Red Teaming

15 Minuten die Welt aus der Sicht eines Angreifers erleben

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About me

- 7 years experience as pentester / red teamer / researcher
- Twitter: @ReneFreingruber
- Staatsmeister Cyber Security Austria 2019
- Research topics:
  - 2014: Bypassing EMET
    - 31C3, DeepSec, ZeroNights, RuxCon, ToorCon, NorthSec
  - 2015: Bypassing Application Whitelisting
    - CanSecWest, DeepSec, Hacktivity, NorthSec, IT-SeCX, Bsides Vienna, QuBit
  - 2016: Hacking companies via firewalls
    - DeepSec, Bsides Vienna, DSS ITSEC, IT-SeCX (lightning talks Recon EU and hack.lu)
  - 2017 & 2018: Fuzzing talks & workshops
    - DefCamp, Heise DevSec, IT-SeCX, Bsides Vienna, RuhrSec, BruCon, Hack.lu

Security Audit & Assessment Team

Security Audit & Assessment Team

+80 Security Systems Engineers

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This talk is about flaws and mistakes

Test Test Test !

- Performing tests is nowadays mandatory:
  - Programmers ➔ Unit Tests, Website audits, …
  - Admins ➔ Internal Audits, Test Backups, Netflix “Chaos Monkey”, …
  - End Users ➔ Social Engineering Audits, …

Emergency tests!

- IT unrelated areas also test the emergency!
  - Fire department regularly perform tests
  - Police special forces regularly perform tests

Threat Detection

Threat Detection

- Companies buy expensive threat intelligence software which can *insert fancy marketing word* and which solves *insert fancy marketing word* …

- **BUT: <u>Nearly nobody verifies if the system is really working</u>**
  - Does it alert in emergency?
  - Can it detect real-world attacks?
  - How long does it take until someone reacts to the alert?
  - How simple is it to stay under the radar?

Who should do red teaming?

Requirements:

- A base level of security should be established
- Threat detection capabilities

The advantages are:

- Check if the system can detect real-world attacks
- Identify blind spots in monitoring solutions and security strategies
- Training for administrators for emergency

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Scenario 1: Unimportant system

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- OSINT revealed an unaesthetic looking website, hosted in the cloud
- Never tested, company: “standalone and old website ➔ useless for hackers”

1. Default credentials guessed based on documentation
2. Cleartext password from admin from 2011 found in FileZilla cache
3. Password bruteforce based on identified password pattern to get access
   - Was not detected because only this “service was not monitored” (and no multi factor authentication…)
4. SSH backdoored ➔ All company passwords obtained in a week

Scenario 2: Password Spray

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- OSINT + quick pentest for low hanging fruits during first days lead to nothing

1. OSINT revealed lots of users (LinkedIn, Xing, Research Gate, …)
2. Service with LDAP authentication but which does not support MFA (multi factor authentication) was identified
3. Password spray with “Sommer2019”, “Sommer2019!”, “Password2019!”, “Sommer19”, “<CompanyName>2019” was done
   - Monitoring solution could just detect bruteforce, no password spray …
4. ~20 User accounts compromised ➔ Full domain compromise

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Scenario 3: Phishing against 2-factor authentication

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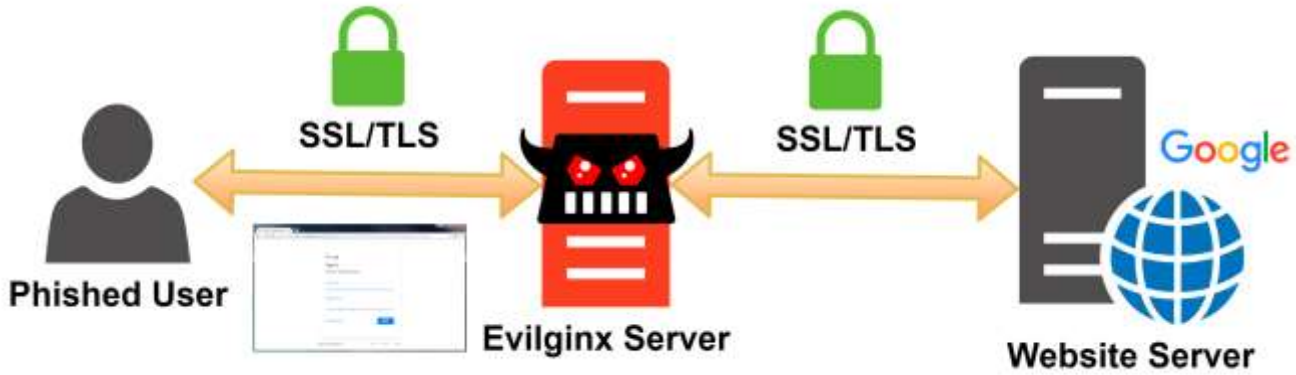
- Phishing is the most effective entry point!

