

RSA® Conference 2022

San Francisco & Digital | June 6 – 9

SESSION ID: HUM-T09

Reaching Gen Z: Cybersecurity Outreach with Viral TikTok and YouTube Content

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TRANSFORM



Who am I?

I'm Kody Kinzie

- Ethical hacker
- Security researcher at Varonis
- Wi-Fi and open source intelligence specialist
- Creator of the Null Byte YouTube channel
- Host of Hak5 and SecurityFWD YouTube channels
- Designer of ethical hacking hardware tools

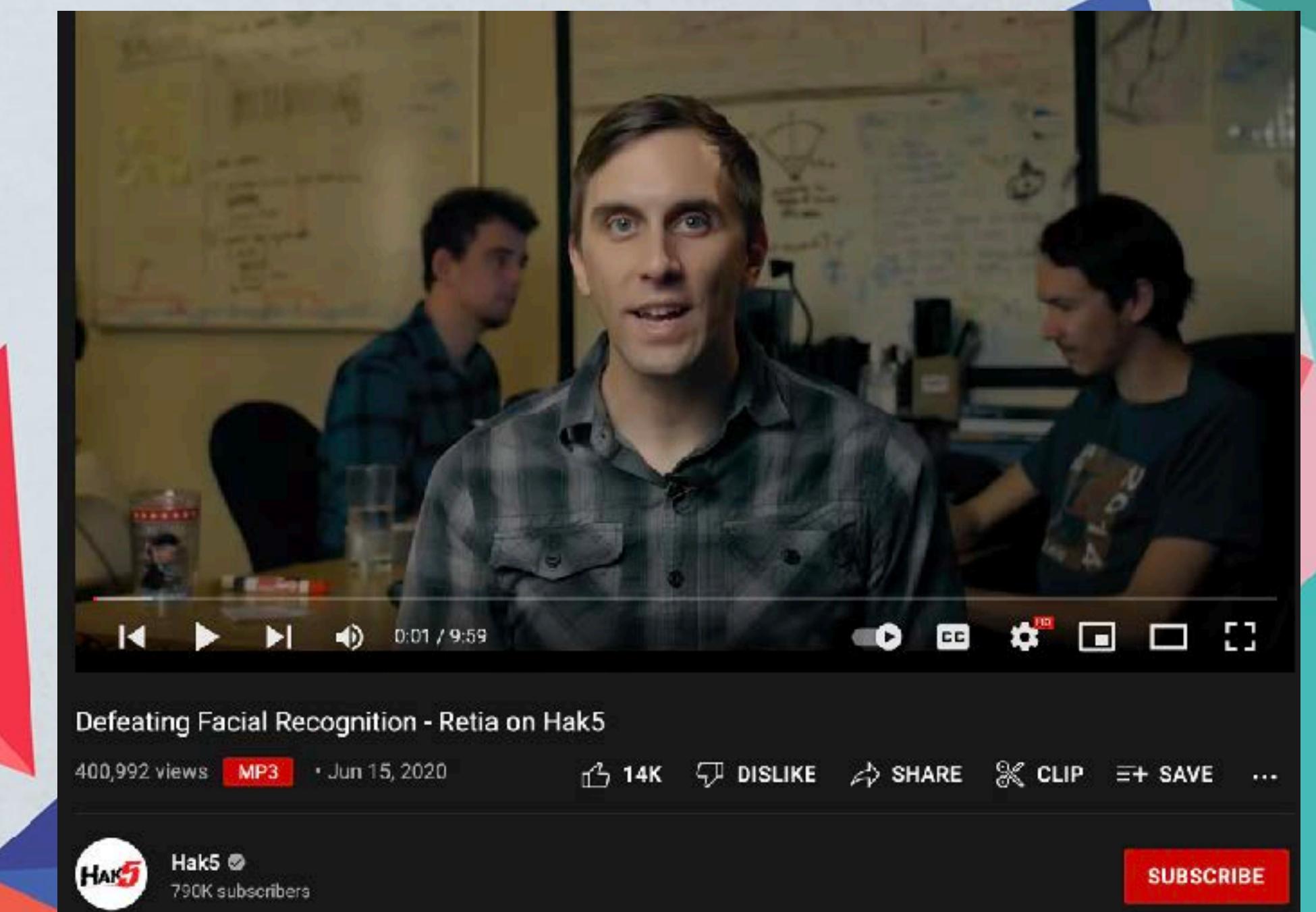


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What is my job?

Engage beginners with social cybersecurity content.

The goal: Make ethical hacking accessible to the next generation of professionals.





Why make ethical hacking
content for beginners?



Access to talent and brand reputation

- Written guides don't engage younger viewers
- Traditional content spreads slowly
- Gen Z is overlooked by traditional advertising approaches
- Great content breaks out of niches to go viral
- Free content makes ethical hacking accessible to young talent

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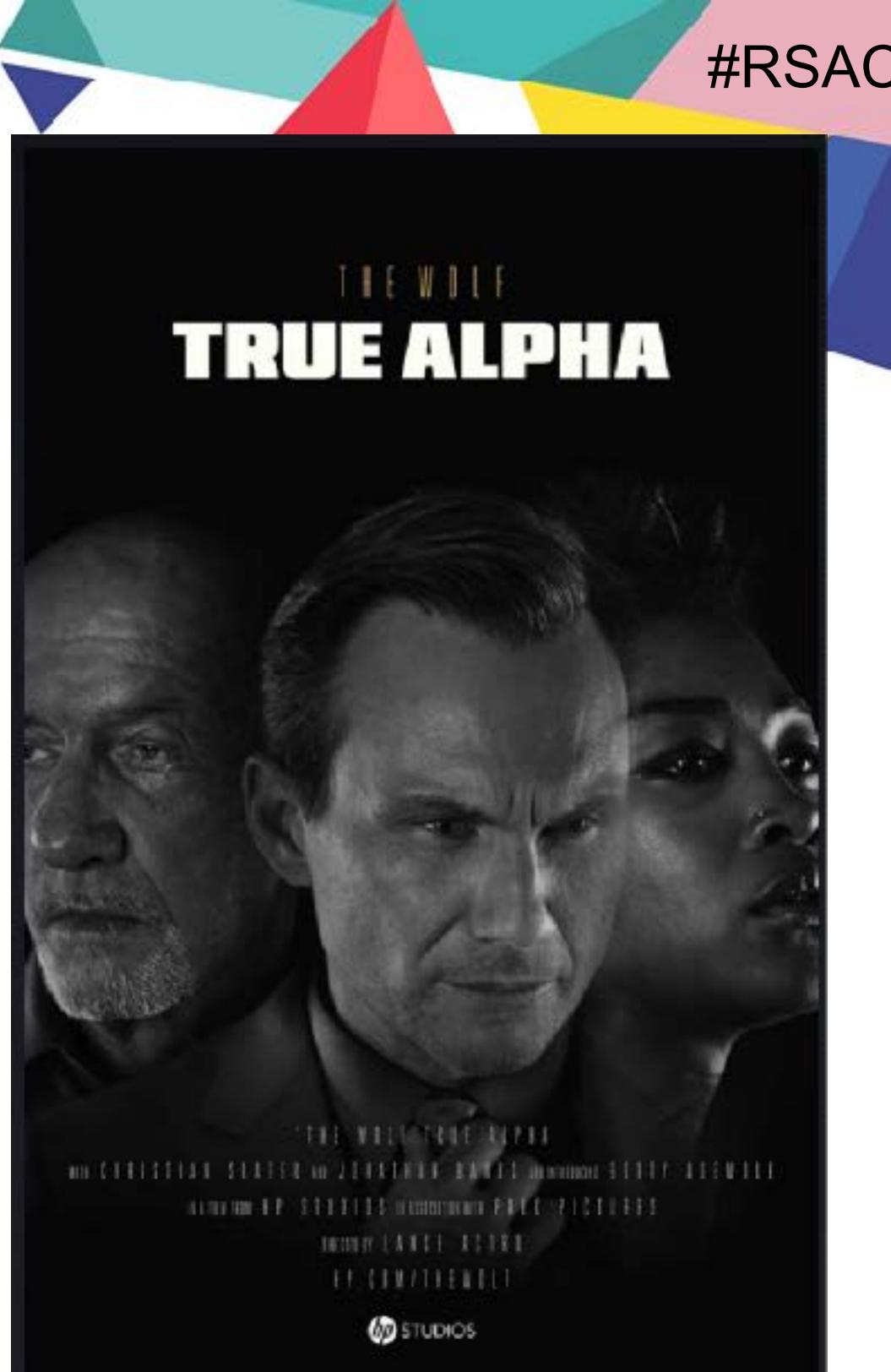
Cybersecurity content formats

What is already out there?



