CISCO
SECURE

Yubikey and Duo

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Engineer

7.11.2024

CISCO The bridge to possible

Introducing Continuous Identity Security

Verified Users

+

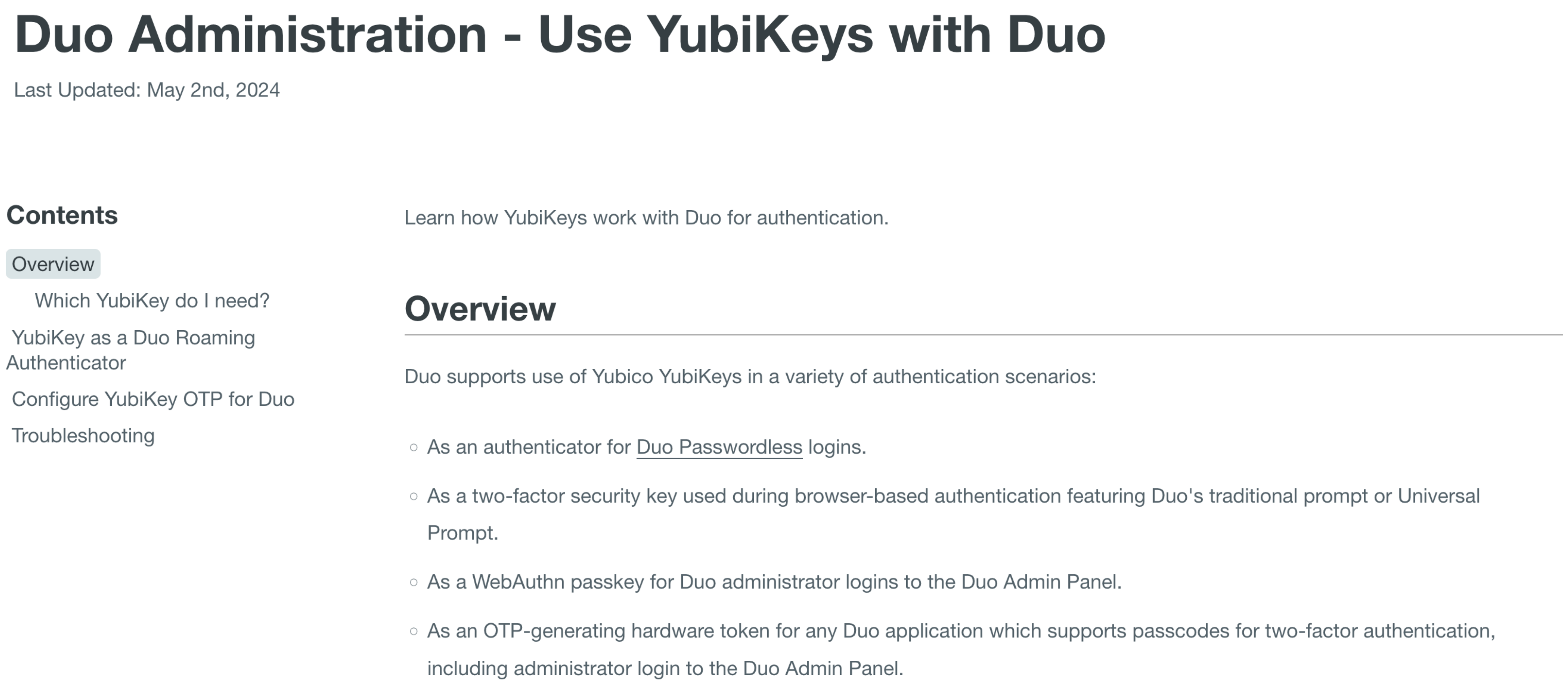
Trusted Devices

+

Identity Context

Continuous Risk Assessment and Experience Management

Pre login | At Login | Post Login



Duo Administration - Use YubiKeys with Duo

Last Updated: May 2nd, 2024

Contents

Learn how YubiKeys work with Duo for authentication.

