

# Move Beyond Passwords

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GlobalDots

In collaboration with

okta



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# IAM as the Security Stack's Gatekeeper

Identity & Access Management (IAM) is perhaps the most basic fundamental of any up-to-date security stack. In cloud-centric environments, which are distributed by nature, this is twice as true: Remote access from poorly-secured networks and a quickly-growing attack surface, rich with insider threats, both need to be restrained. IAM is therefore the first and foremost gatekeeper of today's working environments - one place to manage passwords and permissions to reduce both UX friction and potential breach damage. Its 3 pillars are **identification, authentication, and authorization**, which together make up the access journey. Therefore, no wonder that 70% of security leaders identify IAM as essential for a Zero Trust strategy, according to a recent [Pulse community survey](#).

However, some axioms which shaped "mainstream" IAM are quickly running out of date. In this eBook, we invite you to rethink the very core of the entire concept of user identity: The password.



# Passwords are Getting Passé

Traditional authentication using a username and password has been the foundation of digital identity and security for over 50 years. But with the ever-growing number of user accounts, there are a number of new issues: the burden on end users to remember multiple passwords, support costs, and most importantly, the security risks posed by compromised credentials. These new challenges are now outweighing the usefulness of passwords. The case for eliminating passwords from the authentication experience is getting more compelling every day.

Exploring the cloud security sphere for years now, we noticed some trends which push the “passwordless experience” from a theoretical concept to a pressing yet feasible mission:

**Elevated user  
experience  
expectations**

01

**Ballooning costs  
of password  
management and  
data breaches alike**

02

**Emerging  
passwordless  
technologies and  
security standards**

03

In this eBook, we will:

- ✓ Dive into the case for going passwordless for both customer and employee authentication
- ✓ Map out steps that organizations can take on their journey towards a completely passwordless authentication

# The quest to move beyond passwords

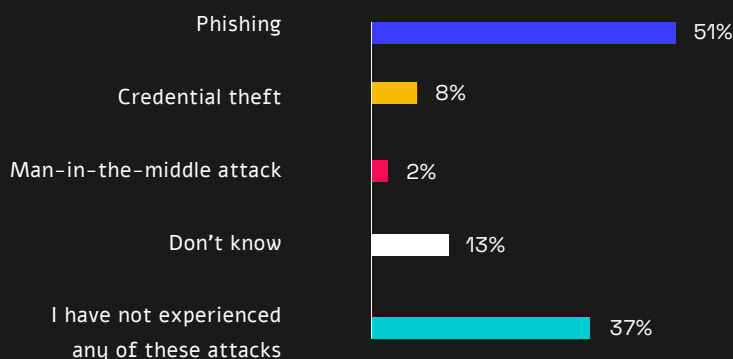
Understanding the need for passwordless authentication starts with understanding the challenges presented by passwords. The core challenges with passwords can be broken down into the following areas:

## 01. Poor Account Security

Passwords have spawned a whole category of security/identity-driven attacks — compromised passwords due to credential breaches, phishing, password spraying attacks, or poor password hygiene can result in account takeover attacks (ATO). In order to combat these attacks, organizations can start by leveraging an additional authentication layer, i.e multi-factor authentication (MFA).

“81% of hacking related breaches used either weak or stolen passwords”

— Verizon Data Breach Report 2017



59% of respondents have experienced credential theft or phishing  
Ponemon Authentication Report 2019

But MFA isn't a perfect solution. The challenge with this technology lies with the fact that low assurance second factors, such as SMS, are widely used but have well-documented weaknesses that are exploited by hackers.

## 02. Poor User experience

Passwords are frustrating. Best practices on password choice vary, but at the very least, we know they should be unique and hard to guess but easy to remember. A survey by the University of Oxford predicted that roughly a third of online purchases are abandoned at checkout because people cannot remember their passwords.

## 03. Increased Costs

The costs associated with passwords outweigh any benefits of using passwords. Password management is one of the top reasons why people call call-centers. Reducing the support burden imposed by passwords is mission-critical for organizations.



