UBERPASSCODES
Smart In-band Multifactor Password-less Authentication

OWASP Dallas

Unspoofable Anti-Phish Codes
Reduce Risk of Data breach & Fraud ~ 0

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I changed all my passwords to "incorrect".
So whenever I forget, it will tell me "Your password is incorrect."

Impact Across Every Industry –Phishing, ATO

FACTS & FIGURES

3X — Account takeovers tripled in 2018

$10.6B — Financial fraud loss totaled $10.6 billion in 2018

81% — Credential compromise were at the heart of 81% of the total reported data breaches

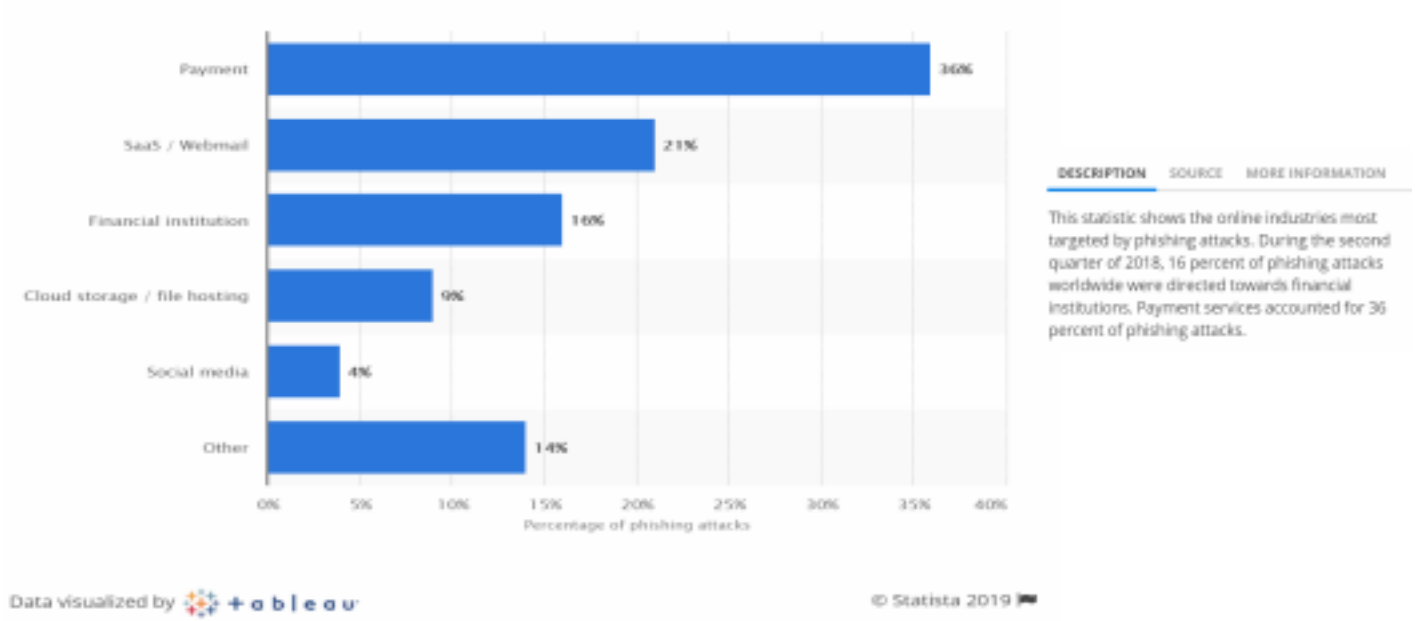
$5M — On average, a data-breach cleanup costs at least $5 million

*Javelin, Verizon, Ponemon 2018

THREAT CONTINUES TO GROW
with the increase on sophistication and automation of 2-Factor Phishing

Phishing: Low Cost, Big Impact for Hackers

Online industries most targeted by phishing attacks as of 2nd quarter 2018*



*https://www.statista.com/statistics/266161/websites-most-affected-by-phishing/

Why Phishing Works in Practical World?

