

Streamlining Web Payments

Ian Jacobs, W3C
<ij@w3.org>

Overview

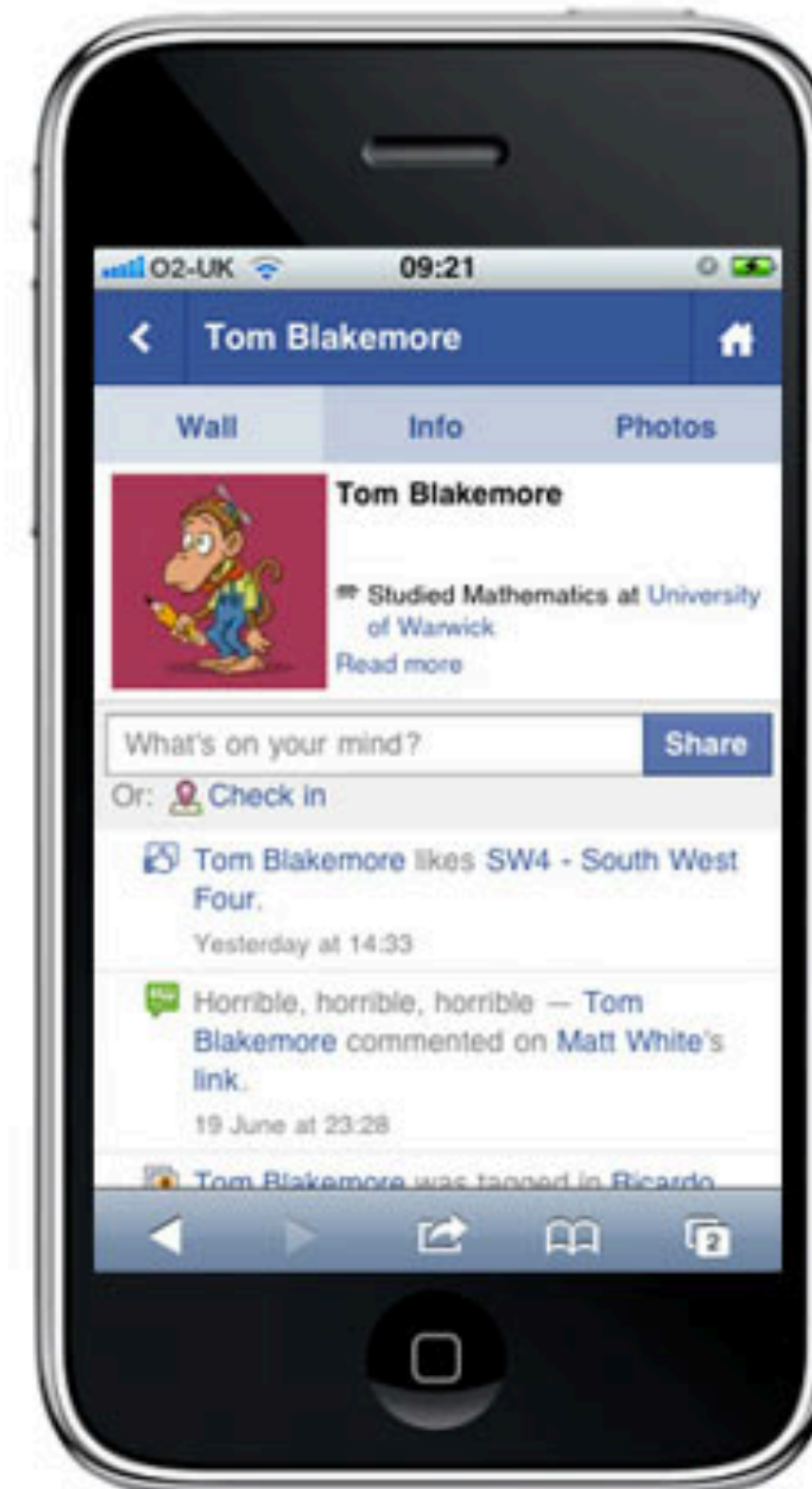
- Web Benefits
- Payments, Authentication, and related activities
- About W3C

Which platform(s) do you choose for app development?