**12.6**

minutes/week

Average time per week spent



Entering or resetting passwords

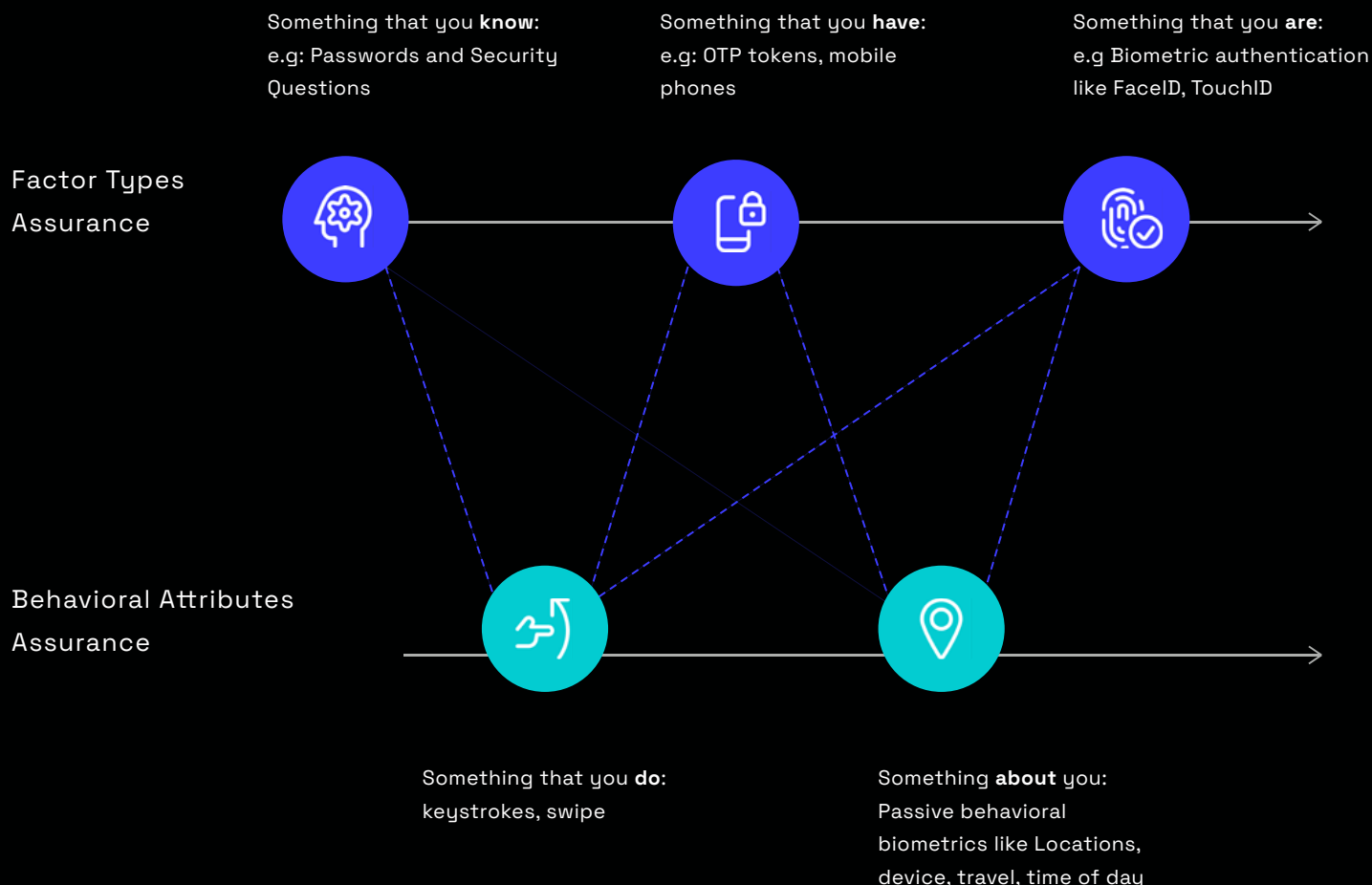
**\$5,217,456**

Annual cost of productivity  
and labor loss per company  
on average

Source: Ponemon Authentication Report 2019

# Evaluation of current authentication methods

Current authentication methods use factors such as knowledge, possession, or biometric authenticators. Organizations frequently combine one or more factors and behavioral attributes to drive access decisions. The belief is that by having additional layers of security, you lower the odds that an attacker can gain access to a user's account. However, this is only true if those layers are (1) effective and (2) unfelt by authorized users.



