



Two-Factors – No Eyes – Again

The Accessibility of Multi-Factor Authentication
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Who Are We?



Two Keith's for the price of one!

- Keith Wessel – Identity Management Service Manager and blind computer user
- Keith Hays – ADA IT Coordinator and sight-dependent user

Again???



- Originally presented in 2015
- A lot has changed with MFA since then
- A lot has changed with accessibility, too
- We'll show you what's changed and how it works now



Image credit: DantheDoodle, 2021

Why MFA Accessibility?



- Use of MFA is growing for research and higher-ed as well as commercial services
- Accessibility is a good idea for legal reasons
- It's also a good idea just out of human kindness
- An intersection of two hot topics and one that folks are starting to think about

MFA is a Big Deal



- According to Okta, MFA use has increased: 35% in 2020 to 64% in 2023
 - https://www.okta.com/sites/default/files/2023-05/Okta_MFA_Report.pdf
- Pandemic was responsible for much of that growth
- 61% of breaches come from compromised credentials
 - <https://www.verizon.com/business/resources/reports/dbir/>
- A 2019 study by Breach Alarm reported 1,000,000 stolen passwords per week
- Clearly, MFA is important and use is rising

A Horror Story

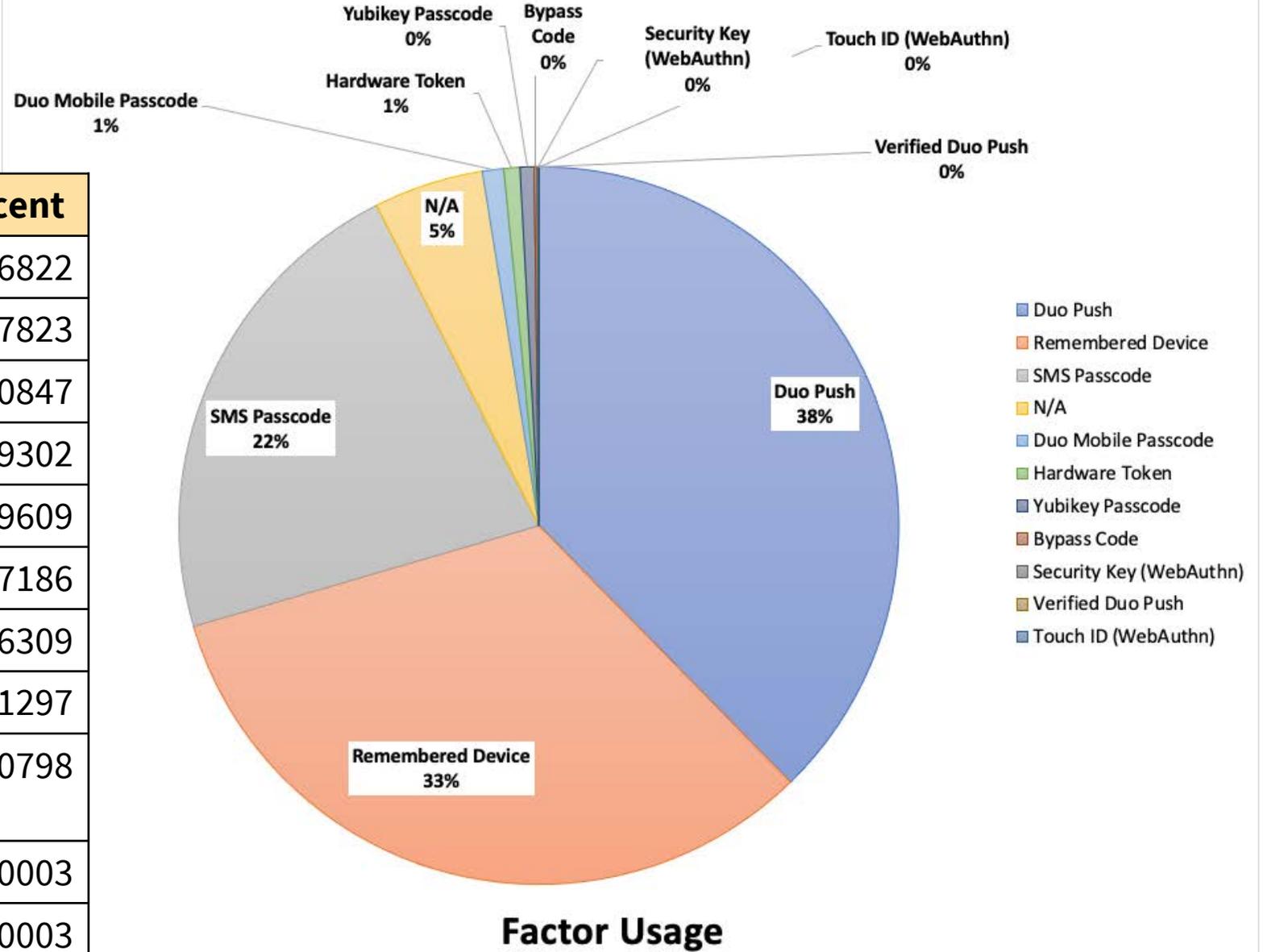


Keith W's first soft token:

- Smart phone's screen reader wouldn't read the token
- Had to copy it from the app to the clipboard
- Then I could post it into the Google search field on the home screen
- The phone read my token code, and I had the code assuming it hadn't changed yet
- Side effect: Google also now had my token code

Different Factors Help

Factor	Count	Percent
Duo Push	223216	37.6822
Remembered Device	194191	32.7823
SMS Passcode	130822	22.0847
N/A	29205	4.9302
Duo Mobile Passcode	5692	0.9609
