Real World Identity on the Web... continued

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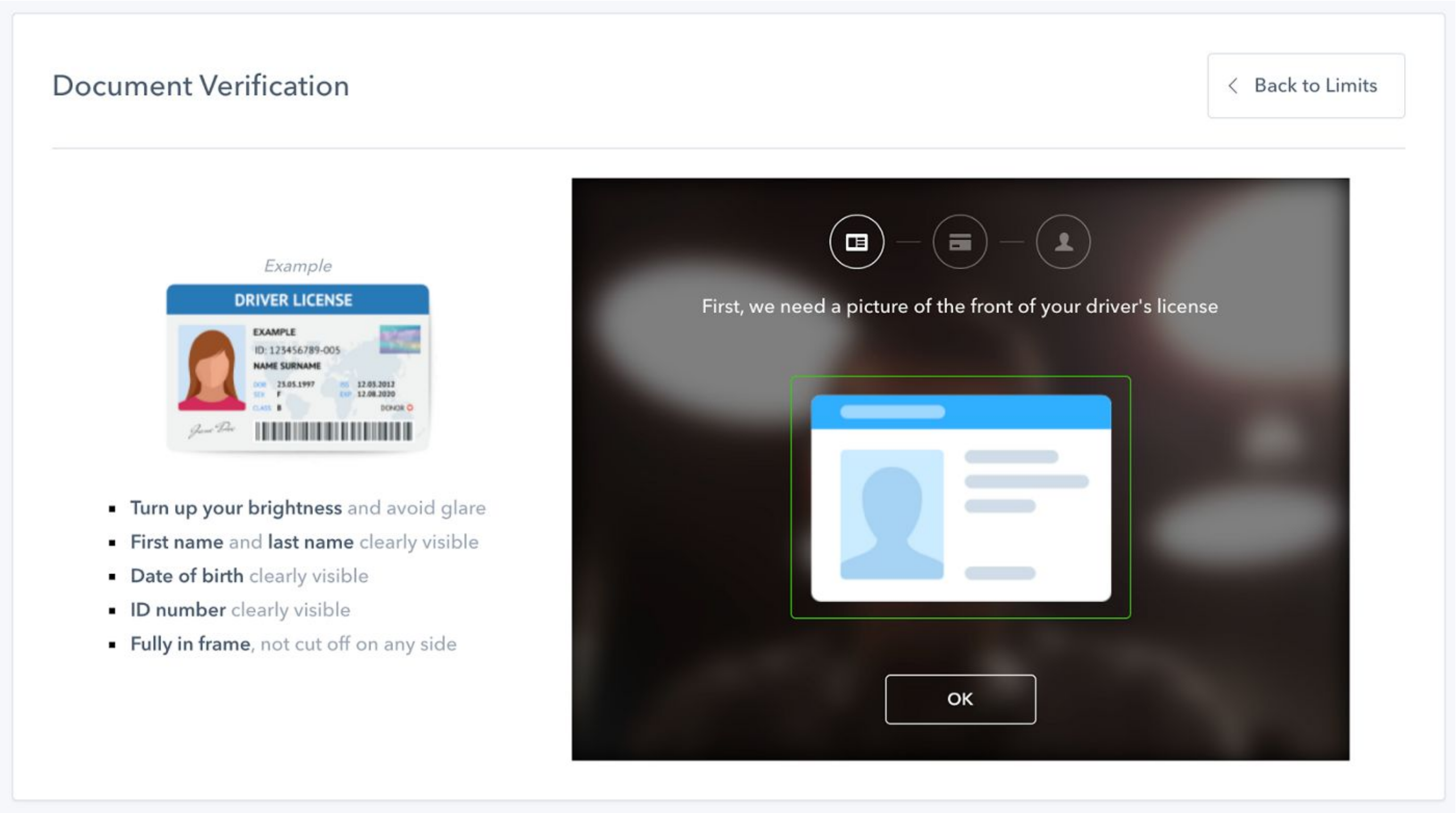
Agenda

- Background, Concepts, and Scope (15m)
- Demo: Digital Credentials API + Google Wallet (10m)
- PING / privacy related discussions (Nick Doty) (10m)
- Unlinkability and Google’s ZKP solution for predicates (10m)
- Gaps and Next Steps (15m)

Background, Concepts & Scope

The Problem, Gen 1



Document Verification

Example

- **Turn up your brightness** and avoid glare
- **First name** and **last name** clearly visible
- **Date of birth** clearly visible
- **ID number** clearly visible
- **Fully in frame**, not cut off on any side

First, we need a picture of the front of your driver's license

The Problem, Gen 2

digital credential presentation on the web currently relies on primitives such as ***custom schemes*** *and* ***QR codes*** *which have* ***poor security properties*** *and an even* ***worse user experience***

What is a custom URL scheme?