- Scenarios:
  - Student survey ➔ Name of AV and security products, OS version, …
  - Inside the target building install a poster with a contest to win Sodexo vouchers
  - Send a link to a pishing site which shows the companies Christmas bonus
  - .... (be creative)

Scenario 3: Phishing against 2-factor authentication

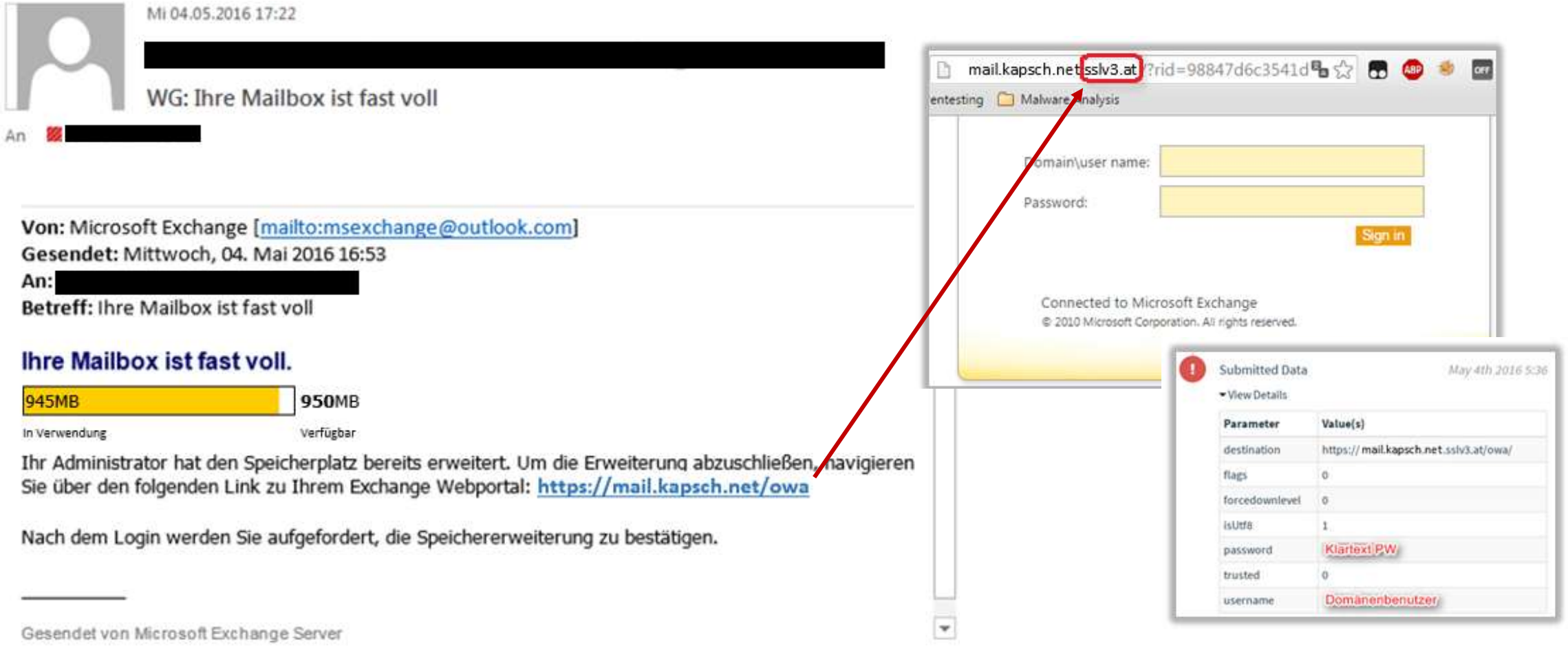
- Bypass multi-factor authentication with:
  - evilginx2
  - Modlishka



source: https://breakdev.org/evilginx-2-next-generation-of-phishing-2fa-tokens/

- Other useful technique to bypass sandbox solutions
  - HTML smuggling, Domain Fronting, Azure Information Protection, …