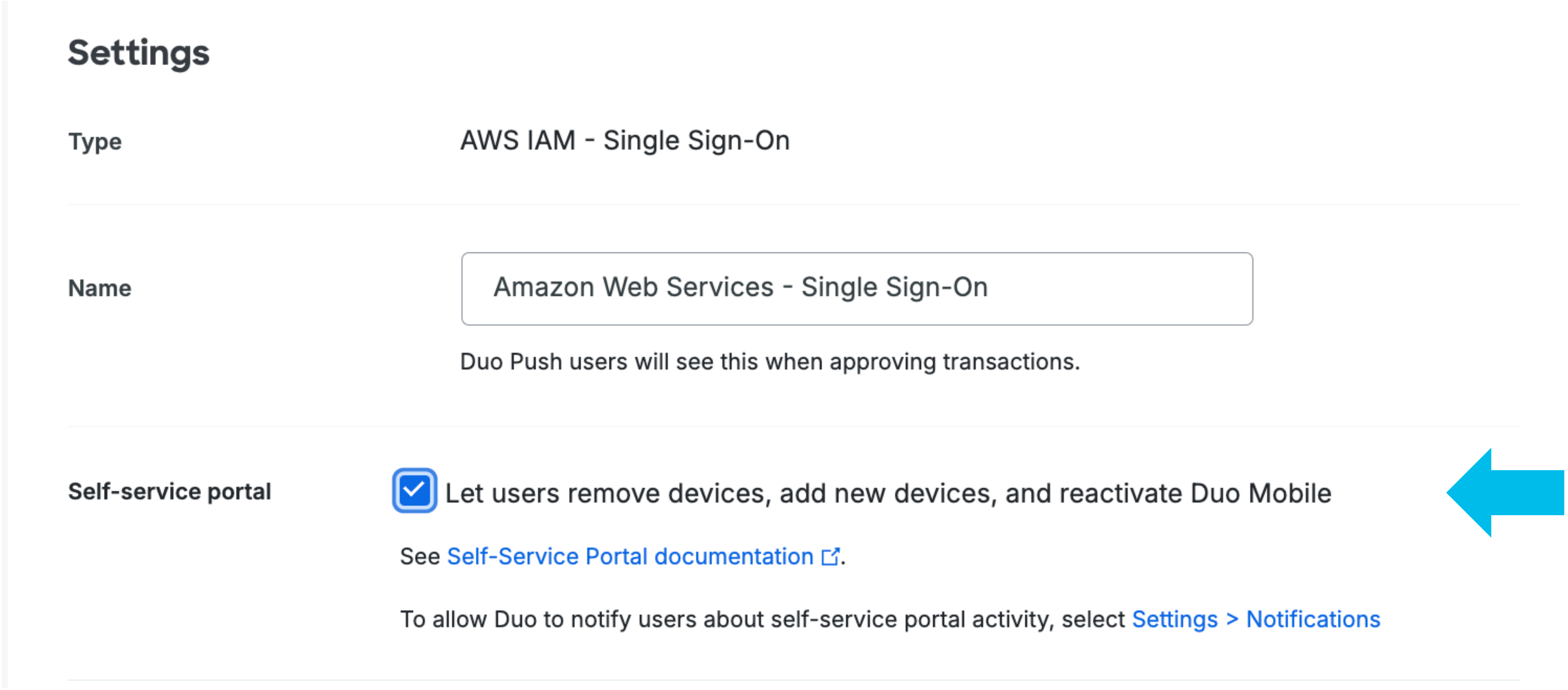
Overview

Duo supports use of Yubico YubiKeys in a variety of authentication scenarios:

- As an authenticator for Duo Passwordless logins.
- As a two-factor security key used during browser-based authentication featuring Duo's traditional prompt or Universal Prompt.
- As a WebAuthn passkey for Duo administrator logins to the Duo Admin Panel.
- As an OTP-generating hardware token for any Duo application which supports passcodes for two-factor authentication, including administrator login to the Duo Admin Panel.

https://duo.com/docs/yubikey

But is extra hardware hard to manage ?



Settings

Type: AWS IAM - Single Sign-On

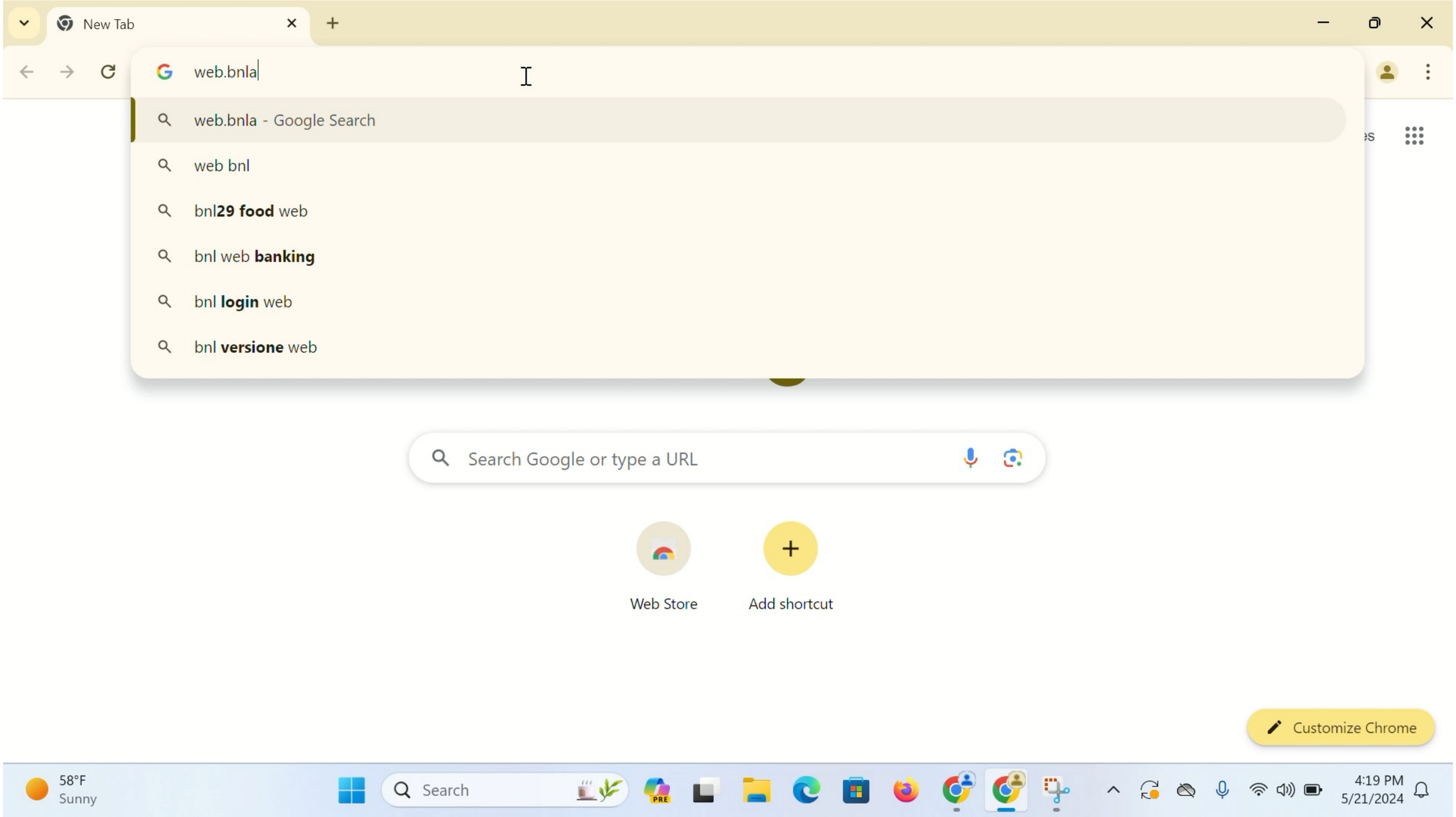
Name: Amazon Web Services - Single Sign-On

Duo Push users will see this when approving transactions.

