

# The future of Popups!

Google Chrome @ TPAC 2024

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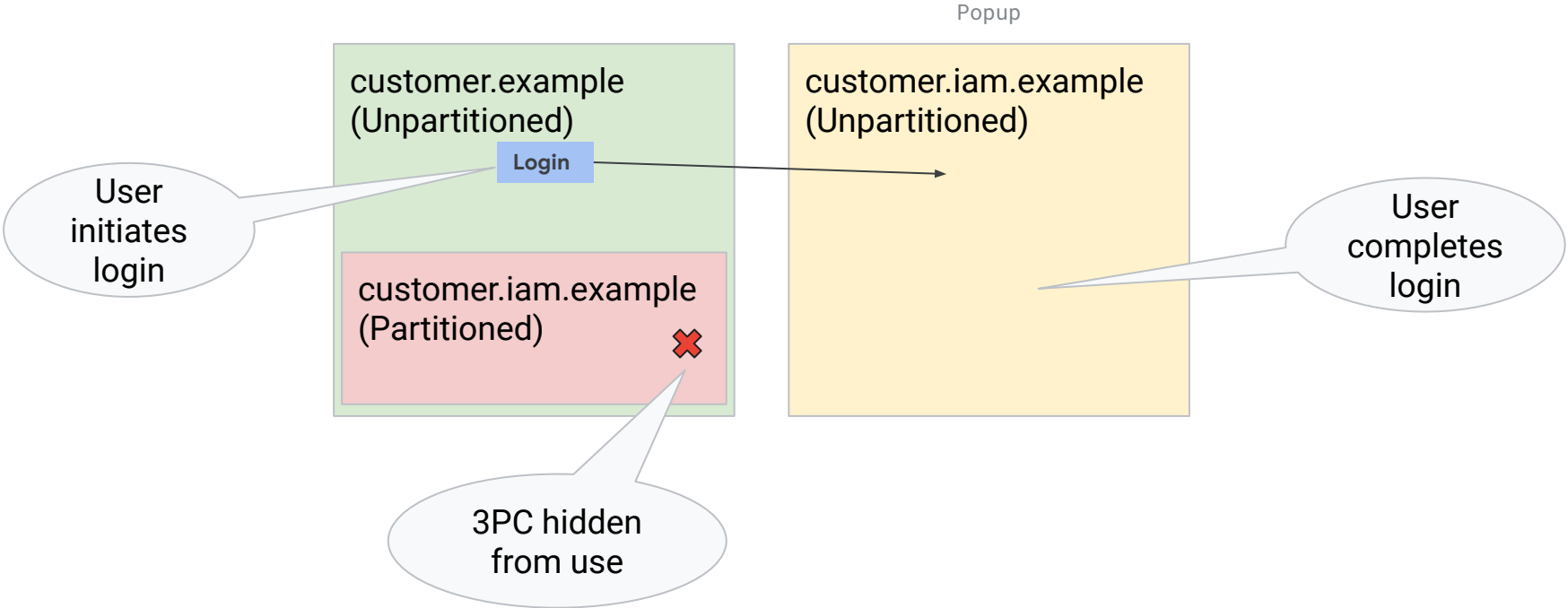
# Popup Use Cases

- Login
- Payments
- Background video/audio players
- Printer Formatting
- Multi-window applications

# Popup Issues

- Window proxy use (breaks cross-origin isolation)
- Partitioned embedded state, unpartitioned state in popup (needs 3PCs to maintain session)
- Bad experience on mobile (essentially just another tab)
- Hard to manage position (can get lost behind other windows/tabs)
- Spammy behavior patterns (bad associations in user minds)

