

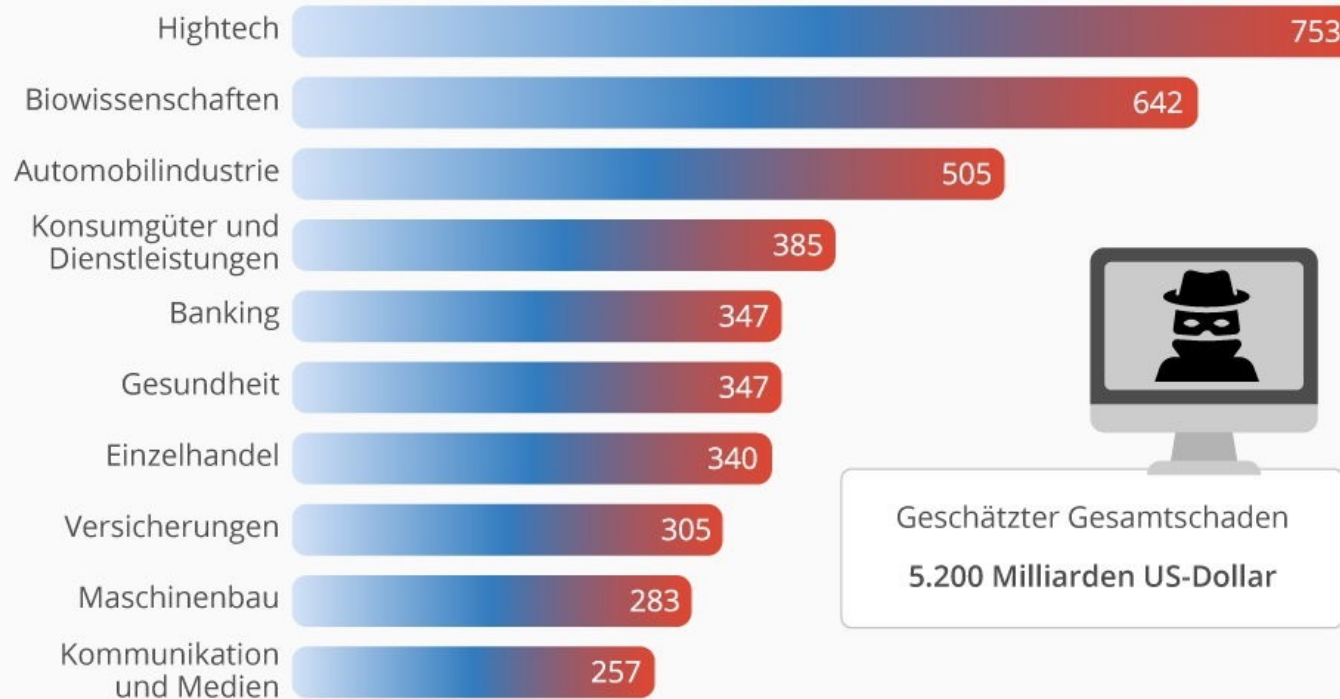
Cybersecurity & Augmented Reality

Peter Gigler

Cybersecurity - Motivation - Branchen

Die Kosten der Unsicherheit

Höhe des durch Cyberattacken entgangenen Umsatzes 2019 bis 2023 (in Mrd. US-Dollar)*



* Schätzung auf Basis von 4.700 börsennotierten Unternehmen weltweit
Quelle: Accenture

statista

<https://ap-verlag.de/cyberkriminalitaet-mehrkosten-und-umsatzverluste-durch-cyberangriffe-von-52-billionen-us-dollar/51764/>

Cybersecurity - Motivation - Kosten

Ein Drittel der globalen Unternehmen war in 2019 Opfer eines schweren Cyberangriffs

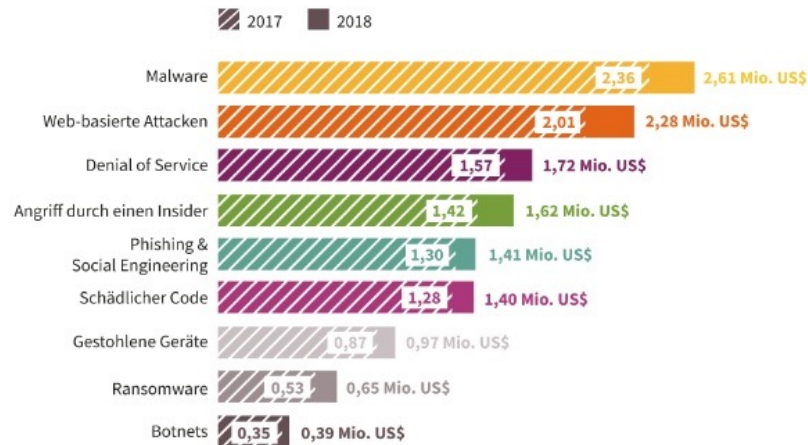
Seit 2014 ist die Zahl der Angriffe auf globale Unternehmen um fast **50 Prozent** gestiegen.*