Self-service portal: ☑ Let users remove devices, add new devices, and reactivate Duo Mobile

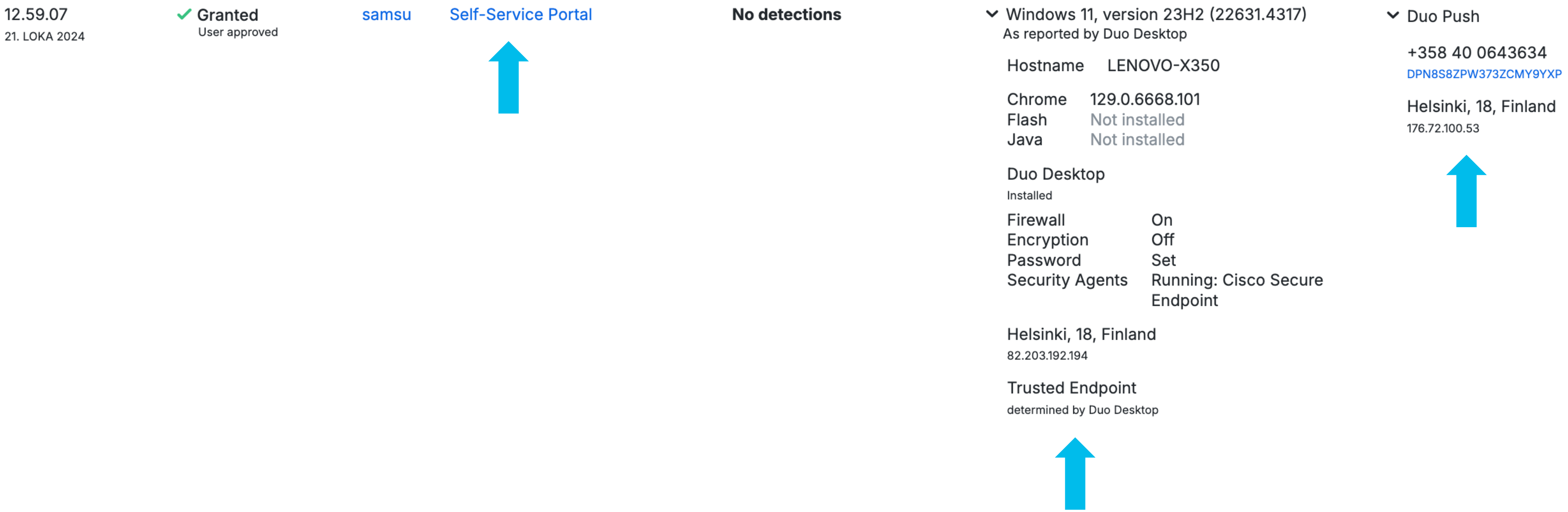
See Self-Service Portal documentation.

To allow Duo to notify users about self-service portal activity, select Settings > Notifications



web.bnla

New Tab
web.bnla - Google Search
web bnl
bnl29 food web
bnl web banking
bnl login web
bnl versione web
Search Google or type a URL
Web Store
Add shortcut
Customize Chrome
58°F
Sunny
Search
4:19 PM
5/21/2024



12.59.07
21. LOKA 2024

✓ Granted
User approved

samsu

Self-Service Portal

No detections

Windows 11, version 23H2 (22631.4317)
As reported by Duo Desktop

Hostname LENOVO-X350

Chrome 129.0.6668.101
Flash Not installed
Java Not installed

Duo Desktop
Installed

Firewall On
Encryption Off
Password Set
Security Agents Running: Cisco Secure Endpoint