Hardware Token	4257	0.7186
Yubikey Passcode	3737	0.6309
Bypass Code	768	0.1297
Security Key (WebAuthn)	473	0.0798
Verified Duo Push	2	0.0003
Touch ID (WebAuthn)	2	0.0003



Making It Easier For Everyone



- I love QR codes!
- Fingerprint readers make it fast
- Push notifications now widely used
- Increased adoption of hardware tokens

What Has Changed (1 of 3)



WEB STANDARDS:

- Improved Web Content Accessibility Guidelines (WCAG)
 - Added criteria for mobile devices, multiple interaction modes, greater interactivity, cognitive disabilities
 - WCAG 2.2 is about to reach recommendation status
- Widespread support for ARIA
 - Browsers do better job of alerting users to dynamic changes
 - The best browser to use still shifts with each update
 - ARIA 1.2 is the current version

What Has Changed (2 of 3)



ASSISTIVE TECHNOLOGY

- Screen readers are:
 - More aware of common coding errors
 - Less likely to need cache refreshes to operate
 - Fewer restarts needed
 - More feature rich for web-specific controls
- Speech input technologies more robust and capable
 - Now extremely useful for many people
- More and better choices for screen magnifiers and other assistive technologies
 - Built-in assistive technologies are actually useable

What Has Changed (3 of 3)



GREATER AWARENESS

- Nature of digital accessibility becoming known
 - How individuals with disabilities are adversely impacted
 - Increased thinking of multiple ways of interaction
- General understanding of the need for accessible coding practices
 - Partly driven by litigation
 - Aging population is increasing demand for support
 - Business case is becoming known
 - Ex. It is estimated that those with disabilities represent an \$80 billion annual share of e-commerce revenue
- Accessibility is used as a marketing advantage
 - Consumers know there are alternative products

