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?
Web Benefits:
New Capabilities

- Extensible Web
  Allow developers to extend browser features

- MSE
  A well-developed media subsystem and APIs

- Web Components
  Custom, reusable, encapsulated HTML tags

- Service Workers
  Flexibility for offline support and performance enhancements via background tasks

- WebRTC
  Live video chat native to the Web

- Web Assembly
  Blazing speed that exploits hardware capabilities

- WebPerf
  A framework for performance management

- Web Payments
  Bring e-commerce into a standard framework

- WebVR
  Bring Virtual Reality and Augmented Reality into the Web

- WebAuthn
  Step-up in security
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.

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.

Source: comScore
Web Benefits:
Desktop, Mobile, More

Source: comscore
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

- 0 Apps: 51%
- 1+ Apps: 49%

- 1 App: 13%
- 2 Apps: 11%
- 3 Apps: 8%
- 4 Apps: 5%
- 5-7 Apps: 7%
- 8+ Apps: 5%

Source: comscore
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.

- Extra costs too high (shipping, tax, fees) - 60%
- The site wanted me to create an account - 37%
- Too long / complicated checkout process - 28%
- I couldn’t see / calculate total order cost up-front - 23%
- Website had errors / crashed - 20%
- I didn’t trust the site with my credit card information - 19%
- Delivery was too slow - 18%
- Returns policy wasn’t satisfactory - 11%
- There weren’t enough payment methods - 8%
- The credit card was declined - 4%
Opportunities to Reduce CNP Fraud

US CNP Credit Card Fraud Losses (2011-2018)

(in $ mm)

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

Indirectly Impacted

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

## Merchant side
- Airbnb
- Alibaba

## User side
- 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
  - Visa

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

## Other Stakeholders
- Networks
  - American Express
  - JCB
  - Carte Bancaire
  - Clearing House
  - Discover
  - Apple
  - Facebook
  - Google
  - IBM
  - Intel
  - LGE
  - Microsoft
  - Mozilla
  - Oracle
  - Oracle
  - Samsung
  - Seeroo
  - Tencent
  - Yandex

- Associations / Regulators / Bodies
  - MAG
  - Conexxus
  - 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
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)

“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)
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
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)