Helsinki, 18, Finland
82.203.192.194

Trusted Endpoint
determined by Duo Desktop

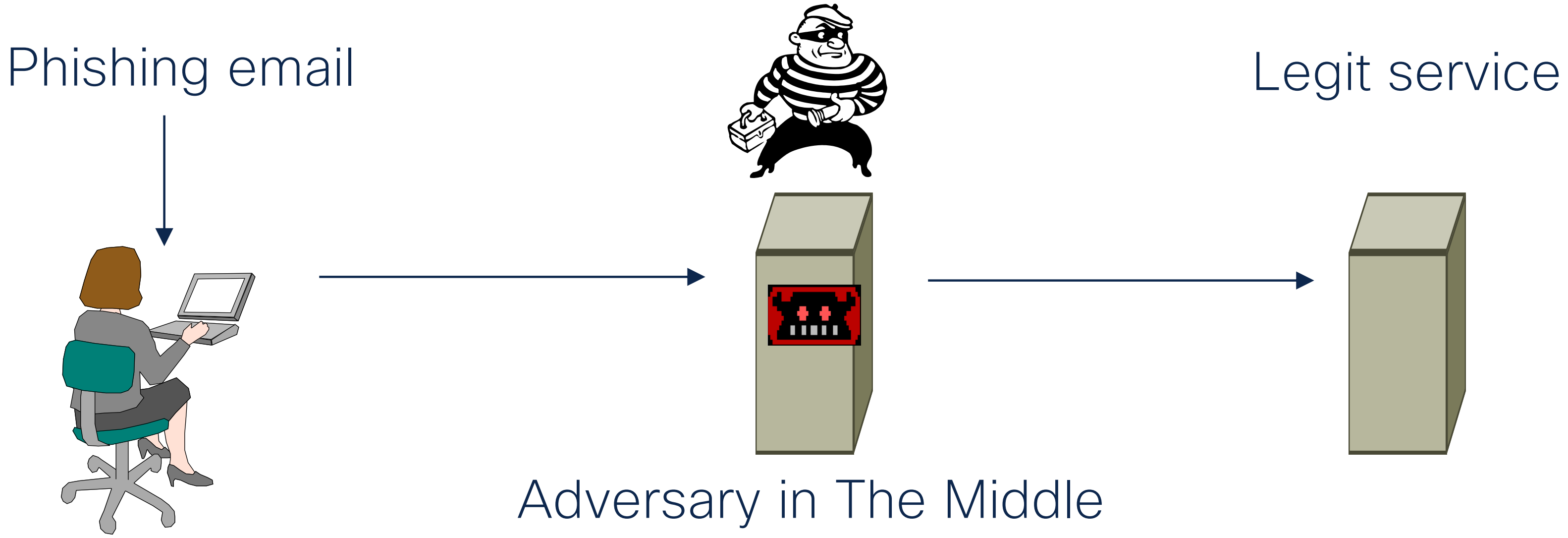
Duo Push

+358 40 0643634
DPN8S8ZPW373ZCMY9YXP

Helsinki, 18, Finland
176.72.100.53

OK, this is convenient but how about security ?

Increasing number of M365 data breaches utilise AiTM phishing technique

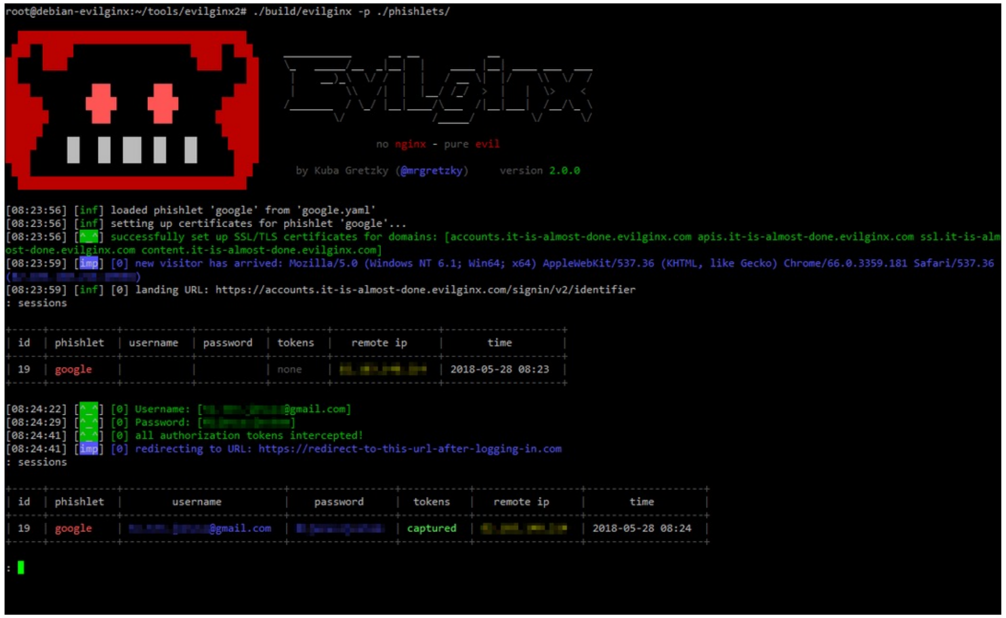


https://www.kyberturvallisuuskeskus.fi/en/ncsc-news/instructions-and-guides/increasing-number-m365-data-breaches-utilise-aitm-phishing

Evilginx 3.0

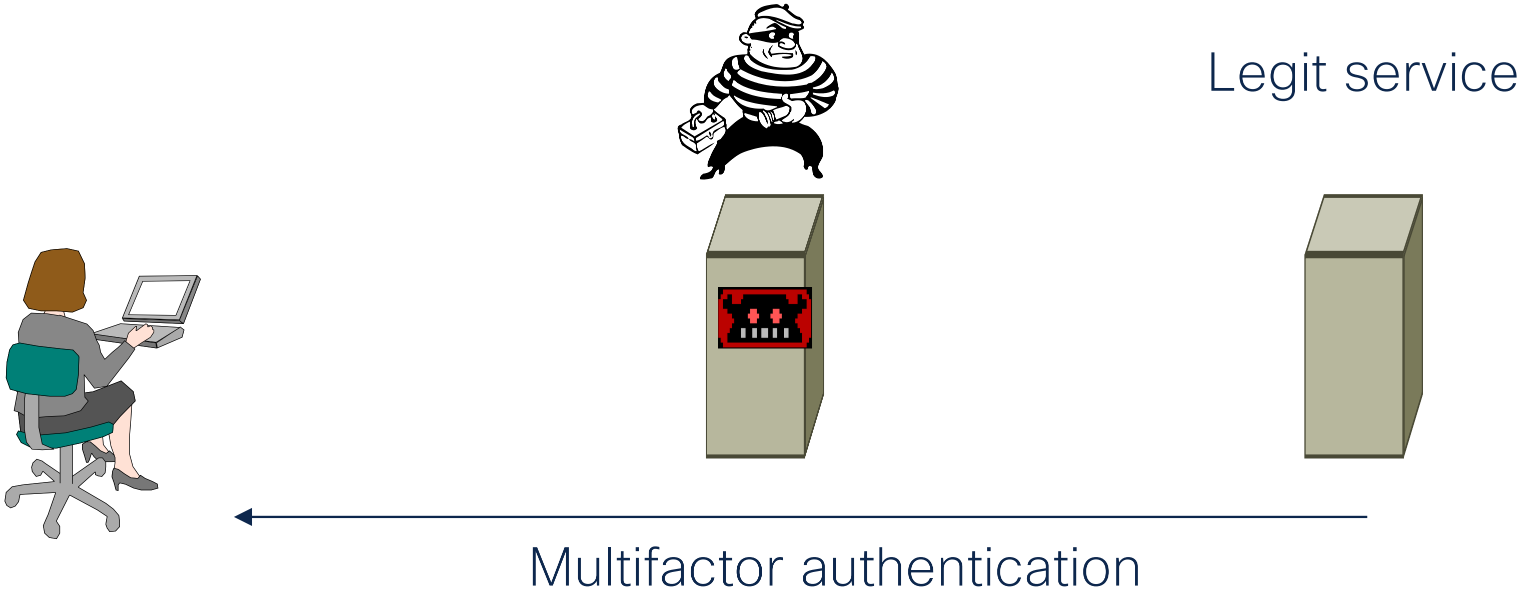
Evilginx is a man-in-the-middle attack framework used for phishing login credentials along with session cookies, which in turn allows to bypass 2-factor authentication protection.

