stripe

W3C TPAC 2023

Biometrics in the browser

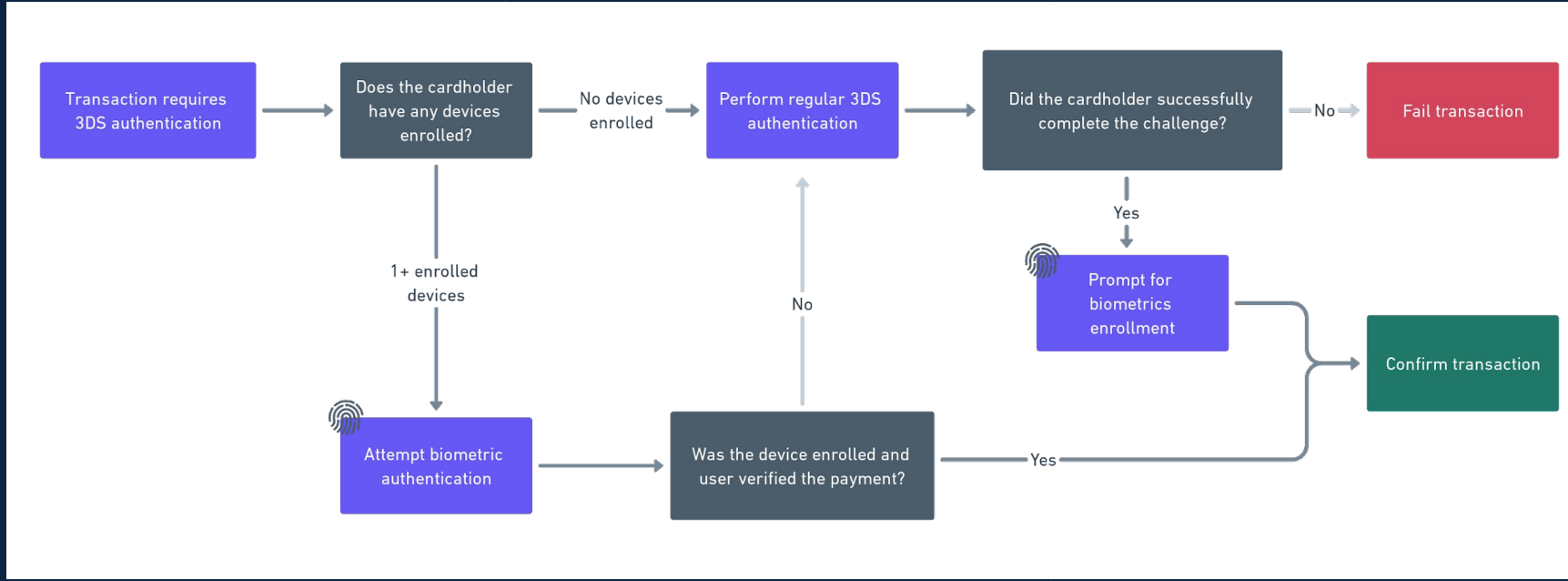
September 11, 2023

Private & Confidential

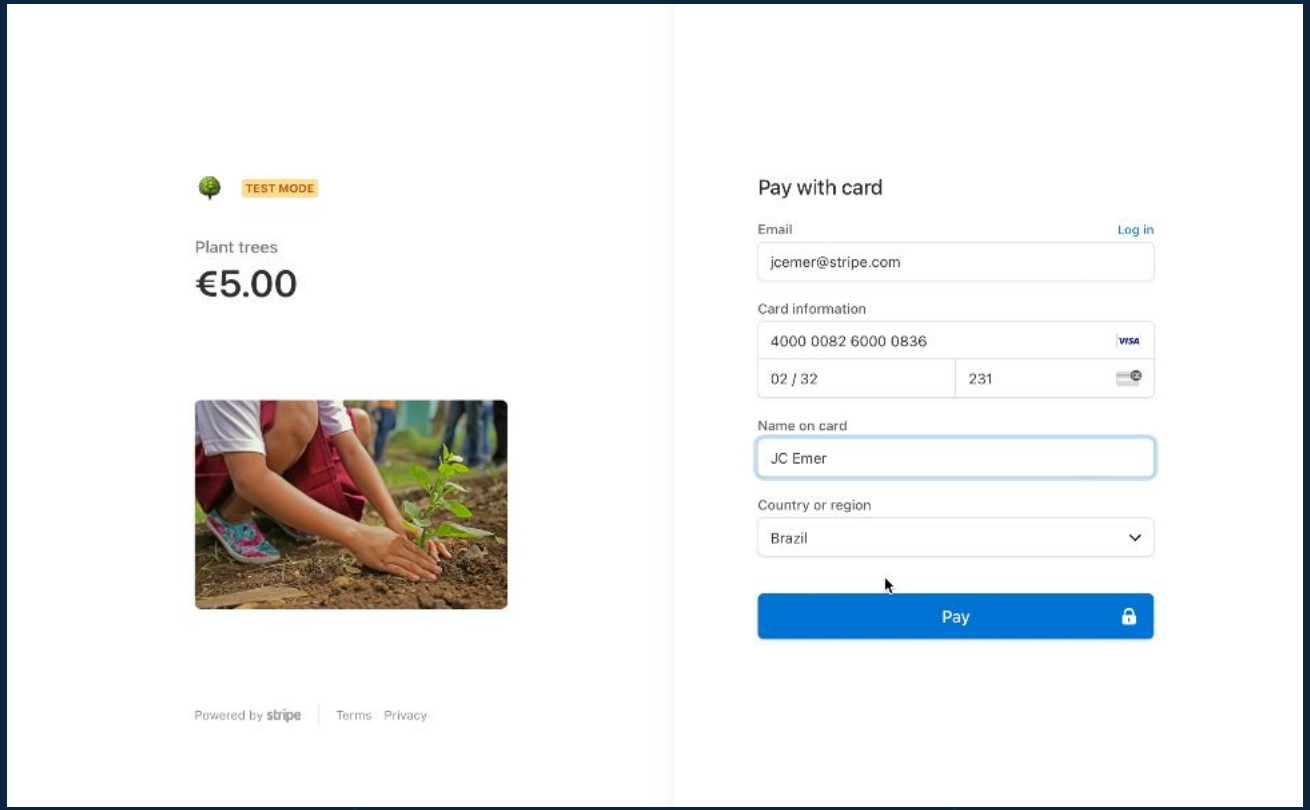
Regulation & fraud is resulting in …

1. **SIGNIFICANT GROWTH OF 3DS AUTHENTICATION** to secure transactions in compliance with SCA
2. **INCREASED FRICTION** for cardholders at checkout
3. **DECREASE IN CONVERSION** due to increased friction and abandonment
4. **DECREASE IN REVENUES** for merchants and issuers, due to lost interchange and abandoned purchases

