow same model.
- ✓ OAuth 2.0 / OpenID Connect user authentication protocol.
- ✓ HTTP + JSON API to AppHost.
  - ✓ From Verified.Me App and Verified.Me Network.
- ✓ Cryptographic message signatures in JWS [rfc7515].
- ✓ gRPC protocol to network with no special RPC stack required.
- ✓ TLS communication security.

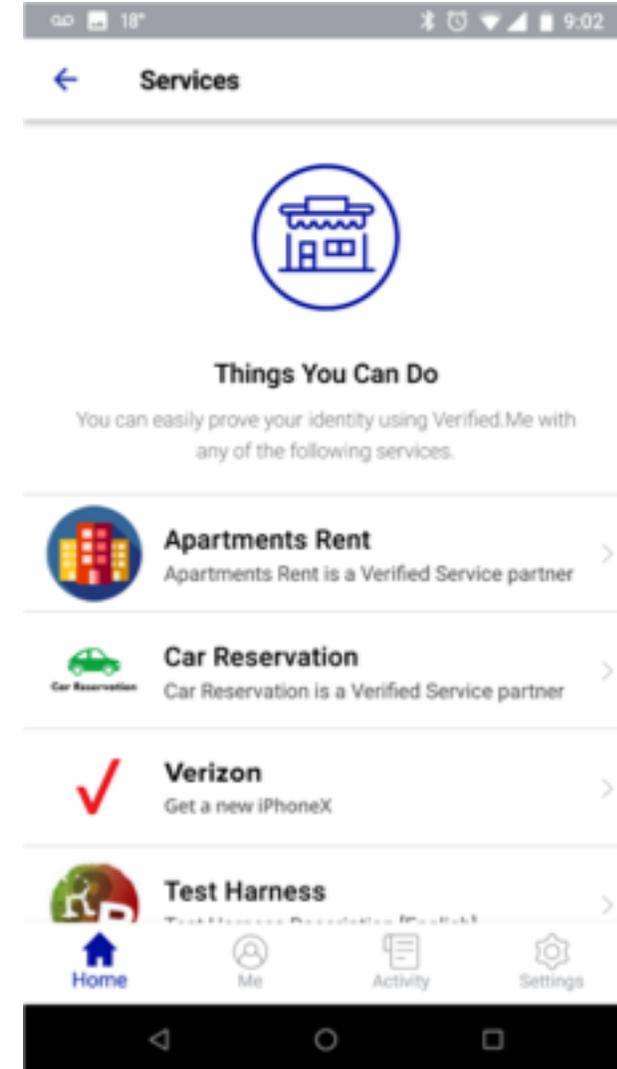
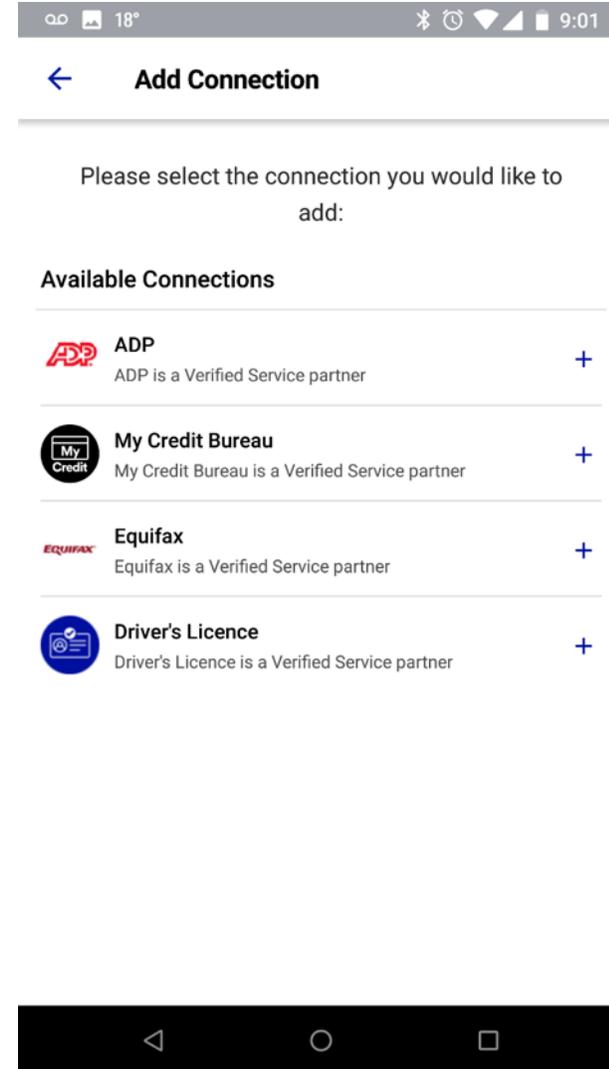
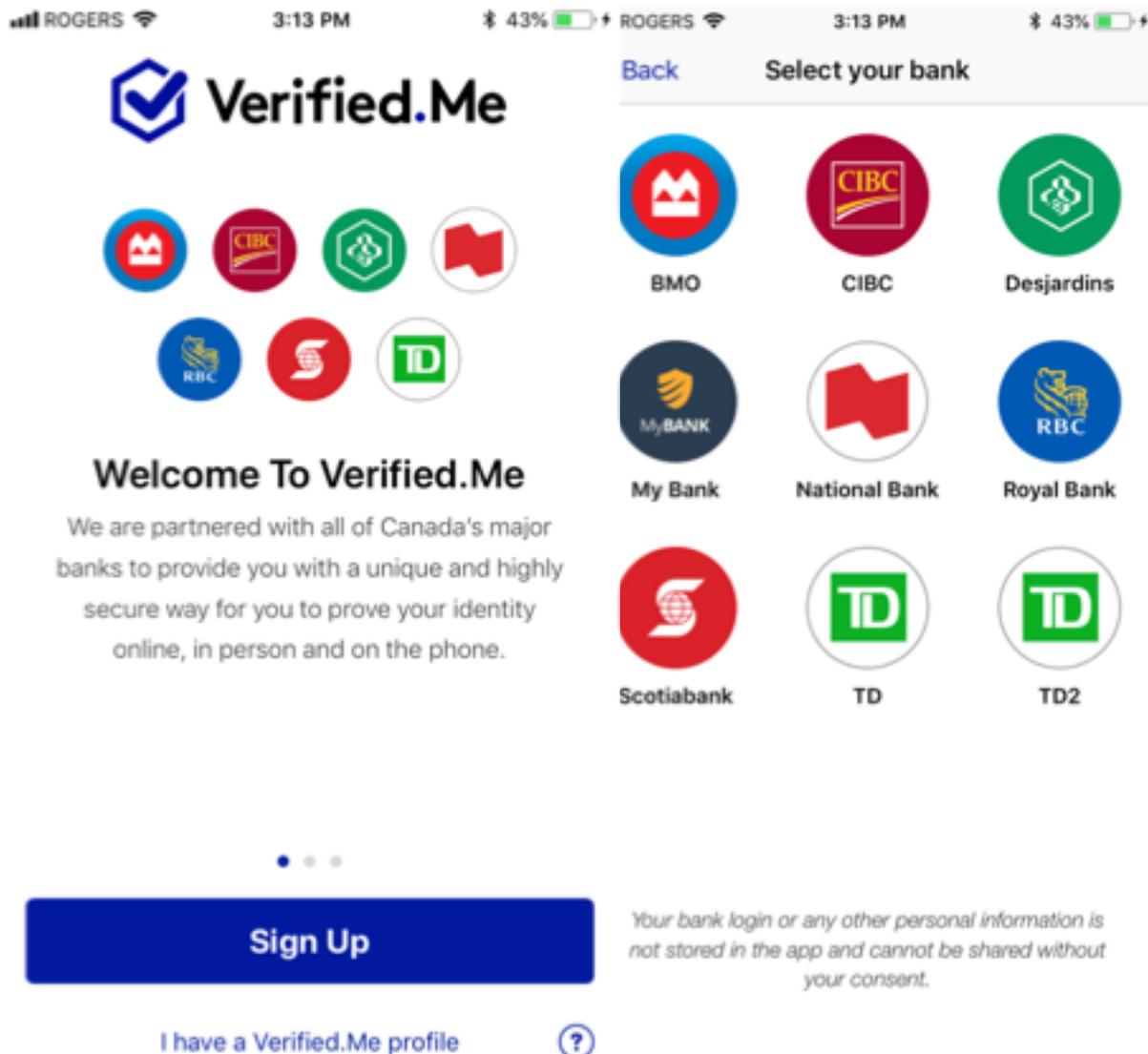
# The Power of the Network