This tool is a successor to Evilginx, released in 2017, which used a custom version of nginx HTTP server to provide man-in-the-middle functionality to act as a proxy between a browser and phished website. Present version is fully written in GO as a standalone application, which implements its own HTTP and DNS server, making it extremely easy to set up and use.



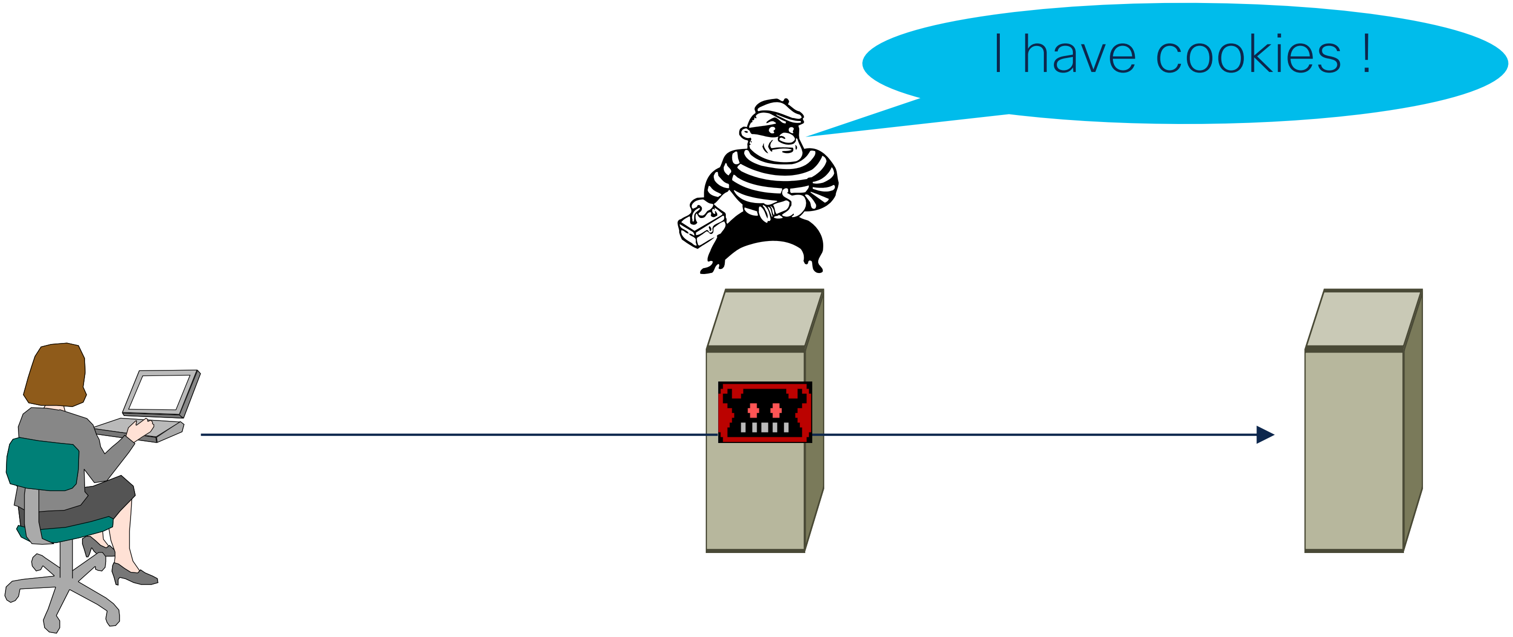
```
root@debian-evilginx:~/tools/evilginx2# ./build/evilginx -p ./phishlets/

                    no nginx - pure evil

          by Kuba Gretzky (@mrgretzky)     version 2.0.0

[08:23:56] [inf] loaded phishlet 'google' from 'google.yaml'
[08:23:56] [inf] setting up certificates for phishlet 'google'...
[08:23:56] [^_^] successfully set up SSL/TLS certificates for domains: [accounts.it-is-almost-done.evilginx.com apis.it-is-almost-done.evilginx.com ssl.it-is-alm
ost-done.evilginx.com content.it-is-almost-done.evilginx.com]
[08:23:59] [imp] [0] new visitor has arrived: Mozilla/5.0 (Windows NT 6.1; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/66.0.3359.181 Safari/537.36
([redacted])
[08:23:59] [inf] [0] landing URL: https://accounts.it-is-almost-done.evilginx.com/signin/v2/identifier
: sessions

+----+----------+----------+----------+--------+-------------+------------------+
| id | phishlet | username | password | tokens |  remote ip  |       time       |
+----+----------+----------+----------+--------+-------------+------------------+
| 19 | google   |          |          | none   | [redacted]  | 2018-05-28 08:23 |
+----+----------+----------+----------+--------+-------------+------------------+

[08:24:22] [^_^] [0] Username: [[redacted]@gmail.com]
[08:24:29] [^_^] [0] Password: [[redacted]]
[08:24:41] [^_^] [0] all authorization tokens intercepted!
[08:24:41] [imp] [0] redirecting to URL: https://redirect-to-this-url-after-logging-in.com
: sessions

+----+----------+-----------------------+------------+----------+-------------+------------------+
| id | phishlet |       username        |  password  |  tokens  |  remote ip  |       time       |
+----+----------+-----------------------+------------+----------+-------------+------------------+
| 19 | google   | [redacted]@gmail.com  | [redacted] | captured | [redacted]  | 2018-05-28 08:24 |
+----+----------+-----------------------+------------+----------+-------------+------------------+

: 
```