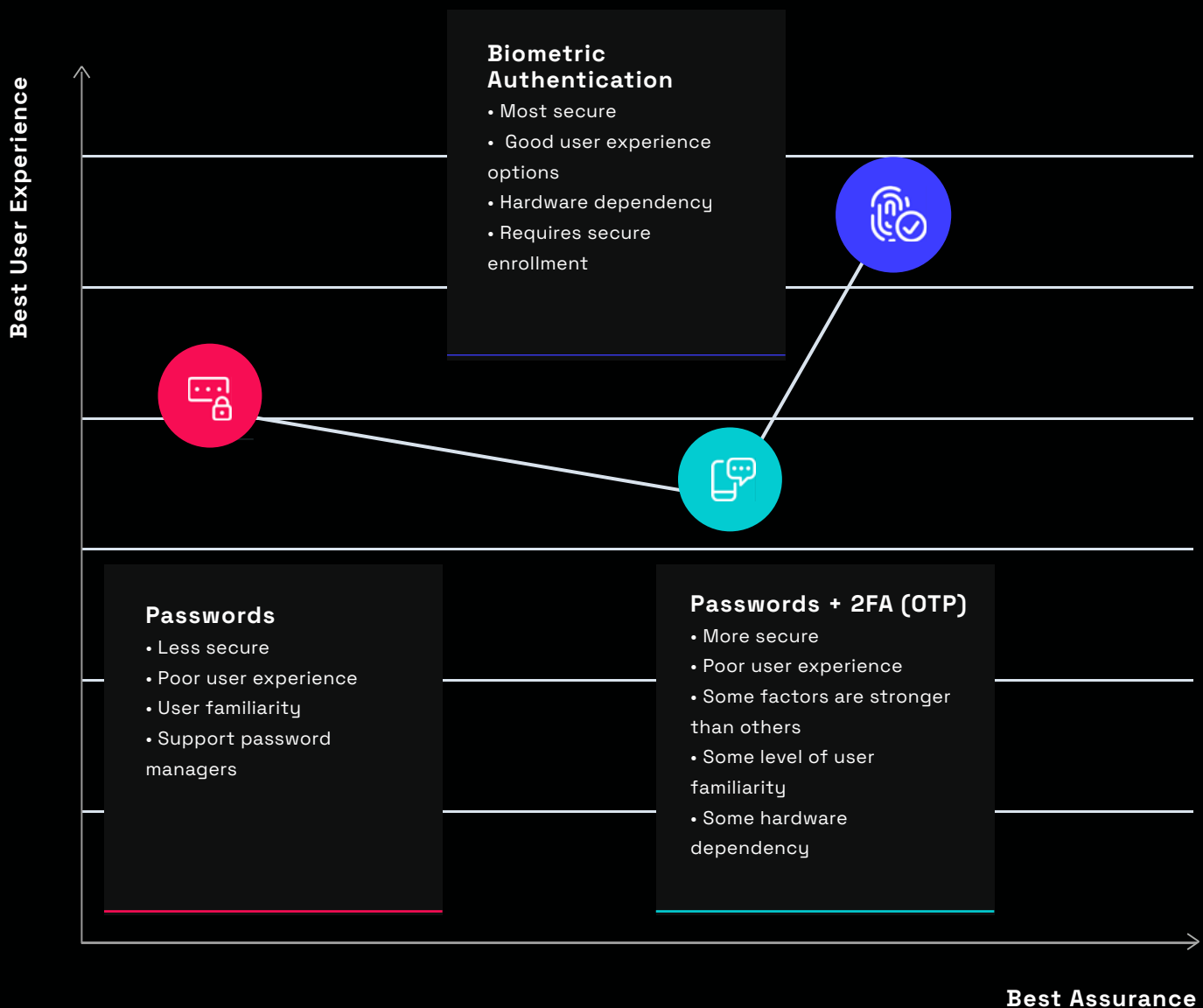
# When evaluating authentication methods, we broadly need to look at 2 key attributes:

## Assurance / security

Can the authentication mechanism ensure only the authorized user gets access to the account?

## User experience

→ Can the authentication mechanism provide a seamless registration, authentication, and recovery journey?  
→ Does the authenticator support all authentication for all user-groups, device-types, and software platforms?





# Getting started with passwordless authentication

Moving beyond passwords requires some deep thought. Before organizations decide to eliminate passwords, we recommend a gradual approach by looking at threats, technology, user journeys, costs, adoption friction, and implementation.