High-production quality commercials

- Produce a star-studded, printer-heavy narrative
- Extremely expensive and high quality
- Hard for everything to involve a printer
- Can create unfulfilled expectations



User reviews 1 >

[TOP REVIEW](#)

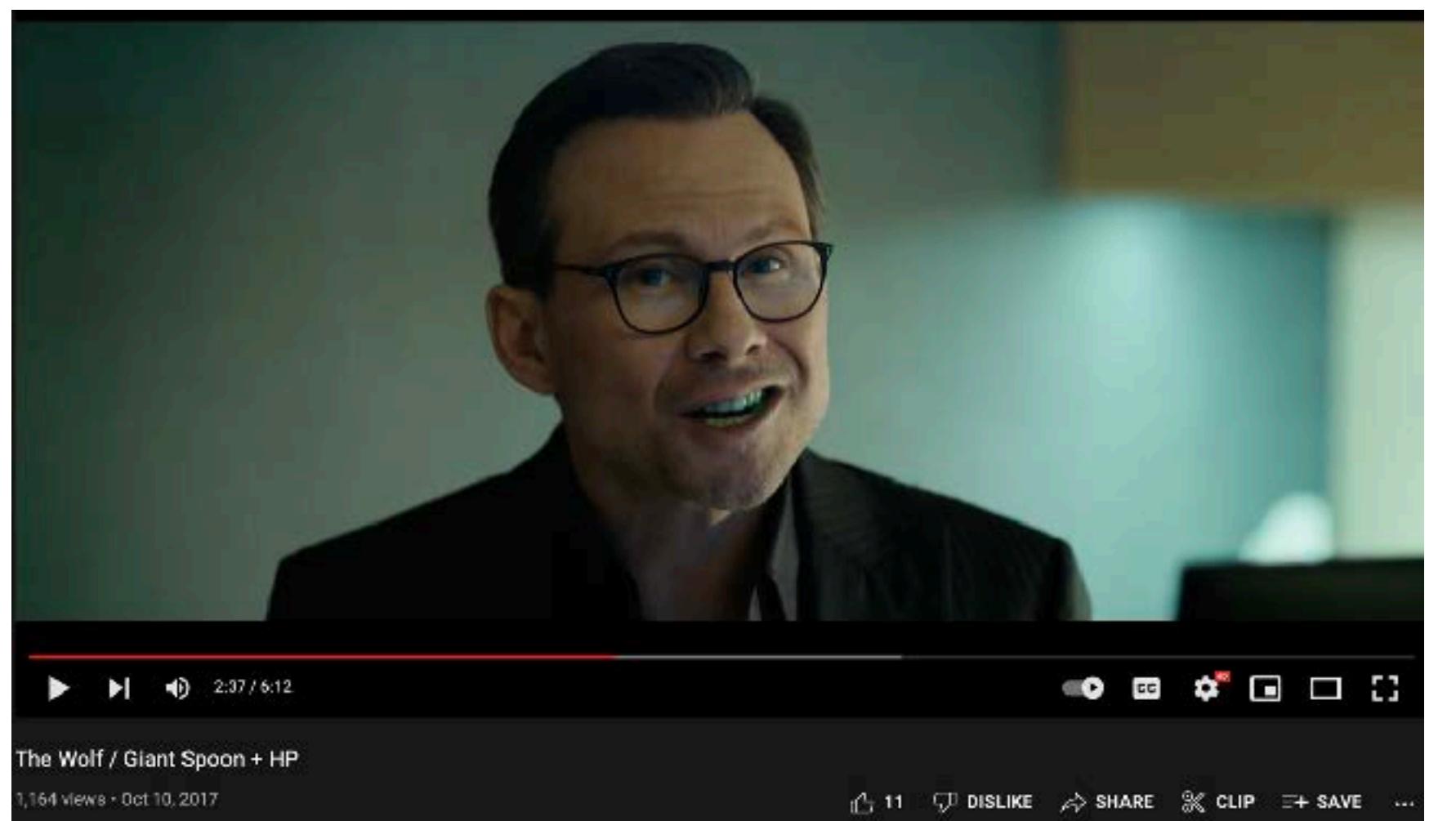
Huge disappointment

I tuned in because it features Jonathan Banks. Turns out it is just a heavily produced commercial for HP printers.

1/10

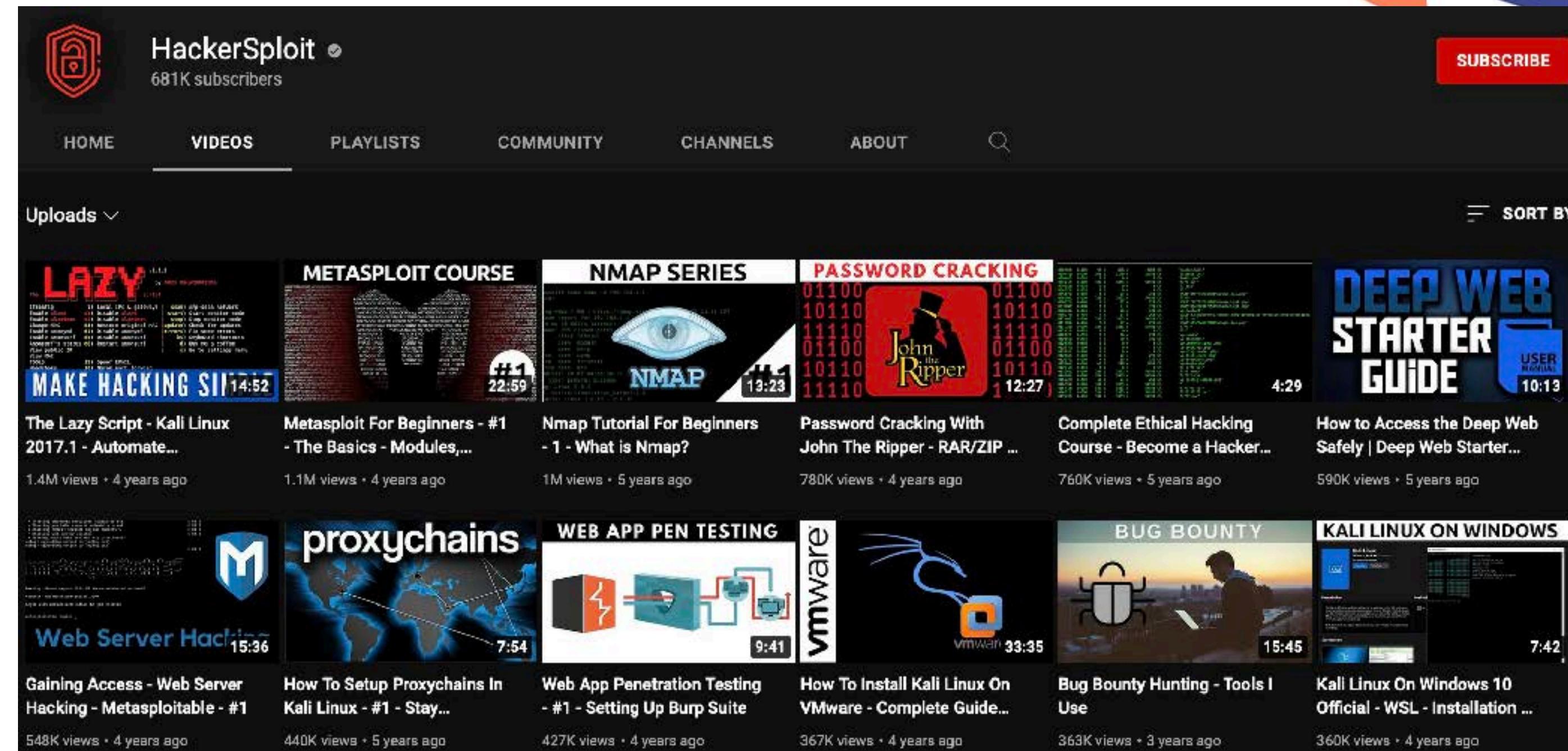
[+ Review](#)