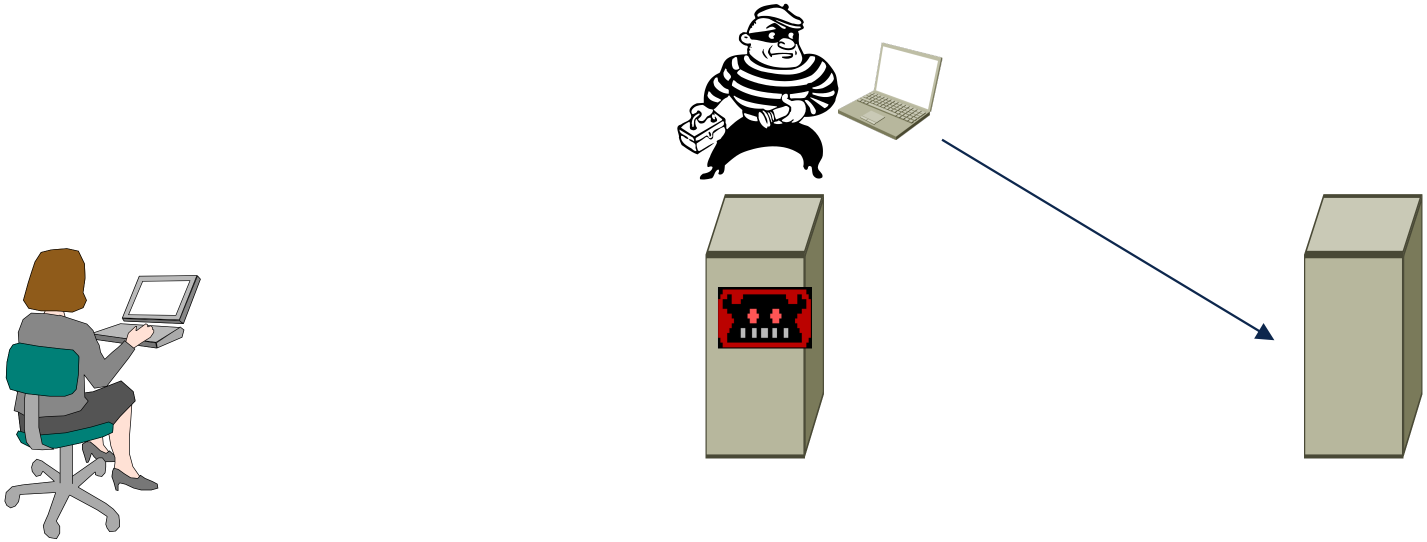
https://github.com/kgretzky/evilginx2



Legit service

Multifactor authentication


I have cookies !