A custom identifier that an app can register with an operating system with the goal of being invoked from other contexts, such as other apps or from the web.

In many cases, these identifiers are not globally unique, and may be shared.

CUSTOM SCHEMES IN THE WILD

mdoc://

openid4vp://

eudi-wallet://

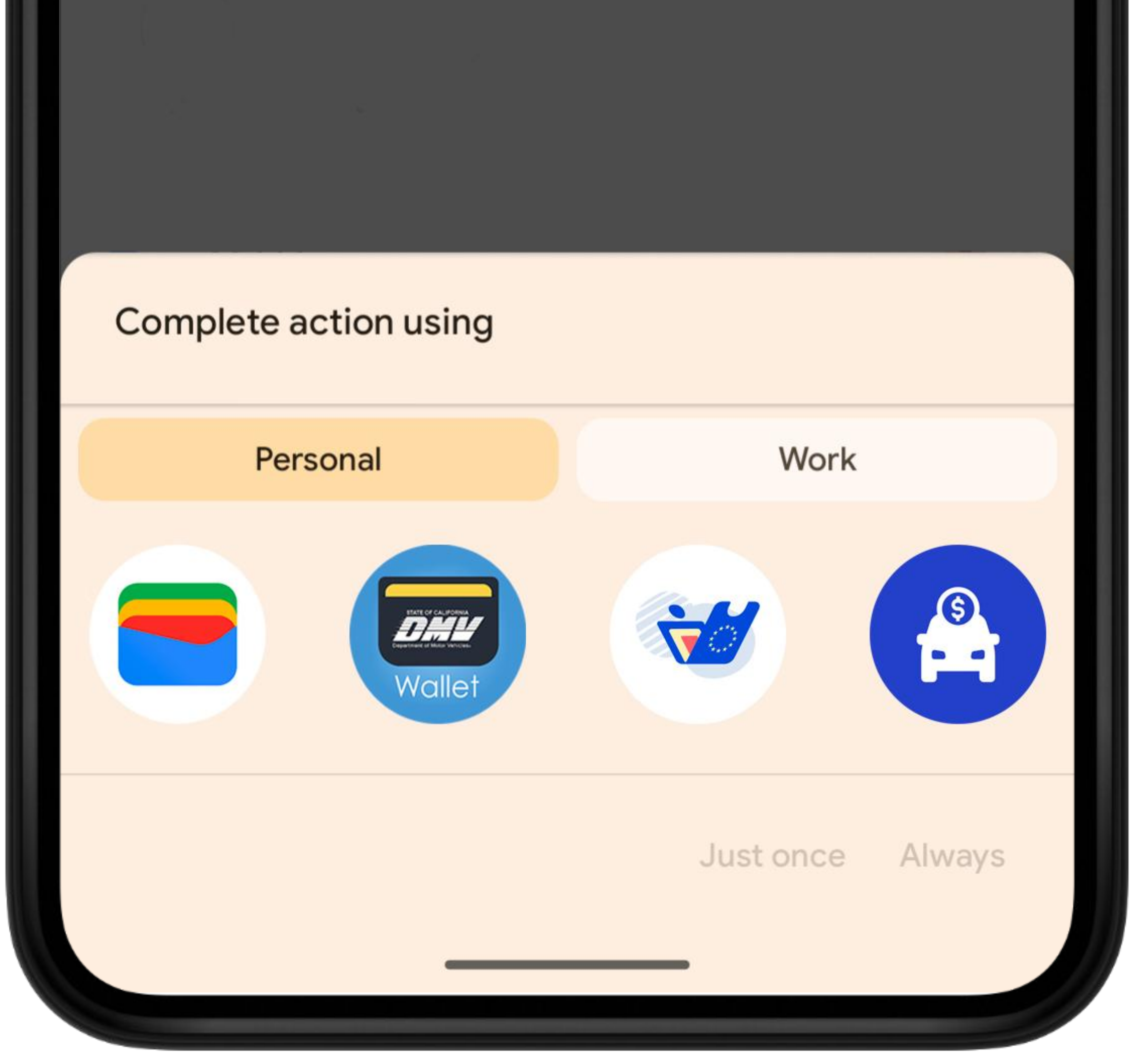
eudi-openid4vp://

mdoc-openid4vp://

openid-credential-offer://

Issues w/ custom schemes

- invocation from insecure contexts
- on-device phishing via app selection
- no requestor origin / identity
- not standardized & not guaranteed
- context switch during app launch
- no graceful fallback for errors