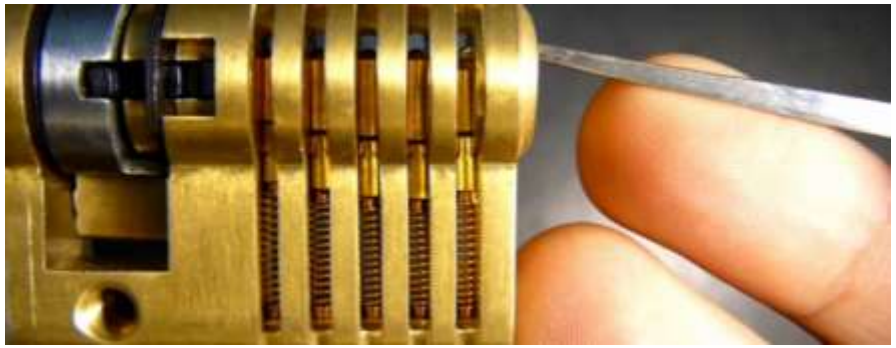
Scenario 3: Phishing against 2-factor authentication



Scenario 4: Physical Entrance & Hardware Hacking

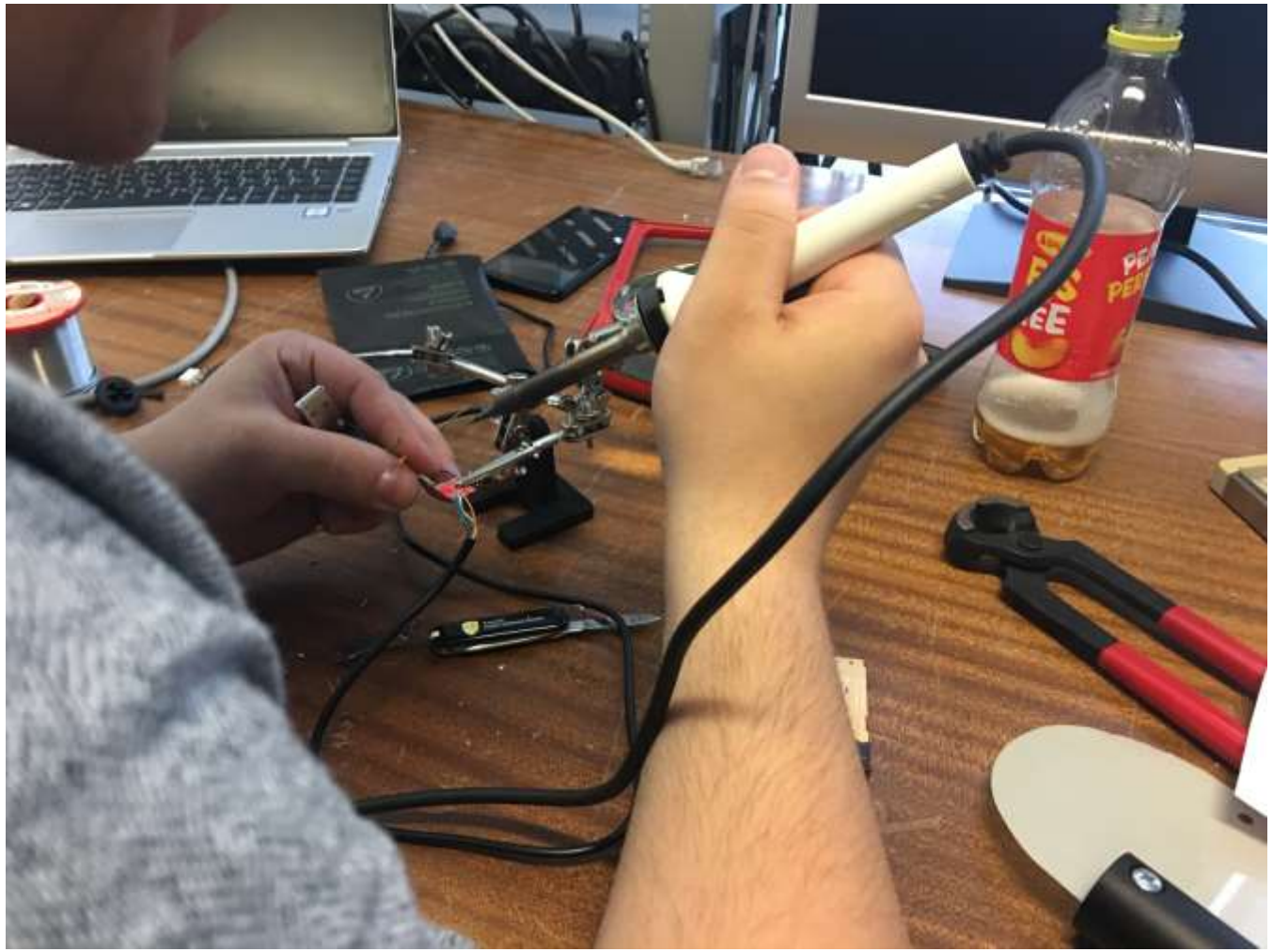
Scenario 4: Physical Entrance

- LockPicking
  - Door lock bypass tools

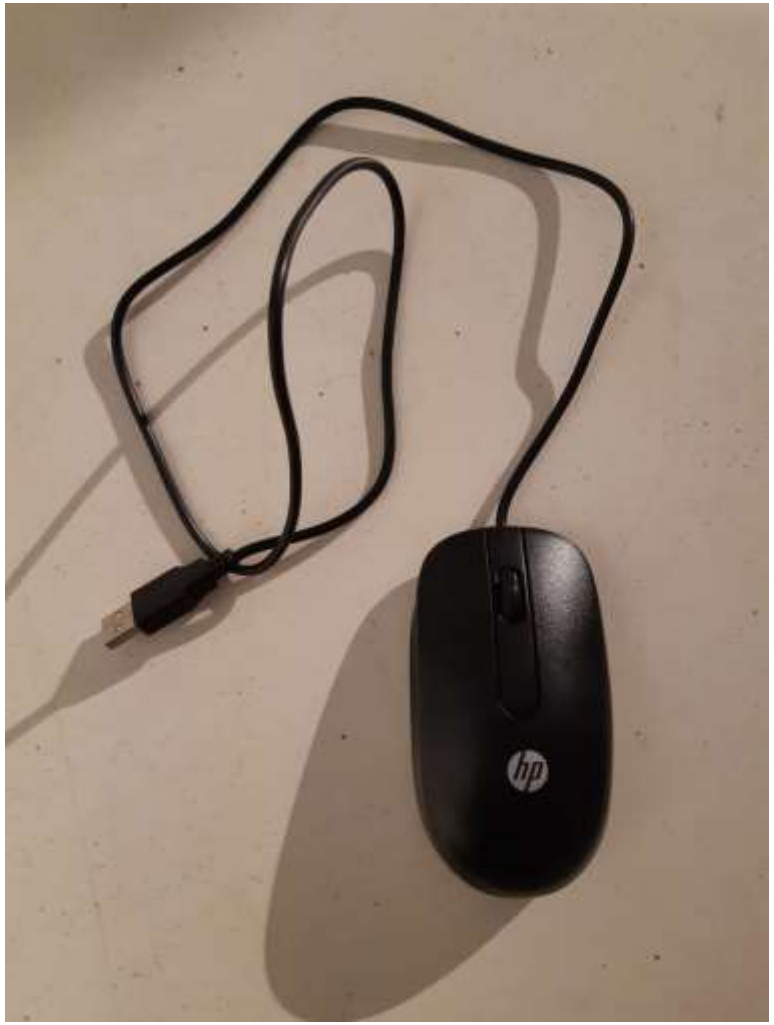


- Steal RFID cards
  - Proxmark
  - RFID Thief

Scenario 4: Physical Entrance



Scenario 4: Physical Entrance



Scenario 4: Physical Entrance

- Place keyloggers / BadUSB or RubberDucky

- PwnBox / Rasperry Pi
  - with NAC bypass and 4G backchannel

Thank you for your attention!

Looking for a job?

https://glhf.at

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