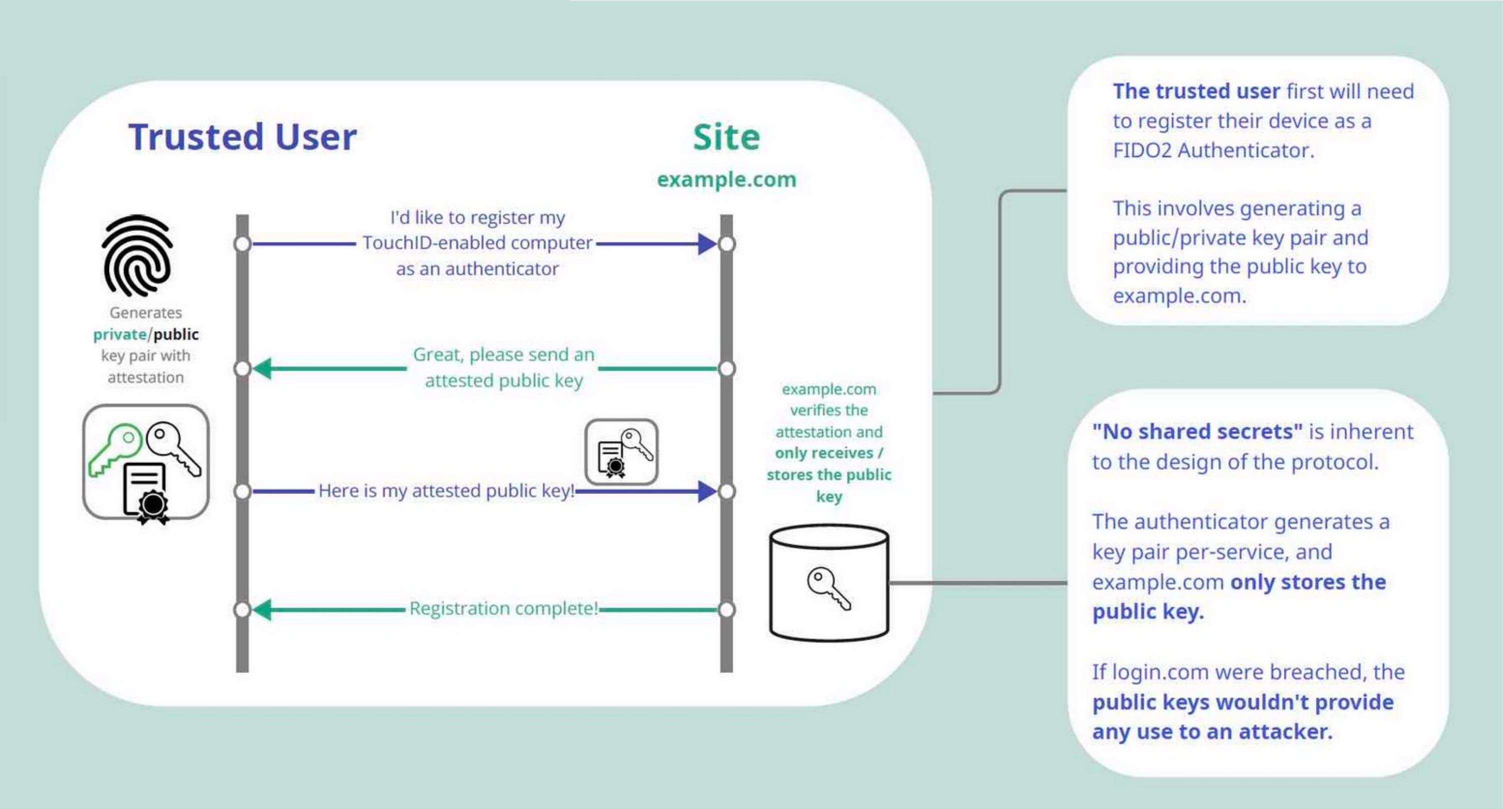
Protections against AiTM

- Certificate based authentication
- Only allow logins from Trusted Devices
- Passwordless using Yubikey or biometrics

And maybe you want to detect threats using

- Identity Threat Detection and Mitigation

No Shared Secrets


Trusted User
Site
example.com
Generates private/public key pair with attestation
I'd like to register my TouchID-enabled computer as an authenticator
Great, please send an attested public key
Here is my attested public key!
example.com verifies the attestation and only receives / stores the public key
Registration complete!

The trusted user first will need to register their device as a FIDO2 Authenticator.

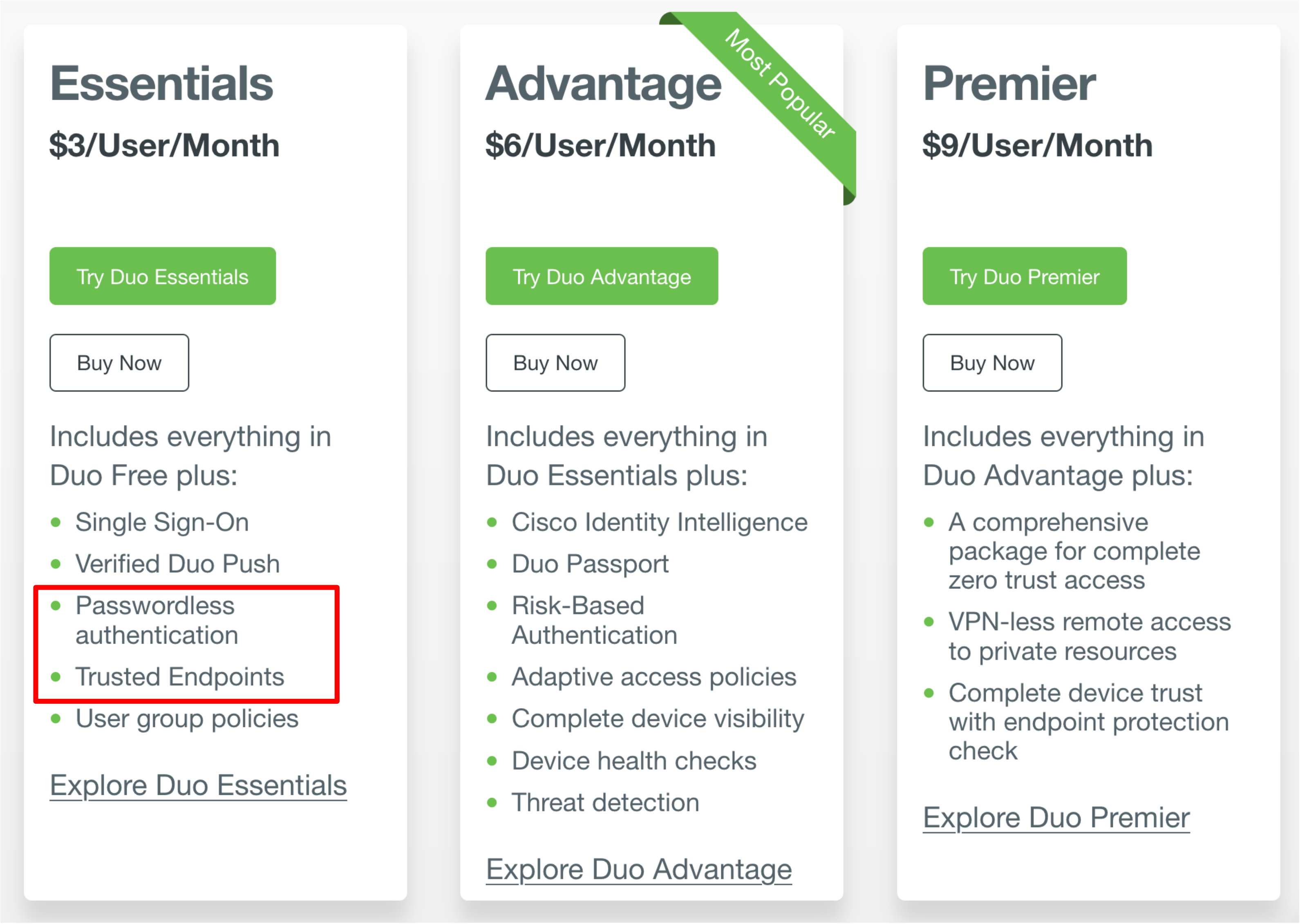
This involves generating a public/private key pair and providing the public key to example.com.

"No shared secrets" is inherent to the design of the protocol.