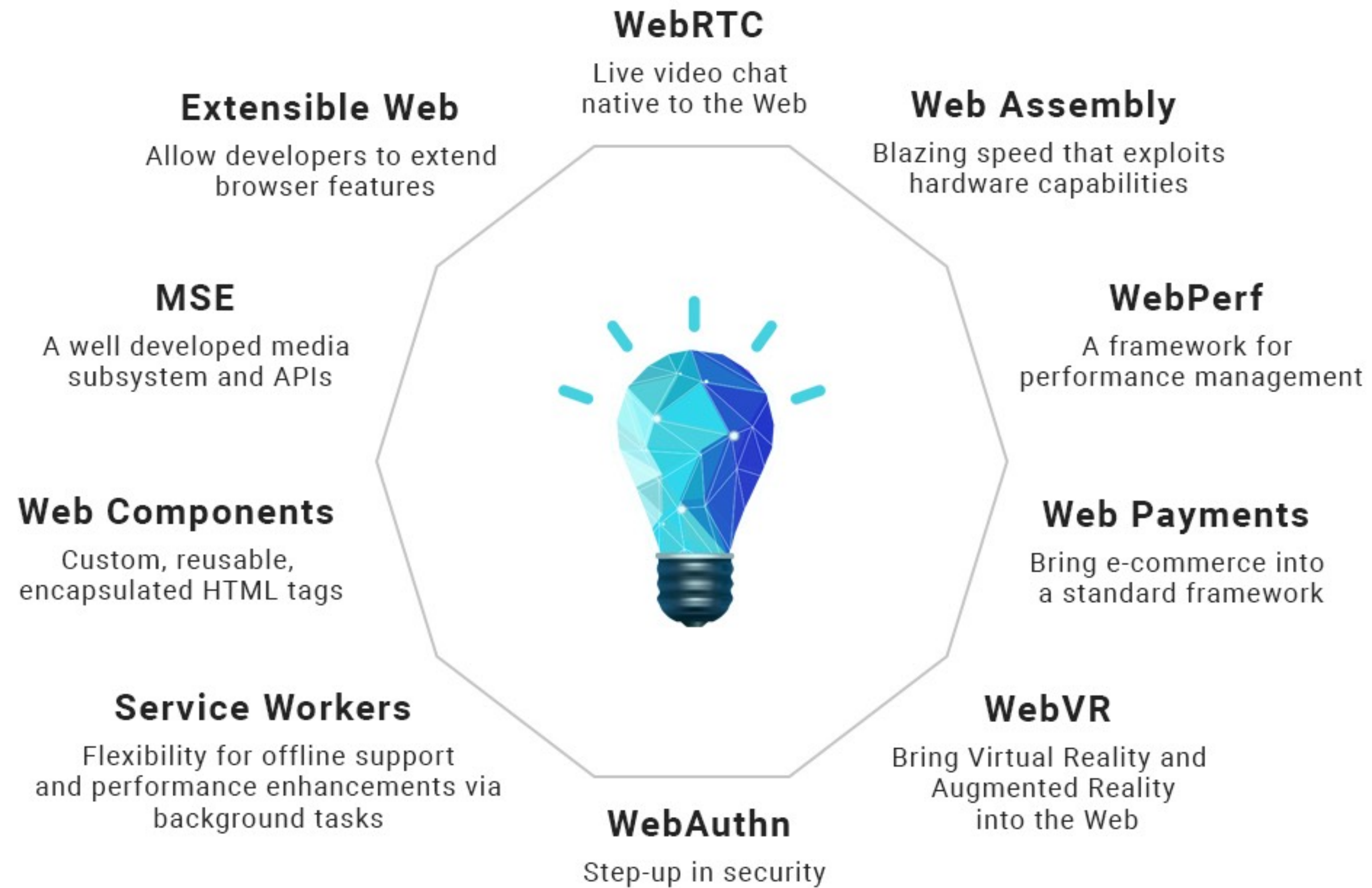
NATIVE APP

VS

WEB APP



Web Benefits: New Capabilities

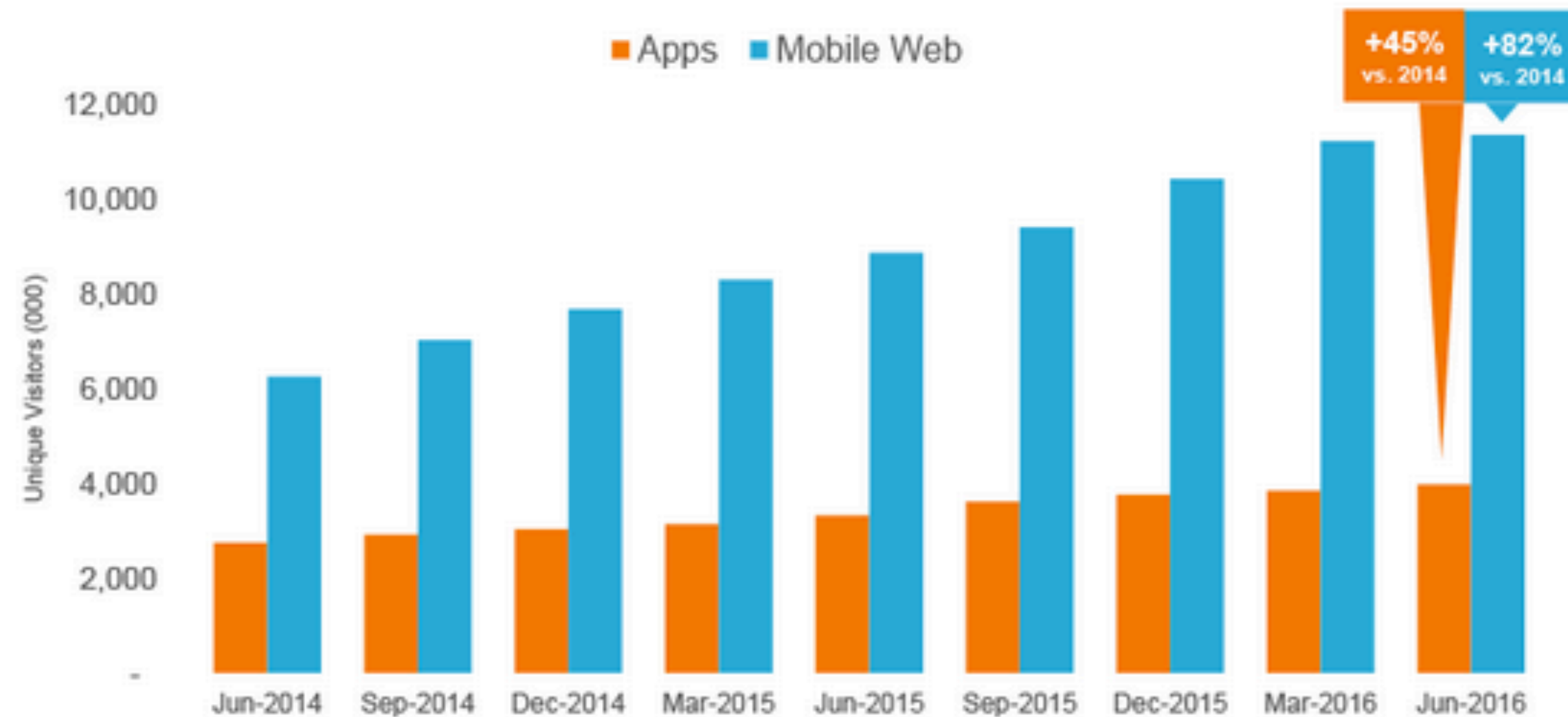


Web Benefits: Customer Reach

And mobile audience growth is being driven more by mobile web properties, which are actually bigger and growing faster than apps.

Average Monthly Audience: Top 1000 Mobile Apps vs. Top 1000 Mobile Web Properties

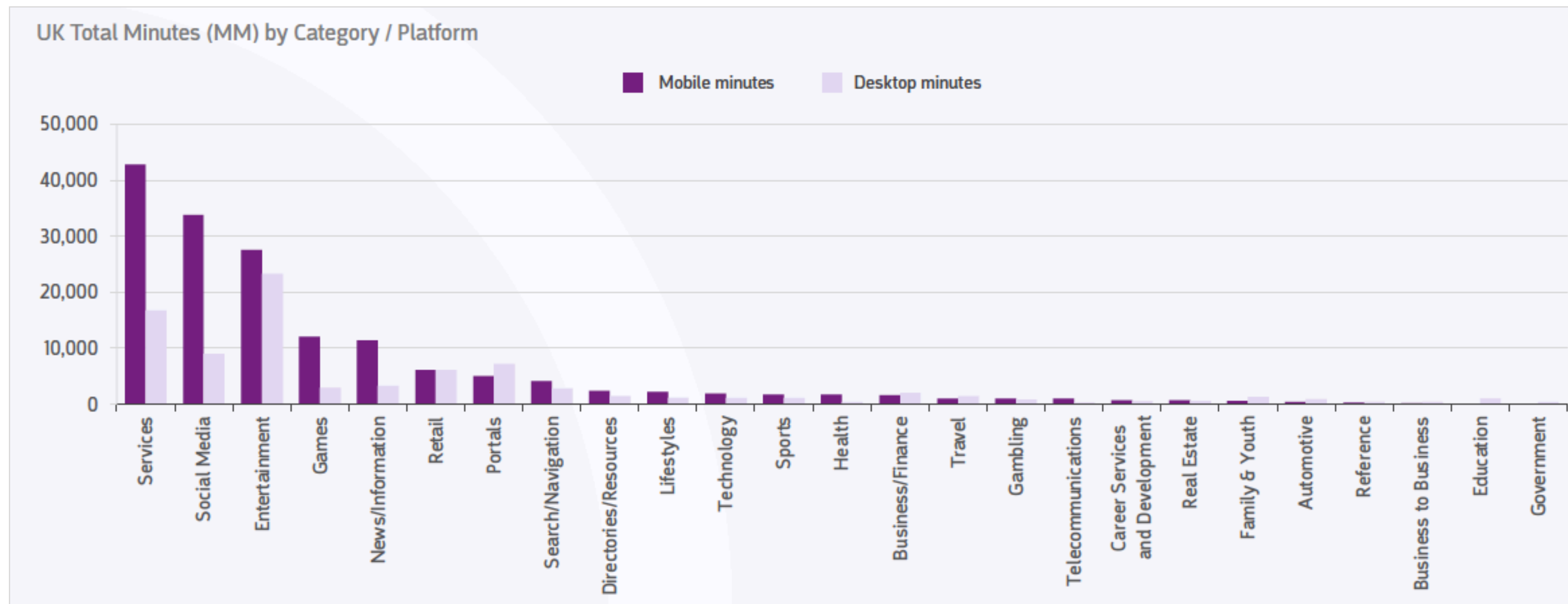
Source: comScore Mobile Metrix, U.S., Age 18+



INSIGHT

A comparison of the Top 1000 Apps vs. the Top 1000 Mobile Web Properties shows that despite apps dominance in usage time, mobile web is responsible for big audiences on mobile. Mobile web audiences are almost 3x the size and growing 2x as fast as app audiences.