*3.645 Befragte weltweit, CIOs und IT Leader in 108 Ländern; Quellen: Hervey Nash, KPMG



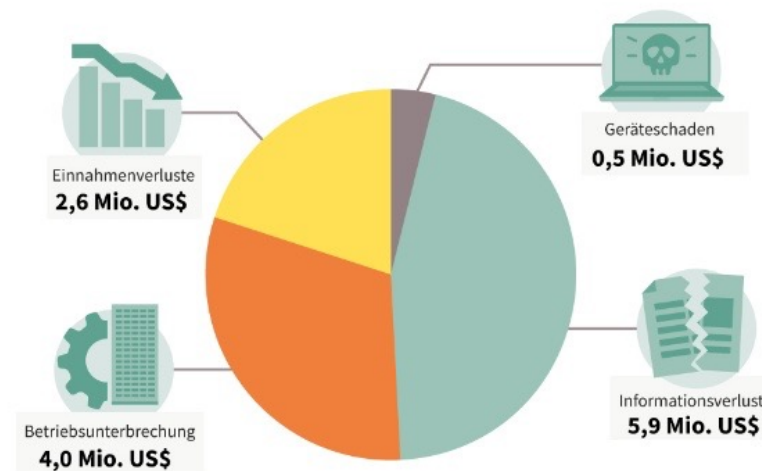
Malware verursacht den größten finanziellen Schaden

Durchschnittliche jährliche Kosten durch Cyberattacken nach Art des Angriffs, 2018**



Konsequenzen aus Cyberangriffen

Durchschnittliche jährliche Kosten durch Cyberattacken**



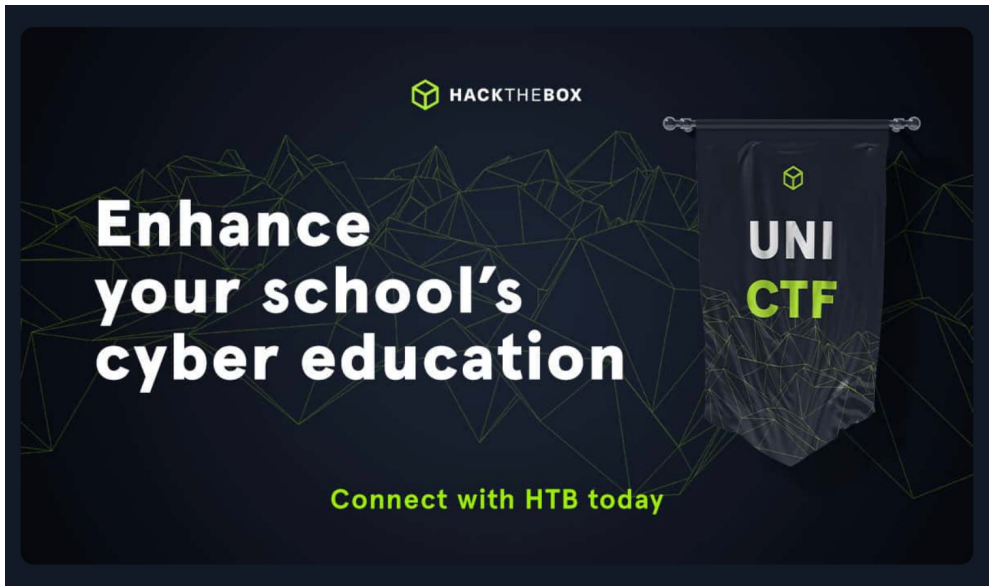
**Befragung unter 355 Unternehmen weltweit, je mind. 5.000 Arbeitsplätze

<https://www.infineon.com/cms/de/discoveries/cybersecurity-grundlagen/>

Cybersecurity - Einordnung

- ▶ Network Security
- ▶ Cloud Security
- ▶ Mobile Security
- ▶ IoT Security
- ▶ Application/Software Security
- ▶ ...