- It is a numbers game – Probability –0.01% but population set >> millions
- **SSL cert padlock – utility severely diminished**

https://securelogin.citibank.servicescustomerbanking.dsgdsjgdsjhdshjdsfjhsdjkksdjaskjsdfjksdkfjsadhgj.**evil.com**

Match Top-level-domain. Lock is green, no alert!

Recent real-time proxies (MiM) to impersonate websites

Hey, wait a second...

We have 2-factor authentication!

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2-Factor Authentication

My Little Password

+

We are secure!

Welcome Advanced 2FA Phishing Automation

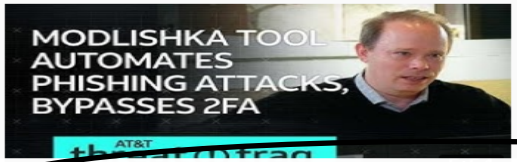
FILTER

Phishing with 2FA enabled (Evilginx 2)

DemmSec • 8.9K views • 5 months ago

Learn how to set up Evilginx2 which can be used to **phish** a target even if they have **2FA** enabled. The contents of this video are ...

4K



1/17/19 Modlishka Tool Automates Phishing Attacks, Bypasses 2FA | AT&T ThreatTraq

AT&T Tech Channel • 1.7K views • 2 months ago

http://go.att.com/d45310ab Originally recorded January 17, 2019 AT&T ThreatTraq welcomes your e-mail questions and feedback ...

YouTube

2FA Phishing

Security Weekly • 2.3K views • 11 months ago

Organizations are implementing two-factor on more and more web services. The traditional methods for **phishing** credentials is no ...

New Exploit Hacks LinkedIn 2-factor Authentication

KnowBe4 • 51K views • 10 months ago

Kevin Mitnick shows how the exploit is based on a credentials phishing attack that uses a typo-squatting domain. Once the user ...

4K

Welcome Advanced 2FA Phishing Automation!

Tokens
(One-time Codes)

SMS Approval
(Out-of-Band)