helpful • 13 3



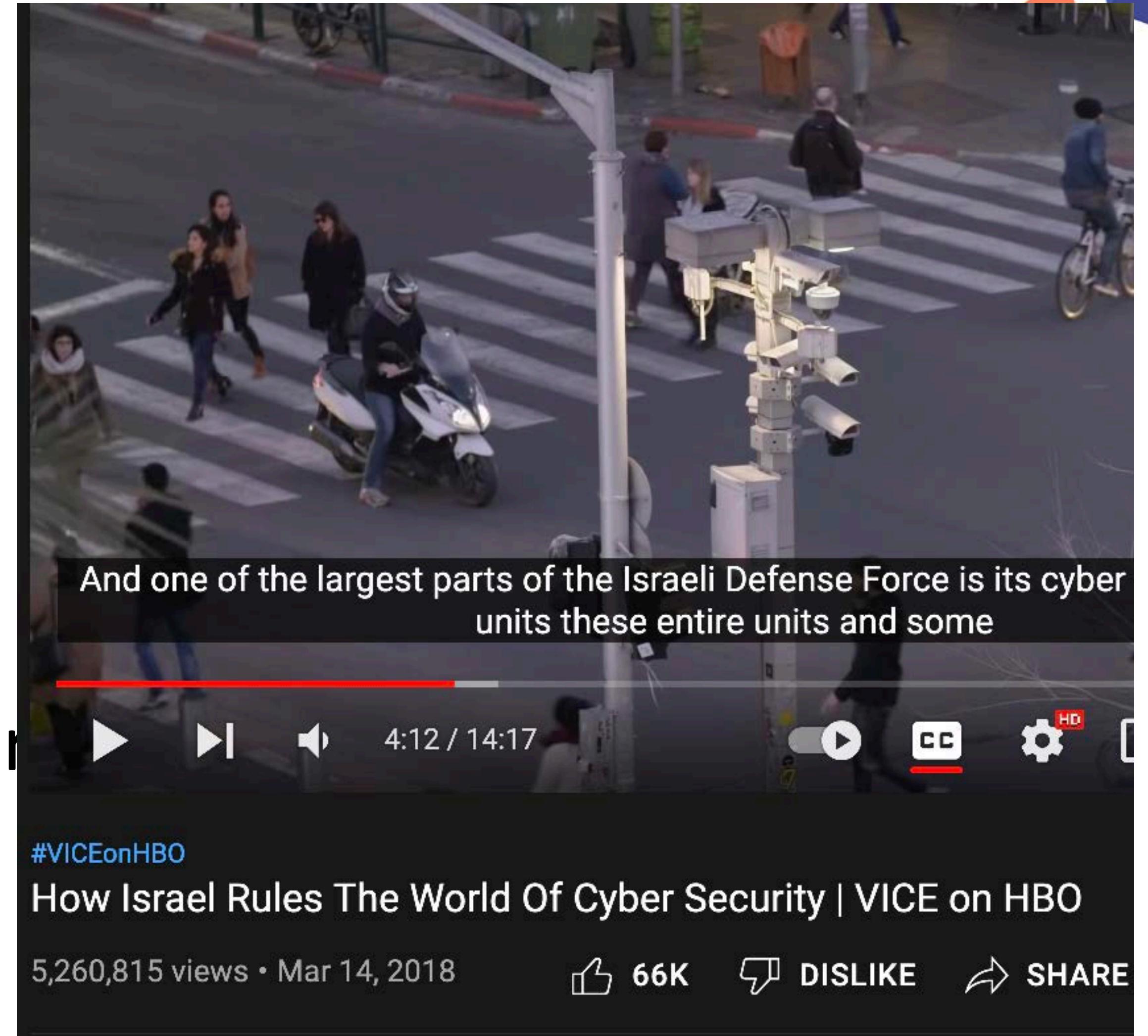
Tutorial videos

- Targeted at beginners
- Hit or miss topics
- Research takes time
- Technical issues sink a production
- Can be seen as guides for criminals