Cybersecurity - Tools und Beispiele für den Unterricht





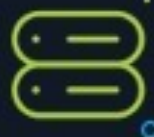
HACKTHEBOX

1M+

Hack The Box Nutzer/Mitglieder



600+



Maschinen & Herausforderungen

NEW CONTENT EVERY WEEK

800+

Unternehmen, die Hack The Box nutzen

GLOBAL REACH



307



CTFs, Meetups & Trainings
Global organisiert



B2B

Enterprise Clients including
Fortune500 companies



760+

Universitäten eingeschrieben



NEW HTB ACADEMY

CERTIFIED PENETRATION TESTING SPECIALIST



- 1 COMPLETE THE PATH
- 2 TAKE THE EXAM
- 3 GET CERTIFIED!



Noob

0% TOWARDS SCRIPT KIDDIE



pgigler - Respect

PLAN
Free

GO VIP

OVERVIEW

RECOMMENDED

IN PROGRESS

TO-DO

KNOWLEDGE



Starting Point

Are you a beginner in hacking?
Start here!



Academy

Cybersecurity training, a university
for hackers



Tracks

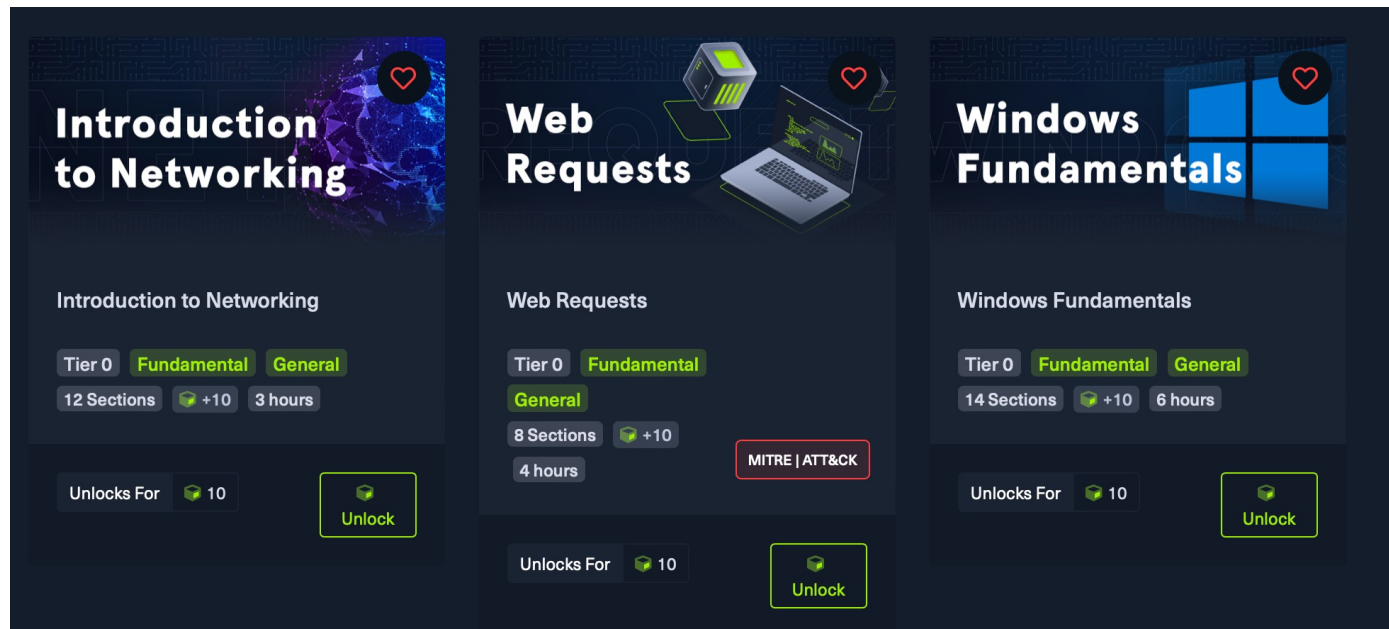
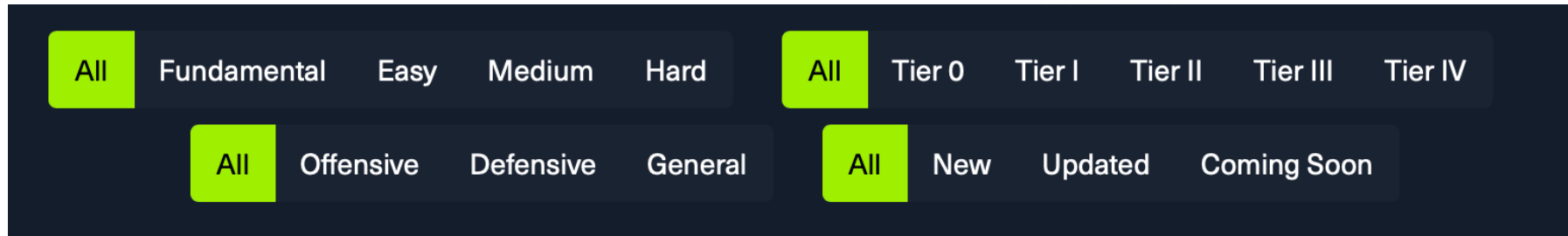
Master a particular cybersecurity
subject