A Little About Screen Readers



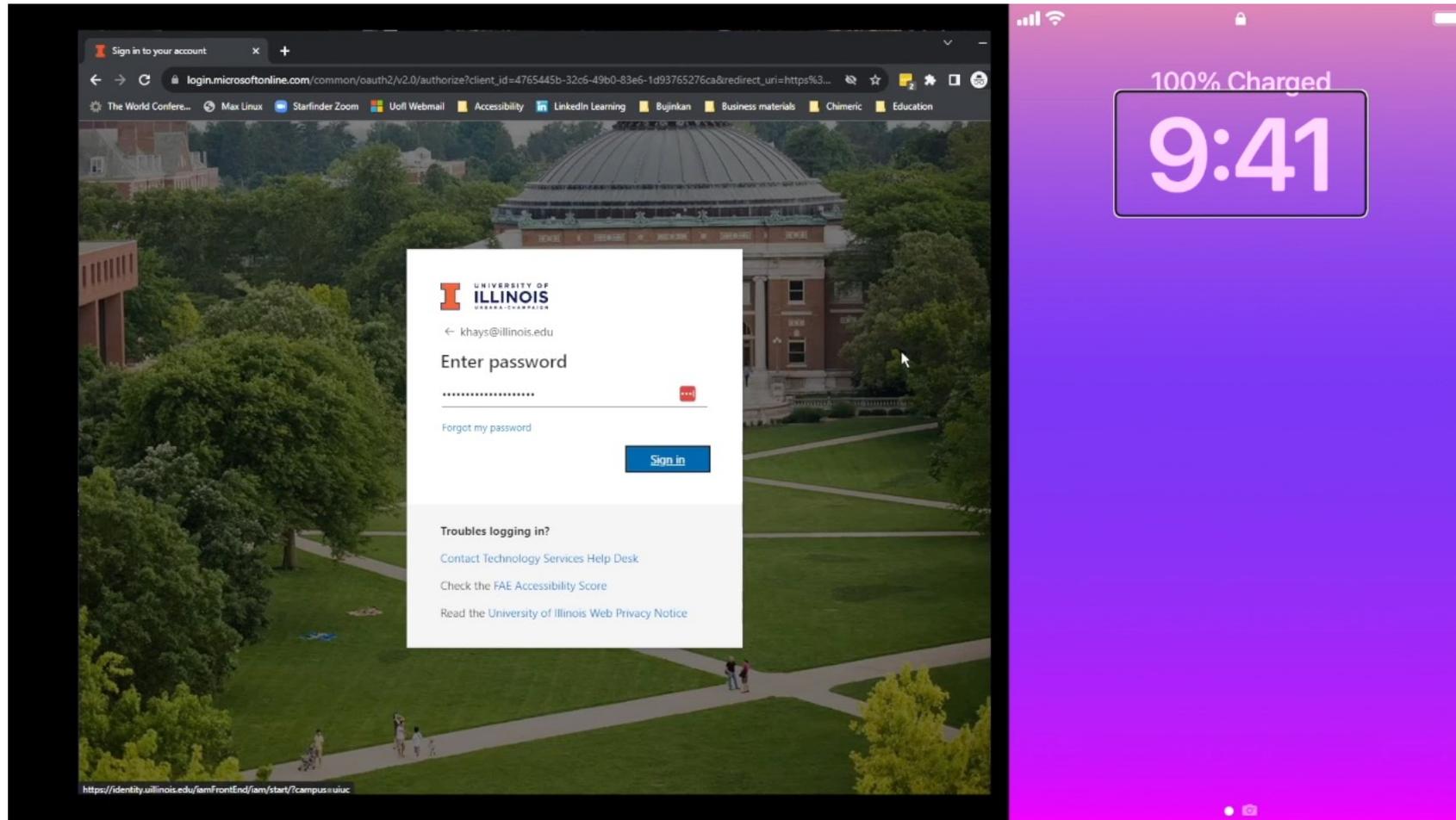
- Screen reader programs announce one element at a time, top to bottom and left to right
 - Visual proximity is not conveyed to the user
 - Dynamic changes to a screen are often invisible
- The keyboard is used to control a screen reader on a computer
- iOS and Android screen readers are controlled by swiping and tapping the screen