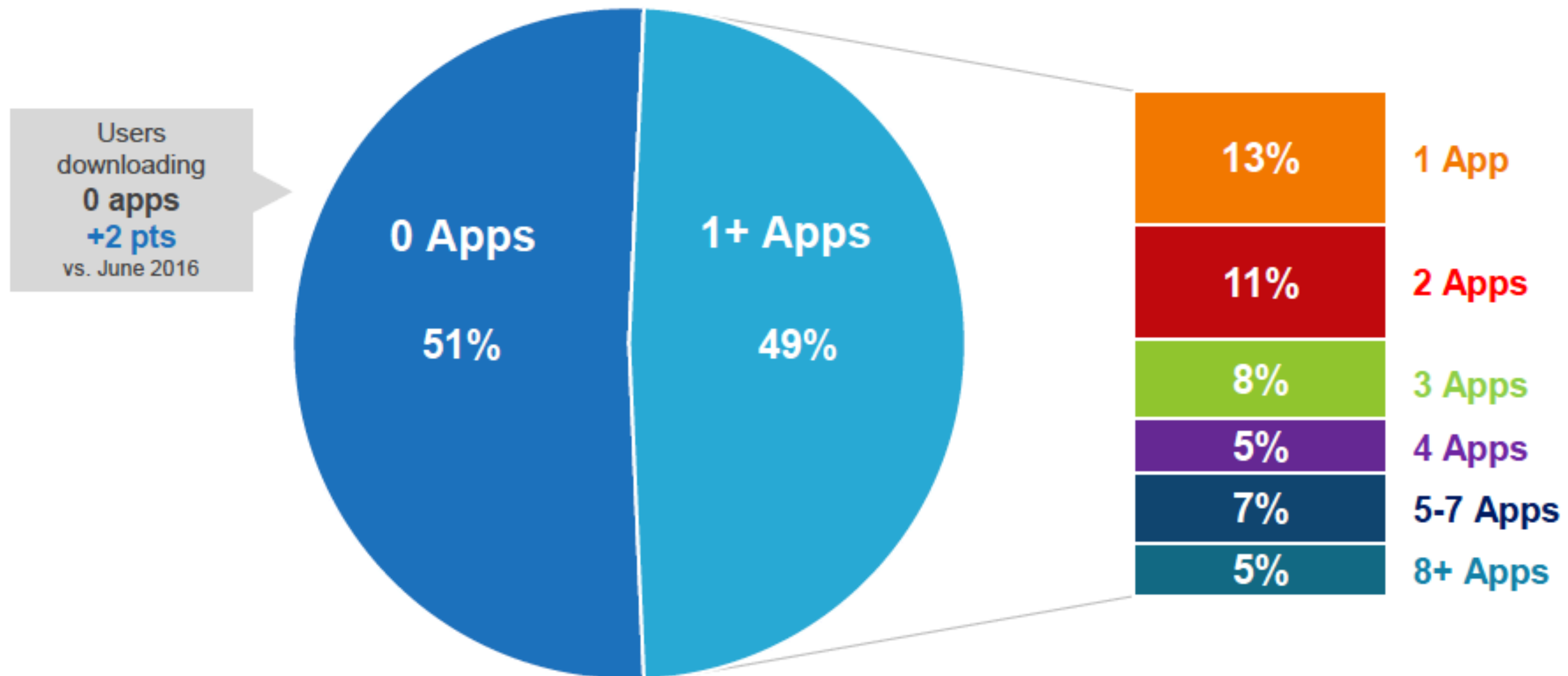
Web Benefits: Desktop, Mobile, More



Web Benefits: App Saturation

Smartphone Users' Number of App Downloads Per Month

Source: comScore MobiLens, U.S., Age 13+, 3 Month Average Ending June 2017



Web Benefits: And More!

- Write once, run anywhere
- No installation required
- No app store needed (but can wrap app to include in store)
- In-place content updates
- Huge global Web developer community
- Royalty-free standards from W3C
- Opportunities to reduce code size and development cost



W3C Working Groups

- Web Payments - Streamlined checkout
- Web Authentication - Strong customer authentication
- Automotive - API access to vehicle data; payments
- Web of Things - Bridging disparate IOT standards stacks
- Verifiable Claims - Interoperable claims, credentials, decentralized identity

See also: [All W3C Working Groups](#)

