FIDO, ID Proofing and Federation

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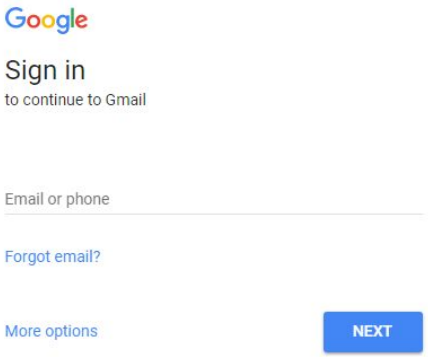
FIDO U2F AKA Security Keys

Global open authentication standard **co-created by Yubico & Google**

One Authenticator **Any** # of Services **No** Shared Secrets

Google Security Key Login

1



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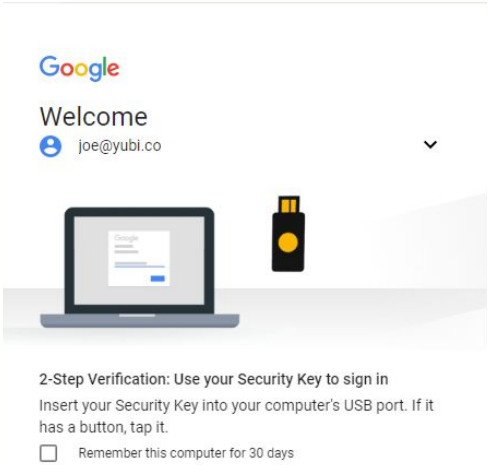

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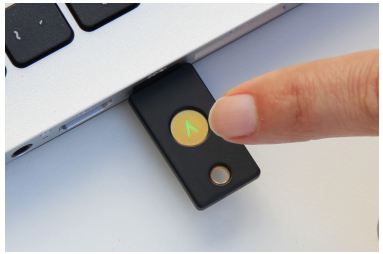
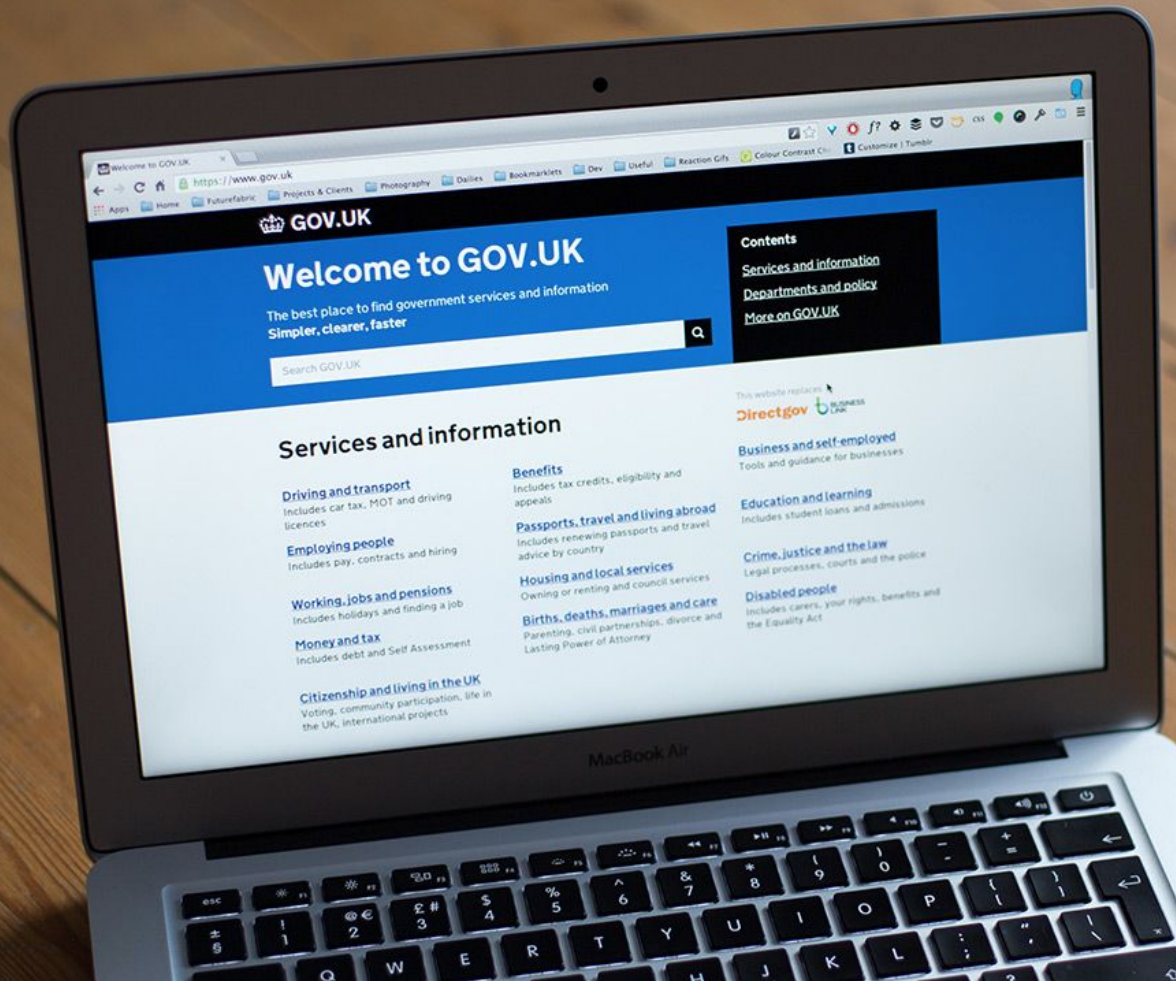