# Example pop-up auth flow



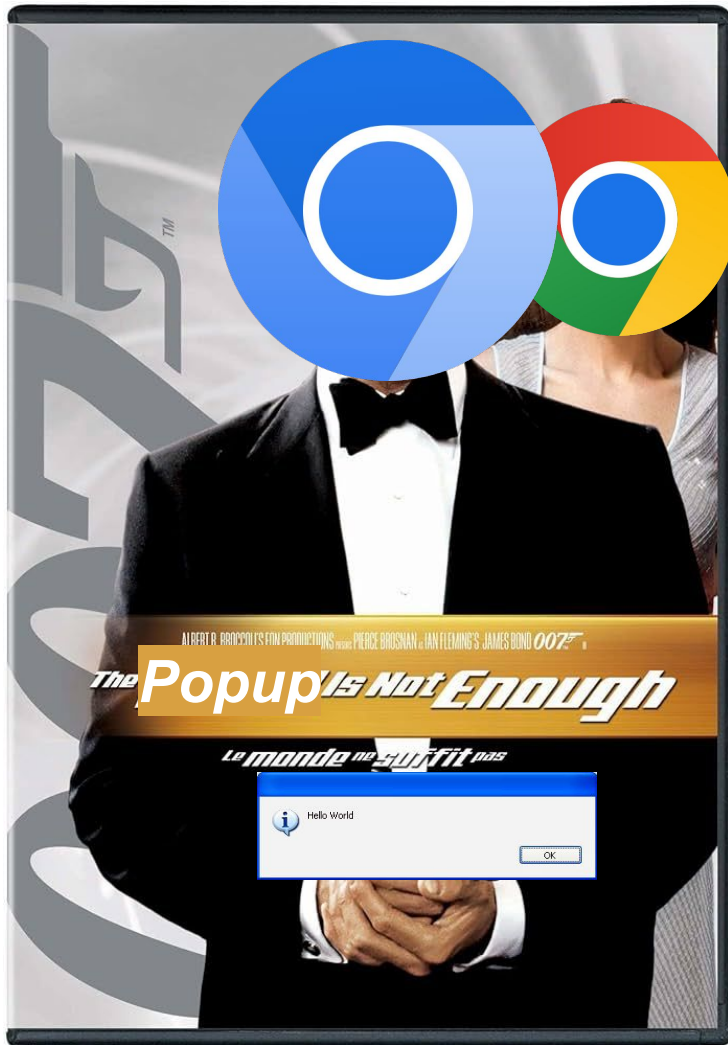
# Replacing old popups

We'd like to replace old popups that enable and/or require breaking cross-site isolation boundaries.

Three types of pop-ups:

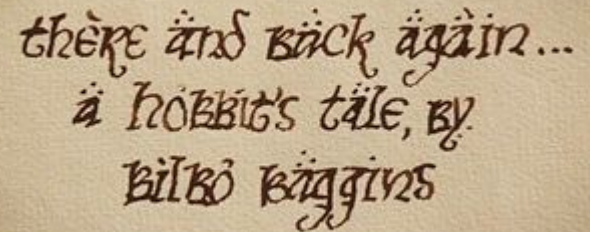
- Pop-ups that need first-party state but don't need any opener communication
- Pop-ups that can use partitioned state w/ their opener
- Pop-ups that truly need to share cross-site state w/ their opener

How can we transition developers of each of these use cases to a better solution?



# Redirection

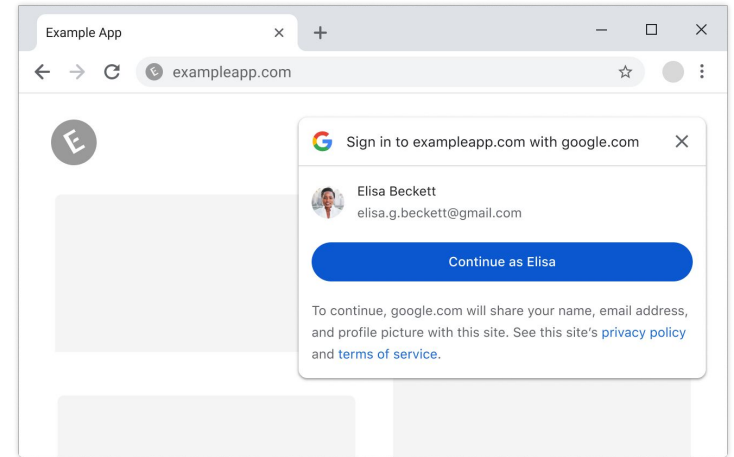
- General purpose solution
- Requires server-side auth flows and/or auth tokens shared over HTTP
- Can get caught in loop with no clear way for user to retry
- Hard to understand usage for tracking vs. user functionality