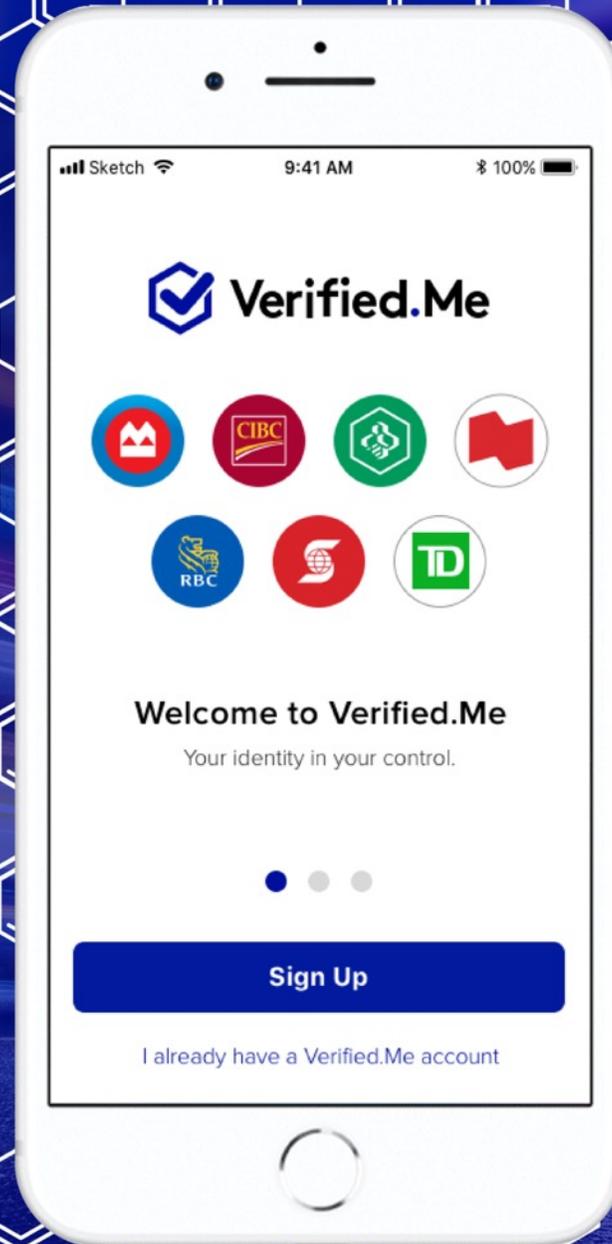
SECURE KEY



# Ecosystem Progress

Verified Service





Sketch 9:41 AM 100%

# Verified.Me



## Welcome to Verified.Me

Your identity in your control.