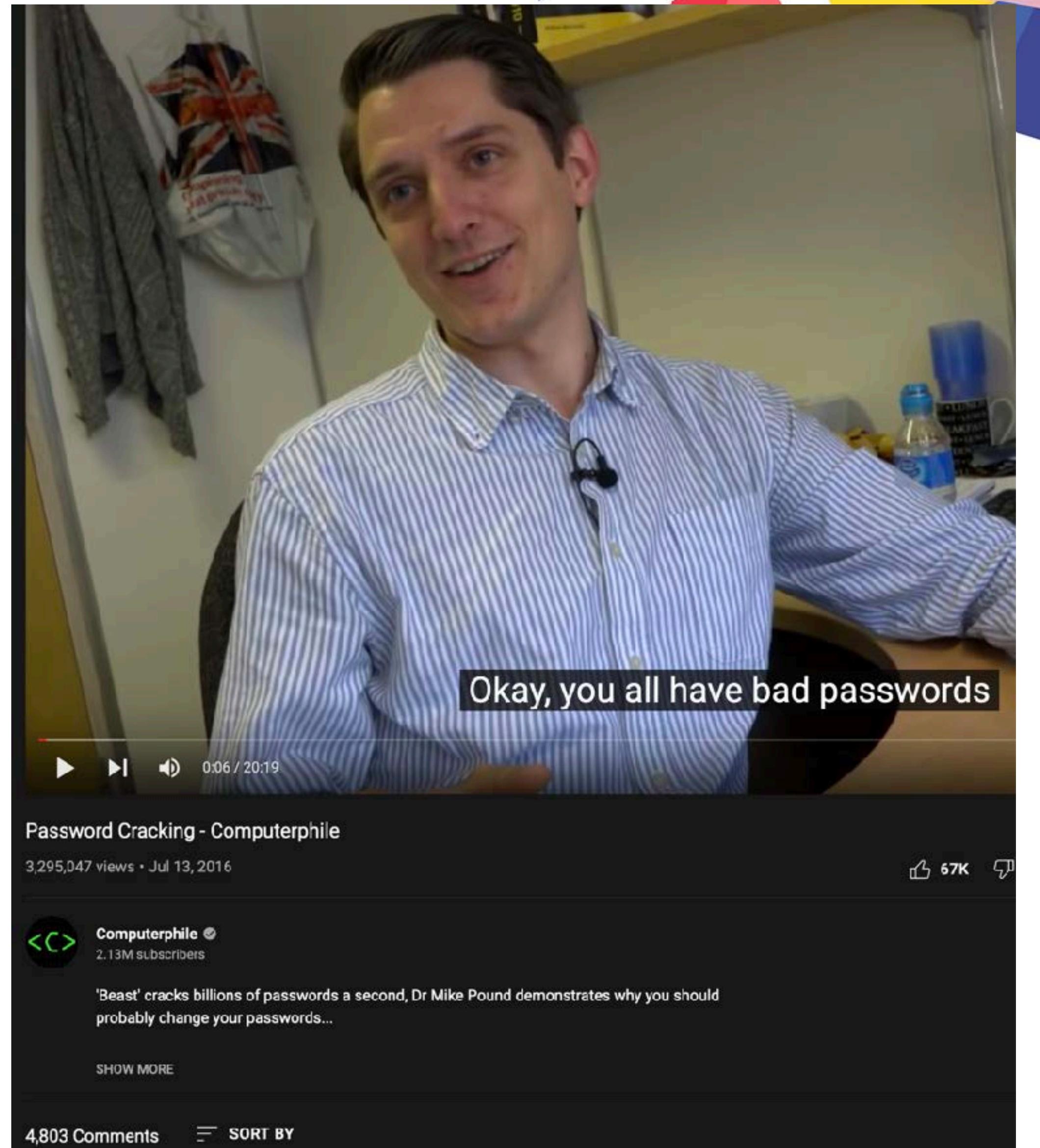
News and documentaries

- Major events or industry news
- High budget, high production value
- Too risky for most non-news organizations
- Conflicts of interest from sponsors or brand involvement



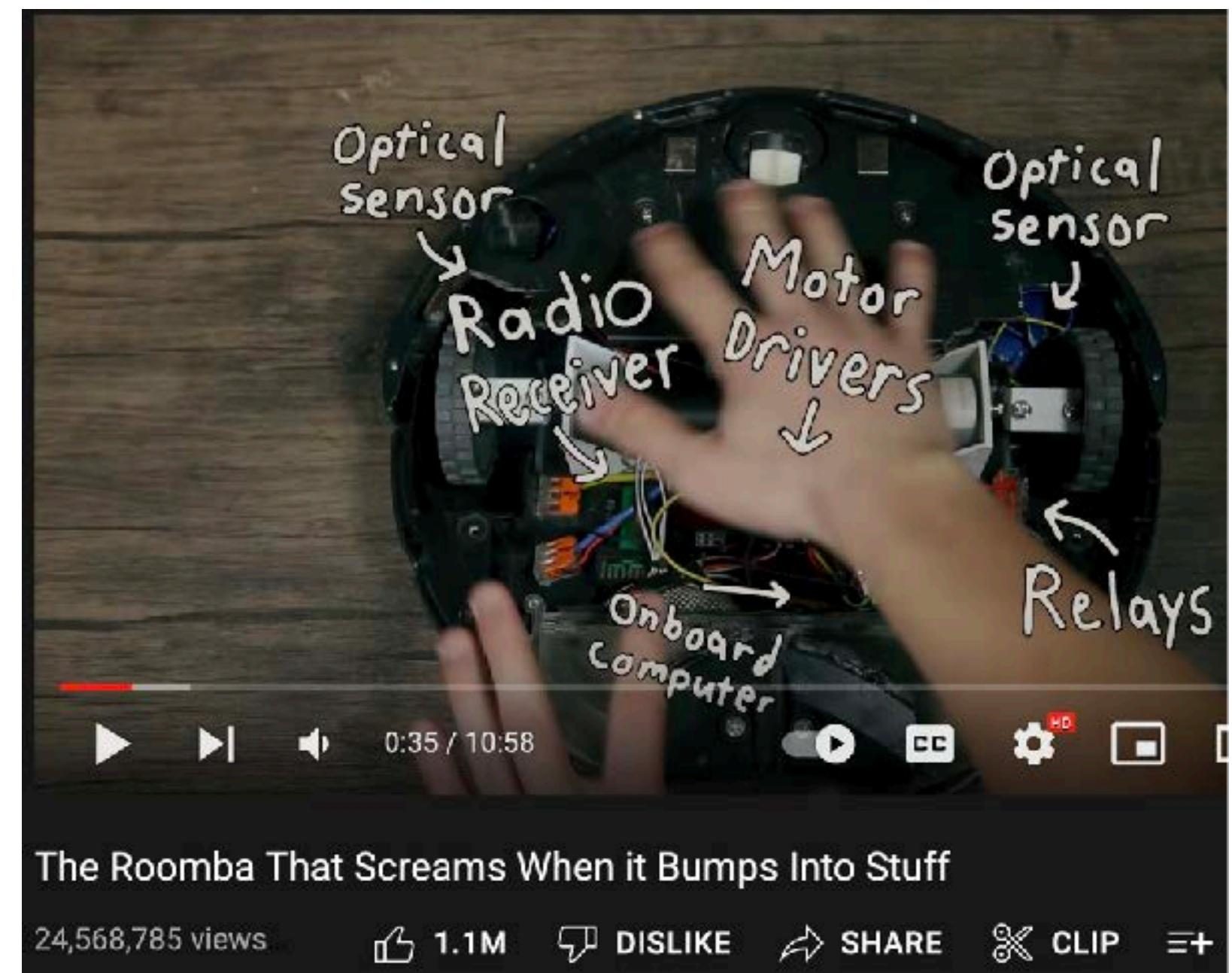
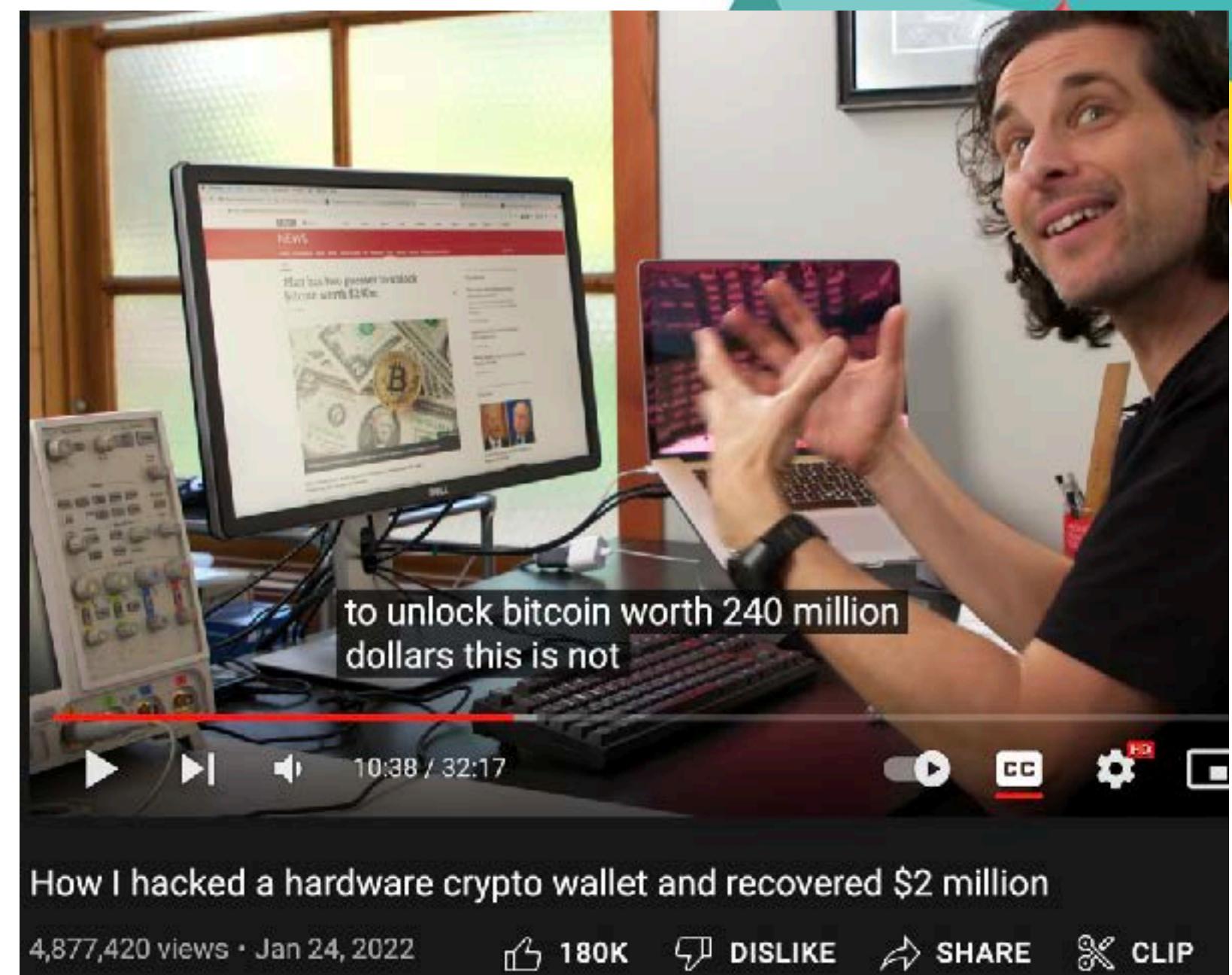
Expert topic explainer