## Threats

- Credential breaches
- Man-in-the-middle
- Man-in-the-browser
- Password spraying
- Brute-force attacks



## Technology

- Browser support
- Technology approach
- Platform Authenticators vs External authenticators



## User Journey

- Registration flow
- Authentication flow
- Recovery flow



## Business Considerations

- Support
- Integration
- Device adoption
- Compliance requirements



## Adoption Friction

- Passwords are common
- Password managers are also common
- Passwords are easy to provision



## Implementation

- Security and compliance requirements
- Website support

# Common approaches to going passwordless

Eliminating passwords and going passwordless can be accomplished using a number of different technologies. Approaches such as email magic link leave an encoded OTP token or live link in the body of a secure email, while approaches like WebAuthn leverage public-private key-based cryptography to ensure secure authentication.

Okta offers a number of passwordless approaches. In this section we will look into some of the major approaches to going passwordless.

## Email Magic Links



Email-based passwordless authentication has become very common. This method is, at its core, a password reset flow; a secret link is sent to the user that allows them to bypass their password and set a new one. It's familiar to most users because they've utilized it dozens or hundreds of times. This method of authentication has been popularized by apps like Slack and Medium. True passwordless authentication takes the password reset flow a step further. App designers remove the password (and its associated resetting ceremonies) and simply send a secret, time-limited or user life-cycle limited, single-use link to the user's email address. Clicking that link authenticates the user and sets a cookie with a long lifetime to keep them logged in. The user never needs to set, save, or type any passwords at all, which is a very appealing feature, particularly on mobile devices. This method of passwordless authentication requires no hardware dependencies and is very attractive to consumer applications.

## Use-cases

- Infrequent login patterns
- Alternative passwordless authentication method for WebAuthn
- Stop password based attacks

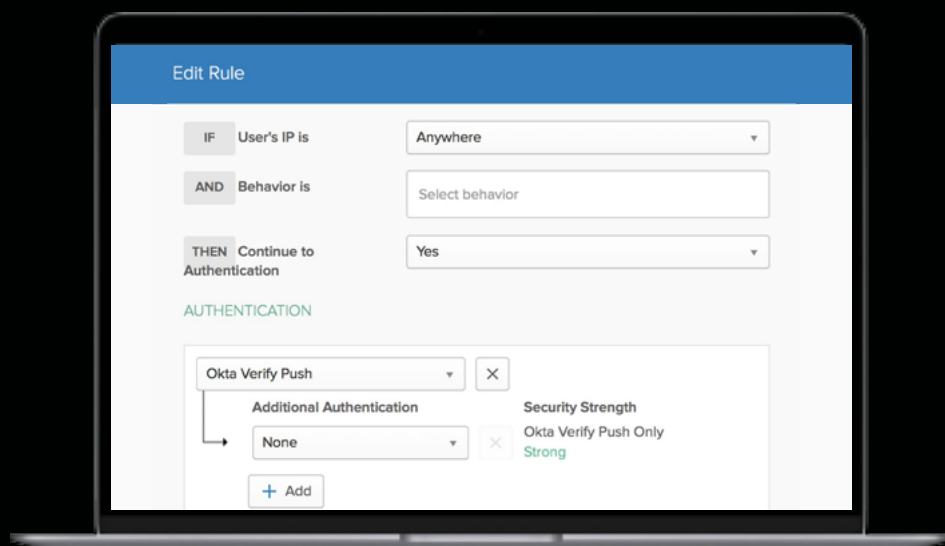
## Benefits

- Easy to deploy and use
- Seamless onboarding
- No hardware dependency
- Acceptable and familiar user-experience

## Challenges

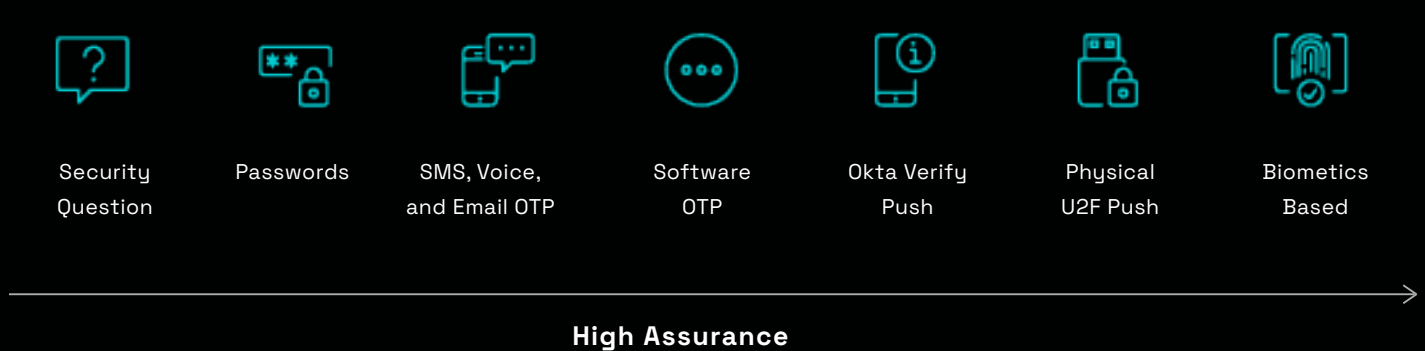
- Security outsourced to the email account security
- No control or visibility into link (email) sharing
- Susceptible to man-in-the-middle attacks if the email is not encrypted