there and back again...  
a hobbit's tale, by  
Bilbo Baggins

# Federated Credential Management

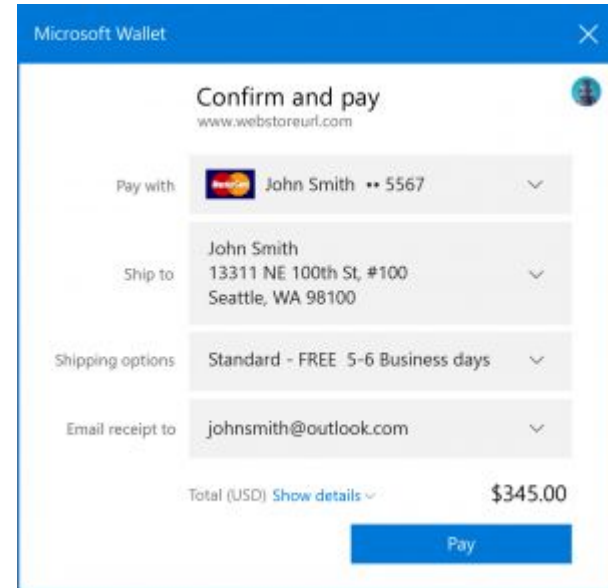
- Solution for Federated Login
- Simpler user flow
- Deeper browser integration -> mediated user experience
- Can work with and without 3PCs
- Some added complexity in implementation
- Difficult for non-federated / SSO setups





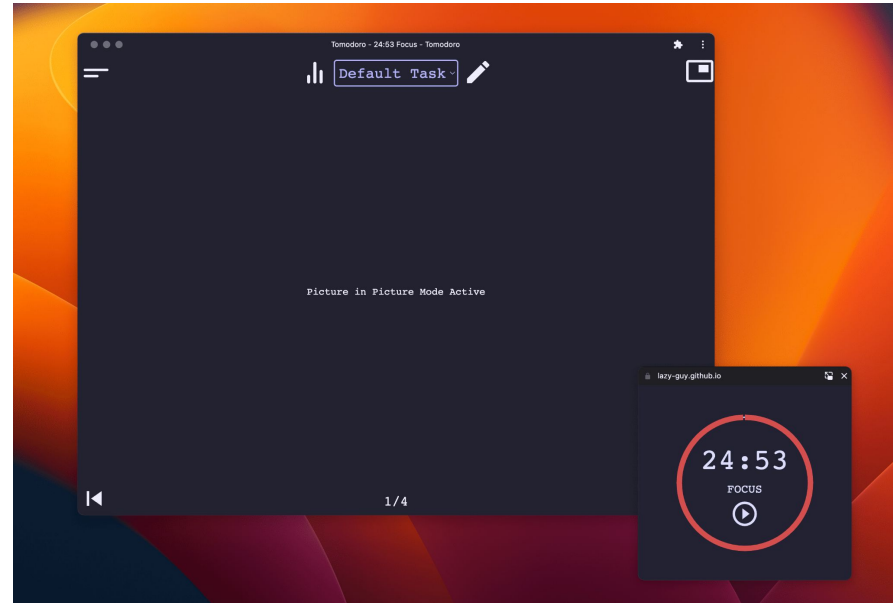
# PaymentRequest

- Solution for Payments
- Simpler user flow
- Integration with browser/os/app payment systems
- Doesn't solve for web-native payment providers