Web Payments

The Problem with Mobile Checkout Today

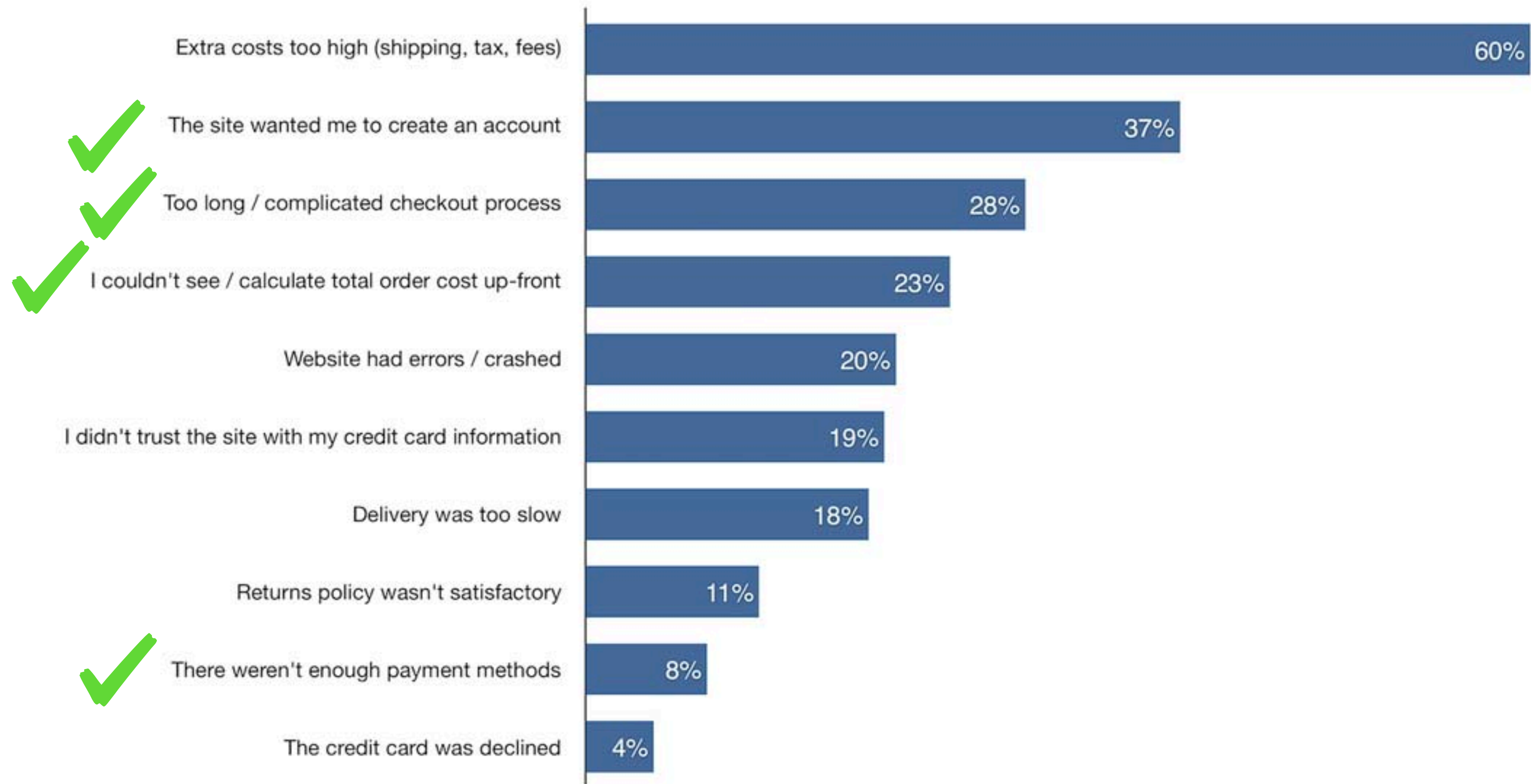


Opportunities to Reduce Abandonment

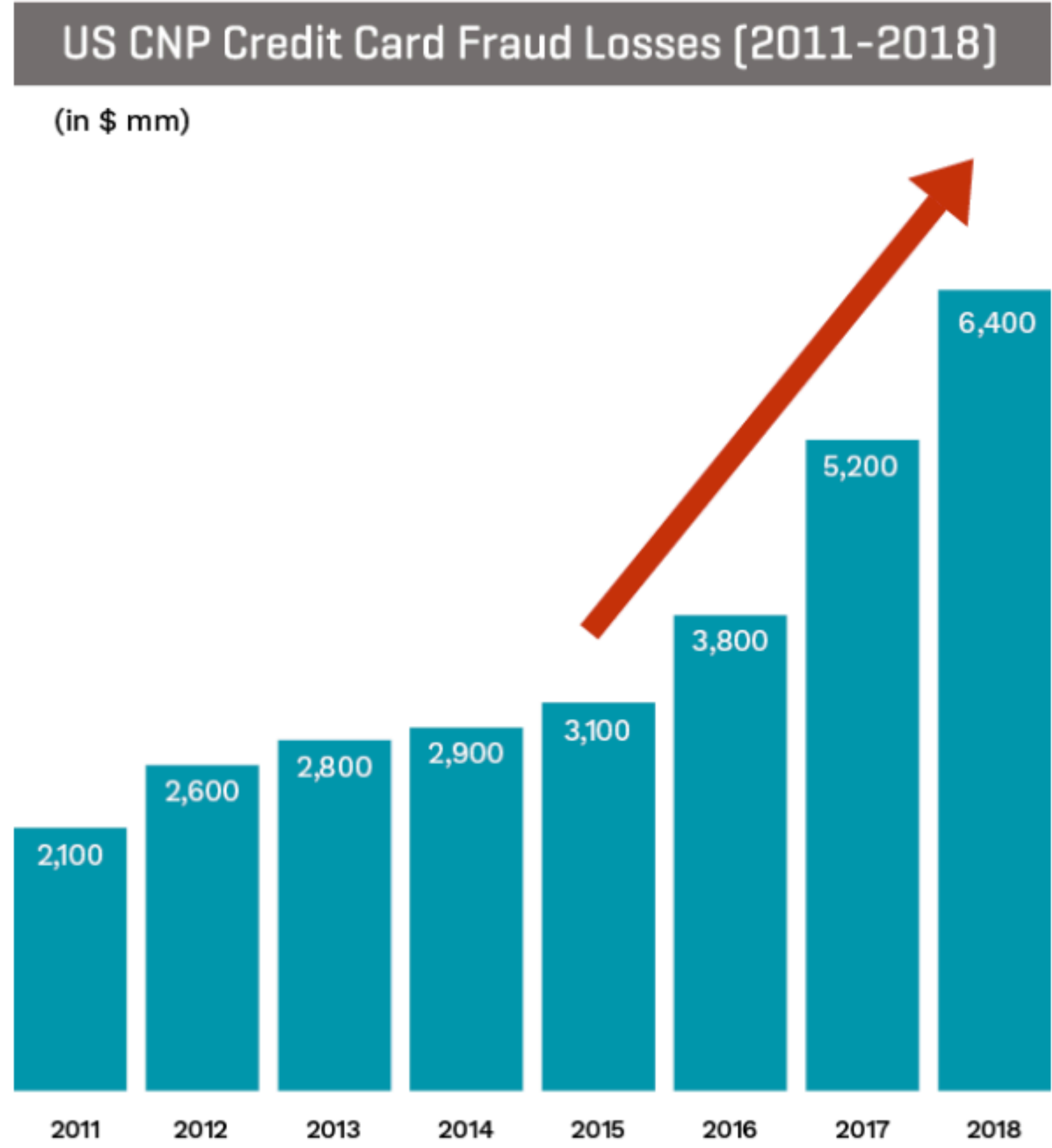
✓ = we think we can help

1,799 responses · US adults · 2017 · © baymard.com/checkout-usability

"Have you abandoned any online purchases during the checkout process in the past 3 months? If so, for what reasons?"
Answers normalized without the 'I was just browsing' option



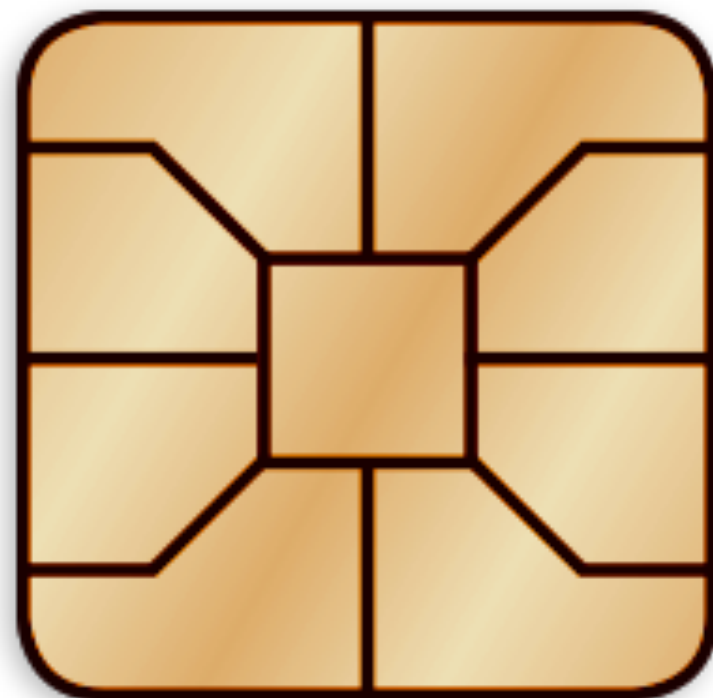
Opportunities to Reduce CNP Fraud



Source: [Kount](#)

Context Driving Discussion

- Mobile (hardware capabilities, device connectivity, etc.)
- Strong authentication rules and regs (e.g., 3DS2, PSD2)
- Payment innovation (digital wallets, blockchain, faster payments)
- EMV migration (fraud moves online)



Time to Fix Web Payments

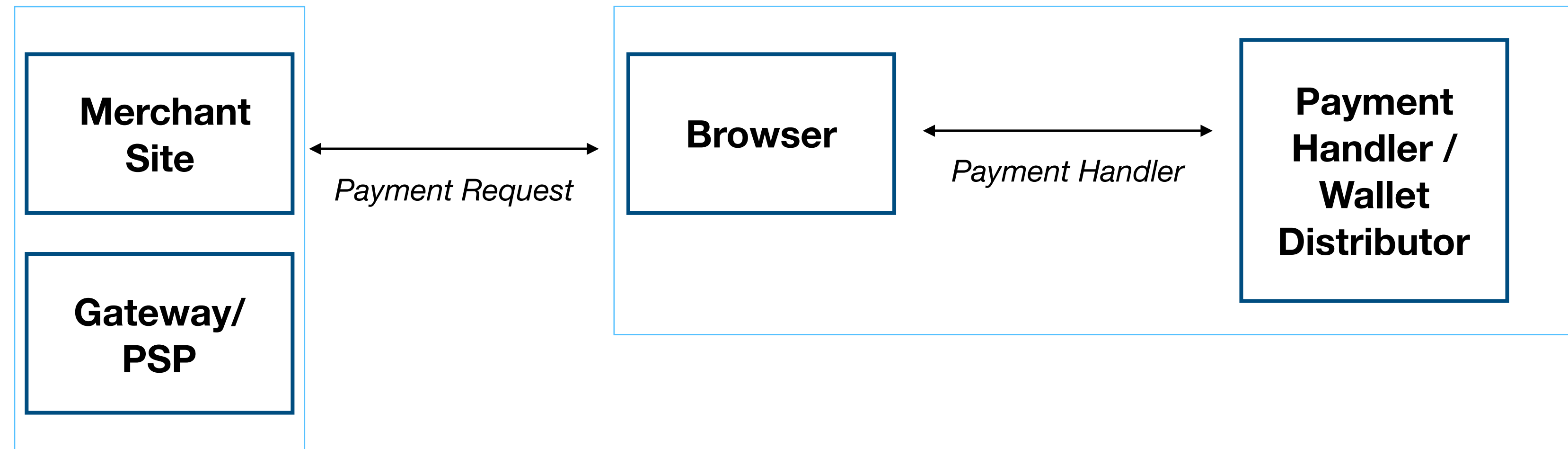
- Streamline checkout, facilitated by the browser
- Secure data and enable strong authentication
- Foster payment method innovation