- Academics or experts explain concepts with visual aids
- High traffic beginner topics
- Relies on access to charismatic academics with free time
- Medium production quality
- Computerphile rules this category



Project-based videos

- Document an interesting project
- Must be shocking, funny, or inspirational
- Medium production quality
- Tapping into trends pays off
- Requires technical skill and time
- Difficult to plan outcomes



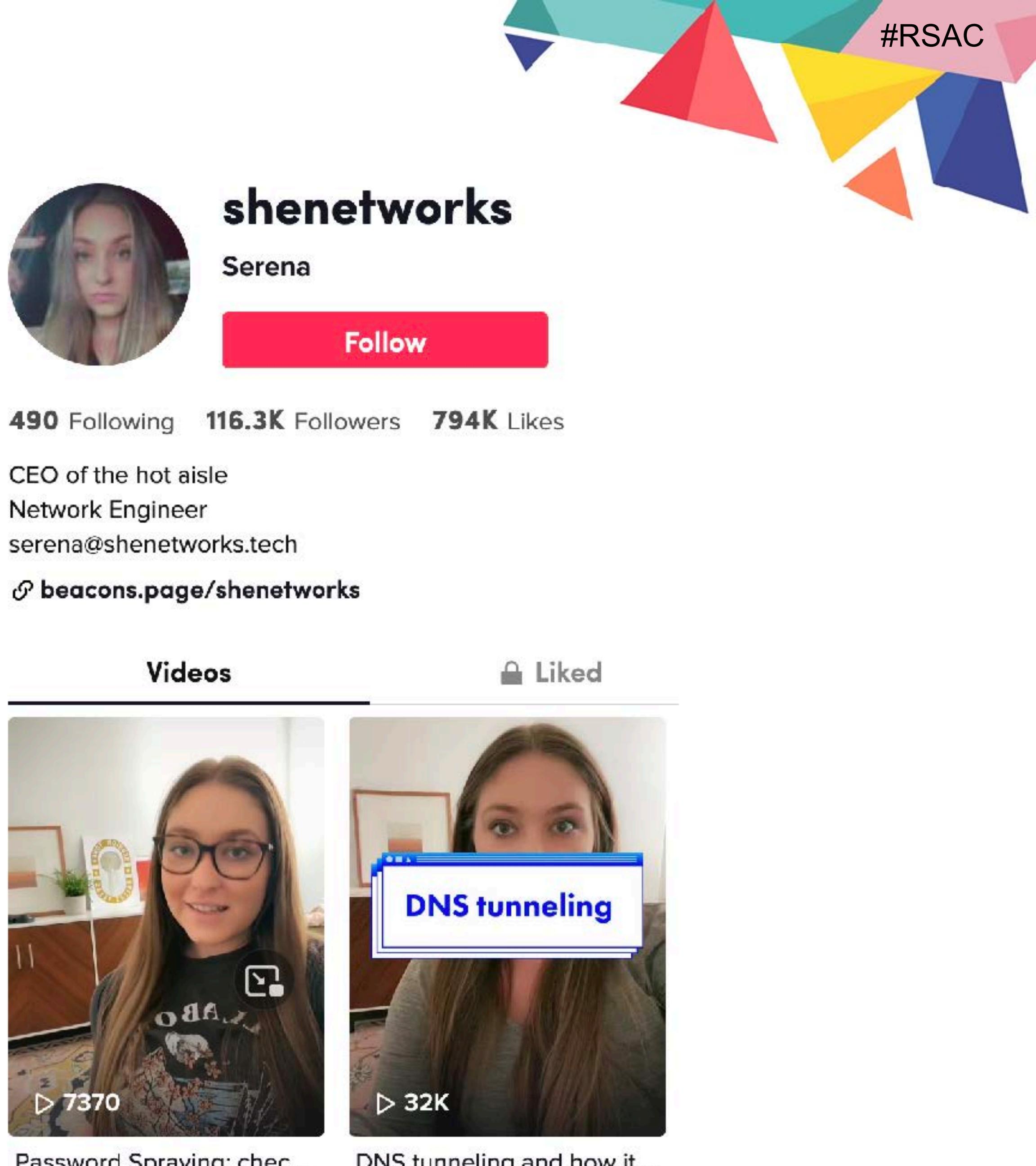
MythBusters style

- Prove or disprove a popular belief
- Medium to high production quality
- Predictable format
- Some presenting skill required
- Difficult script creation
- Topics must be selected carefully