[Sign Up](#)

[I already have a Verified.Me account](#)

SECURE KEY

# Verified.Me: The Safest Way to Protect Your World



Credit & Bank  
Verification for KYC



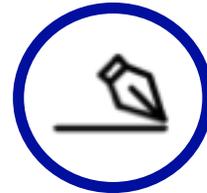
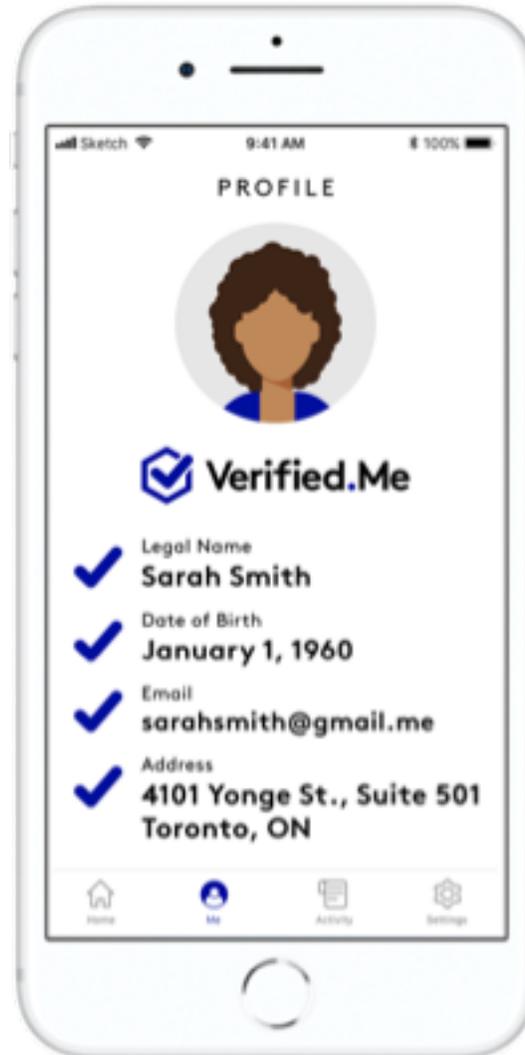
Eligibility Checks (Age,  
Address, Email, Device)



Account Information  
Updates (Address Info,  
bank details, Account #s)



Drivers License  
and Passport



New Account Creation and  
Digital signature



Health Records  
Validation and Access



Account Recovery + CS  
Support Verification

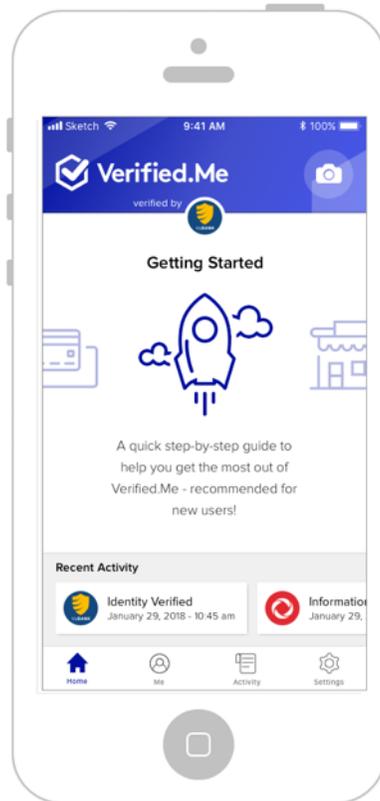


Government CRA / Birth  
Certificate / SIN

# Trusted Identity In Your Control

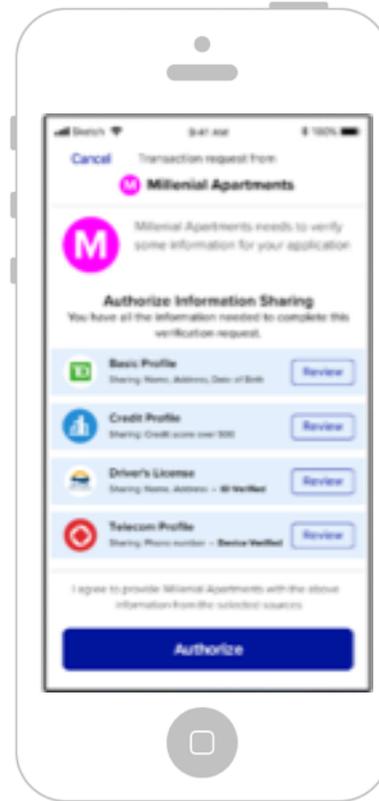


A new service for customers to manage their digital identity



Users connect with their bank and other trusted providers, layering information

Enables safe and secure sharing of personal information



Companies request information, users review and approve for real time delivery directly from trusted provider(s)