poor UX for credential selection

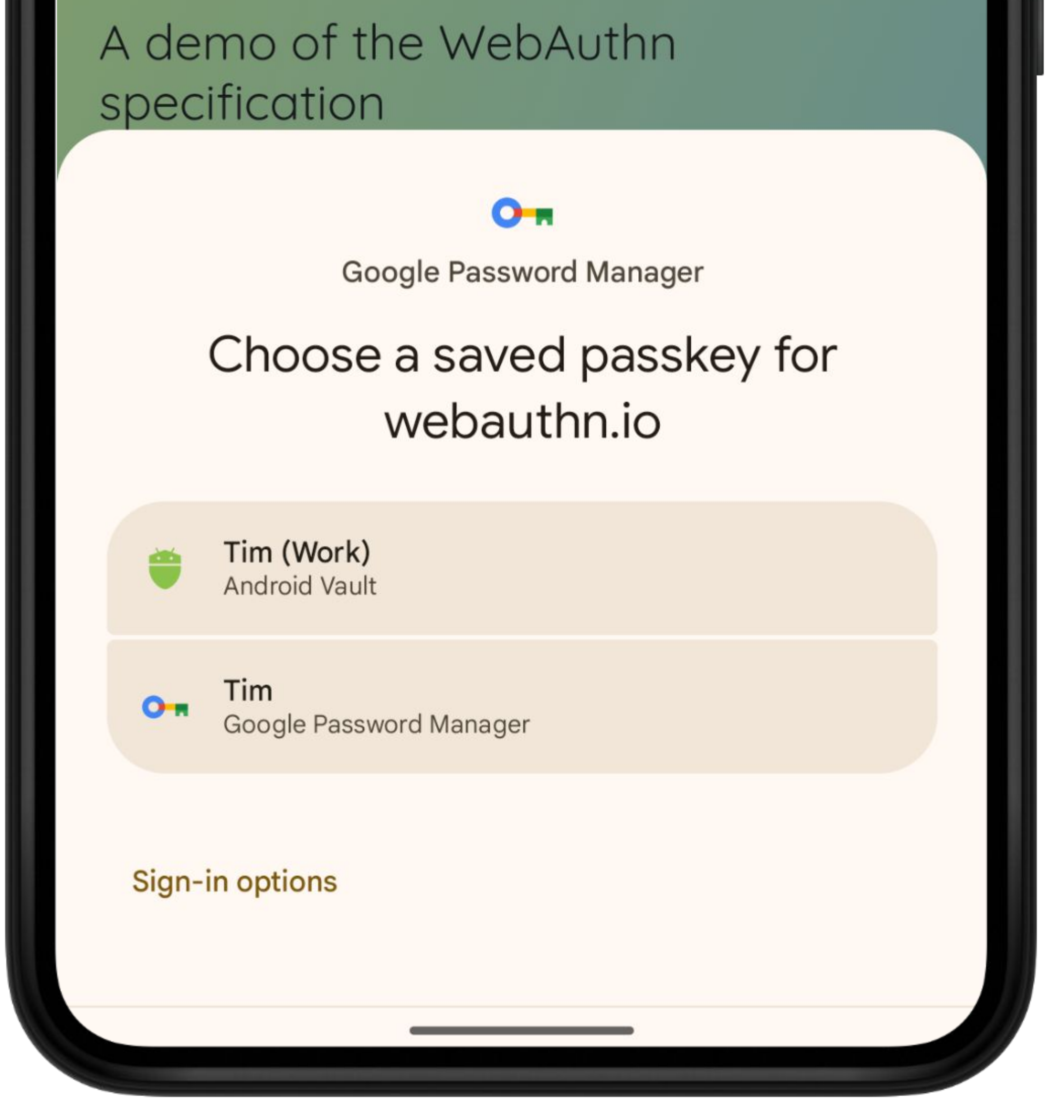
(users don't understand wallet selection)

Learnings from passkeys

users think about **accounts** and **credentials**, not **authenticators**

caller context is key

cross-device authentication needs to be **secure**, **easy**, and **resistant to phishing**