The Demos: What to Notice

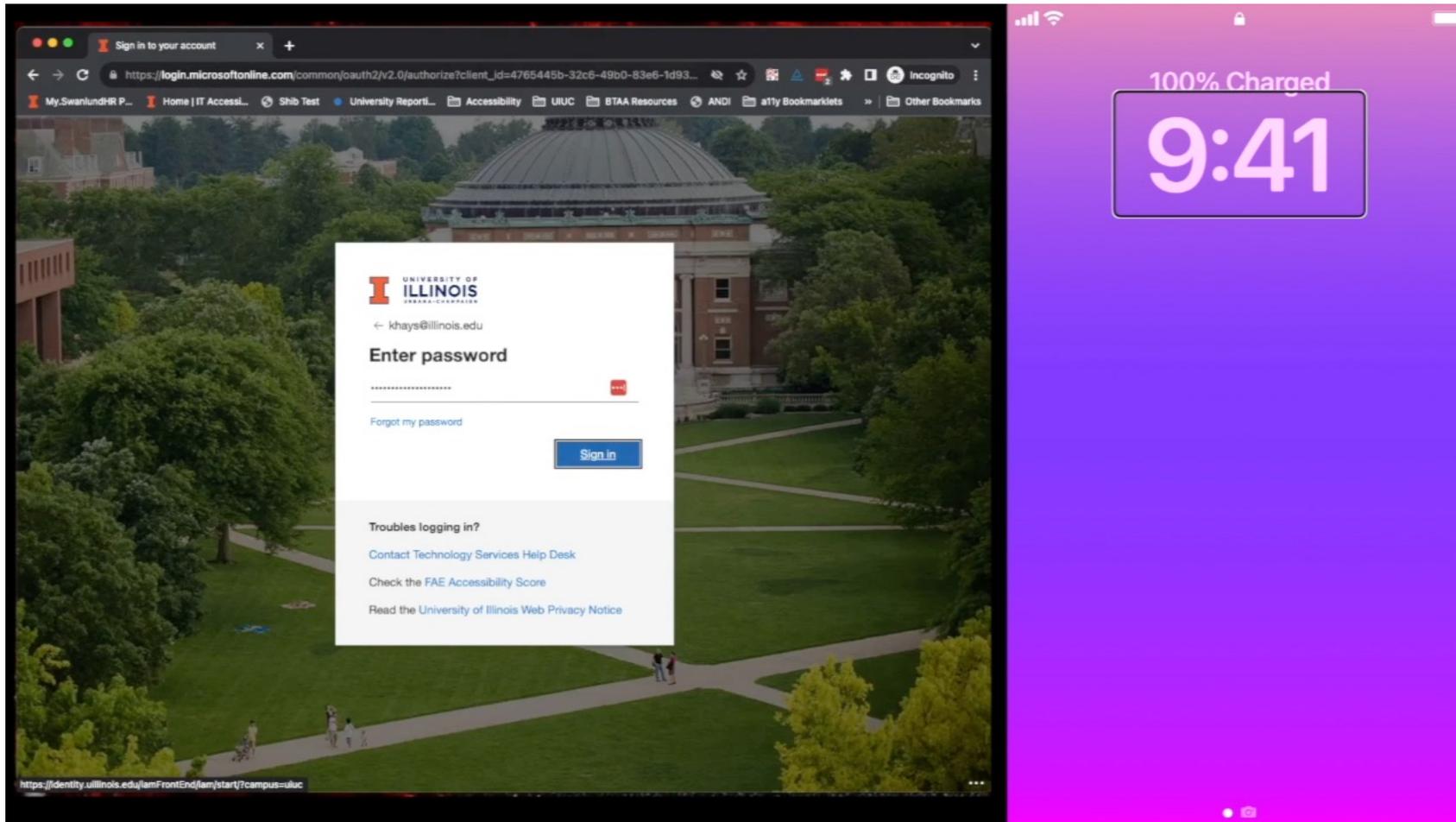


- Status messages or other changes that are invisible to the user
- Incorrect labeling of user interface elements
- The number of steps needed to complete the log in
- The level of device juggling while under time pressure
- Privacy concerns due to what the screen reader announces