Machines

Over 200 live hackable machines
to choose from

Hack the Box - Academy



Hack the Box - Academy

Syntax

The syntax for Nmap is fairly simple and looks like this:



```
pgigler@htb[/htb]$ nmap <scan types> <options> <target>
```

Hack the Box - Academy

```

Nmap - Trace the Packets

pgigler@htb[/htb]$ sudo nmap 10.129.2.28 -p 21 --packet-trace -Pn -n --disable-arp-ping

Starting Nmap 7.80 ( https://nmap.org ) at 2020-06-15 15:39 CEST
SENT (0.0429s) TCP 10.10.14.2:63090 > 10.129.2.28:21 S ttl=56 id=57322 iplen=44  seq=1699105818 win=10
RCVD (0.0573s) TCP 10.129.2.28:21 > 10.10.14.2:63090 RA ttl=64 id=0 iplen=40  seq=0 win=0
Nmap scan report for 10.11.1.28
Host is up (0.014s latency).

PORT      STATE SERVICE
21/tcp    closed ftp
MAC Address: DE:AD:00:00:BE:EF (Intel Corporate)

Nmap done: 1 IP address (1 host up) scanned in 0.07 seconds

```

Scanning Options	Description
10.129.2.28	Scans the specified target.
-p 21	Scans only the specified port.
--packet-trace	Shows all packets sent and received.
-n	Disables DNS resolution.
--disable-arp-ping	Disables ARP ping.

Hack the Box - Academy

Starting interactive instances...

Questions

Answer the question(s) below to complete this Section and earn cubes!

Target: [Click here to spawn the target system!](#)



Cheat Sheet



Download VPN
Connection File

+ 1

Find all TCP ports on your target. Submit the total number of found TCP ports as the answer.

Submit your answer here...



Submit

+ 1

Enumerate the hostname of your target and submit it as the answer. (case-sensitive)

Submit your answer here...