Secure Unphishable / UnMITMable
Simple Insert and press button
Scalable One device, many services
Privacy No Link-ability between services



1st Government to offer citizens opt-in U2F Secured Digital ID

Why are we solving this?

- Strong authentication not always tied to identity of user
- FIDO authentication mostly decoupled from ID Proofing
- ID Proofing required for higher assurance levels
- ID Proofing and strong authentication at odds with privacy
- Remote ID Proofing tied to Knowledge Based Verification (KBV)
- Reduce the reliance on weak recovery options

“Individuals and organizations utilize secure, efficient, easy-to-use and interoperable identity solutions to access online services in a manner that promotes confidence, privacy, choice, and innovation.”

-NIST Trusted Identity Group (TIG)

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

NIST SP 800-63-3

Digital Identity Guidelines 800-63 Revision 3

Highlighting 3 Policy Recommendations

- Decouple Identity assurance from Authenticator assurance
- Deprecate the use of SMS as Out-of-Band verifier
- Approves FIDO U2F for use at highest Authenticator assurance level (AAL3)

The Project

Yubico awarded US NIST grant collaborating with various Identity Providers

- Extend benefits of FIDO U2F to federated identity environments
- Integrate ID Proofing with FIDO U2F authentication
- Share attributes securely, conveniently and privacy-enhancing