Ecosystem Impact

Merchant Services side

User / Issuer side



Indirectly Impacted

- Card networks, token service providers, 3DS Servers
- Push payment networks
- Under PSD2: PISPs, AISPs

Ecosystem Participation

Merchant side

User side

Other Stakeholders

Merchants

- Airbnb
- Alibaba

Browsers/Platforms/Services

- Apple
- Facebook
- Google
- IBM
- Intel
- LGE
- Microsoft
- Mozilla
- Oath
- Opera
- Oracle
- Samsung
- Seeroo
- Tencent
- Yandex

Networks

- American Express
- Carte Bancaire
- Clearing House
- Discover
- JCB
- Mastercard
- Visa

Gateways/PSPs

- BlueSnap
- Klarna
- PayGate
- Reach
- Ripple
- Shopify
- Stripe
- Worldpay

Payment Handler / Wallet Providers

- Abine
- Apple
- Beem It
- Bread
- Digital Bazaar
- Google
- Klarna
- Microsoft
- Samsung

Associations / Regulators / Bodies

- MAG
- Conexus
- ETA
- IFSF
- ISO 20022
- GS1
- HM Government
- PayCert
- Payments Canada
- US Fed

Acquirers/Processors

- Lyra Networks
- Shift4
- Unify
- Worldpay

Issuers

- American Express
- Bank of America
- Barclays
- BPCE
- Capital One

Telcos

- China Mobile
- Deutsch Telekom
- Orange
- Telenor

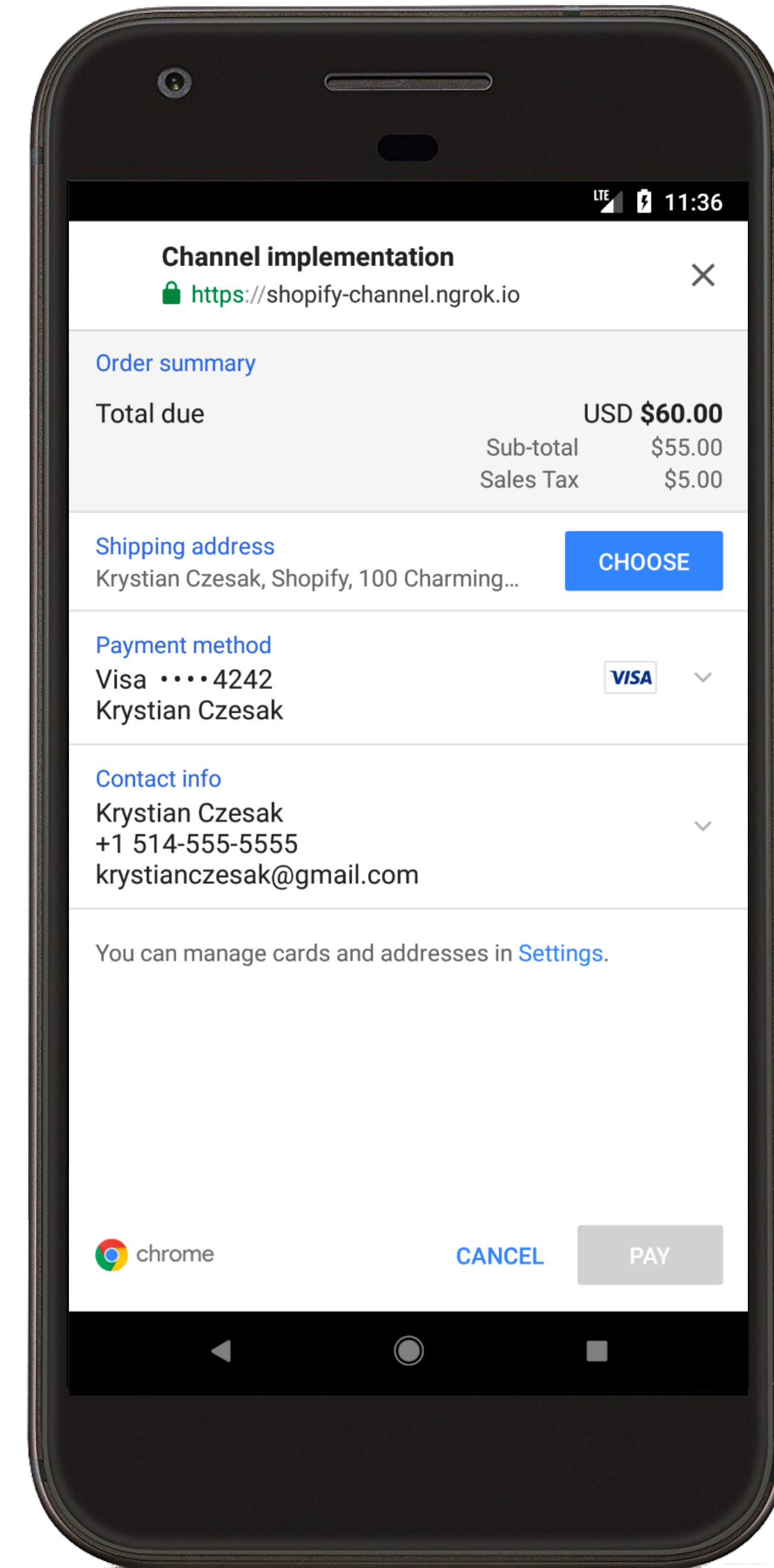
Web Payments Working Group



- Abine
- Airbnb
- Alibaba
- American Express
- Apple
- BarrierBreak
- Blockstream
- Bloomberg
- Bluesnap
- Bread
- Capital One
- Canton Consulting
- Carte Bancaires (CB)
- CDT
- China Mobile
- Department of Human Services
- Deque Systems
- Deutsche Telekom
- Digital Bazaar
- Discover
- ETRI
- Facebook
- Federal Reserve Bank of Minneapolis
- FIME
- Google
- GROUPE BPCE
- GS1
- GSMA
- HM Government
- IBM
- INRIA
- Inswave
- Intel
- IFSF
- ISO 2022 Registration Authority
- JCB
- Klarna
- Knowbility
- KPN
- LGE
- Lyra Network
- Mastercard
- MAG
- Microsoft
- Mozilla
- NACS
- NIC.br
- Oath
- Open Banking LTD
- Opera
- Oracle
- Orange
- Paciello Group
- PayCert
- PayGate
- Reach
- Ripple
- Samsung
- Seeroo
- Shift4
- Shopify
- Spec-Ops
- Stripe
- Telenor
- Tencent
- The Clearing House
- Unify
- Visa
- Wiley
- Worldpay