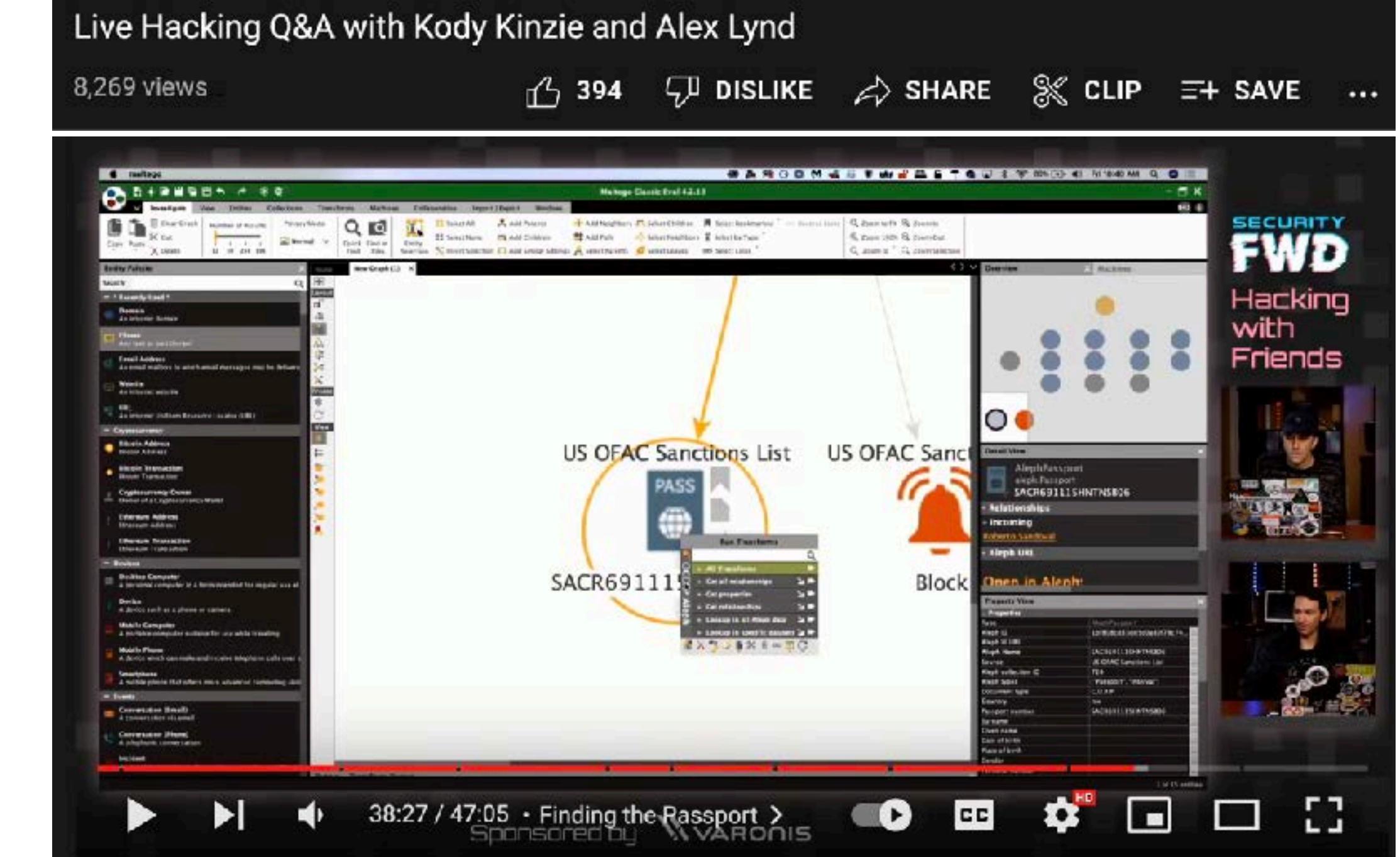
TikTok and short-form content

- Easy to edit
- Low production quality
- Topics are hit and miss
- Negative comments
- Outright harassment
- Difficult to execute
- Hard to brand without ruining



Livestreams

- Technical or entertainment stream
- Technical streams prone to failures
- Extreme technical burden
- Medium production investment
- Q&A streams are less popular
- 100% carried by hosts





Creating Null Byte channel

36M+ views in four years with beginner tutorials

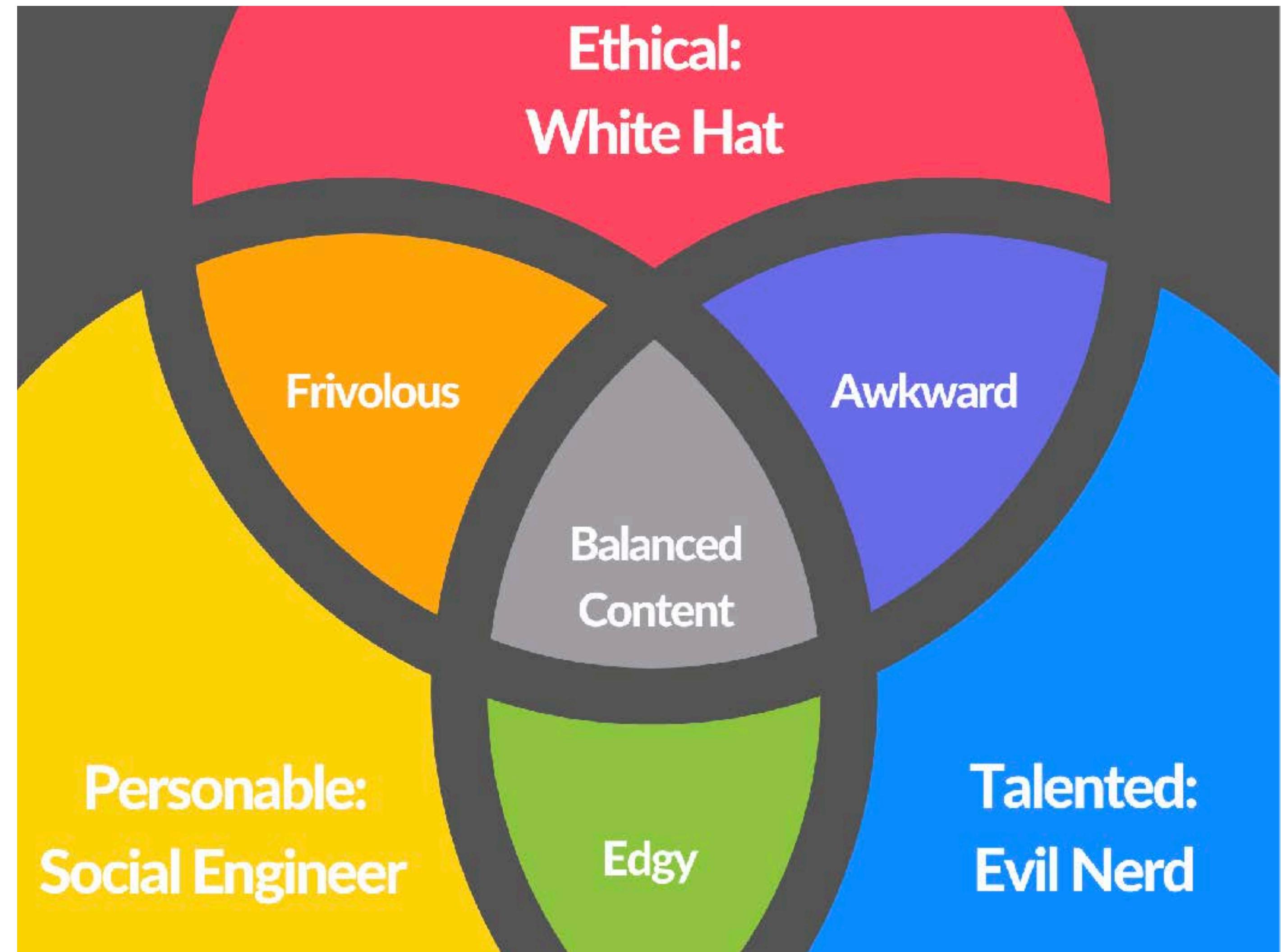


Creating the channel

- Started as writer and editor at tutorial website Null Byte
- Accidentally created YouTube channel by uploading a Defcon video while signed into work account
- Asked management to make tutorial videos, was told no
- “Too expensive and difficult”
- Decided to do it anyway without pay



Balance makes content feel natural



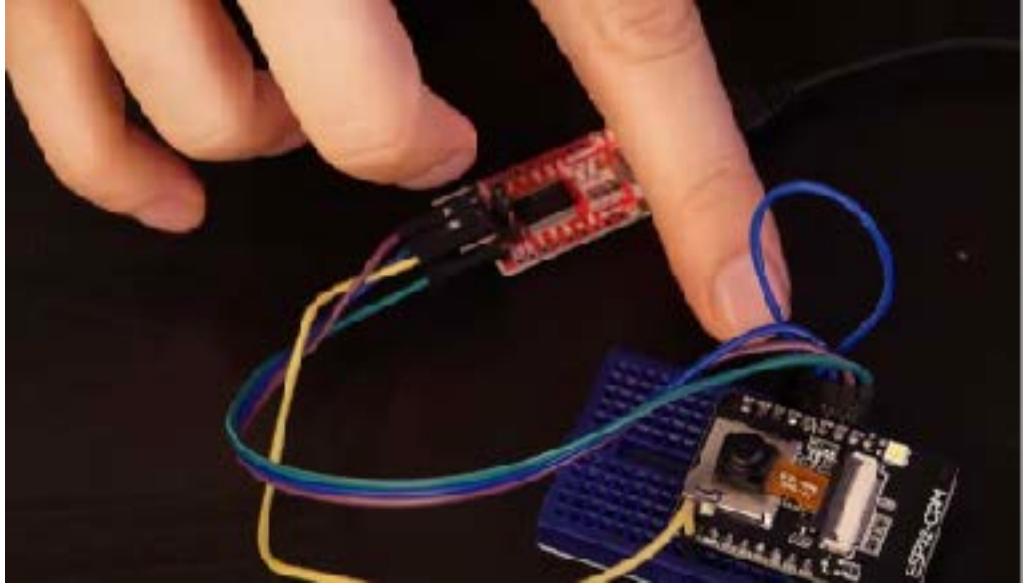
The Null Byte format

- Only considered formats we could shoot 3x per day
- 10- to 15-minute length “Cyber Weapons Lab” episodes
- Beginner friendly topics broken into four pieces
- Inspired by Computerphile