ID verified FIDO Authenticators

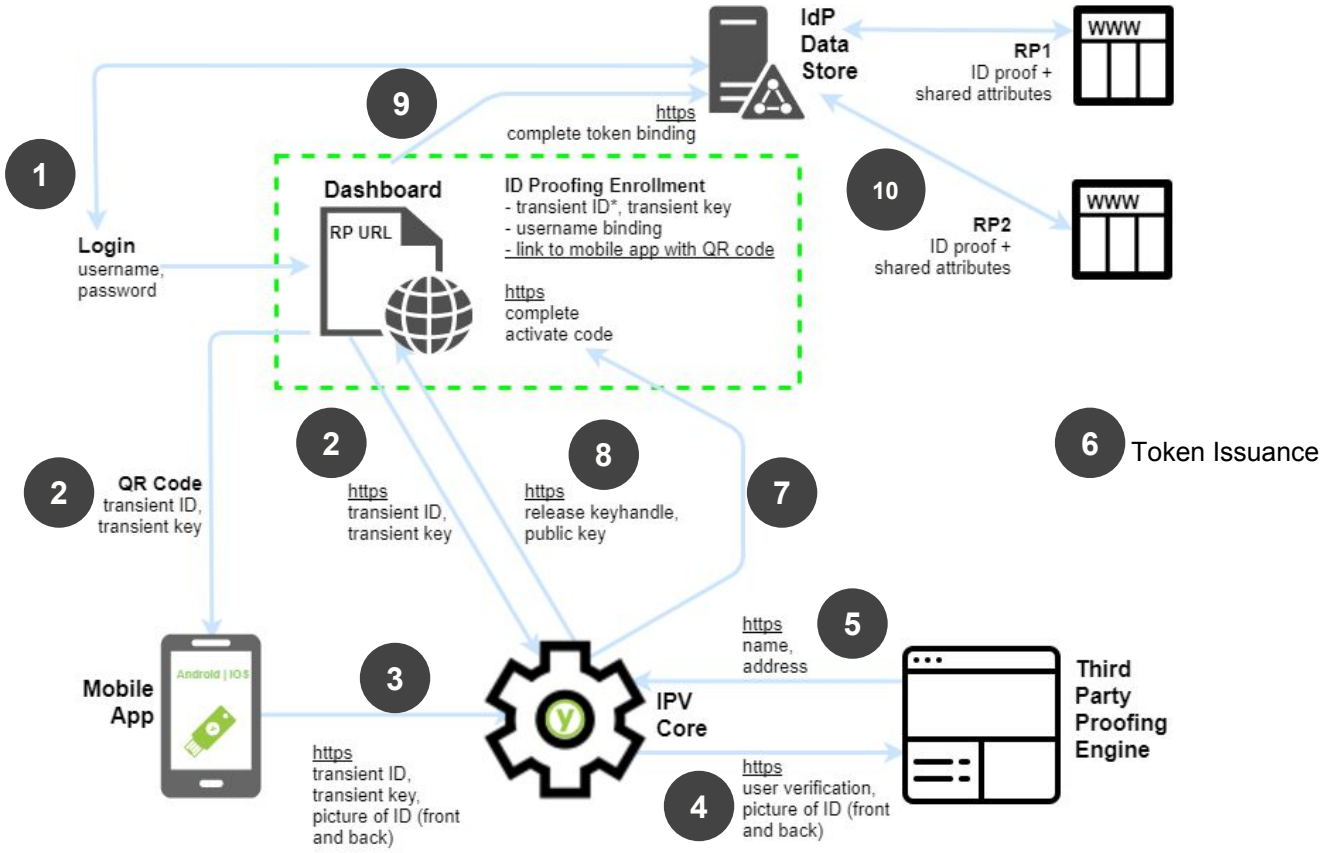
- **Successful Remote Proofing issues Pre-registered authenticator**
- **Pre-registration of authenticator ensures authenticity and integrity (first FIDO credential must be ID verified)**

Mobile ID scanning,
Driver's license or state ID

U2F Authenticator sent to
the address on ID

Secure access to any
number of services

ID Proofing and Verification (IPV)