Submit

Hack the Box - Labs





Fawn
VERY EASY


10 POINTS



Spawn Machine
Click to Spawn Machine

MACHINE PROGRESS

+10 





Official HTB Write-up
Click to view the Writeup

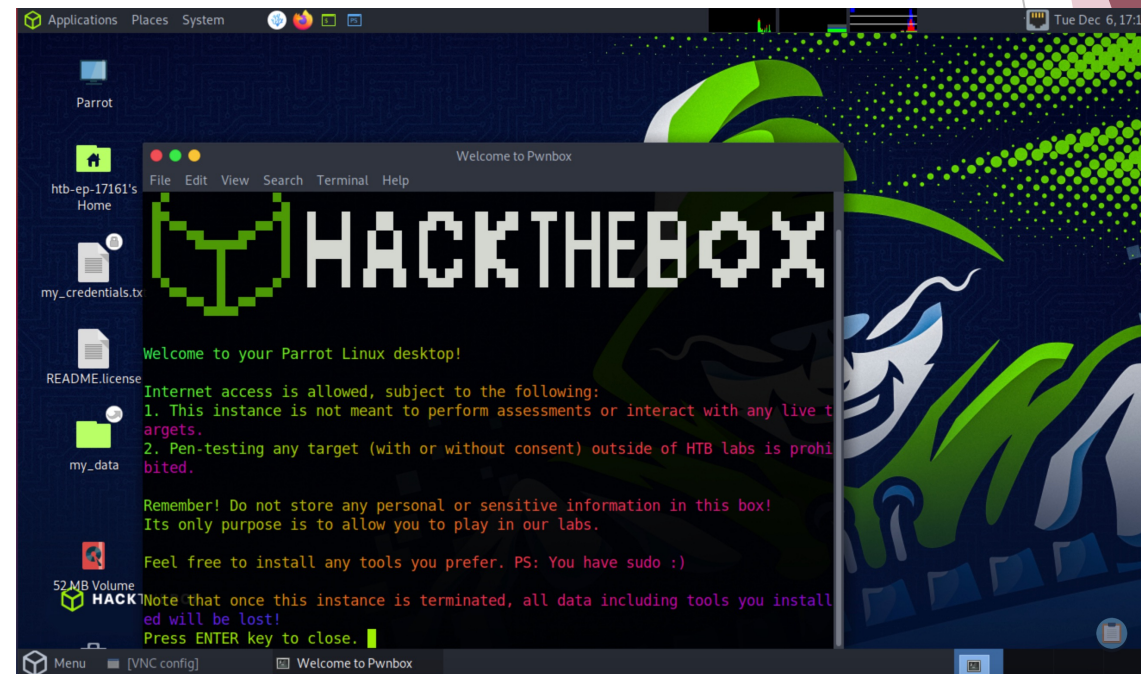
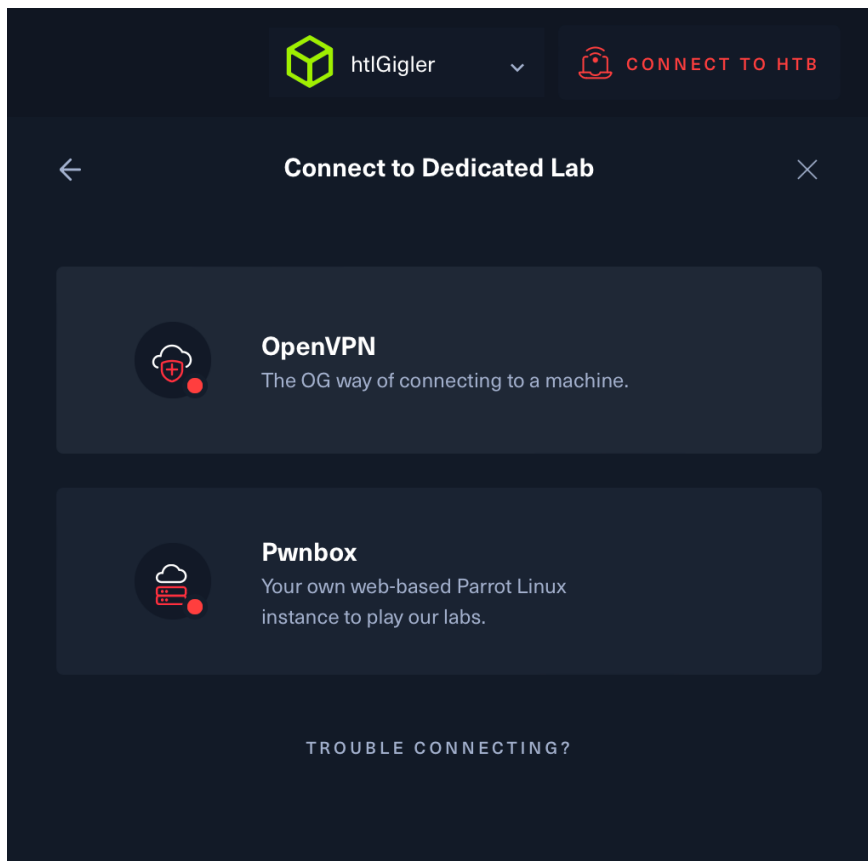
 OPEN

SKILL TAGS

FTPAccount Misconfiguration

MACHINE MATRIX

Hack the Box - Labs - VPN / VM im Browser



Hack the Box - Labs





Fawn
VERY EASY


10 POINTS



Spawn Machine
Click to Spawn Machine

MACHINE PROGRESS

+10 





Official HTB Write-up
Click to view the Writeup

 OPEN

SKILL TAGS

FTP

Account Misconfiguration

MACHINE MATRIX

Hack the Box - Challenges

The screenshot shows the 'Weak RSA' challenge page on the Hack the Box platform. The interface is dark-themed. At the top left, there is a back arrow and a lock icon. The challenge title 'Weak RSA' is displayed in white, with 'EASY' below it. On the top right, there is a diamond icon and '2 POINTS'. Below the title, there is a 'Download Files' button with a download icon and the text 'Necessary to Play Challenge'. To the right of this is a 'CHALLENGE FLAG' section with a green progress bar, a '+2' icon, and a flag icon. Further right is an 'Input Flag Hash' text box and a green submit button with a flag icon. At the bottom, the 'CHALLENGE DESCRIPTION' is visible, asking 'Can you decrypt the message and get the flag?'.