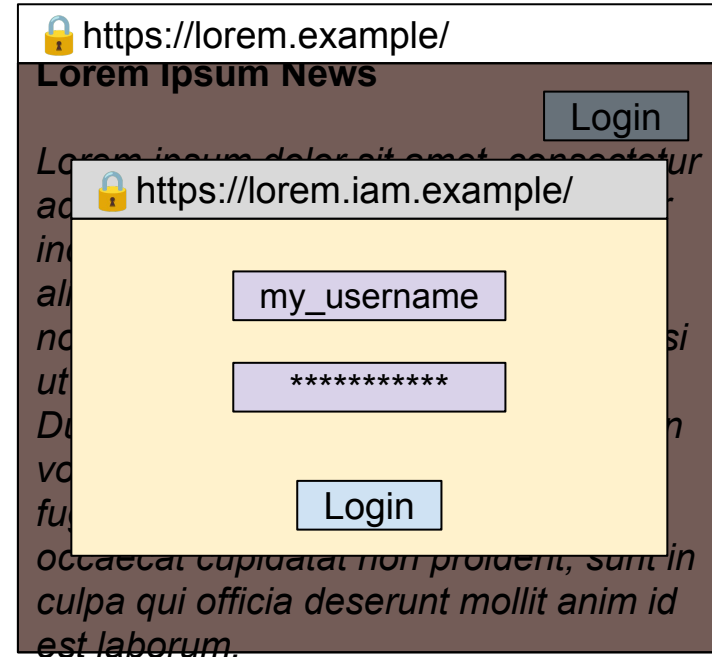
# Document Picture-in-Picture

- Solution for video/audio/general always-open tasks
- Extension of <video> specific solution
- Root of window is same-origin to opener
- Usable by top-frame only
- Limited to one-per-browser



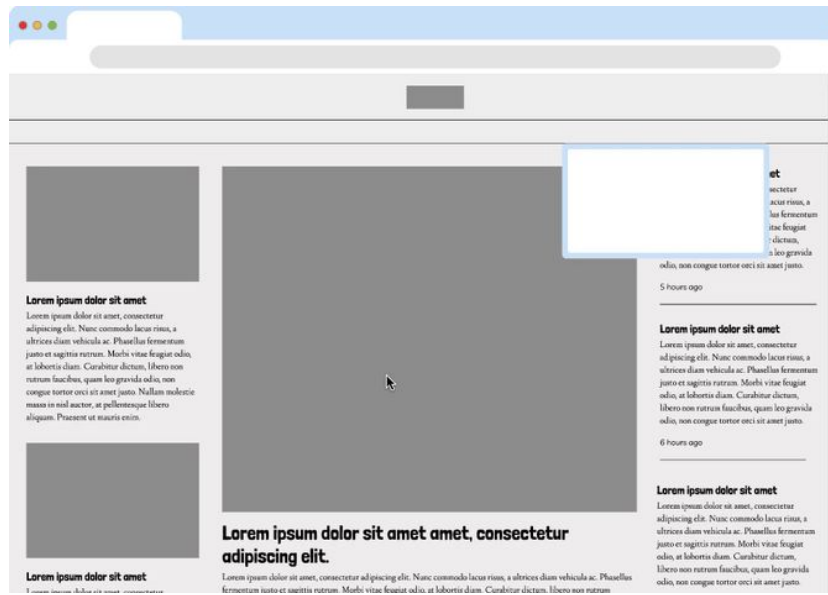
# Partitioned Popins (Prototype)

- Proposal for Siloed Login via IdP
- Same storage partition an iframe in the opener would have had
- Embeds can share partitioned session state with pop-ins without third-party cookies
- Blocks use of opening web contents
- Limited to one-per-tab



# Companion Windows (Pre-Prototype)

- Proposal to make single-page-application-like-experience more accessible
- Same storage partition an iframe in the opener would have had
- Essentially an iframe that can survive same-origin navigations
- Can be 'floated' within web contents



Explainer:

<https://github.com/explainers-by-googlers/companion-windows/>

# Open Discussion

HOW STANDARDS PROLIFERATE:  
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC.)