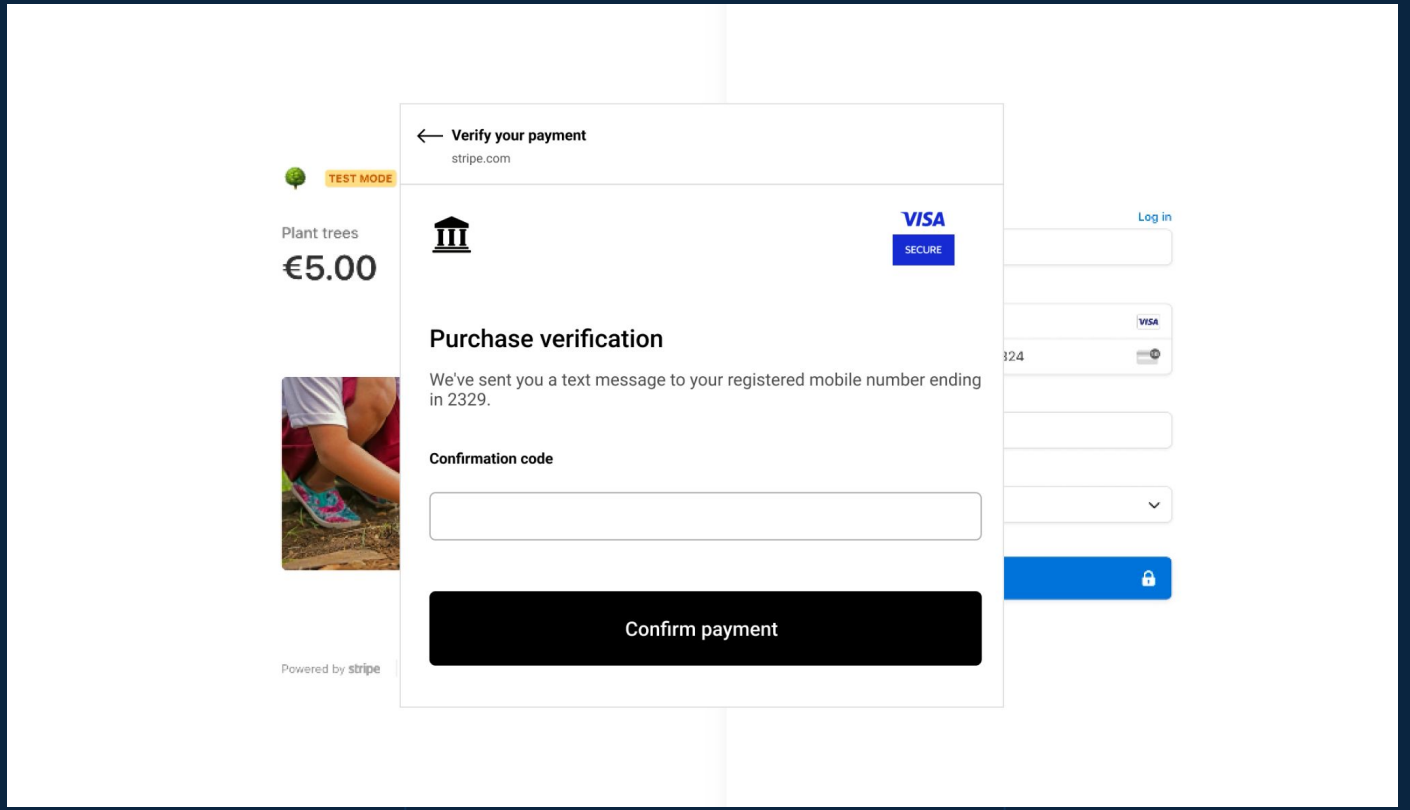
Solution – biometric authentication



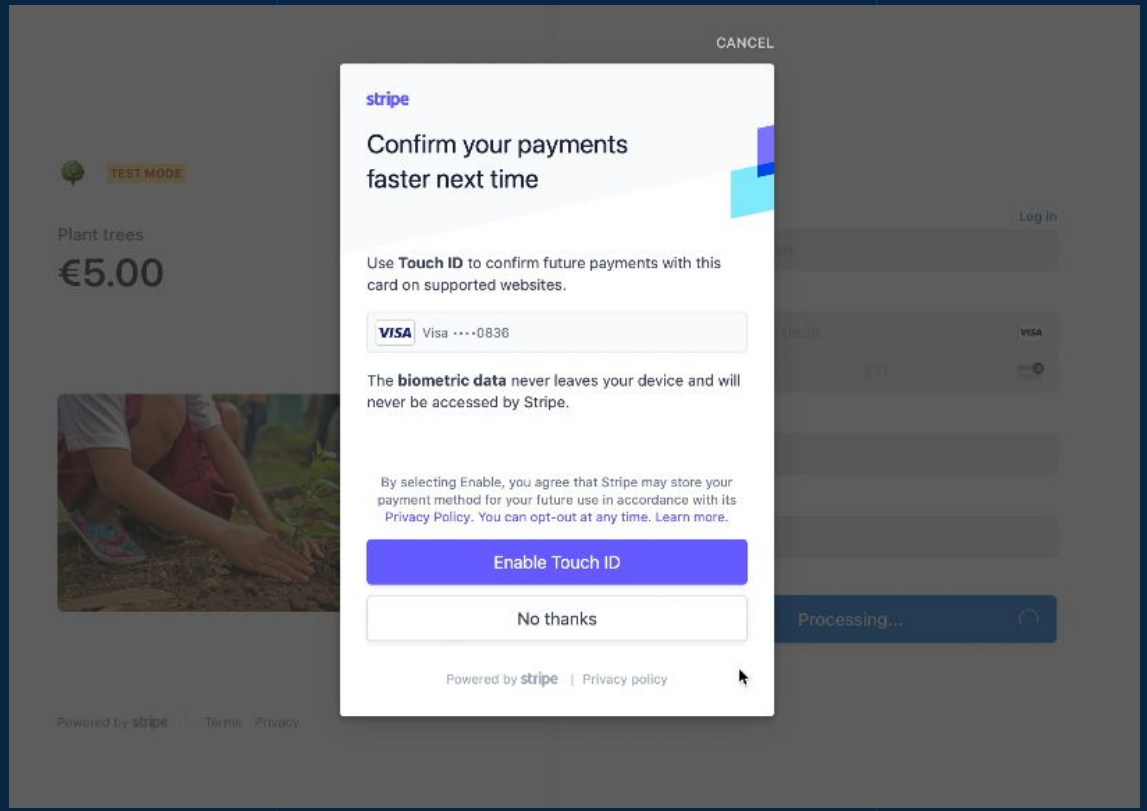