< **Weak RSA**
EASY

2 POINTS

Download Files
Necessary to Play Challenge

CHALLENGE FLAG

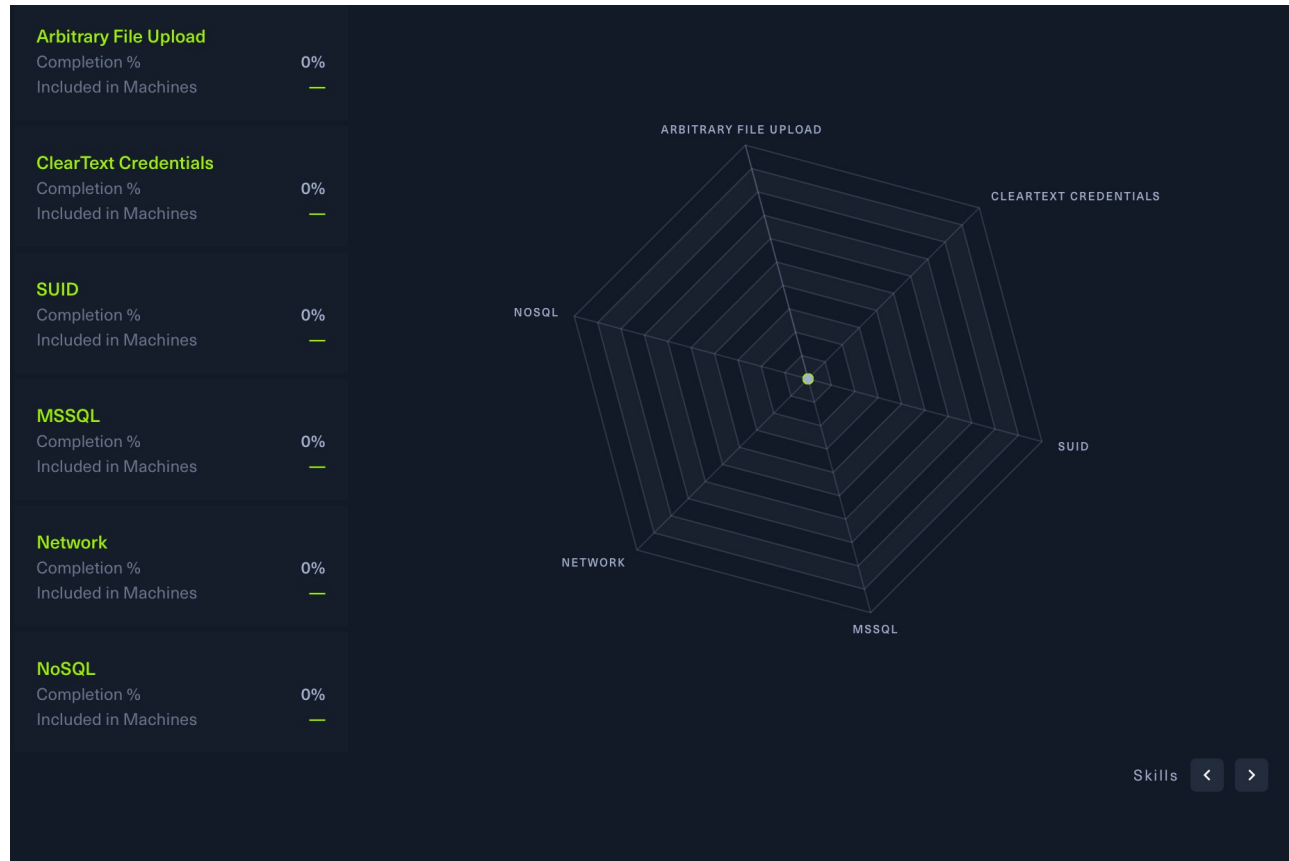
+2

Input Flag Hash

CHALLENGE DESCRIPTION

Can you decrypt the message and get the flag?