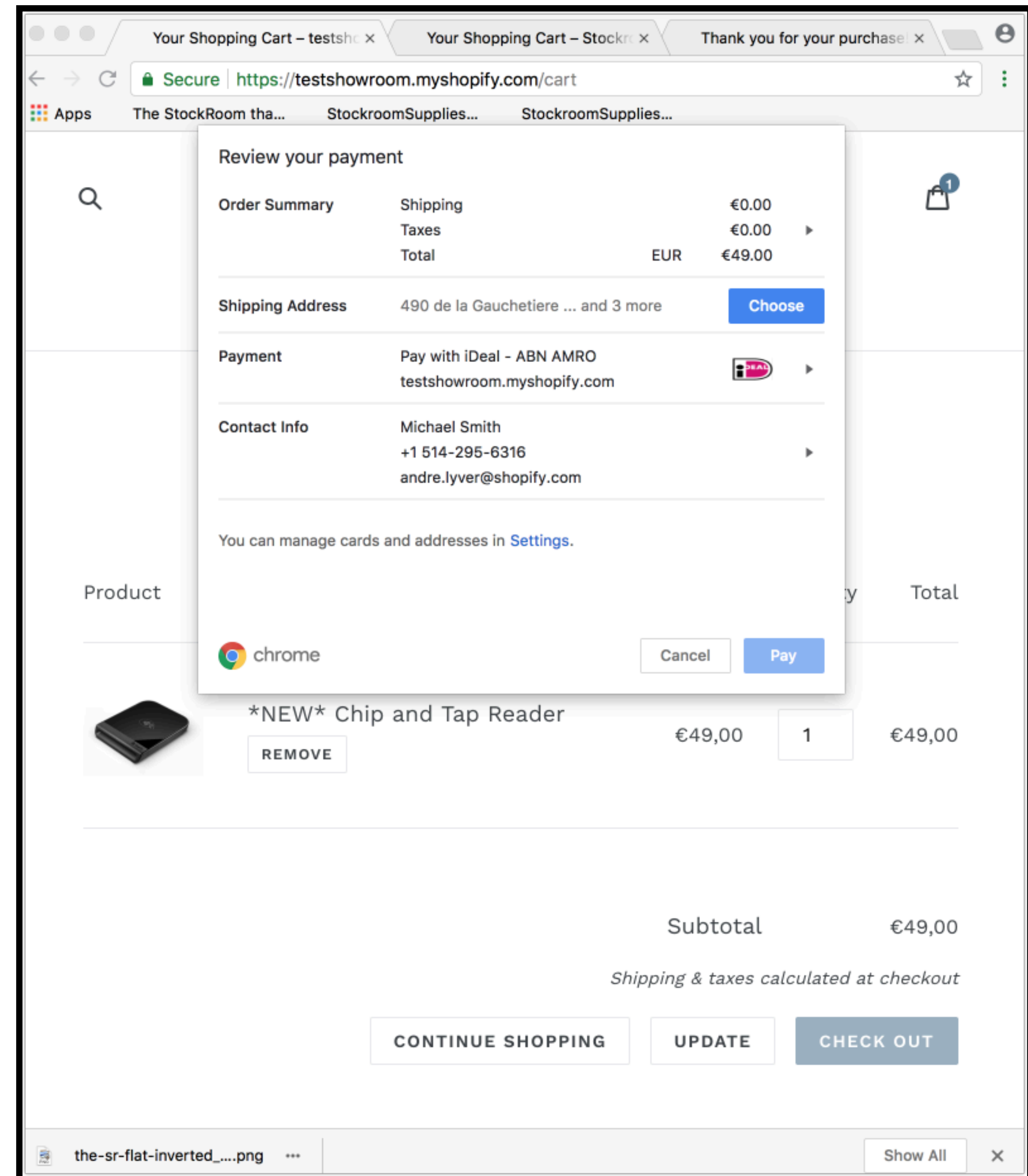
Payment Request API

- Streamlines checkout by making it easy for the user to re-use stored data.
- Creates a consistent checkout experience across the Web to speed up conversions.
- Reduces merchant integration costs; use one API instead of multiple API integrations.



Payment Handler API

- Enables users to make payments on the Web using Web-based payment handlers (“digital wallets”).
- Enables issuing banks and other payment service providers to maintain customer facing relationships, improve security offerings, and provide value-added services alongside payments.
- Simplified user experience through browser-based UX.



Early Adoption Feedback



“[With Payment Request], the median time for buyers with `canMakePayment() = false` is 3:17 whereas the median time for buyers with `canMakePayment() = true` is 2:25. This is promising, as **both medians are faster than our standard checkout.**” ([Read more](#))