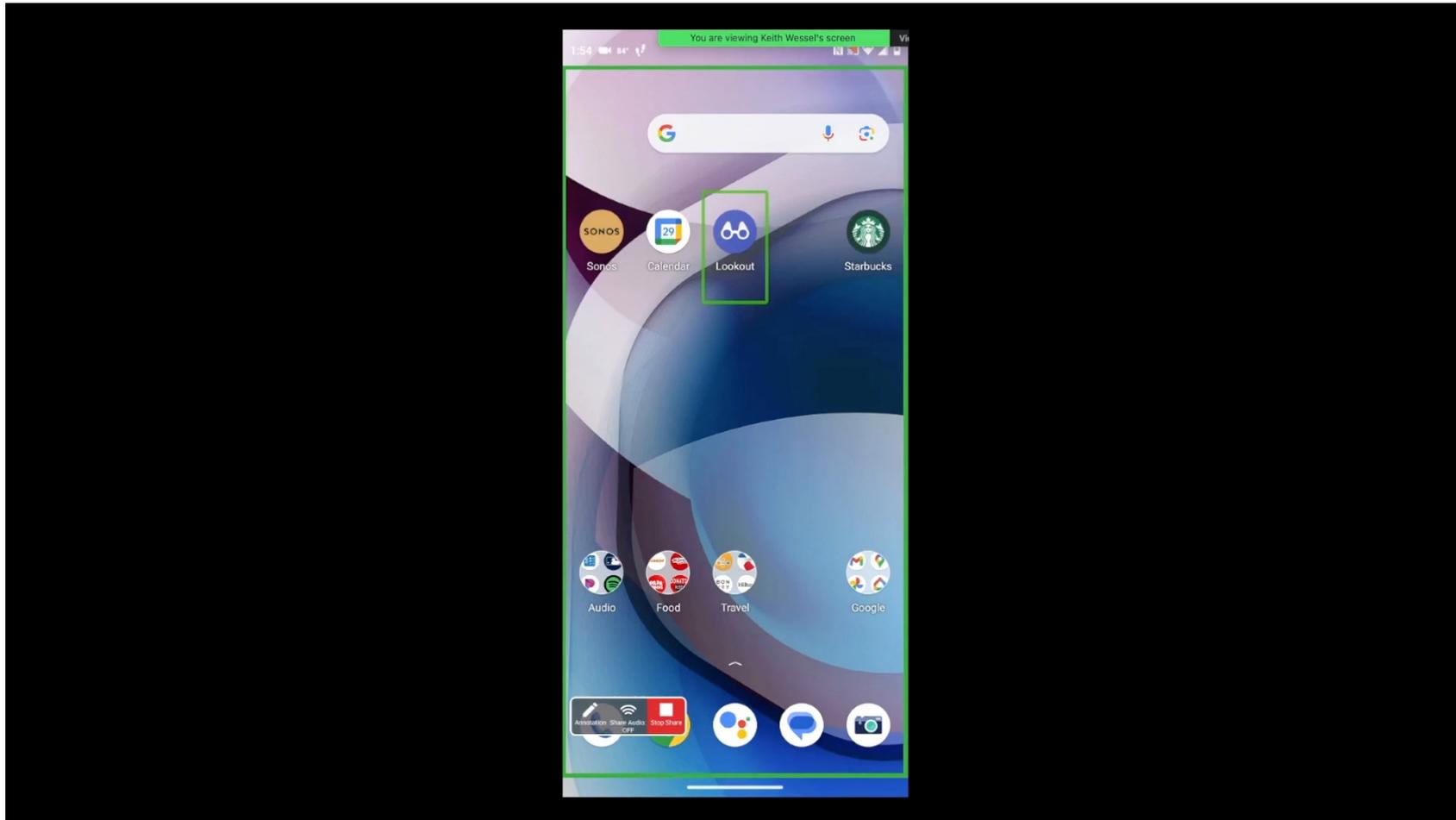
Demo: Duo Push – iOS and Windows



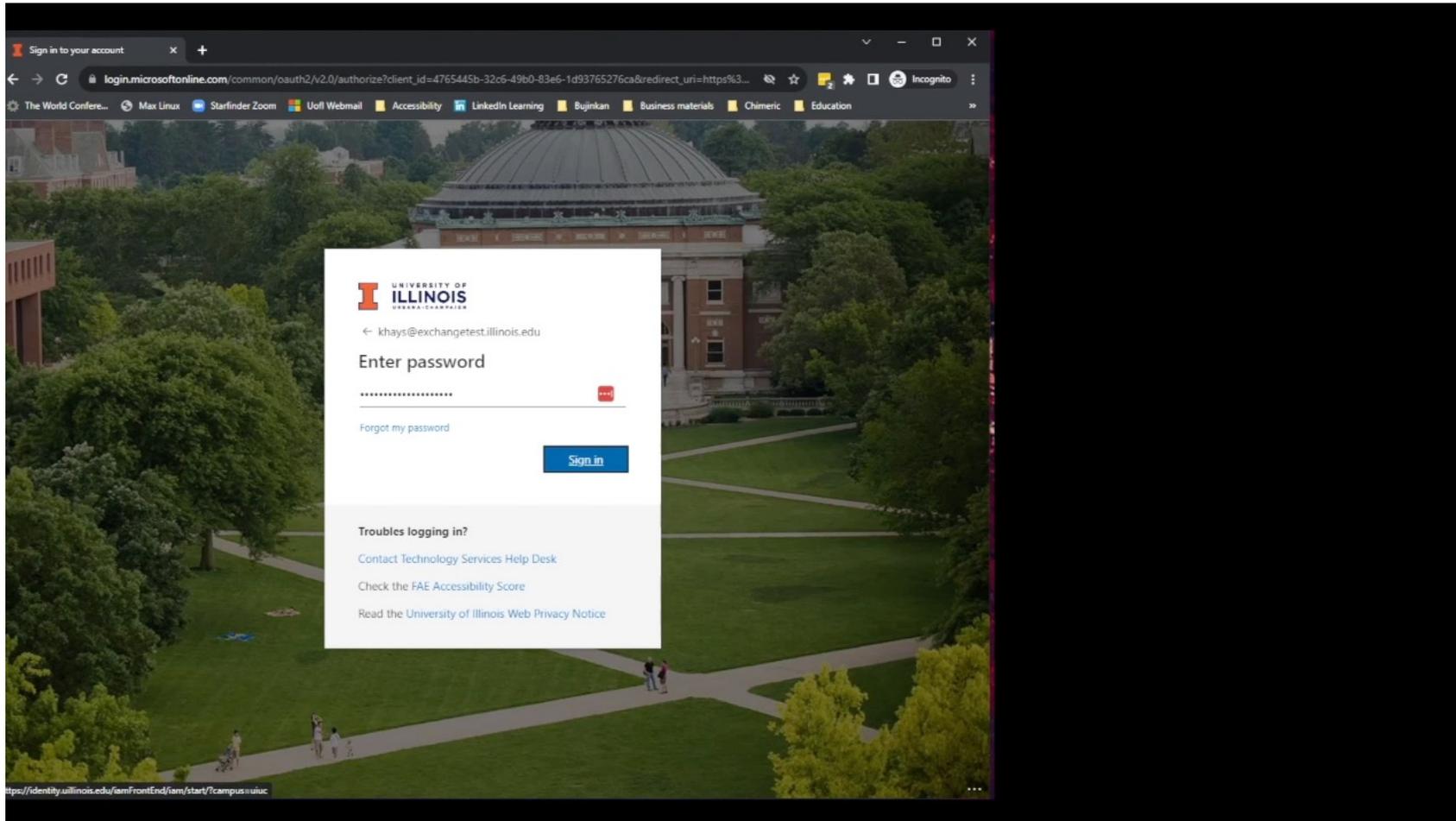
Demo: Duo Push – iOS and macOS



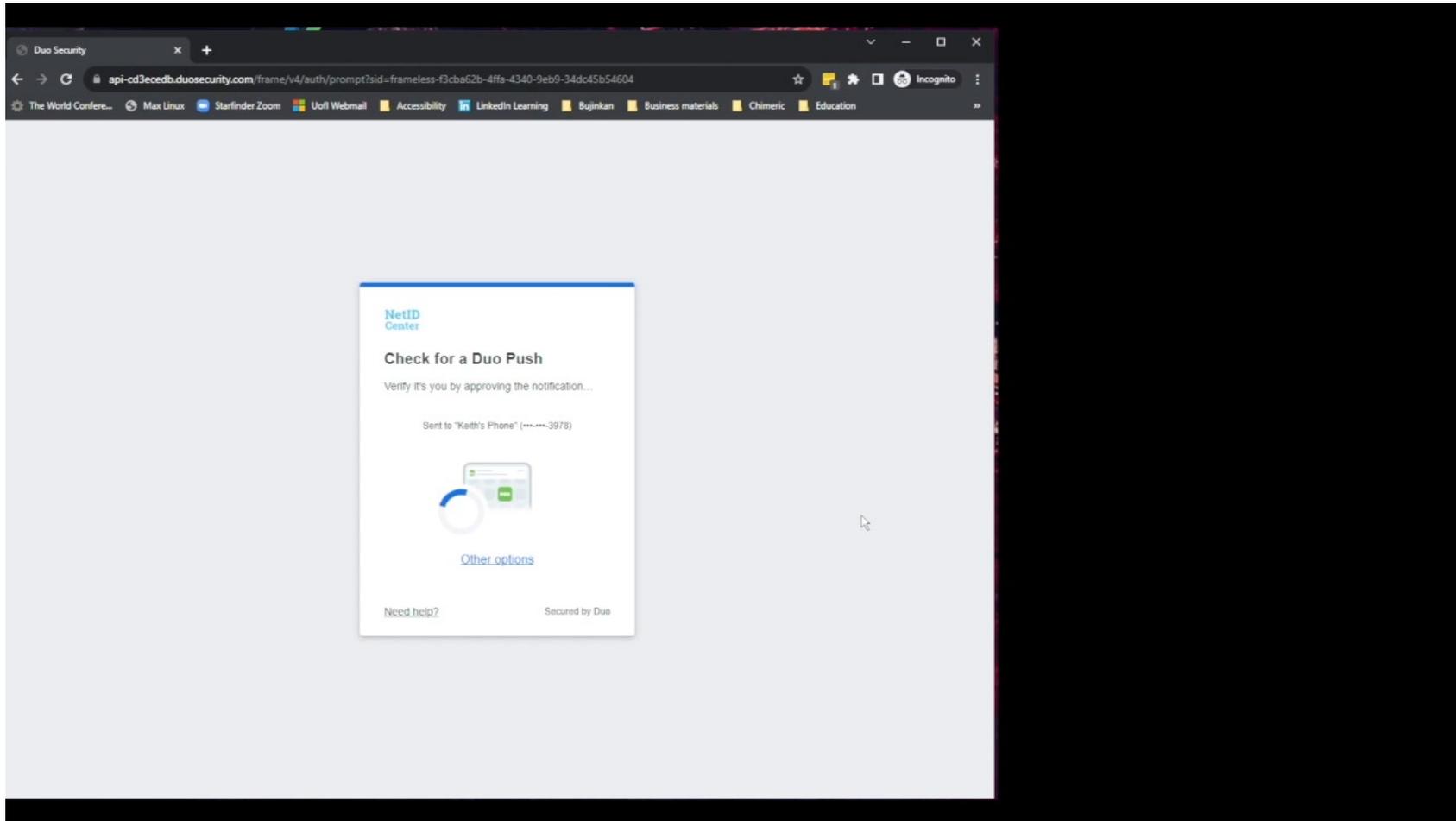
Demo: Duo Push – Android



Demo: Duo Verified Push



Demo: Duo With Generated Code



Even Easier: WebAuthn



- No need for codes
- No need for passwords (your mileage may vary)
- No need to find controls on the screen
 - Fingerprint or face unlock

Conclusion



- What have we learned here today?
- Considerations when choosing and implementing an MFA solution

Contact Us

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