Hack the Box - Schüler Fortschritte



Augmented Reality - Überblick

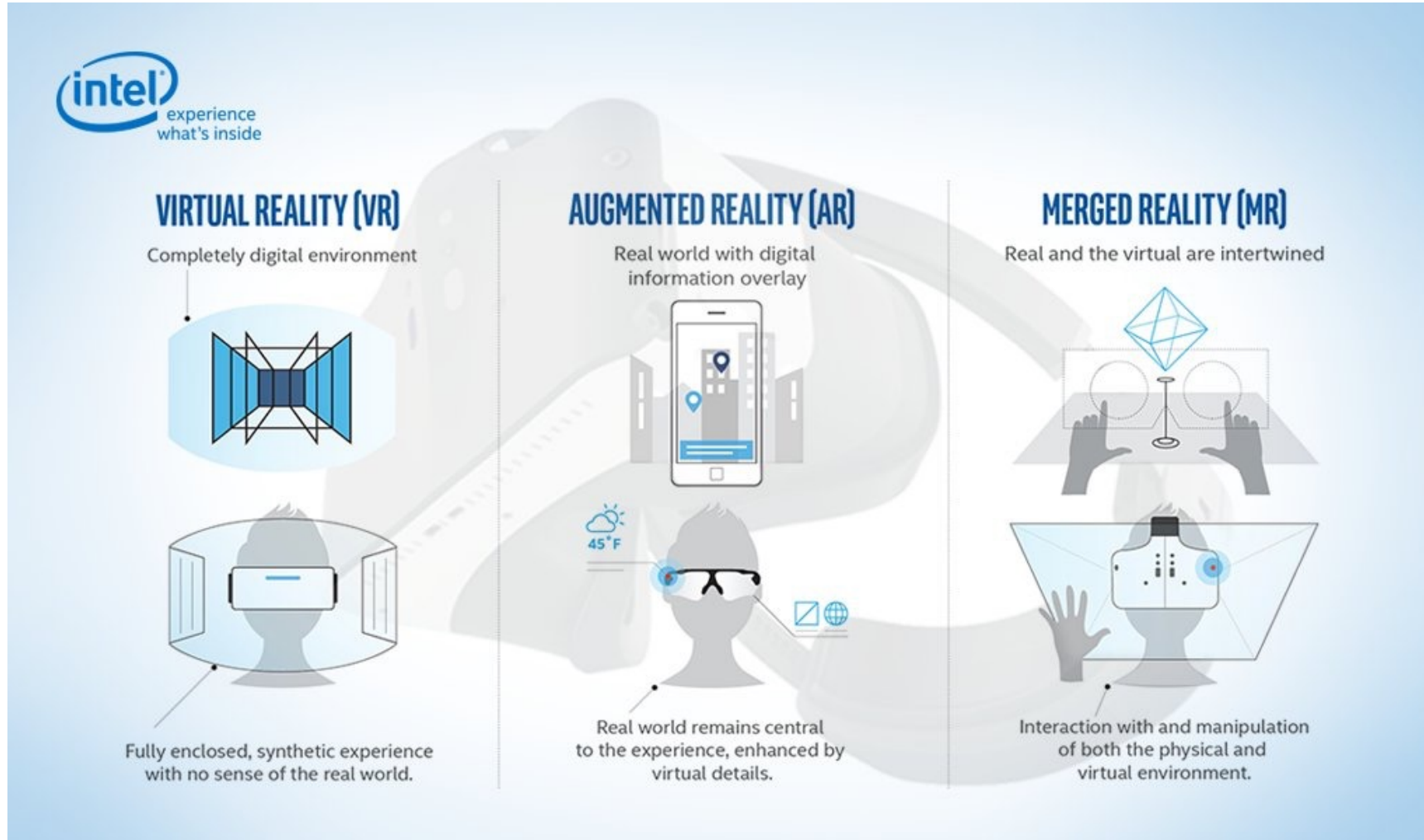
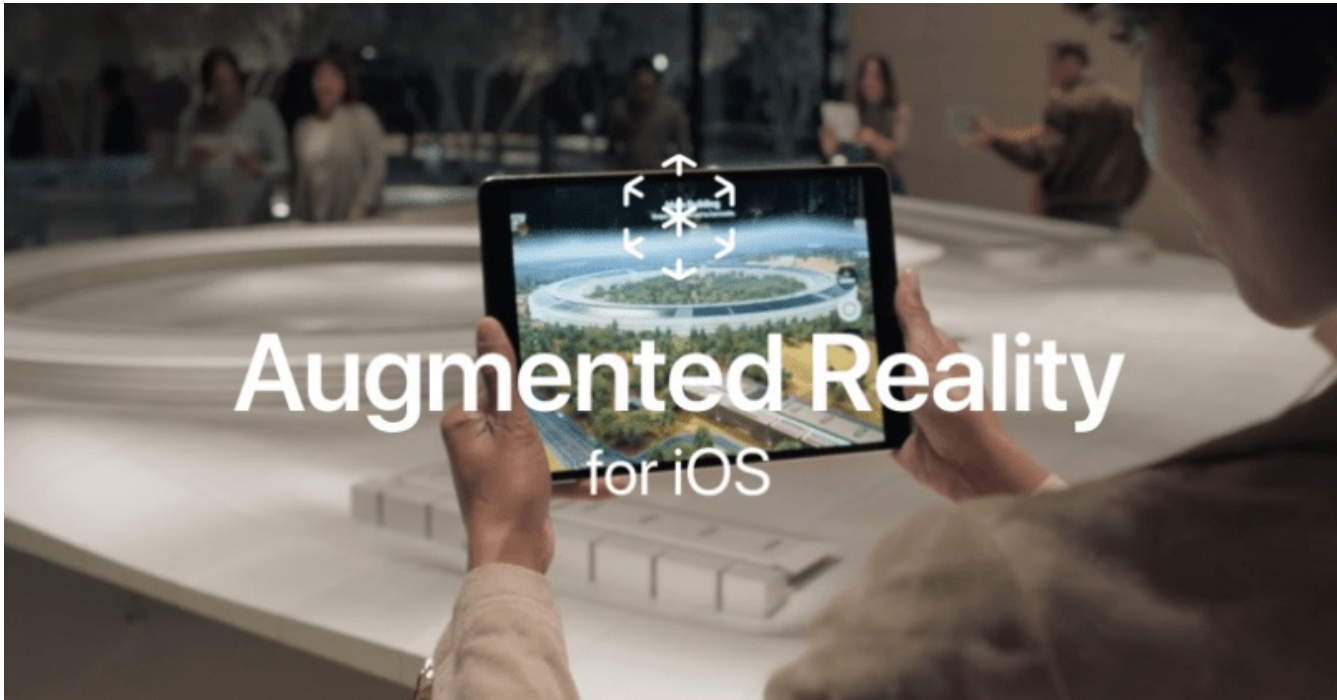