An episode in four segments

- “A” is a 15-second topic introduction
- “B” explains what we’re doing and why you need to follow along
- “C” is a screen-capture of the technical steps
- “D” is a wrap-up of the topic and where to find more information
- Order usually filmed: A, D, B, C



The O.G.s

- Host: Kody Kinzie
- Producer: David Cazares, digital production major CSUN

Second wave of talent

- Content contributor, editor: Nick Godshall
- Content contributor, project manager: Michael Raymond
- Editor: Eric Sanchez
- Content contributor: Alex Lynd

Five months in: slow beginning

Null Byte

 Subscribe

5,474

Home Videos Playlists Channels Discussion About

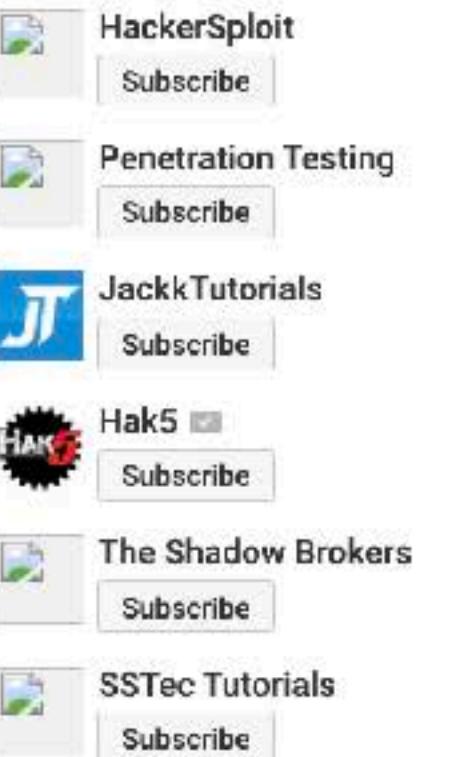
Uploads



Popular uploads



Related channels

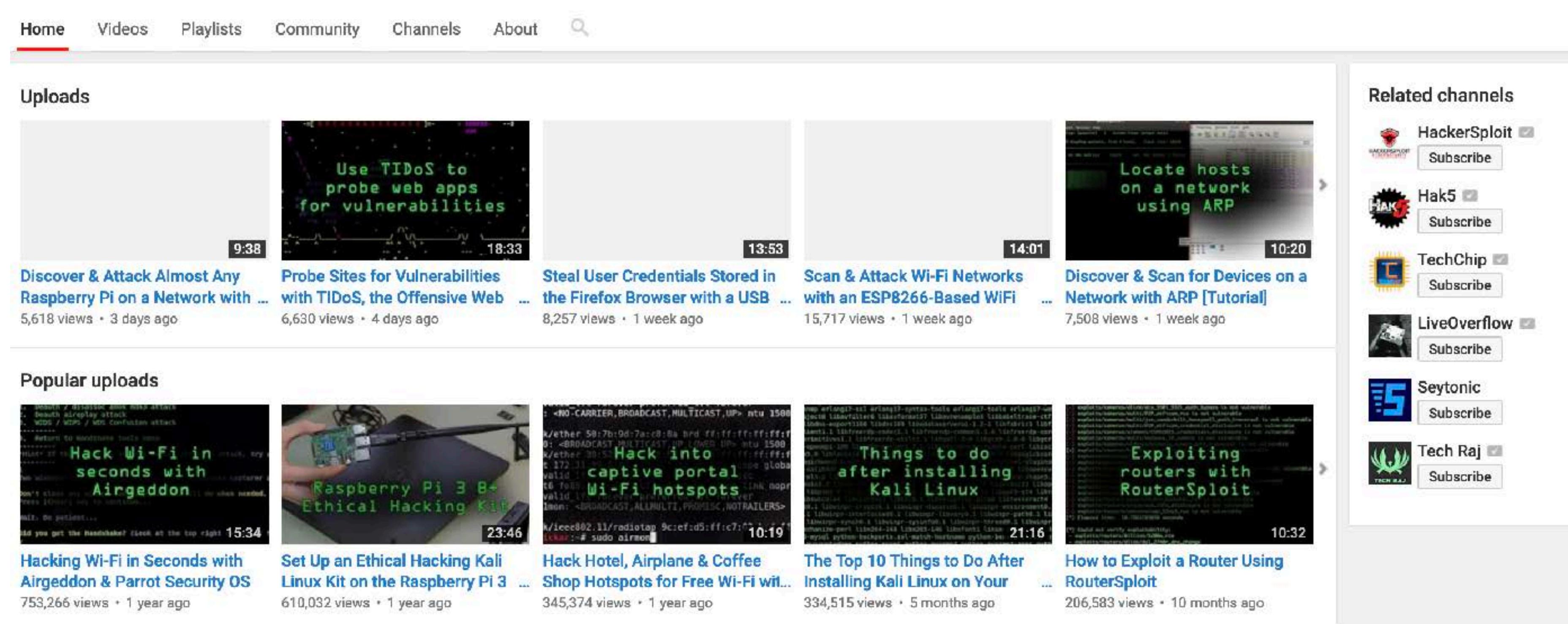


- We started in November 2017
- By RSA April 2018, we had 5,000 subscribers with one hit episode
- We made 10 episodes: 8 paid \$250 and two free

Year one: steady growth

Null Byte

 [Subscribe](#) 169,700



The screenshot shows the YouTube channel page for "Null Byte". The top navigation bar includes Home, Videos, Playlists, Community, Channels, and About. A search bar is also present. The main content area is titled "Uploads" and displays five video thumbnails. Below the uploads is a section titled "Popular uploads" with five more video thumbnails. To the right, there is a sidebar titled "Related channels" listing several other hacking and security channels with their logos and subscribe buttons.

Section	Video Title	Length	Views	Last Updated
Uploads	Discover & Attack Almost Any Raspberry Pi on a Network with ...	9:38	5,618	3 days ago
	Probe Sites for Vulnerabilities with TIDoS, the Offensive Web ...	18:33	6,630	4 days ago
	Steal User Credentials Stored in the Firefox Browser with a USB ...	13:53	8,257	1 week ago
	Scan & Attack Wi-Fi Networks with an ESP8266-Based WiFi ...	14:01	15,717	1 week ago
	Locate hosts on a network using ARP	10:20	7,508	1 week ago
Popular uploads	Hack Wi-Fi in seconds with Airgeddon	15:34	753,266	1 year ago
	Raspberry Pi 3 B+ Ethical Hacking Kit	23:46	610,032	1 year ago
	Set Up an Ethical Hacking Kali Linux Kit on the Raspberry Pi 3 ...	10:19	345,374	1 year ago
	Hack Hotel, Airplane & Coffee Shop Hotspots for Free Wi-Fi with ...	21:16	334,515	5 months ago
	The Top 10 Things to Do After Installing Kali Linux on Your ...	10:32	206,583	10 months ago

- Our first video hit 750K views in April 2019
- The channel grew to 169K subscribers

Year two: big numbers

Null Byte

 Subscribe 501K

Home Videos Playlists Community Channels About 

Cyber Weapons Lab

Join Kody from Null Byte, and occasionally other Null Byte members, as they highlight cool tools, equipment, and methods of pentesting and hacking so you can learn how to become a better hacker.