High assurance by combining multiple factors, channels and ID claims

What I Know

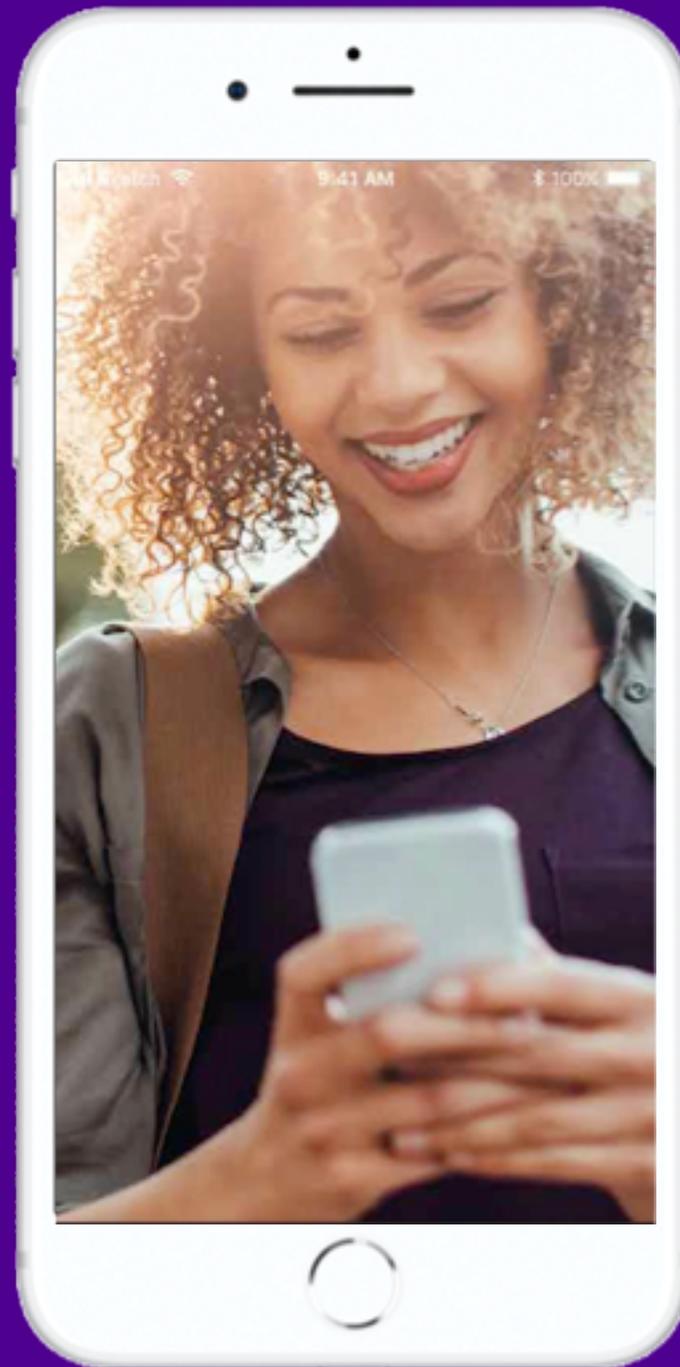


What I Have

What I Am



Your identity in  
your control.



# THANK YOU!



**Greg Wolfond**  
**Chief Executive Officer**

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@wolfond



**Salavat Nabiev,**  
**Solutions Engineer**

Salavat.Nabiev@securekey.com  
@securekey



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