Bild von: https://twitter.com/Intel_DE/status/821759078607310849/photo/1

Augmented Reality - Motivation



"I'm ecstatic about augmented reality because I see applications for it everywhere. It has applications in education, consumers, entertainment, and sports, to name a few. I see it in every business that I am familiar with." -> Tim Cook (CEO Apple)

<https://vrscout.com/news/apple-tim-cook-ar-next-big-thing/>

Augmented Reality - Motivation



HOW
AUGMENTED REALITY
IS TAKING OVER THE
EDUCATION SECTOR

 info@unitear.com

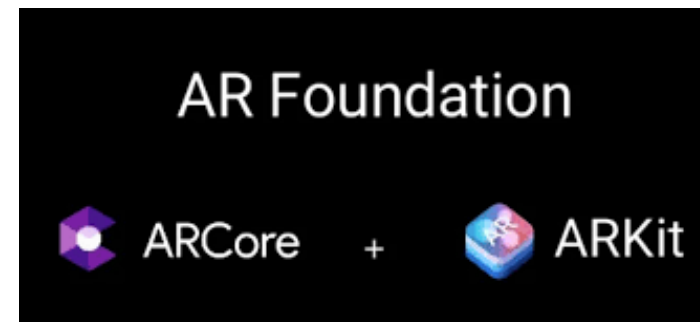
 www.unitear.com

<https://www.iboson.io/how-augmented-reality-is-taking-over-the-education-sector>

Augmented Reality - Tools und Beispiele



<https://news.microsoft.com/de-de/microsoft-erklaert-was-ist-microsoft-hololens-definition-funktionen/>



Augmented Reality - Kombination

- ▶ Kombination mit anderen Themengebieten durch Unity leicht möglich
- ▶ Kombination mit anderen Fächern (Aufbereitung Unterrichtsmaterialien)
- ▶ AR funktioniert mit AR Brillen und iOS/Android (ARKit und ARCore) -> App Dev
- ▶ Unity bietet die Möglichkeit Modelle für normale und AR/VR Projekte zu nutzen
 - ▶ Kombination mit Game Development und Künstlicher Intelligenz möglich (Idee von AV Harald Grünanger -> Gamification)



<https://t3n.de/news/ios-11-diese-ar-kit-apps-862332/>



<https://unity.com/de/products/machine-learning-agents>

Referenzen

- ▶ <https://academy.hackthebox.com>
- ▶ <https://www.hackthebox.com>
- ▶ <https://tryhackme.com/>