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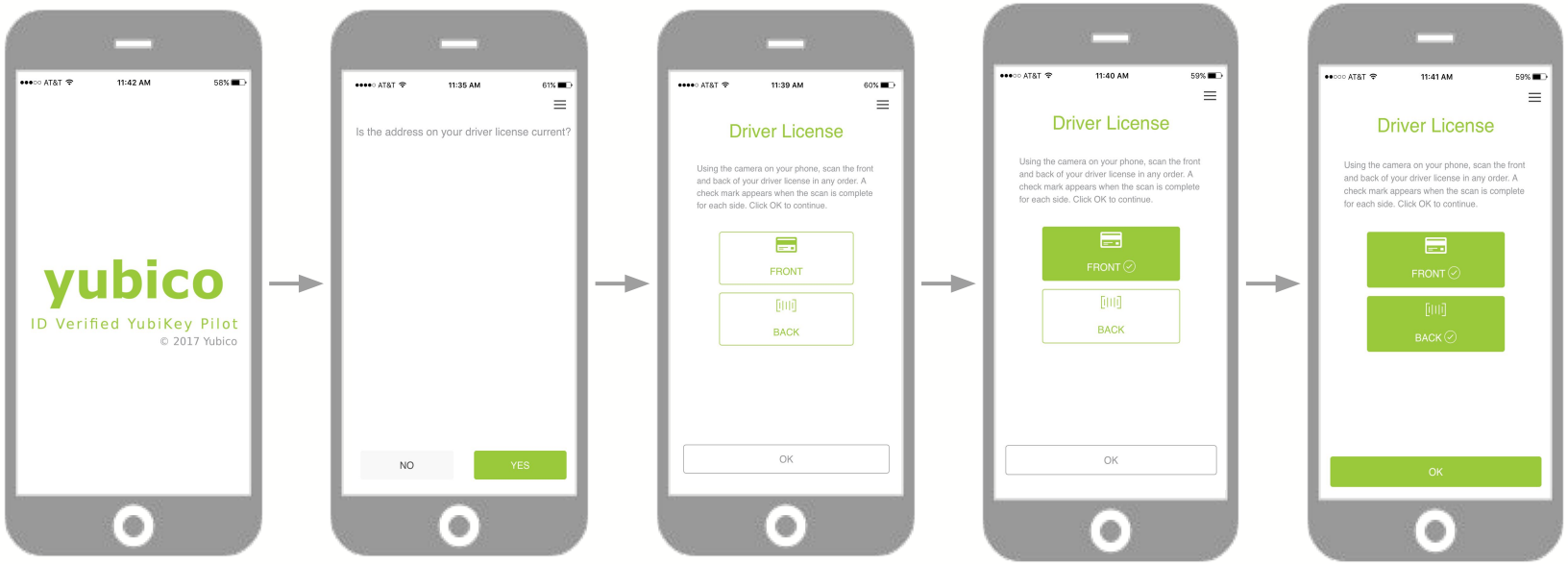