Enrollment: Merchant checkout



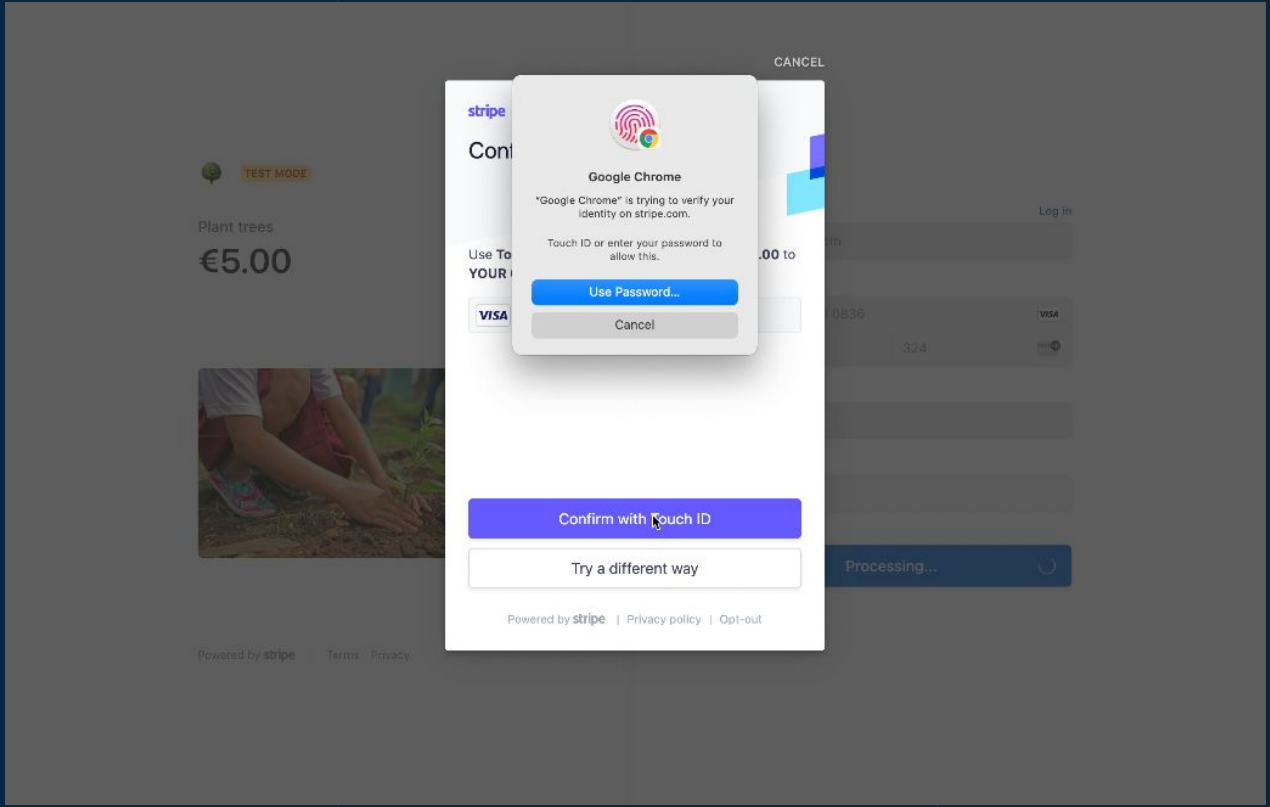
Enrollment: Issuer 3DS Secure authentication



