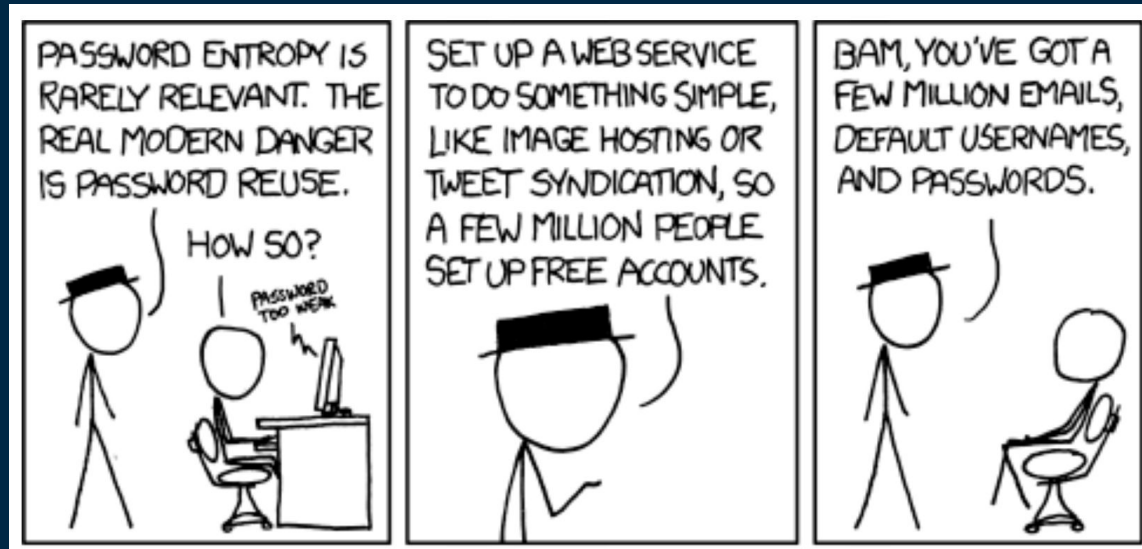


# User Perceptions of the Usability and Security of Smartphones as FIDO2 Roaming Authenticators

Kentrell Owens, Olabode Anise,  
Amanda Krauss, Blase Ur

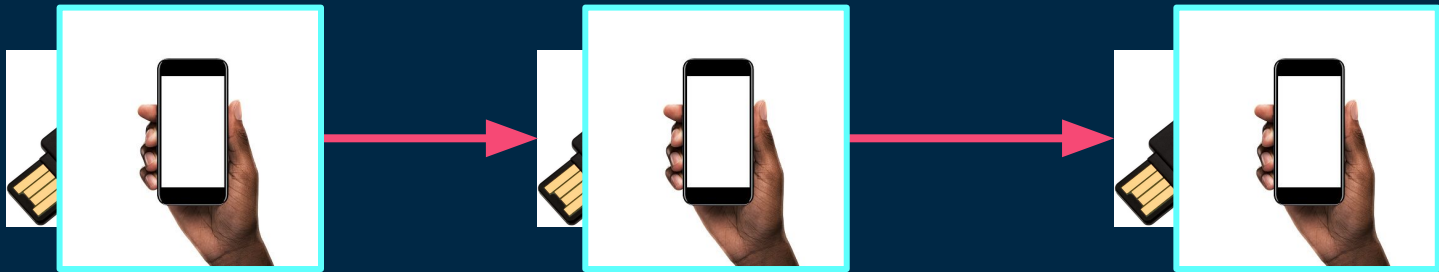
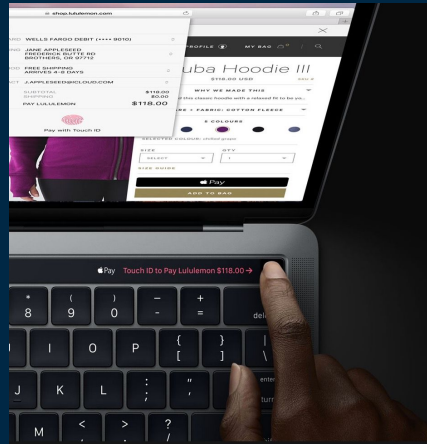
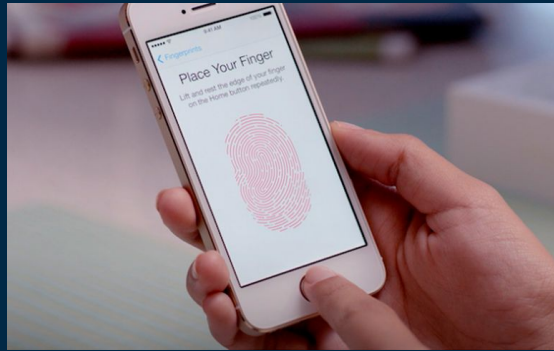