A demo of the WebAuthn specification

Google Password Manager

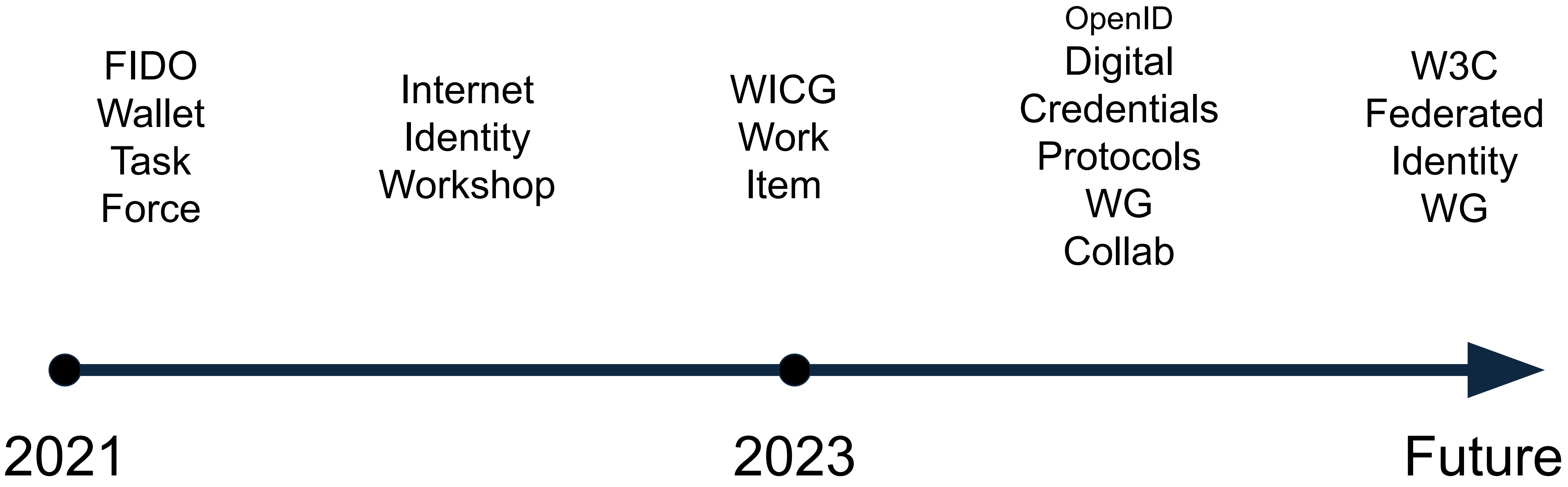
Choose a saved passkey for webauthn.io

Tim (Work)
Android Vault

Tim
Google Password Manager

Sign-in options

How We Got Here



FIDO Wallet Task Force