Current 2nd Factor Authentication Space

All are vulnerable to Credential Harvesting and Account Compromise

MAN-IN-MIDDLE

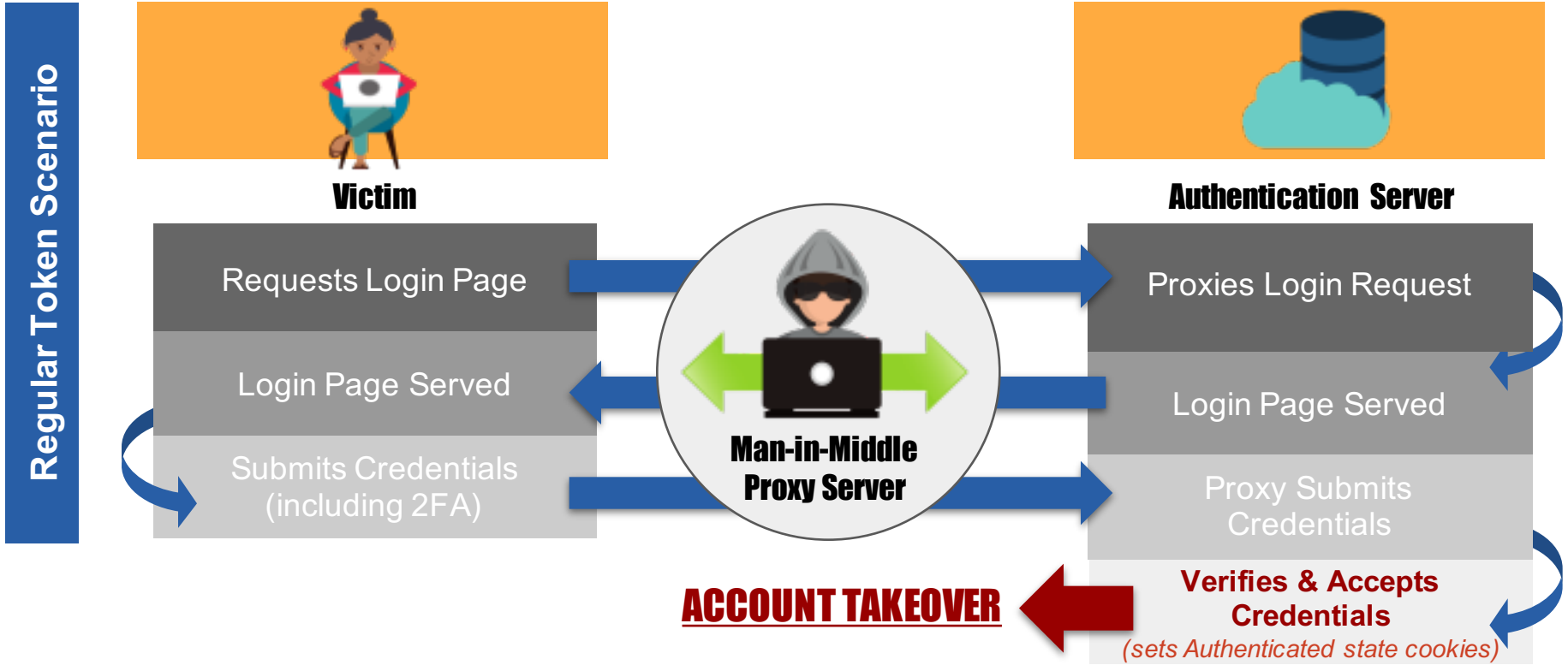
PHISHING

OVER-THE-SHOULDER

KEYLOGGER MALWARE

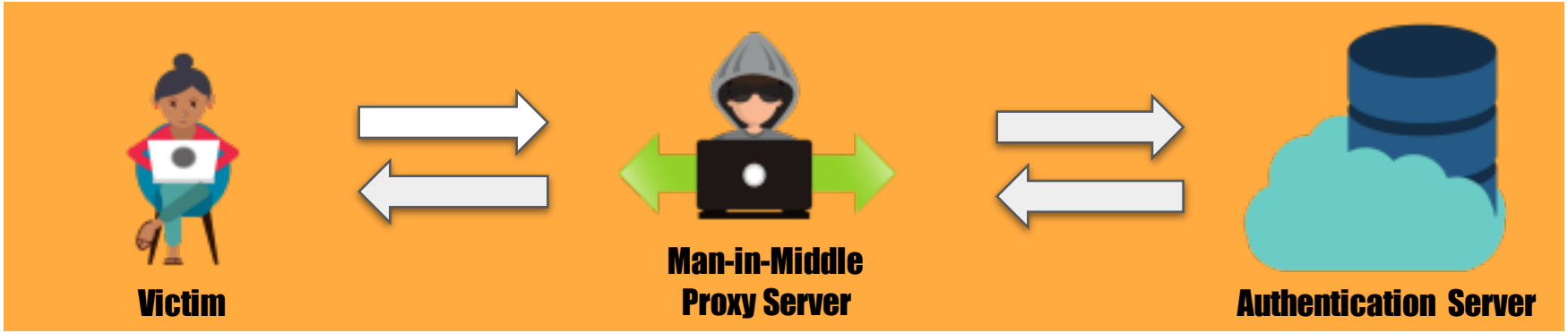
How it Works: Account Takeover

Account takeover after victim follows phishing link with current 2-factor authentication



Equivalent in Credential Stealing

SCENARIO A



SCENARIO B

Time for a Hack!

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Let's Play ...

Account takeover through stolen credentials with anti-phishing codes

First logs-in with the codes displayed

Steals the displayed codes and logs-in

First, we use regularotp - Google Auth

Next, we use secureotp – Bearer-aware OTP

Logged-in with Spoofed Credentials?

Password and Regular OTP were perfectly Interceptable and Spoofable for Account Take-Overs

Bearer-Agnostic

One who holds the bill can spend it!