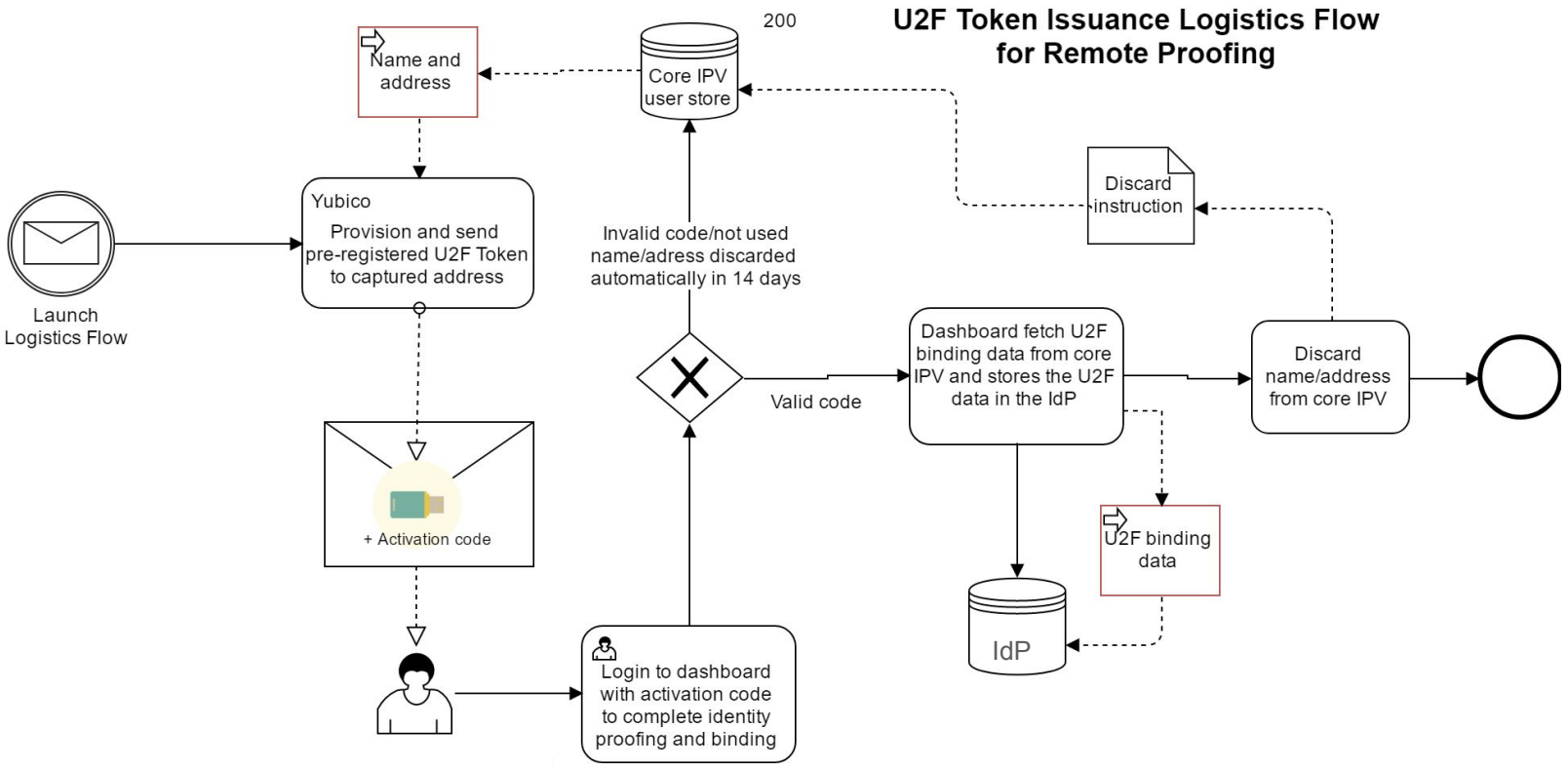
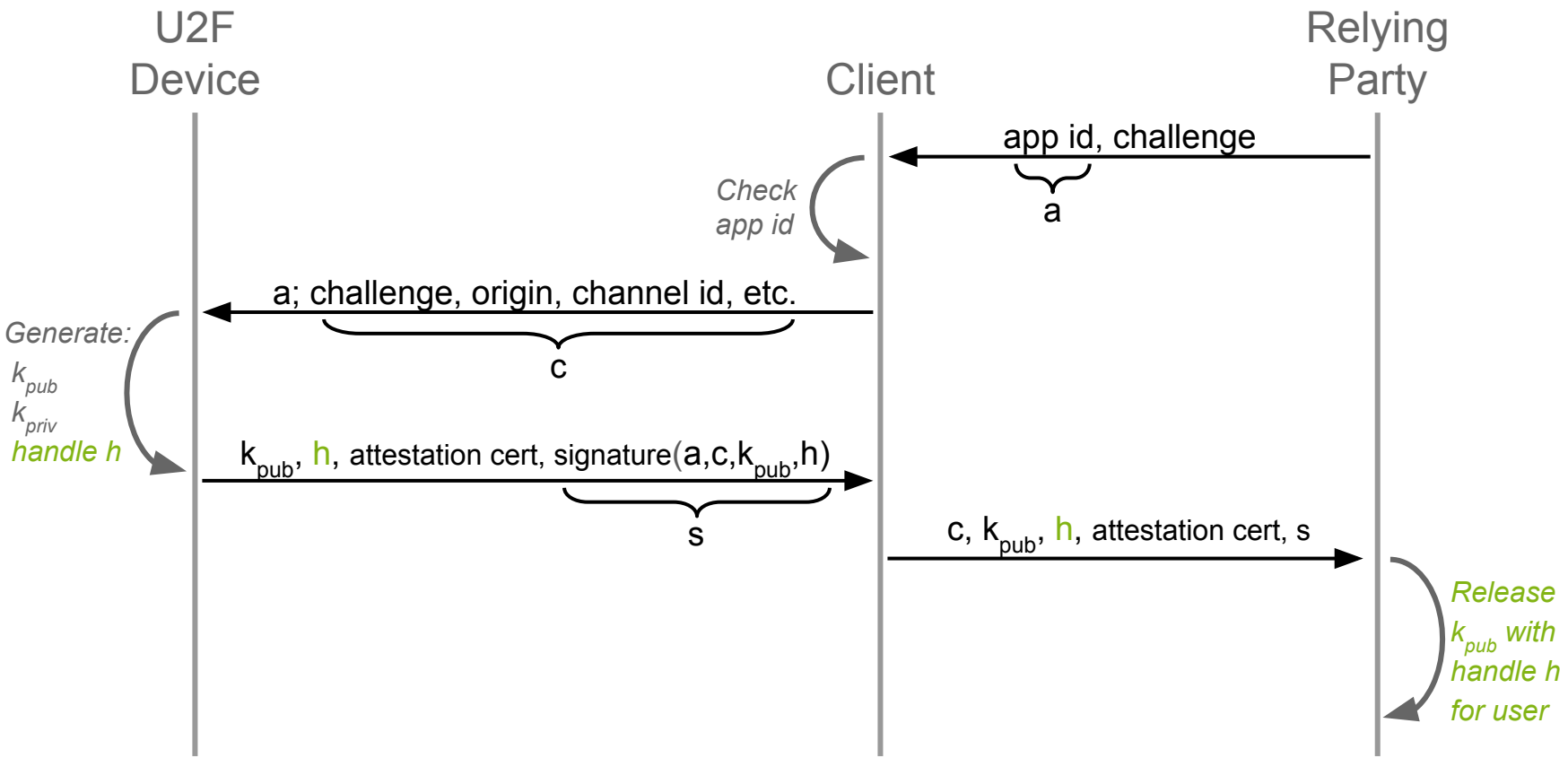
Remote ID Proofing Mobile App