Internet Identity Workshop

WICG Work Item

OpenID Digital Credentials Protocols WG Collab

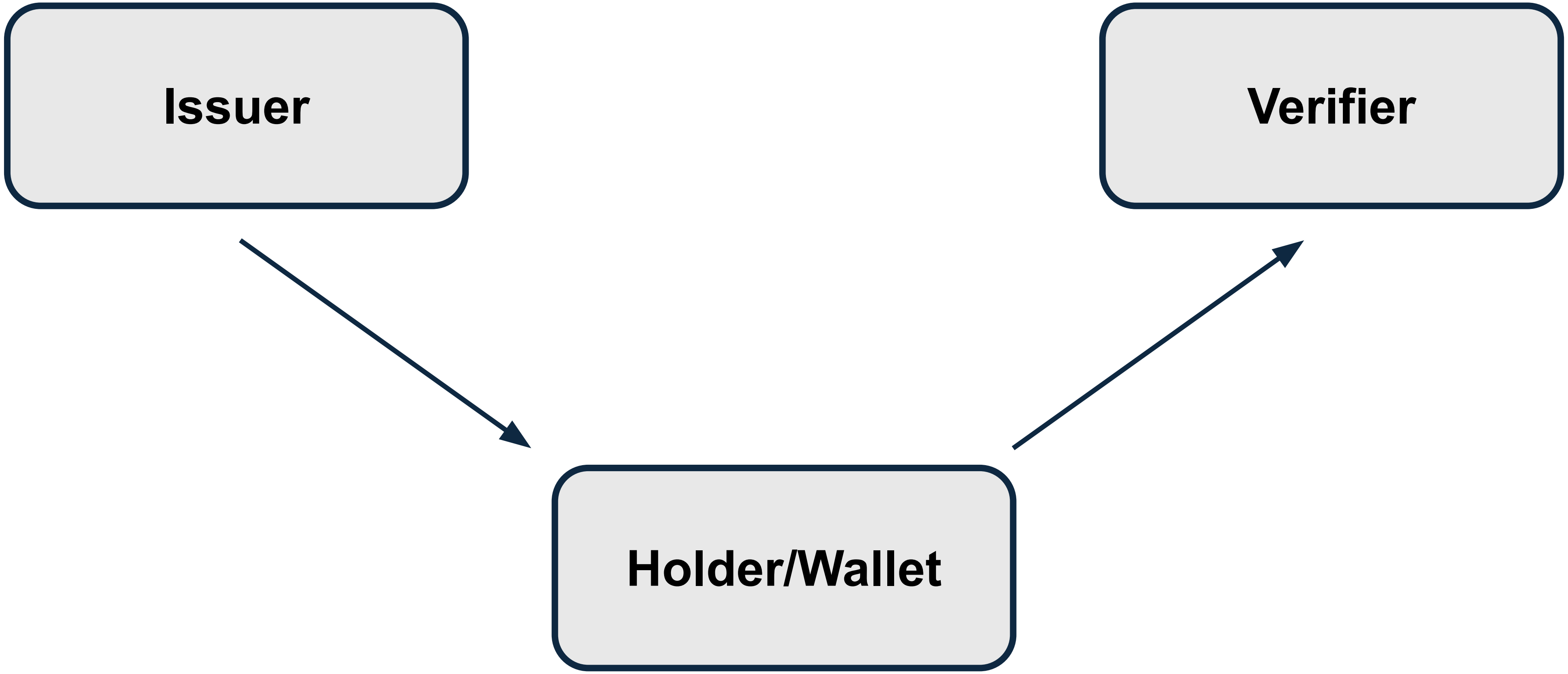
W3C Federated Identity WG

2021

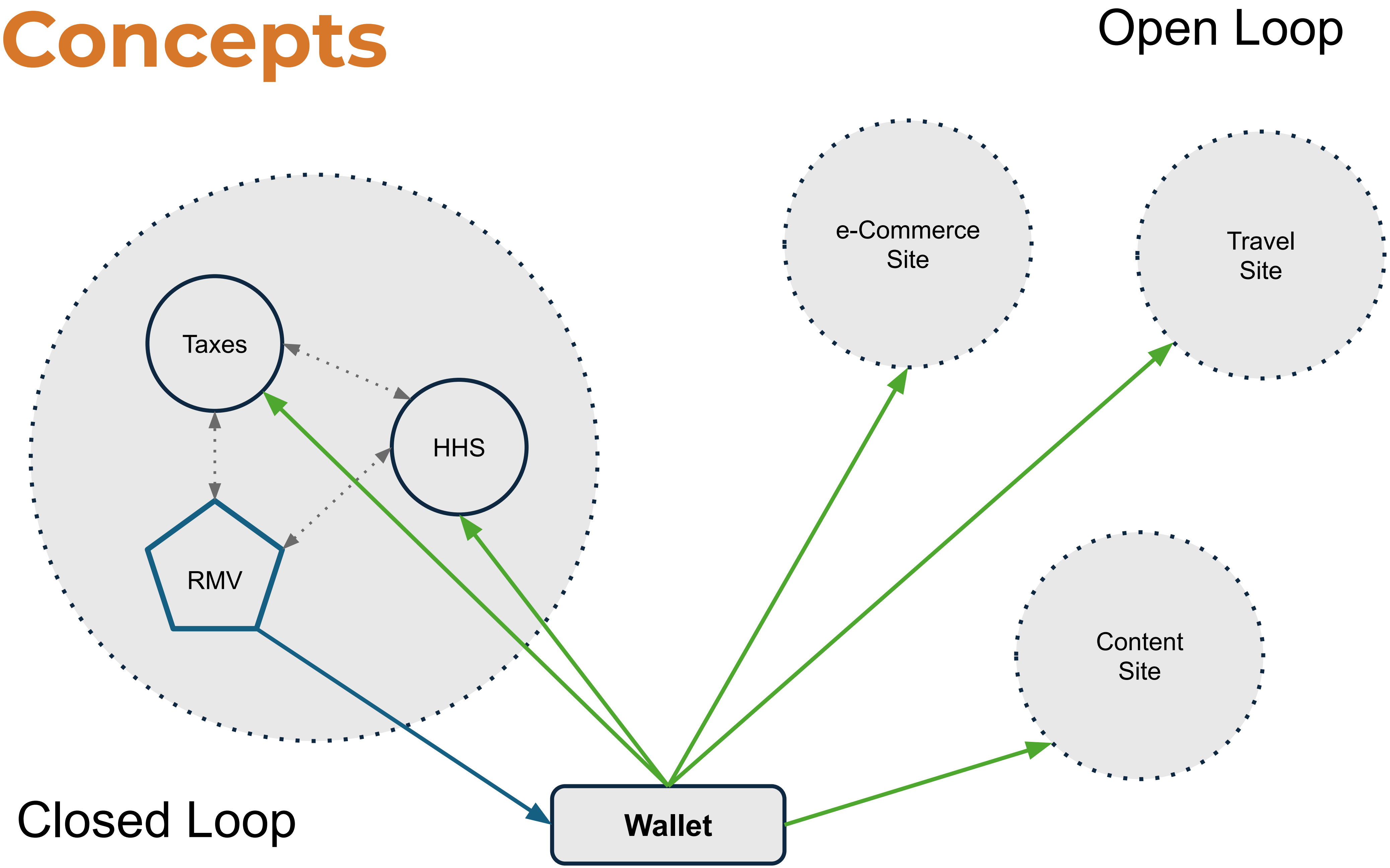
2023

Future

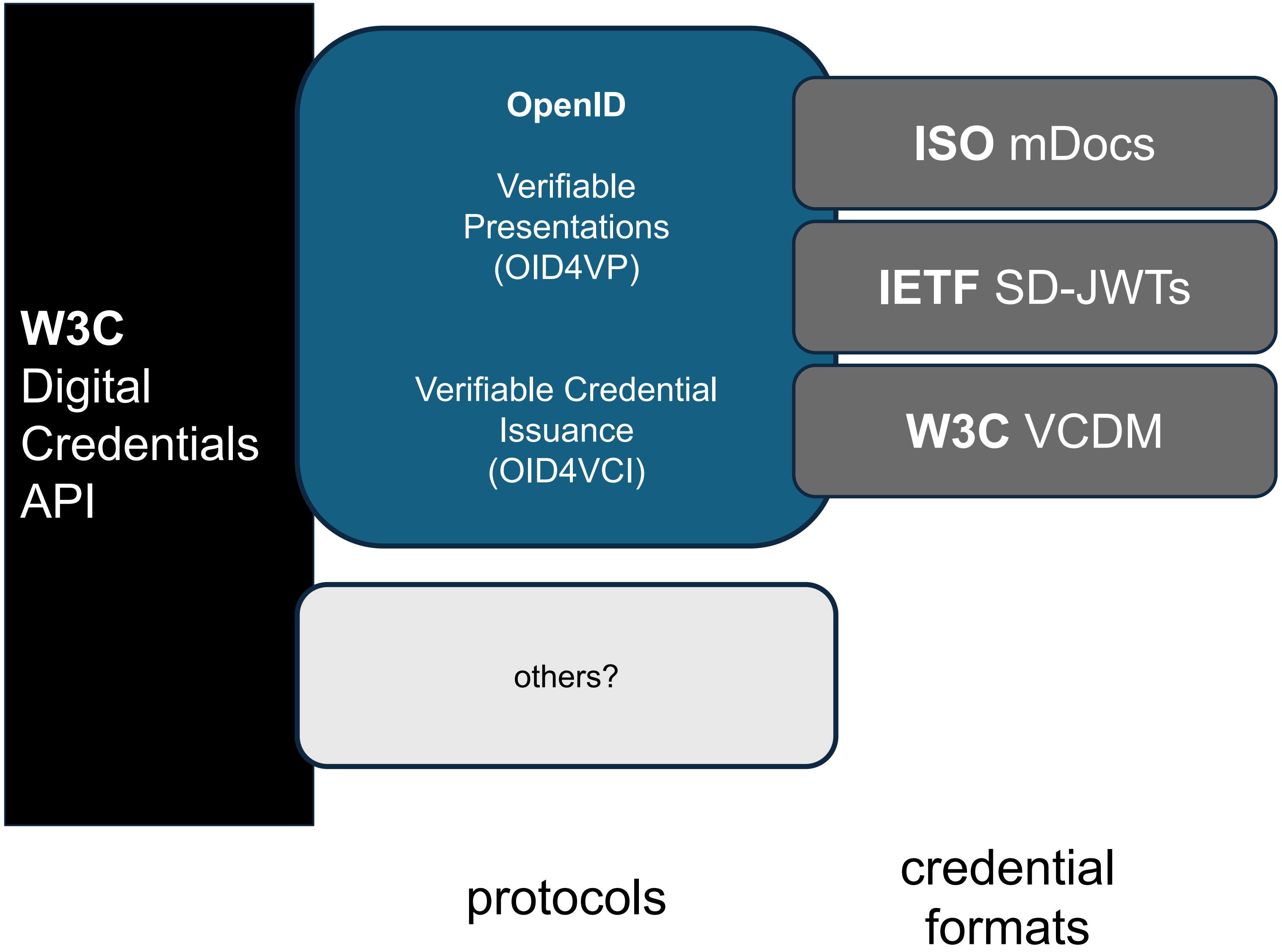
Concepts



Concepts


Open Loop
e-Commerce Site
Travel Site
Taxes
HHS
RMV
Content Site
Closed Loop
Wallet

Layers



W3C Digital Credentials API

OpenID

Verifiable Presentations (OID4VP)

Verifiable Credential Issuance (OID4VCI)

others?