## Factor sequencing



The combination of Okta Adaptive MFA's contextual awareness and the intelligence of ThreatInsight means organizations can securely configure a passwordless solution utilizing a variety of authentication factors. When threat levels are low, the login experience can be streamlined and users can be offered a simpler path to the data and apps they need. However, when the risk level associated with a login is high, additional authentication factors will be required. For example, an administrator might set the Okta Verify mobile app as the primary authentication factor. If the user logs in from a known location and device, Okta sends an authentication request via the app that the user accepts in order to gain access.

However, if Adaptive MFA detects an anomaly that raises the risk level of the login request, Okta can prompt the user to also make use of a second authentication factor such as WebAuthn. It's important for administrators to take the sliding scale of assurance into consideration when it comes to selecting a method of authentication and choosing factors. User context should be the guide, allowing for simpler login and improved usability whenever the situation allows for it. A knowledge factor, like a security question, is easy to use, but also less secure than a possession factor like U2F. With this in mind, it makes sense to opt for a simple possession factor when a user signs in from their usual network and location at the head office, and reserve more secure factors for instances where a device, network, or location increases the risk level.



Naturally, administrators also need to select factors in a way that makes sense given the company's available technology. Using Okta Verify wouldn't work unless everyone in the organization has access to a smartphone, for example, so it might be better in some instances to use another factor like an SMS OTP.

### Use-cases

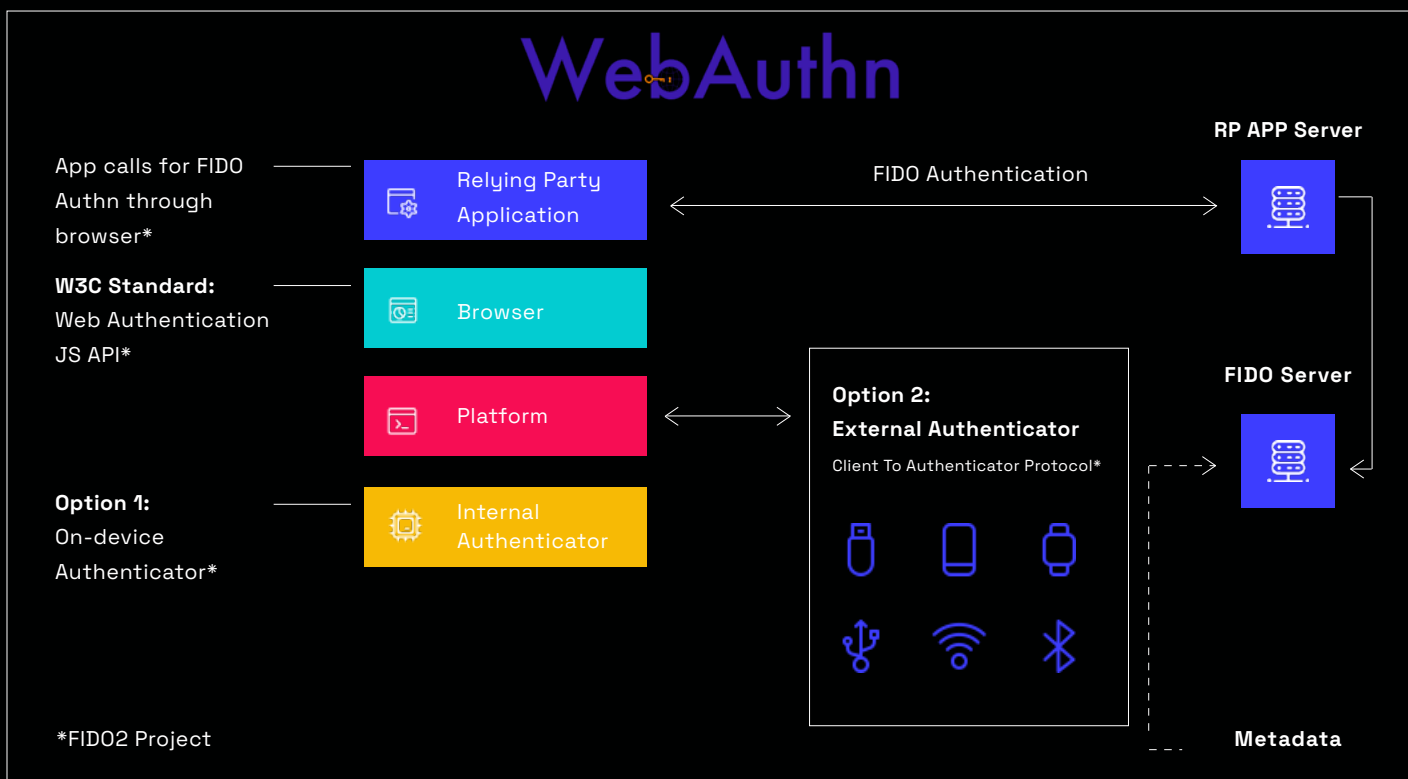
- Alter the login experience based on session risk
- Chain higher assurance factors into the authentication experience