The authenticator generates a key pair per-service, and example.com **only stores the public key.**

If login.com were breached, the **public keys wouldn't provide any use to an attacker.**

https://duo.com/blog/understanding-defending-against-adversary-in-the-middle-aitm-attacks



Essentials

$3/User/Month

Try Duo Essentials

Buy Now

Includes everything in Duo Free plus:

- Single Sign-On
- Verified Duo Push
- Passwordless authentication
- Trusted Endpoints
- User group policies

Explore Duo Essentials

Advantage

$6/User/Month

Try Duo Advantage

Buy Now

Includes everything in Duo Essentials plus:

- Cisco Identity Intelligence
- Duo Passport
- Risk-Based Authentication
- Adaptive access policies
- Complete device visibility
- Device health checks
- Threat detection

Explore Duo Advantage

Premier

$9/User/Month

Try Duo Premier

Buy Now

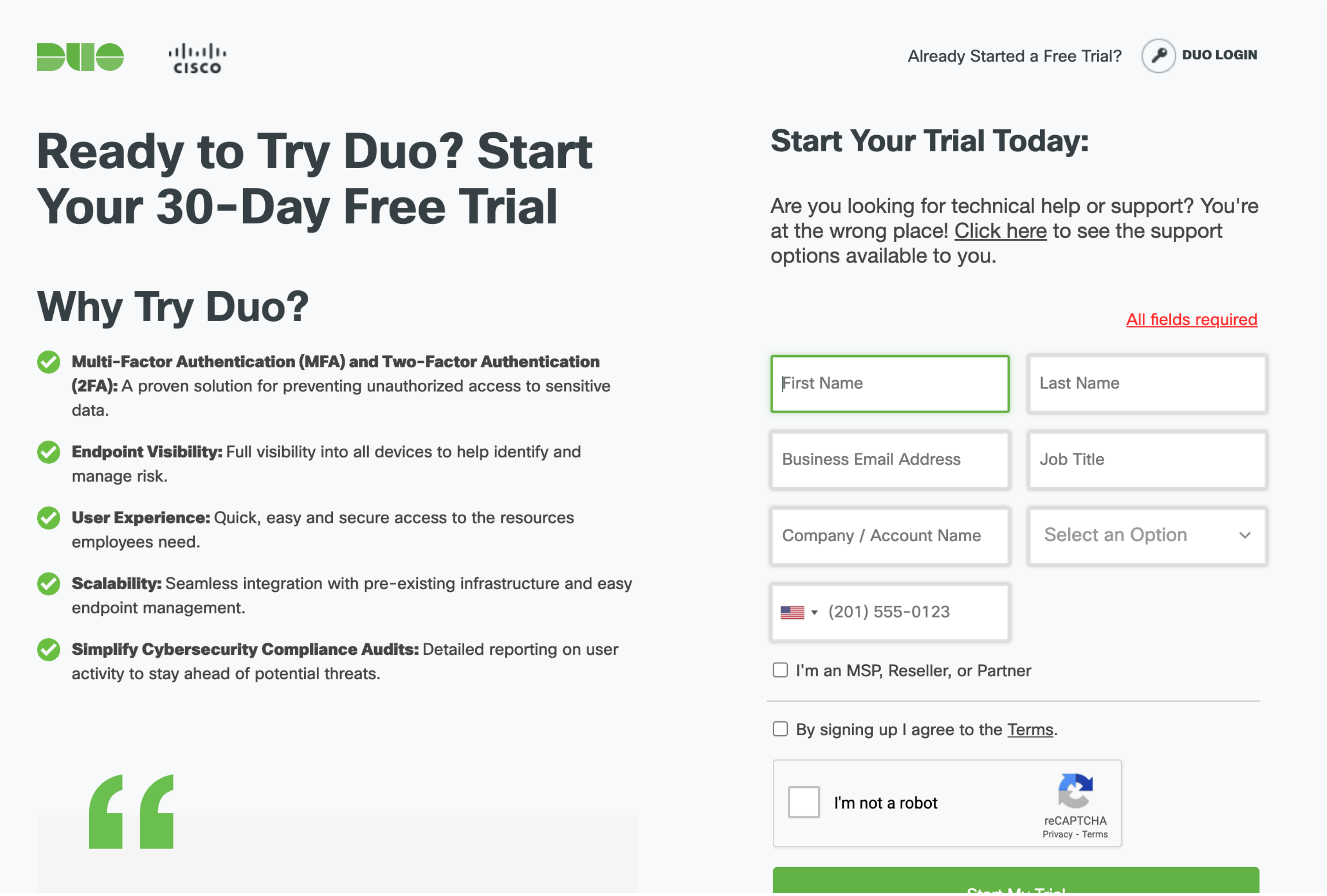
Includes everything in Duo Advantage plus:

- A comprehensive package for complete zero trust access
- VPN-less remote access to private resources
- Complete device trust with endpoint protection check

Explore Duo Premier

https://duo.com/editions-and-pricing

https://signup.duo.com



Already Started a Free Trial?

Ready to Try Duo? Start Your 30-Day Free Trial

Why Try Duo?

- ✓ **Multi-Factor Authentication (MFA) and Two-Factor Authentication (2FA):** A proven solution for preventing unauthorized access to sensitive data.
- ✓ **Endpoint Visibility:** Full visibility into all devices to help identify and manage risk.
- ✓ **User Experience:** Quick, easy and secure access to the resources employees need.
- ✓ **Scalability:** Seamless integration with pre-existing infrastructure and easy endpoint management.
- ✓ **Simplify Cybersecurity Compliance Audits:** Detailed reporting on user activity to stay ahead of potential threats.

“

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More info

- https://duo.com/blog/cybersecurity-threats-2023-how-itdr-can-help
- https://duo.com/resources/ebooks/2024-duo-trusted-access-report
- https://duo.com/resources/webinars/so-identity-is-the-new-perimeter-why-is-it-so-hard-to-defend

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