# Passwords Have Problems



Source: <https://xkcd.com/792/>

# FIDO2: WebAuthn + CTAP2



# User Study of Neo vs. Passwords

**Neo prototype = browser extension +  
smartphone app + intermediary server**

Participants (N=97)  
were randomly  
assigned to *Neo* or  
*Passwords*

Logged into a  
fictitious banking site  
10 times over two  
weeks

# Research Questions

- 1) Difficulty of initial setup
- 2) Usability In daily authentication
- 3) Relative perceptions of security/usability vs. passwords
- 4) Barriers to adoption



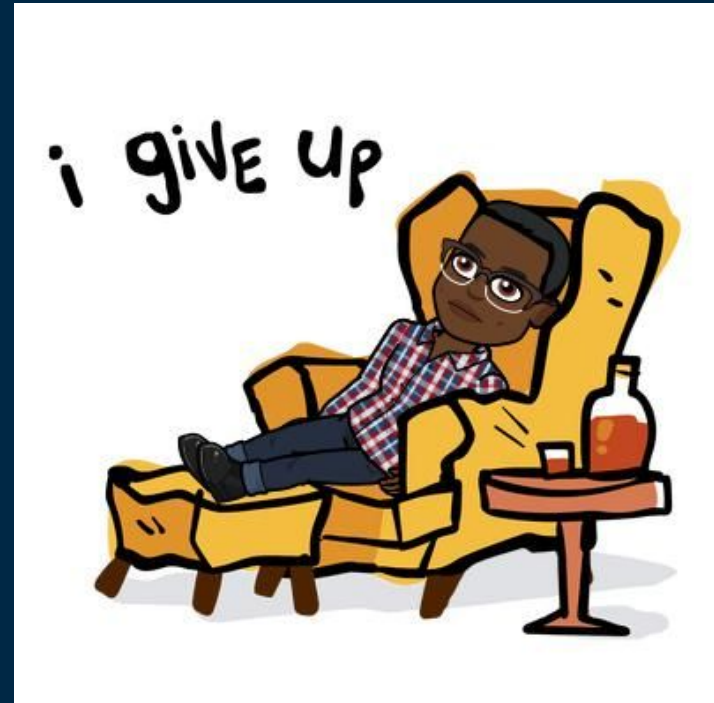
# Research Questions

- 1) **Difficulty of initial setup**
- 2) Usability In daily authentication
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- 4) Barriers to adoption



# Neo's Usability Challenges

- > 50% of *Neo* dropped out during setup (vs. 10% of *Passwords*)
- Neo had significantly **worse** SUS scores



# Research Questions

- 1) Difficulty of initial setup
- 2) Usability In daily authentication**
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# Research Questions

- 1) Difficulty of initial setup
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# Neo More Secure / Less Usable

How likely are you to choose Neo over passwords for the following types of accounts, if Neo were widely available?

	Likelihood of choosing Neo over passwords					
	Very likely		Neutral		Not likely	N/A
Dating services (e.g. Bumble, OkCupid)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Streaming services (e.g. Netflix, Hulu)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Healthcare services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Email	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# Research Questions

- 1) Difficulty of initial setup
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# Barriers to Adoption

**P24:** “If the phone breaks or is forgotten somewhere (I know this is probably uncommon), I didn’t really see an alternative way to log in or secure your account.”

- Neo participants worried about availability / account recovery
- 1/3 participants misplace their phones daily

# Takeaways

## Security vs. Usability



Stressing security benefits may not be enough

## Availability & Account Recovery



Smartphones introduce new challenges

## Limitations of Methods



Fictitious website, survivorship bias

THANKS!

# User Perceptions of the Usability and Security of Smartphones as FIDO2 Roaming Authenticators

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