### Benefits

- High assurance login
- Consistent experience on desktop and mobile

### Challenges

- Potential hardware dependencies



WebAuthn is a standards-based passwordless authentication framework that allows for web applications to simplify and secure user authentication by using registered devices (phones, laptops, etc) as factors. With this new standard, any web application running in a browser that supports WebAuthn can now take advantage of these authenticators to securely authenticate users. Google Chrome, Mozilla Firefox, Microsoft Edge, Apple Safari, Opera and the rapid adoption by platforms (e.g. MSFT Edge with Windows Hello, Google Android) means there's a practical way to deploy FIDO2/WebAuthn. Now, organizations can deploy with roaming authenticators like YubiKeys or through supported platforms themselves since the device itself is used for WebAuthn.

## Use-cases

- Standards driven passwordless authentication
- Scalable authentication experience

## Benefits

- Account takeover: Stop identity driven attacks like phishing, credential stuffing, password spray attacks
- No credential management required
- Improved user authentication experience
- Reduced organizational support for password management

## Challenges

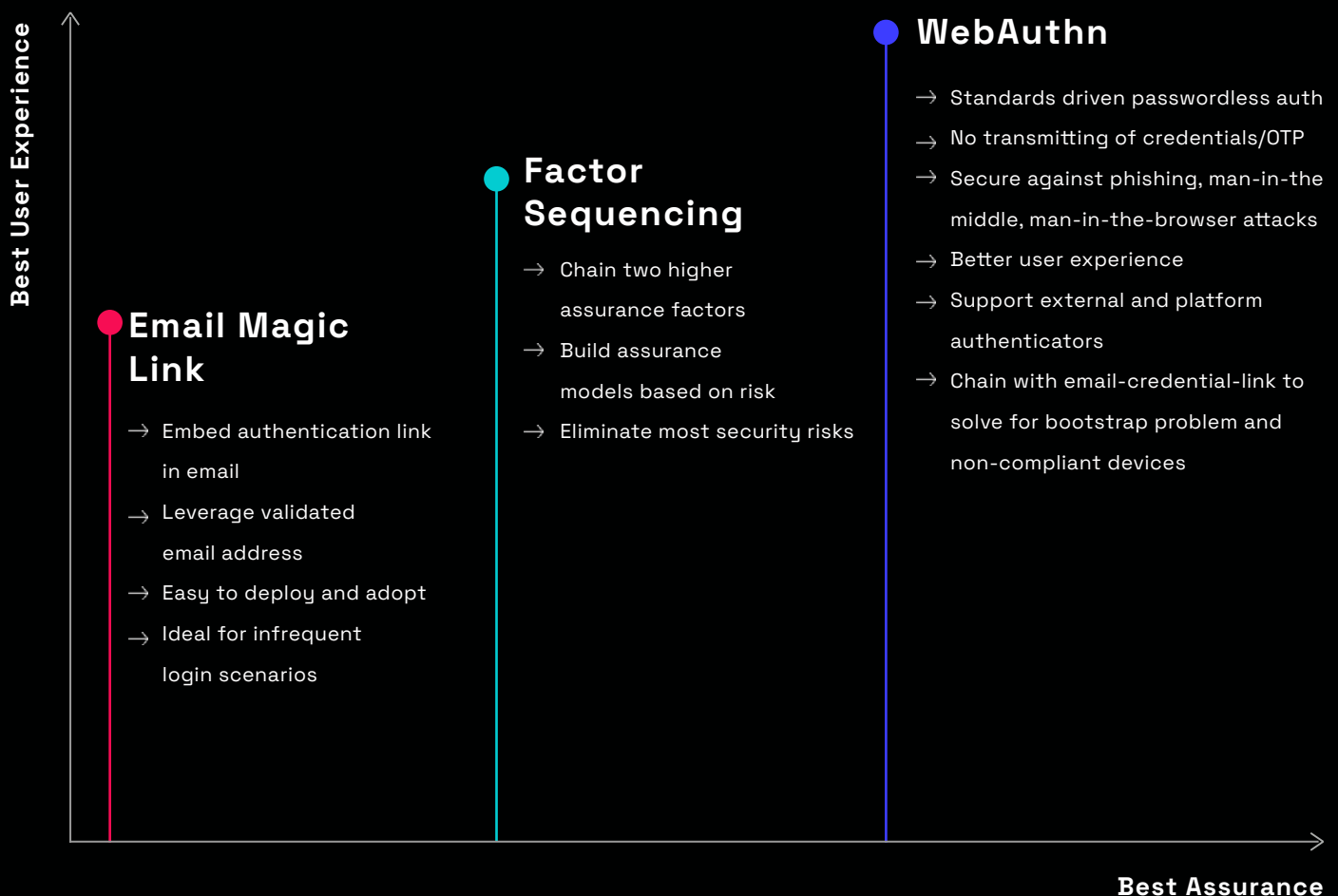
- Requires hardware and browser support
- Need a secure user boot-strap and recovery flow
- Requires pairing with other passwordless authentication methods like email-credential-links for alternative authentication

For more details check out [Webauthn Whitepaper](#).

# Planning for a passwordless future

The adoption of password-less authentication is one of the most impactful steps that can help organizations and services manage a range of security risks and deliver on a seamless customer experience. Organizations are now moving towards the adoption of passwordless authentication. But going passwordless is not a revolutionary process, but more likely an evolutionary process. Therefore as organizations embark on this journey, we leave you with a roadmap with a few simple options before moving towards true passwordless authentication. Going passwordless requires careful thought and