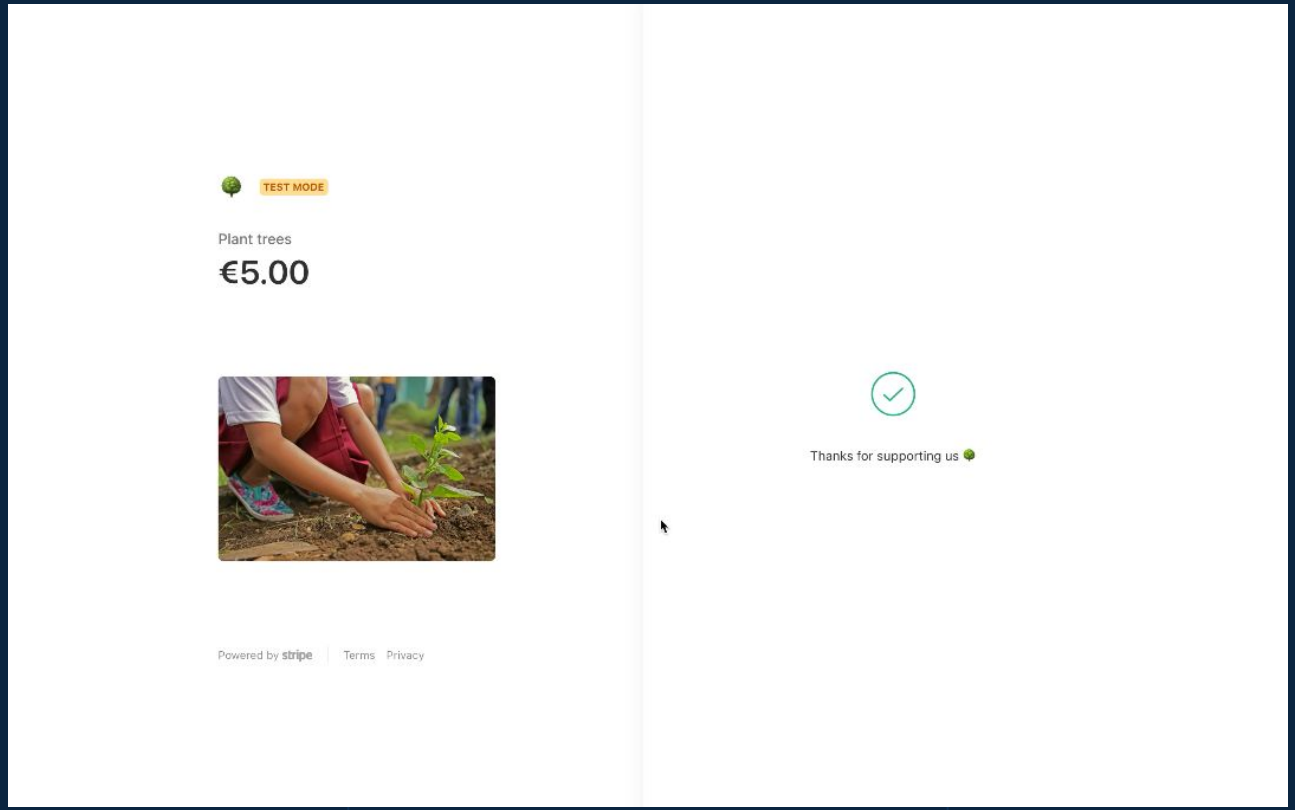
Enrollment: Biometric opt-in



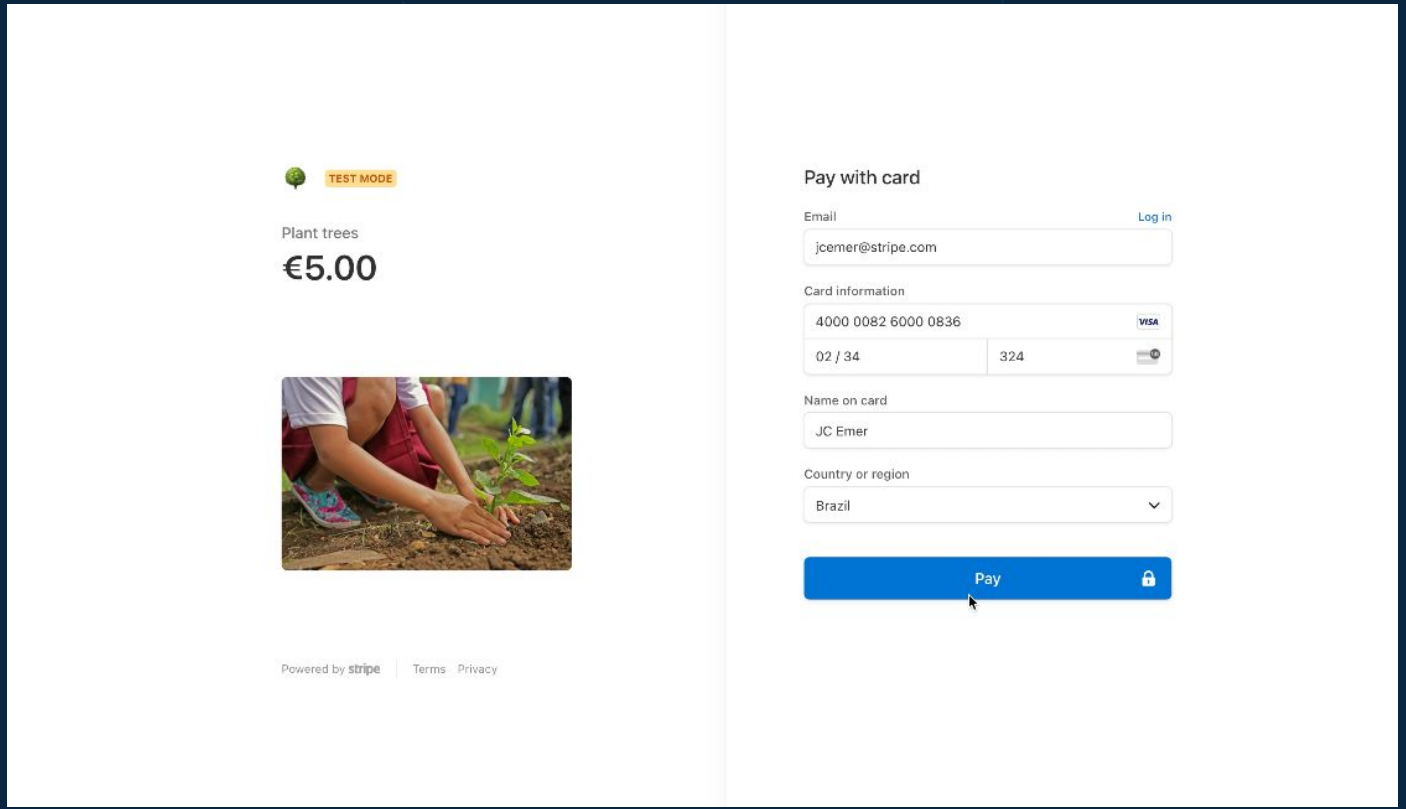
Enrollment: Biometric prompt



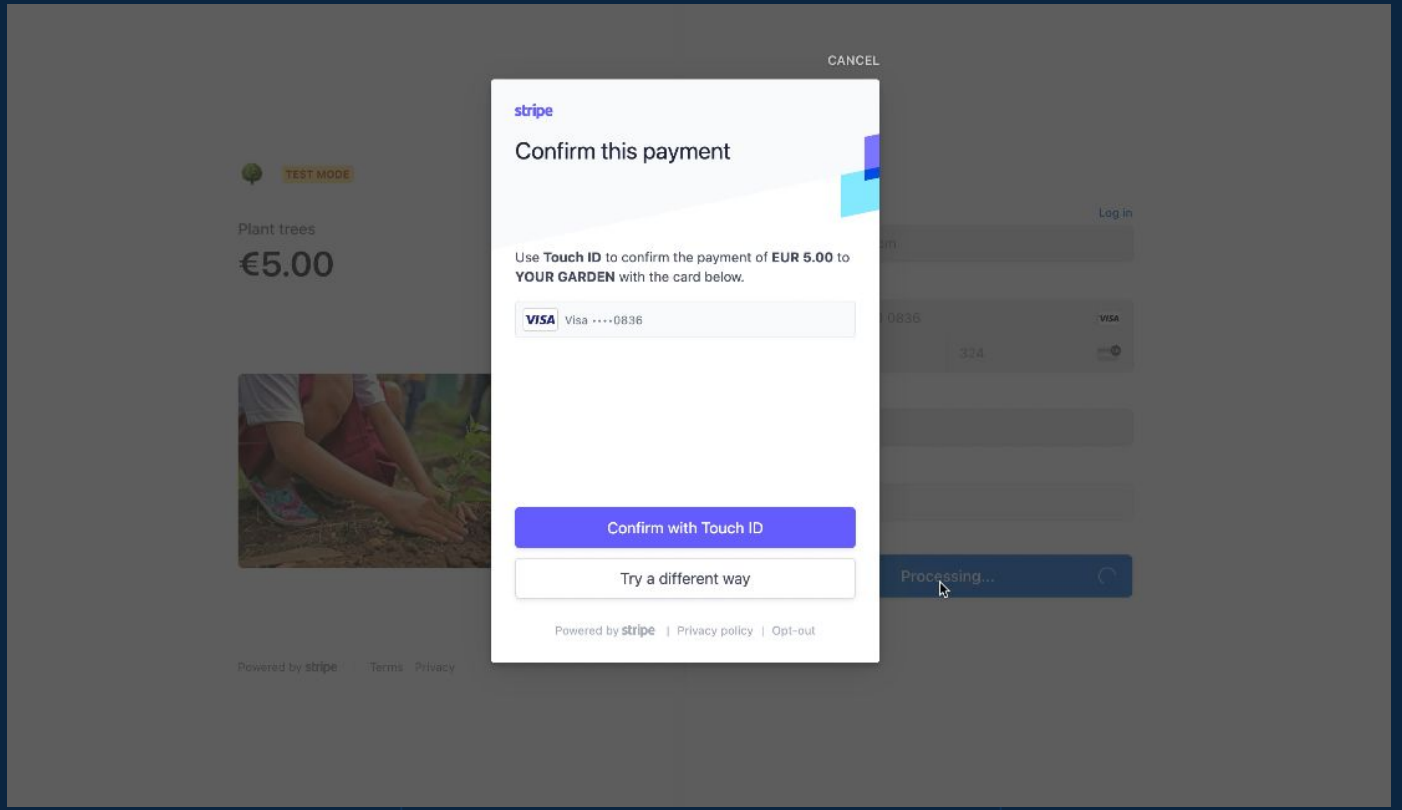
Enrollment: Payment confirmation



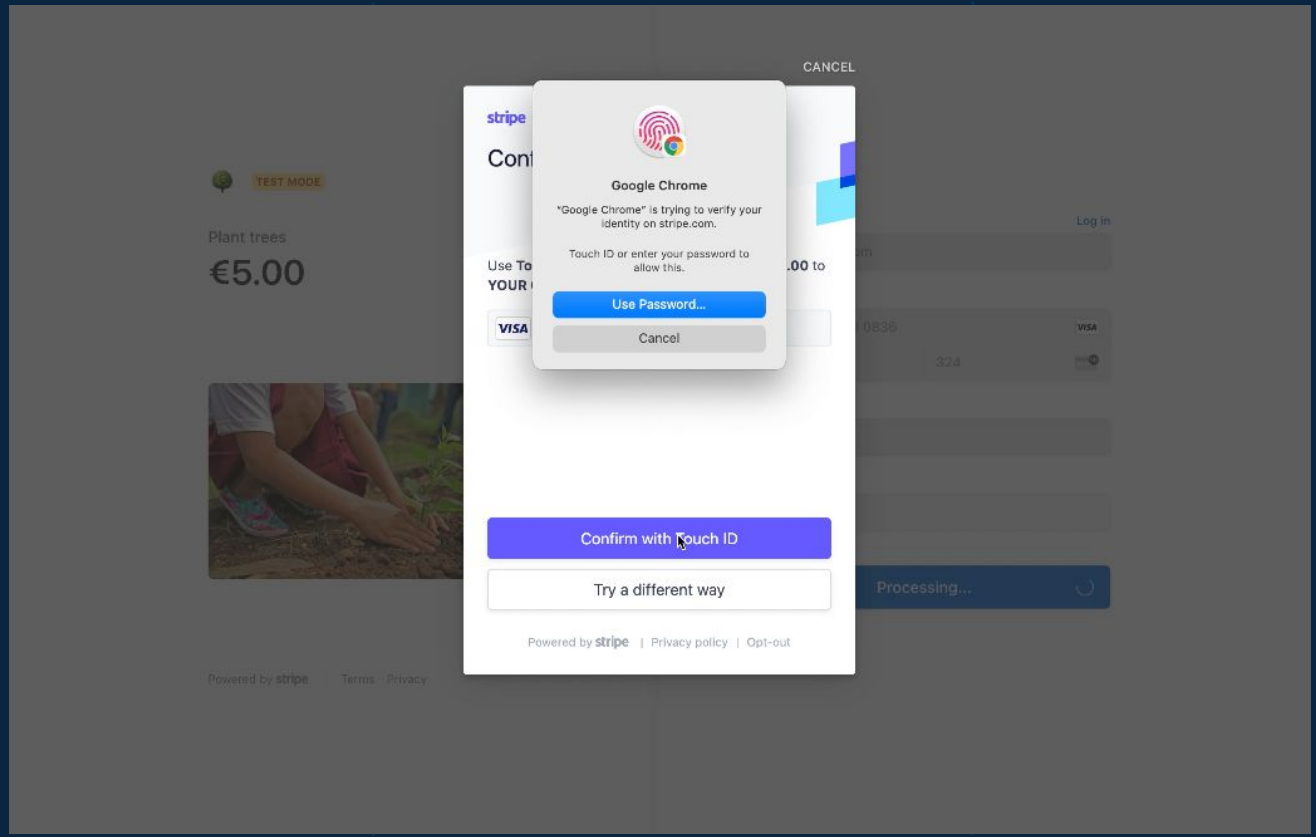
Authentication: Merchant checkout



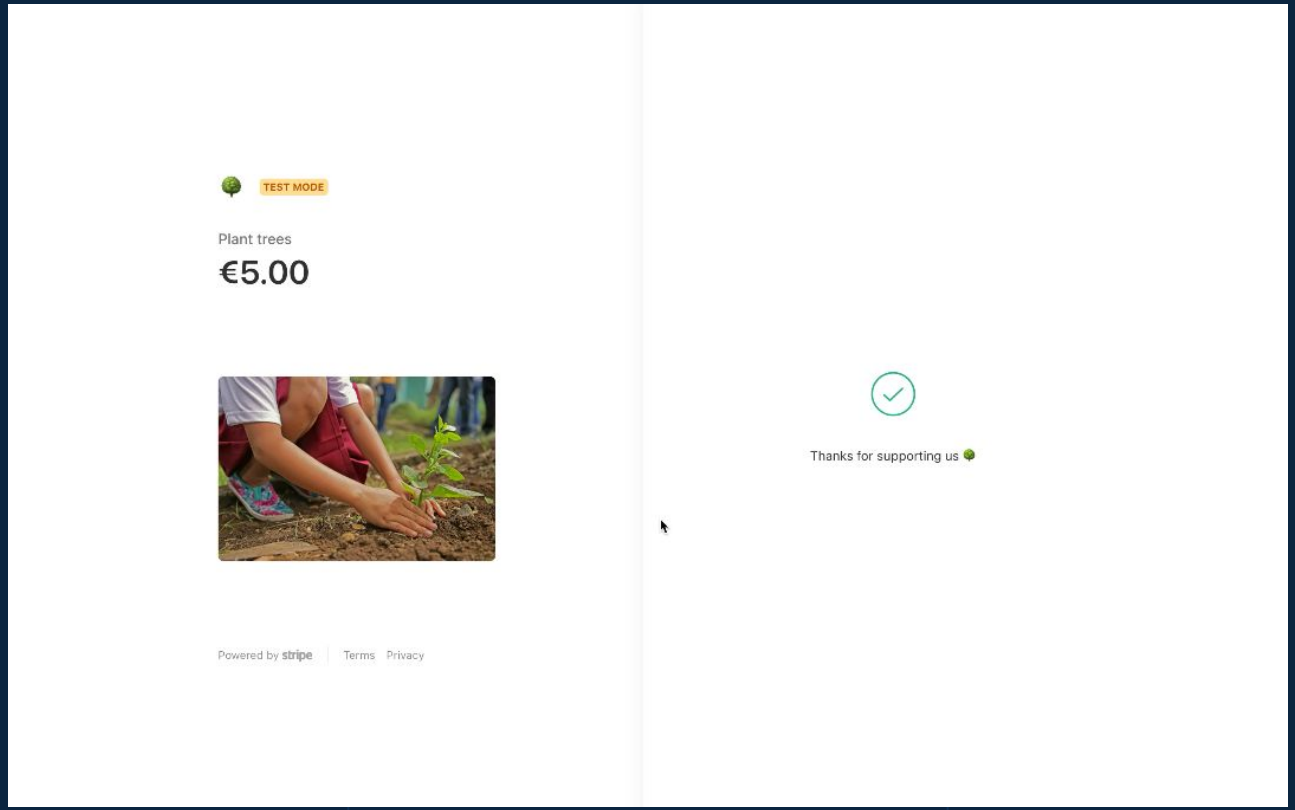
Authentication: Authentication prompt



Authentication: Biometric prompt



Authentication: Payment confirmation



Program results: Authentication