J.CREW

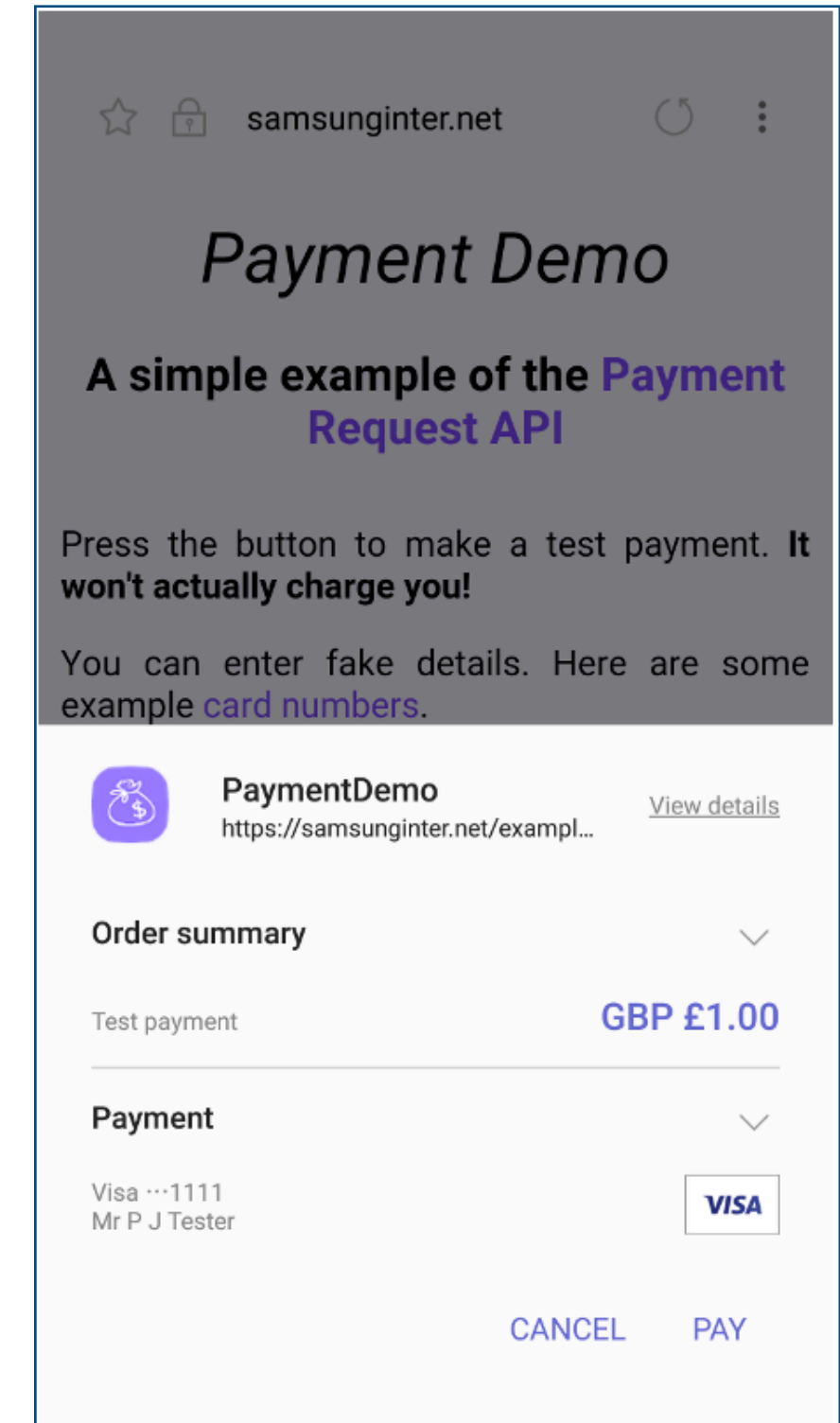
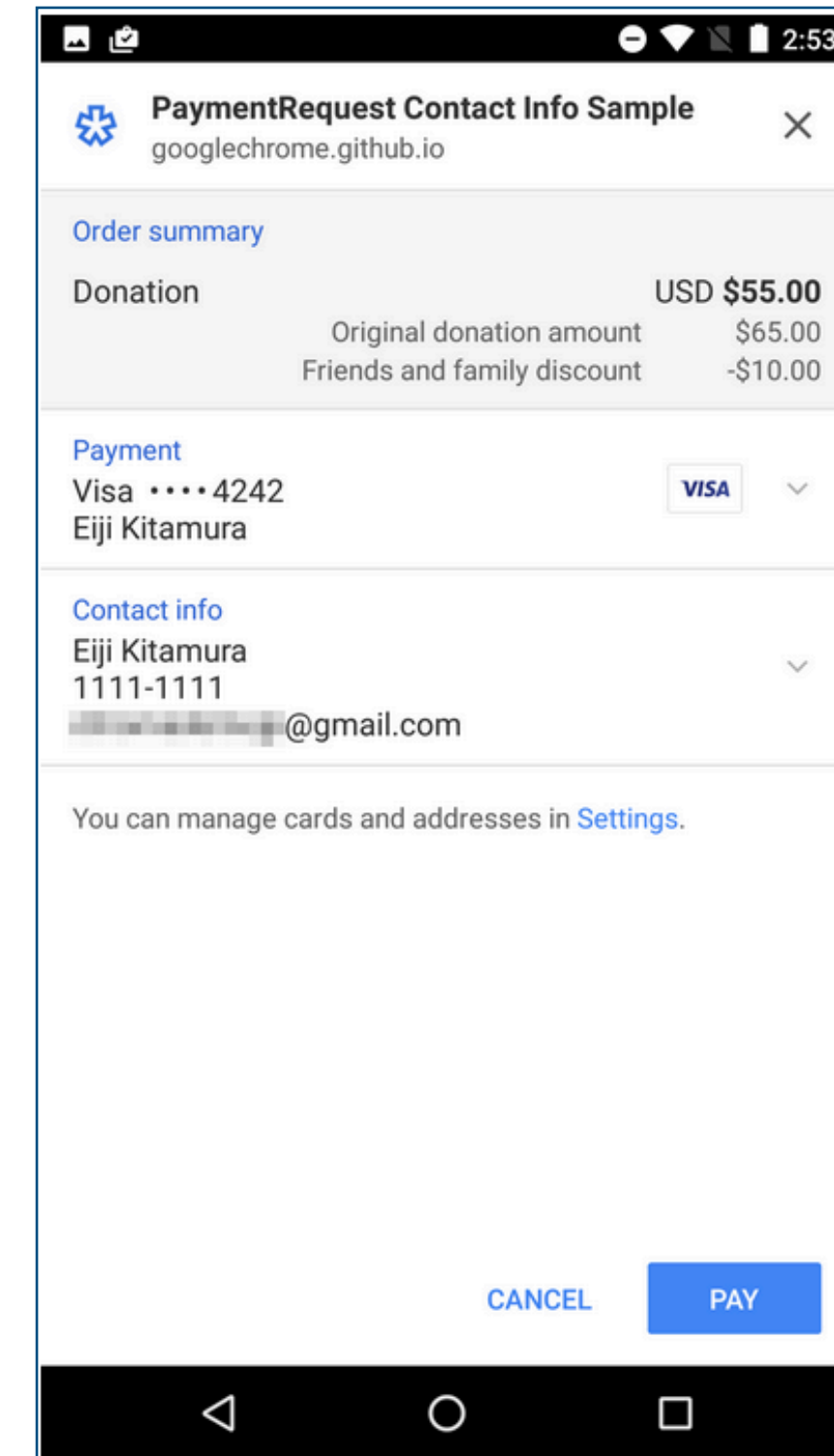
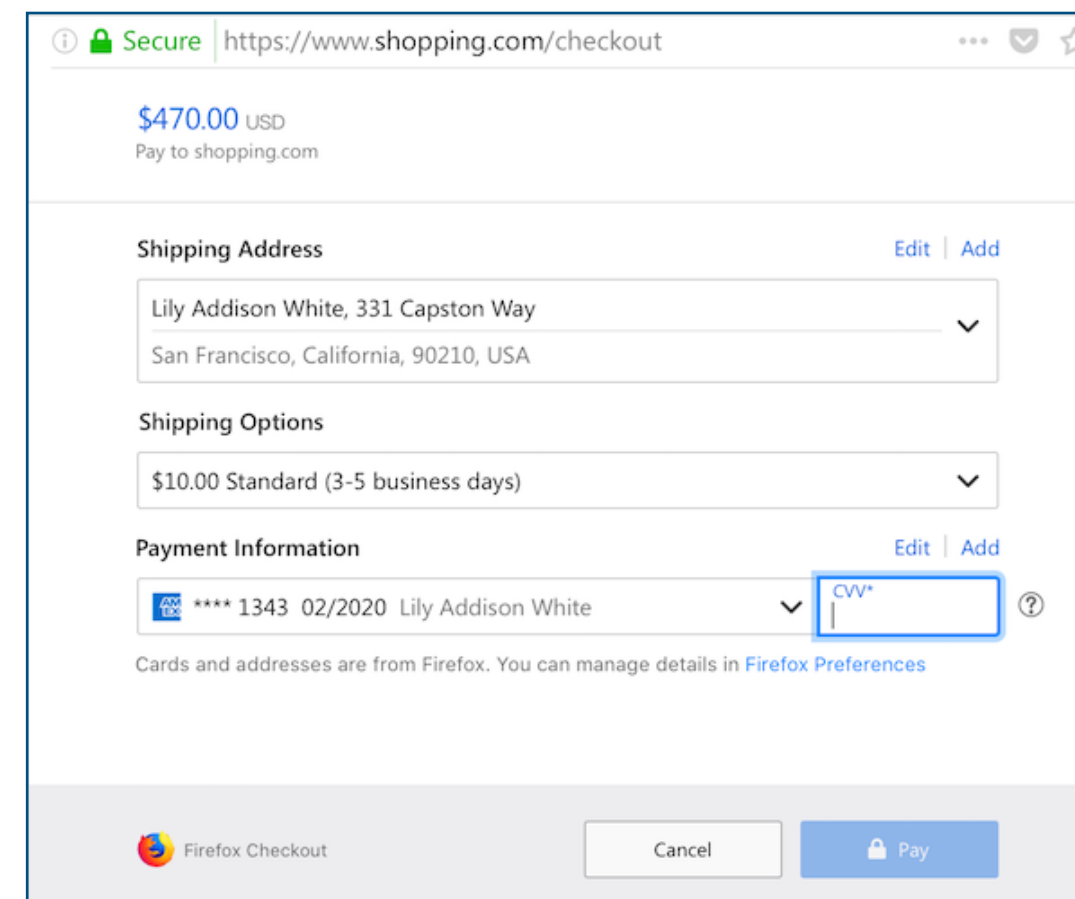
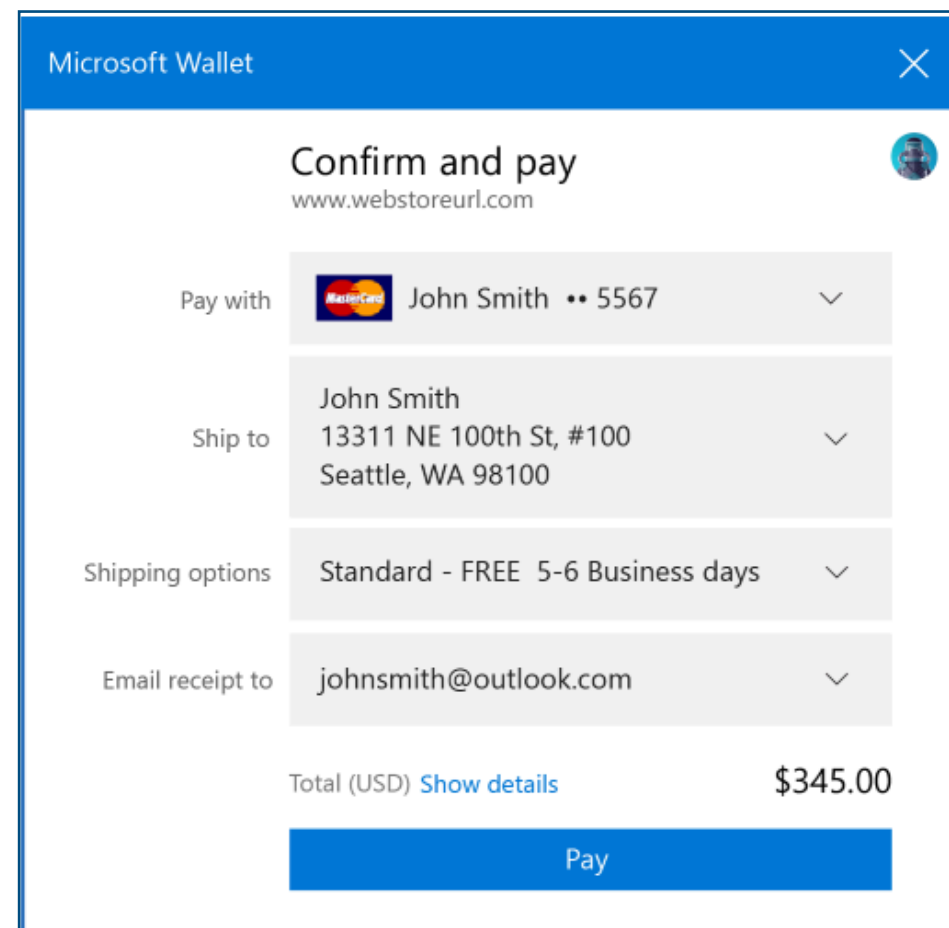
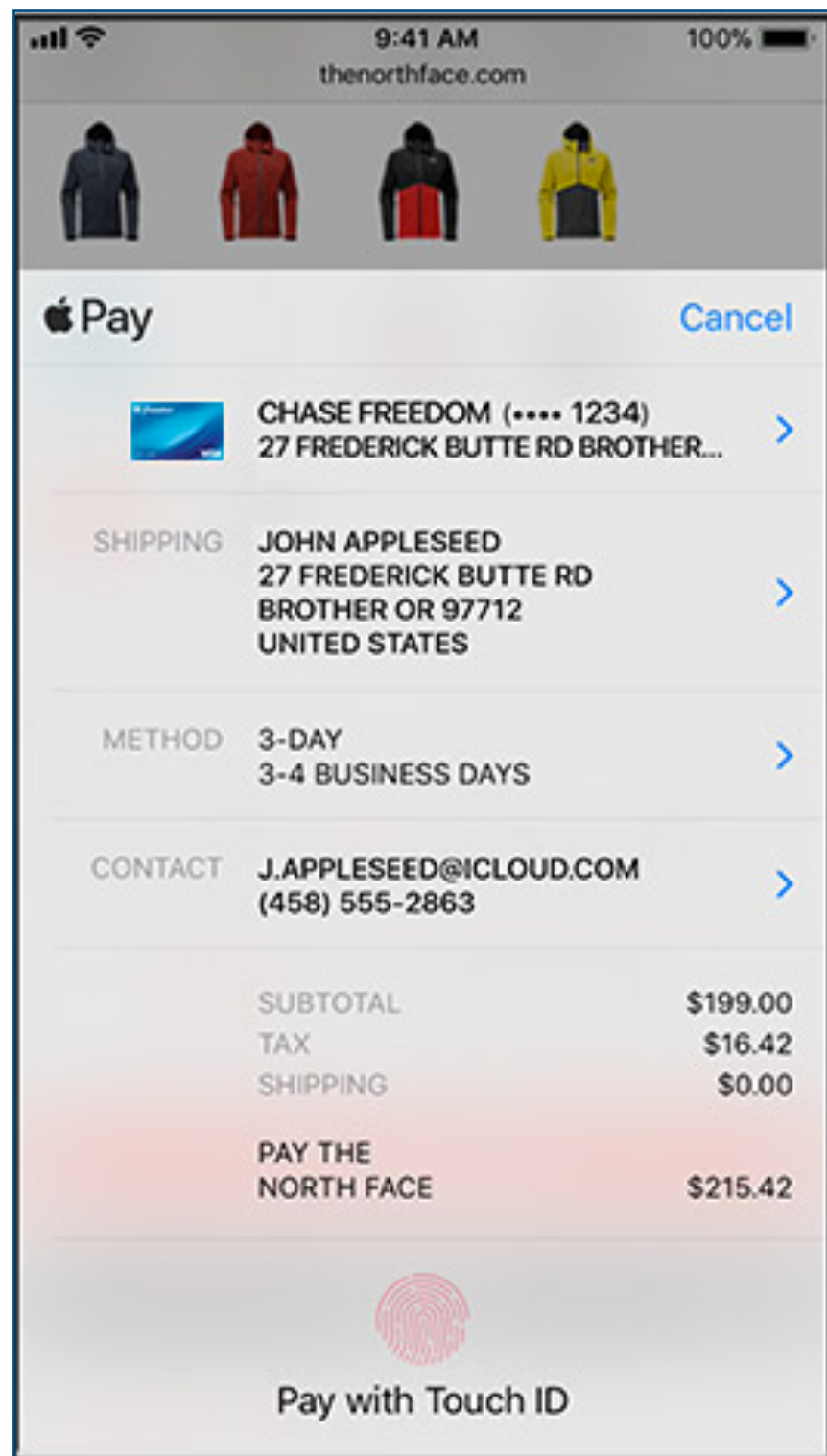
“The firm has also sought to make it easier for consumers to convert at checkout with the “Payment Request API” ... **Wait times** for checkout on J.Crew’s online store have **decreased 75 percent** from more than two minutes four months ago, according to a J.Crew spokeswoman.” ([Read more](#))