planning. Organizations need to think about the entire authentication lifecycle from secure enrollment, migration from passwords, deployability, recovery, and off-boarding. Organizations that understand all aspects and needs will be well positioned to build a passwordless journey to eliminate identity attacks, deliver delightful experiences, and grow their business.

## Build your passwordless journey with Okta



## About GlobalDots

GlobalDots is a 17-year world leader in cloud transformation, connecting businesses with the latest cloud & web technologies.

We consult, resell, integrate, and customize full-stack solutions, including: security, cost & performance optimization, connectivity, and managed services. Thoroughly studying and testing innovative solutions for today's security & business challenges, we only curate in our portfolio those which meet our uncompromising standards. With our services, clients streamline business processes, get foundations for sustainable business growth, and cut the cost and duration of innovation adoption.

GlobalDots serves over 350 enterprise customers worldwide, including Lufthansa, Bosch, Fiat, Playtika, AppsFlyer, End Clothing, and more. Our portfolio includes over 80 cutting-edge cloud, web and network vendors, with 12 new vendors introduced in 2020 alone.

We are certified partners of AWS, Akamai Technologies, CloudFlare, Okta, Cato Networks and other world-class players. Our engineers hold CISSP licences from the International Information System Security Certification Consortium.

## Trusted By



## About Okta

Okta is the leading independent provider of identity for the enterprise. The Okta Identity Cloud enables organizations to securely connect the right people to the right technologies at the right time. With over 6,000 pre-built integrations to applications and infrastructure providers, Okta customers can easily and securely use the best technologies for their business. Over 6,100 organizations, including 20th Century Fox, JetBlue, Nordstrom, Slack, Teach for America and Twilio, trust Okta to help protect the identities of their workforces and customers.

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