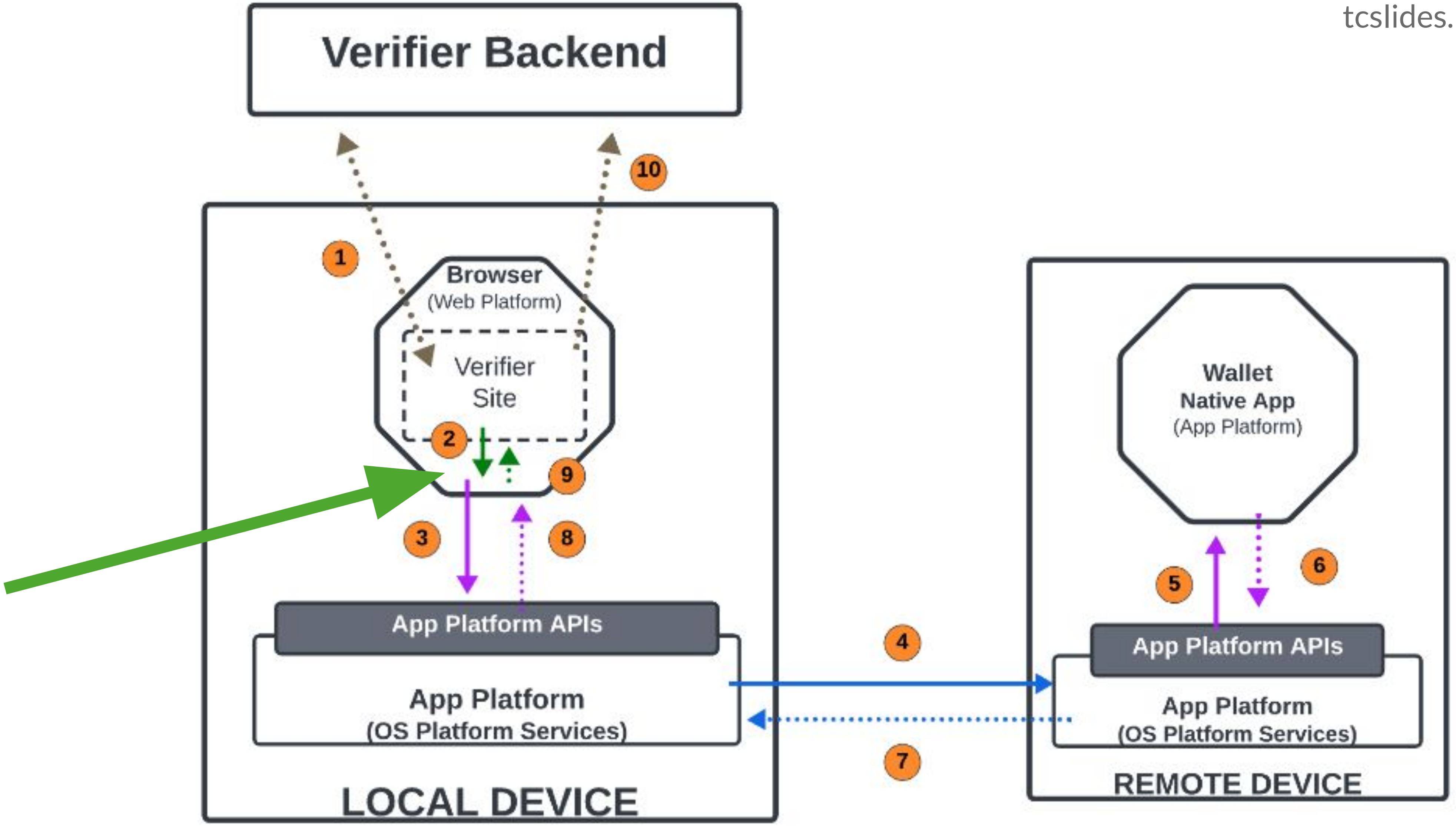
ISO mDocs

IETF SD-JWTs

W3C VCDM

protocols

credential formats

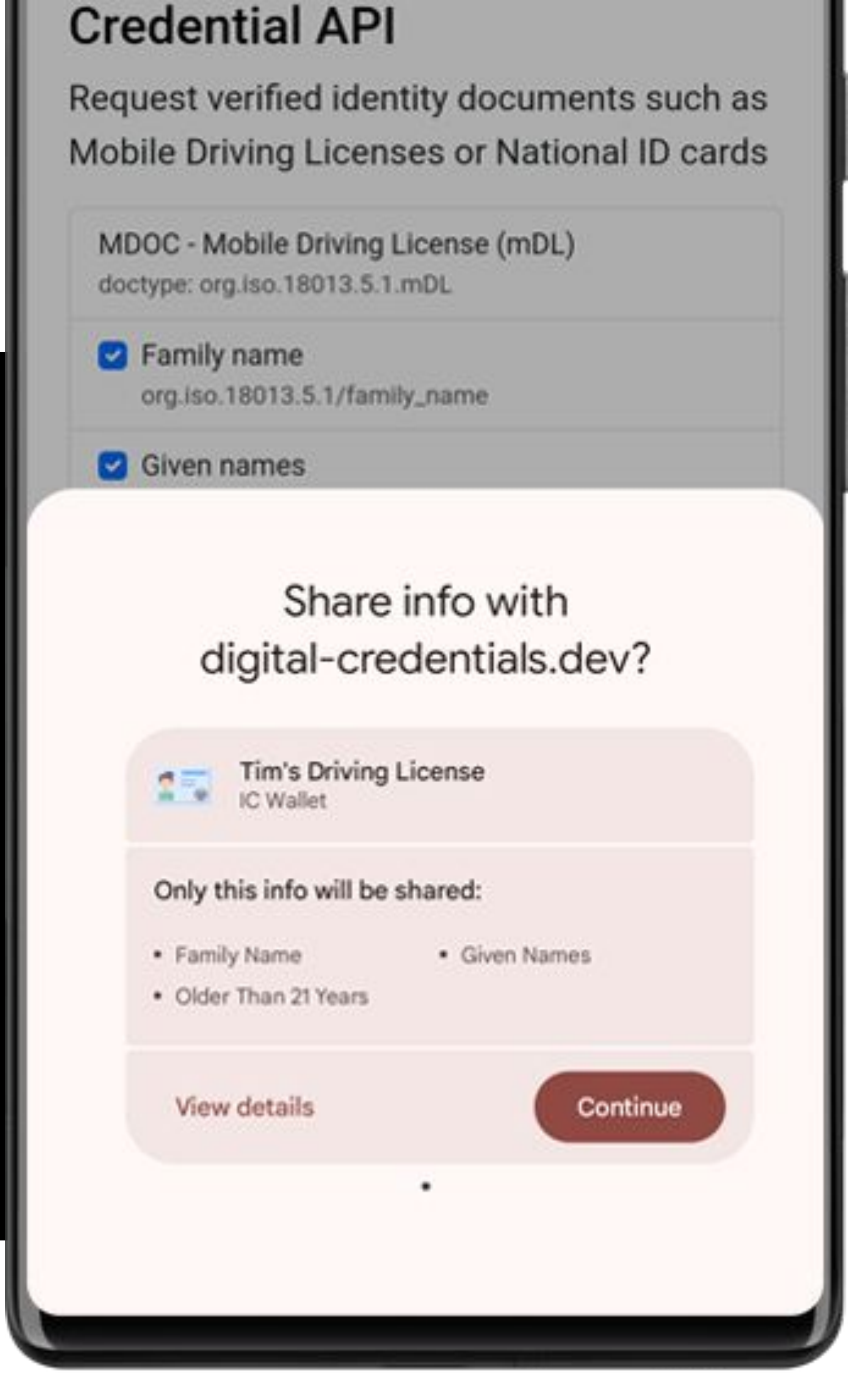


standardized API (W3C) 🟩	platform-specific function API 🟪	protocol-specific ▬
standardized API (Other) 🟦	platform-specific web translation API 🟥	

Demo

The API

```
let digiCred = await
  navigator.credentials.get({
       signal: controller.signal,
       digital: {
         requests: [{
           protocol: "openid4vp",
           data: "{request json}"
         }]
       }
     });
```



Credential API

Request verified identity documents such as Mobile Driving Licenses or National ID cards

MDOC - Mobile Driving License (mDL)

doctype: org.iso.18013.5.1.mDL

☑ Family name

org.iso.18013.5.1/family_name

☑ Given names

Share info with digital-credentials.dev?

Tim's Driving License

IC Wallet

Only this info will be shared:

- Family Name
- Given Names
- Older Than 21 Years

PING / Privacy Discussion

Unlinkability and Google’s ZKP solution for predicates

ZKP Design Goals

1. work with existing hardware and software in the wild (certified, vetted implementations)
    a. ECDSA as signature scheme for issuer
    b. ECDSA & passkey on user devices
    c. Software that does not deal with cryptographic keys can change

2. privacy for users
    a. selective disclose of attributes
    b. issuer-verifier unlinkability
    c. verifier-verifier unlinkability

3. same security as “traditional credentials”
    a. unforgeable:
        i. users cannot produce attributes that were not issued to them
        ii. no mix and match of attributes
    b. assumes security of hardware (user and issuer side)

Gaps and Next Steps

Content Title

- Bullets

Content Title

- Bullets

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Column 1 Title

- Bullets

Column 2 Title

- Bullets

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Text

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Code
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