Payment Request Implementation Status



- Chrome, Edge, Safari, and Samsung Internet **today** ship with support for Payment Request. Firefox (nightly) expected August 2018.
- Facebook, Shopify, Stripe, Braintree, WePay, Bluesnap, Paysafe, BS Payone support Payment Request API.
- Expect Payment Request API to advance to Recommendation by Q1 2019.
- Start planning to use the API **now**. Implementations will solidify over the next 9 months.

Current User Experiences



Payment Handler Implementation Status

- June 2017: Google releases Payment Handler API support in Chrome 68.
- Mozilla and Samsung have also indicated publicly intent to implement.
- Numerous companies are experimenting with Web-based payment handlers, including Coil, Facebook, Klarna, Lyra Networks, Mastercard, Shopify, Worldline, and Worldpay.
- Implementations of Payment Handler API and Payment Method Manifest are still experimental and we welcome early feedback.
- Note also:
 - Google is developing a Web-based payment handler for Google Pay.
 - Google also supports access to native Android payment handlers, including Google Pay, Alipay, Samsung Pay, MasterPass, PayPal, Square, etc.
 - Apple supports access to one iOS-based payment handler: Apple Pay.

Hot Payments Topics

- Card Security
 - Tokenization
 - 3-D Secure 2
 - SRC (but not yet public so no active discussion within W3C)
- PSD2
 - Strong customer authentication
 - Open banking APIs (push payments)

FIDO2 BRINGS SIMPLER, STRONGER AUTHENTICATION TO WEB BROWSERS

COMMITTED SUPPORT FROM LEADING BROWSERS

FIDO AUTHENTICATION: THE NEW GOLD STANDARD

Protects against phishing, man-in-the-middle and attacks using stolen credentials

Log in with a single gesture – HASSLE FREE!

Already supported in market by top online services

Key Opportunities for Banks

- Distribute a payment handler to increase security and customer-facing interactions.
- Offer Payment Request API support through merchant services.
- Ensure bank interests are represented in discussions about tokenization, strong customer authentication, and V2 features.
- Drive new work in areas such as coupons / loyalty programs; automotive payments via Web technology.

More Information

- [Web Payment Working Group specifications](#)
- [Demos](#), [FAQ](#) and [Developer Portal](#)
- [PR API on Mozilla Developer Network](#) and [code samples](#)

About W3C



The World Wide Web Consortium (W3C) is an international community that, since 1994, develops open standards to ensure the long-term growth of the Web.

Key Facts About W3C

- W3C founded in 1994 by Web inventor Tim Berners-Lee
- Jeff Jaffe, CEO
- ~ 475 Members
- ~ 70 full-time staff Community of thousands
- Liaisons for interop: ISO TC 68, ISO 20022, IETF, EMVCo, FIDO, etc.
- Hundreds of specifications (royalty-free)