In **Q1 2023**, Stripe expanded our experiment offering SPC & WebAuthn as authentication instruments.

Preliminary data shows **authentication success rate increases by ~7pp** when enabling SPC/WebAuthn (with 3DS fallback) compared to just 3DS2.

Returning cardholders with enrolled biometrics have a **>95% authentication success rate** when selecting biometrics, but **~50% of enrolled users don't select biometric auth**. We believe the program makes good users better rather than improving poor checkout cohorts.

Authentication latency has reduced by ⅔ on average from 36ms down to 12ms when using biometrics rather than 3DS.

+7pp authentication success

~50% returning users choose biometrics

>95% returning user success

⅔ latency reduction

Program results: Authorization, fraud, & methods

Authorization rates appear to be *slightly* lower. Issuer declines require further investigation; not believed to be a technical issue with SPC or WebAuthn

Initial fraud signals look promising **with fraud reduced ⅔** on biometrics relative to traditional 3DS rails

Fraud is a lagging indicator so initial results are being tempered

Biometric success rates appear higher on WebAuthn than SPC; we're investigating why this is

⅔ fraud reduction

WebAuthn success rate > SPC

Further exploration

- Further examine experiment results – WebAuthn vs SPC, performance across browsers
- User experience research to understand cardholder pain points
- Expanding card issuer support for in-browser biometric authentication (e.g., via Visa's Delegated Authentication Framework / DAF)