Bearer-Sensitive OTPs

End-Devices are not lost or stolen

End-Devices are not compromised –
NOT Rooted, Jail-broken with Malware

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How it Works: No Account Takeover

BOTP Anti-Phish Codes Prevent Account Takeover

UberPasscodes Scenario

Victim

UberPasscodes®
Authentication Server

Requests Login Page

Login Page Served

Submits Bearer-Sesisitive OTP

Proxies Login Request

Login Page Served

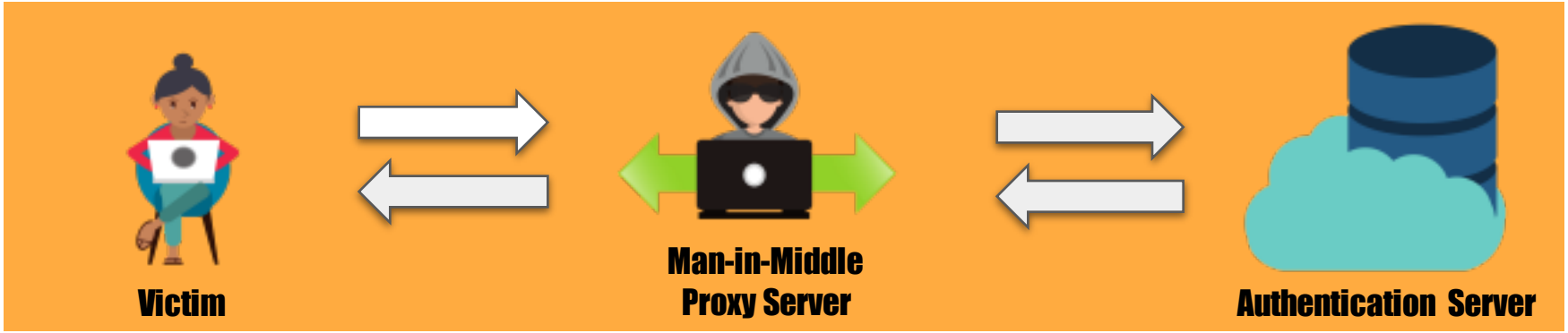
Proxy Submits Credentials

Verifies who is the Bearer in addition to proof-of-shared secret
Rejects credentials
NO authenticated state cookies

NO ACCOUNT TAKEOVER

Equivalent in Credential Stealing

SCENARIO A



SCENARIO B

How it Works: No Account Takeover

Anti-Phish Codes Prevent Account Takeover

UberPasscodes Scenario

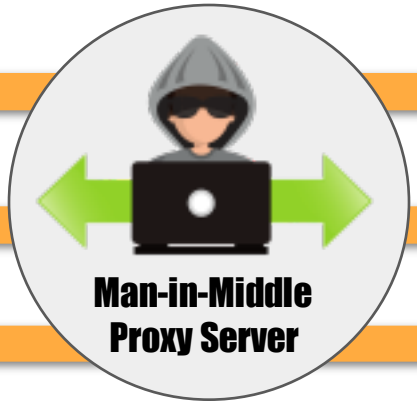
Victim

UberPasscodes® Authentication Server

Requests Login Page

Login Page Served

Submits Bearer-Sensitive OTP



Proxies Login Request

Login Page Served

Proxy Submits Credentials

Verifies who is the Bearer in addition to proof-of-shared secret

Rejects credentials

NO authenticated state cookies

NO ACCOUNT TAKEOVER

Logged-in with APC Spoofed Credentials?

Anti-Phish BOTP, When intercepted and spoofed, the system detects and stops the session transition into authenticated state

Thus no account-take-overs

UberPasscodes® vs. FIDO2

	No Capex	Authentication Verification Control (autonomous)	No Changes to Existing Federated & Single Sign On (SSO)	Quantum-safe?	No Changes to Existing Applications
UberPasscodes®	Yes	Yes	Yes	Yes	Yes
Fido U2F/A	No	No, Relies on end-user's authenticator trust/agent	Needs custom retrofits	Vulnerable	No- Needs substantial software changes

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Summary Anti-Phish Codes

BY DESIGN

User cannot go to a phishy website and lose credentials

Credential Phishing attacks made ineffective

Eliminate Data breaches and Fraud due to Credential Compromise

81% of data breaches and online fraud start with credential compromise

Bearer-sensitive one time passcode (BOTP) address them!

Cheaper and s/w (app) based - No hardware dongles needed

Thank you!

For White Paper & Exploring more

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