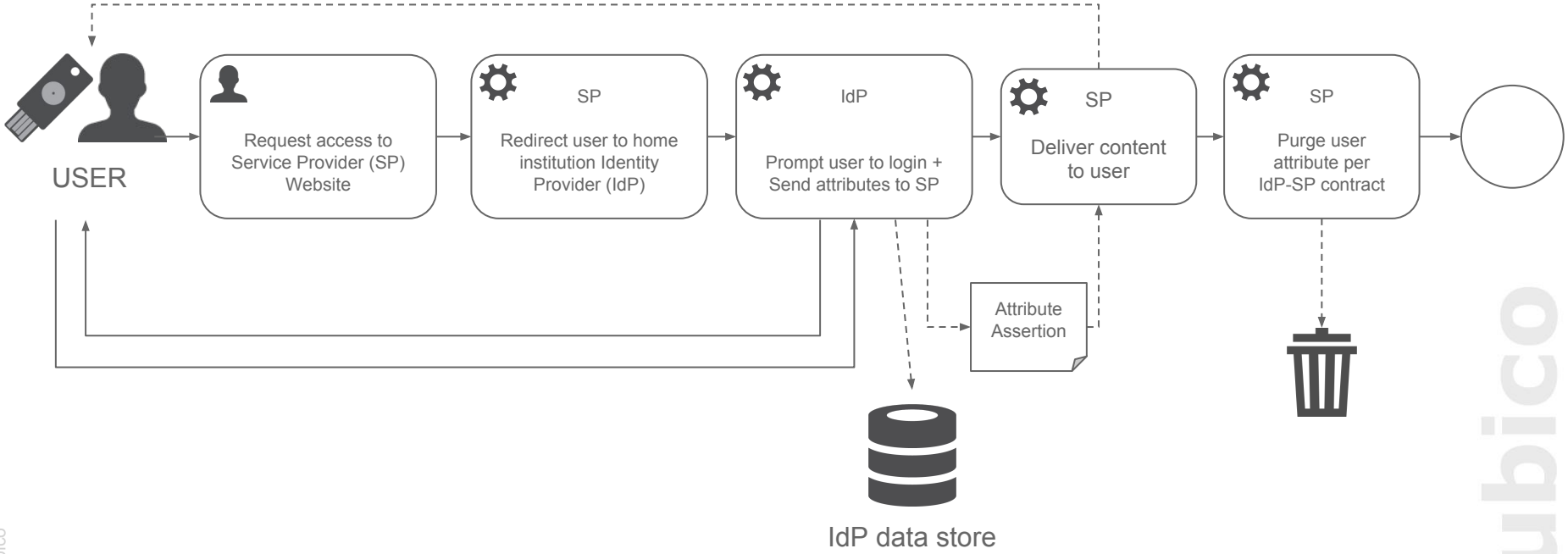
Token Issuance with Pre-Registration



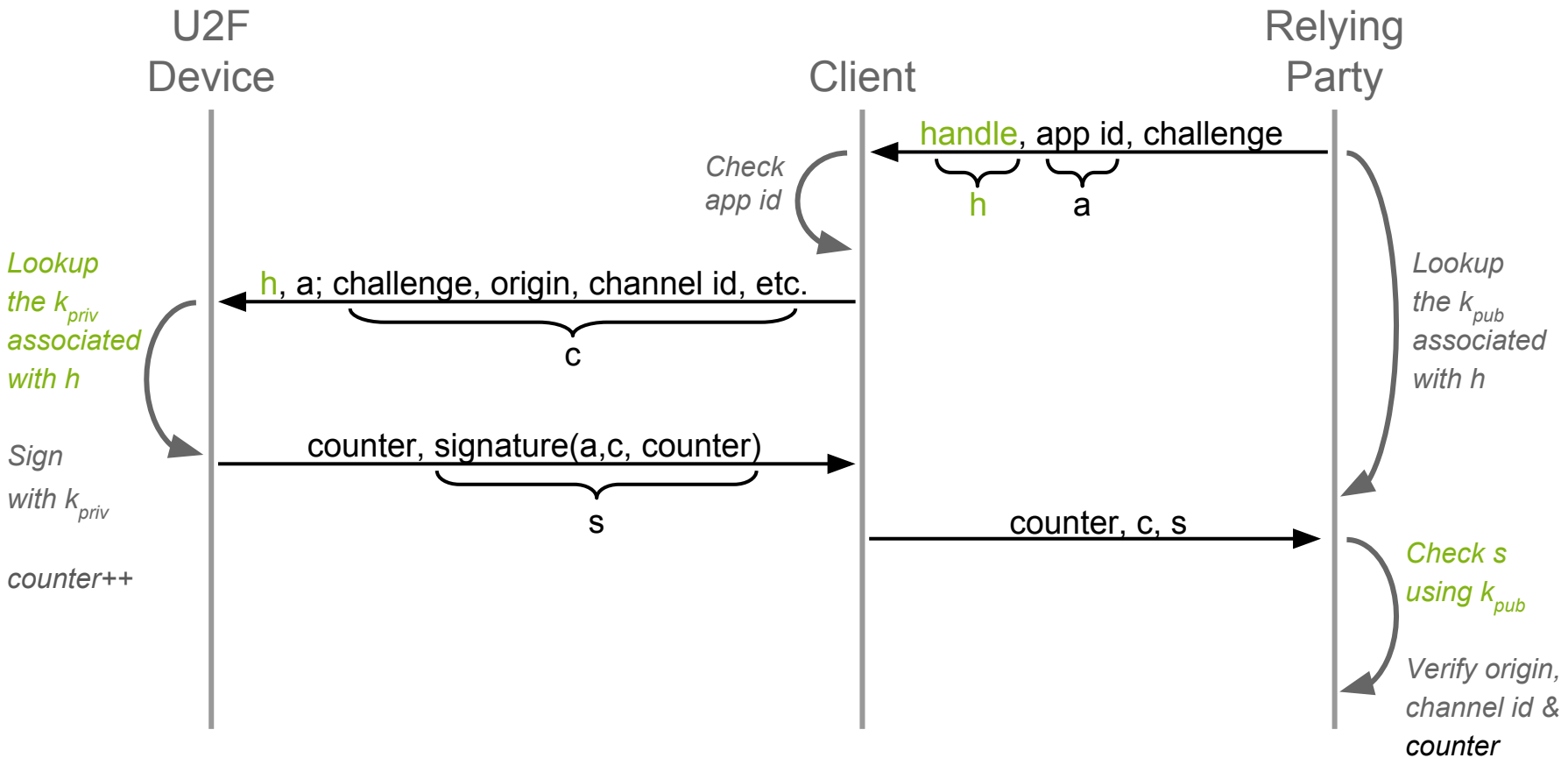
Pre-Registration of Key Handle



Authentication Flow



Authentication



Identity Ecosystem using Open Standards

- **Extend FIDO to services connected via these federation protocols**
  - U2F Shibboleth (SAML) and OpenID Connect plug-in
  - Open source reference implementation
- **Build ID Proofing engine using OpenID Connect**
  - Allows for multiple proofing solutions/providers
  - Part of the Identity toolkit

Lessons Learned

- Protecting PII is time and resource intensive
- Difficult to achieve highest identity assurance with Remote ID proofing
- High level of trust required in integrations with third-party vendors
- Compatibility challenges across diverse operating systems and devices
- Additional techniques needed to onboard special needs individuals

Questions?

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Trust the Net