Spoof Wi-Fi geolocation hotspots

7:11

Spoof Wi-Fi Hotspot GPS Locations with SkyLift [Tutorial]

Null Byte
9,060 views • 2 days ago

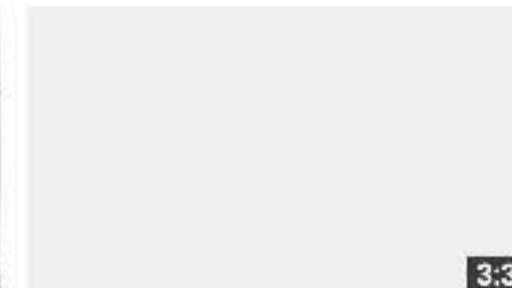


Hunt down unknown Wi-Fi devices

12:25

Track Wi-Fi Devices with a Directional Antenna & Wireshark...

Null Byte
11,443 views • 1 week ago

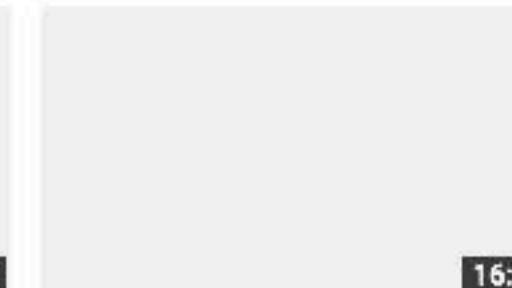


How Hackers Can Attack 5 GHz Wi-Fi Networks with a WiFi...

3:35

Clean & Map Wigle Wardriving Data in Jupyter Notebook

Null Byte
19,934 views • 1 week ago



Pick a Wi-Fi antenna for WiFi hacking

16:42

Clean & Map Wigle Wardriving Data in Jupyter Notebook

Null Byte
9,725 views • 2 weeks ago



Bypass VPNs to track with Grabify

15:15

Bypass VPNs to track with Grabify

Null Byte
28,292 views • 2 weeks ago



Bypass VPNs to track a Mac with Arduino [Tutorial]

15:39

Bypass VPNs to track a Mac with Arduino [Tutorial]

Null Byte
12,727 views • 3 weeks ago

Popular uploads



Hacking Wi-Fi in Seconds with Airgeddon & Parrot Security OS ...

15:34

Hacking Wi-Fi in Seconds with Airgeddon & Parrot Security OS ...

1,550,566 views • 2 years ago



Find Information from a Phone Number Using OSINT Tools

16:59

Find Information from a Phone Number Using OSINT Tools

1,429,386 views • 10 months ago



Set Up an Ethical Hacking Kali Linux Kit on the Raspberry Pi 3 ...

23:46

Set Up an Ethical Hacking Kali Linux Kit on the Raspberry Pi 3 ...

1,170,871 views • 2 years ago



The Top 10 Things to Do After Installing Kali Linux on Your ...

21:16

The Top 10 Things to Do After Installing Kali Linux on Your ...

1,131,443 views • 1 year ago



Hunt down social media accounts with Sherlock

11:44

Hunt down social media accounts with Sherlock

722,161 views • 9 months ago



Google dork like a pro hacker

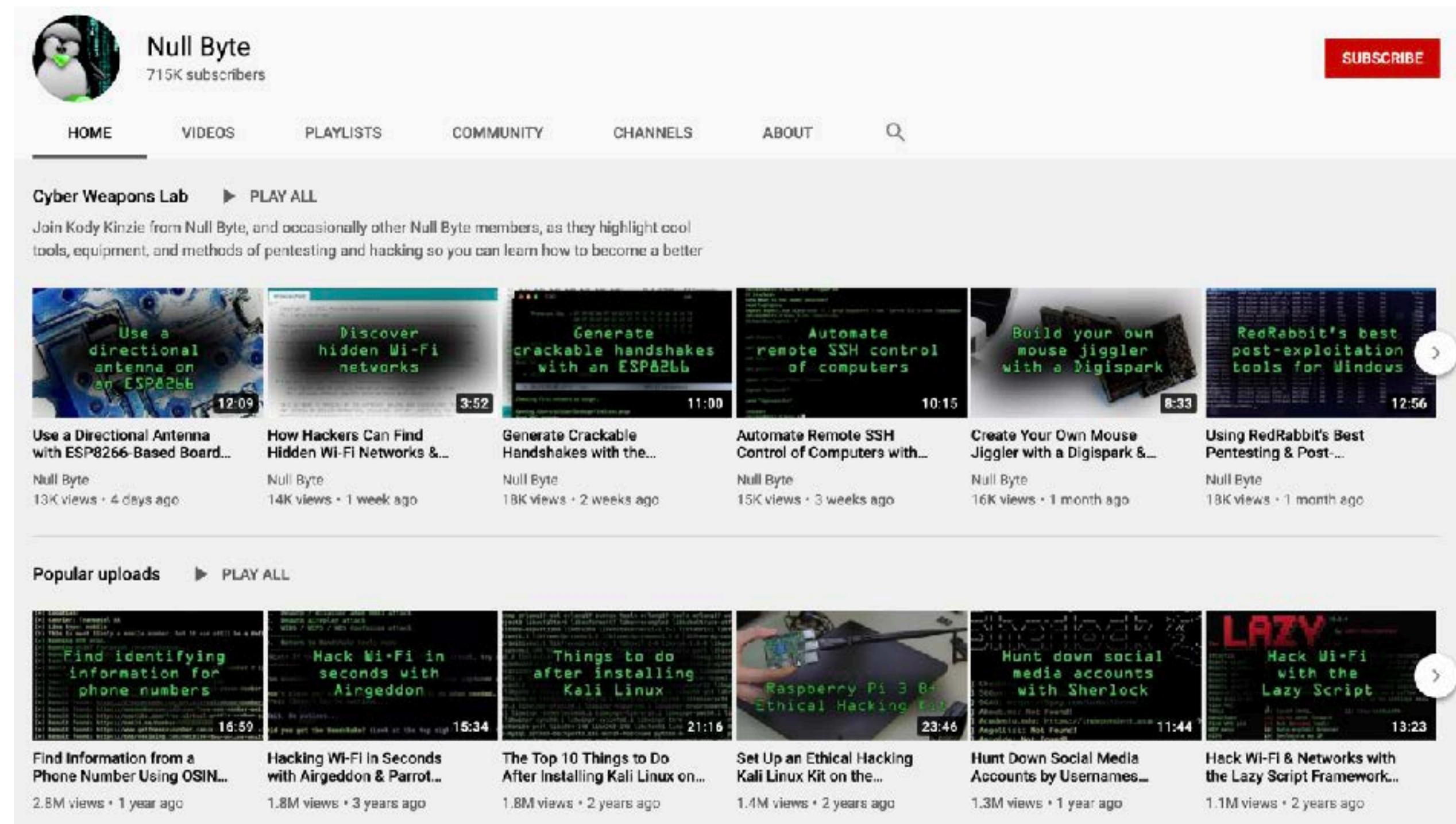
13:37

Google dork like a pro hacker

616,188 views • 5 months ago

- By April 2020, our first video had 1.5 million views
- The channel hit 500K subscribers

Year three: pandemic kills Null Byte



- In April 2021, we had 715K subscribers
- Null Byte parent company stopped ordering episodes
- Moving to rural Montana made uploading difficult

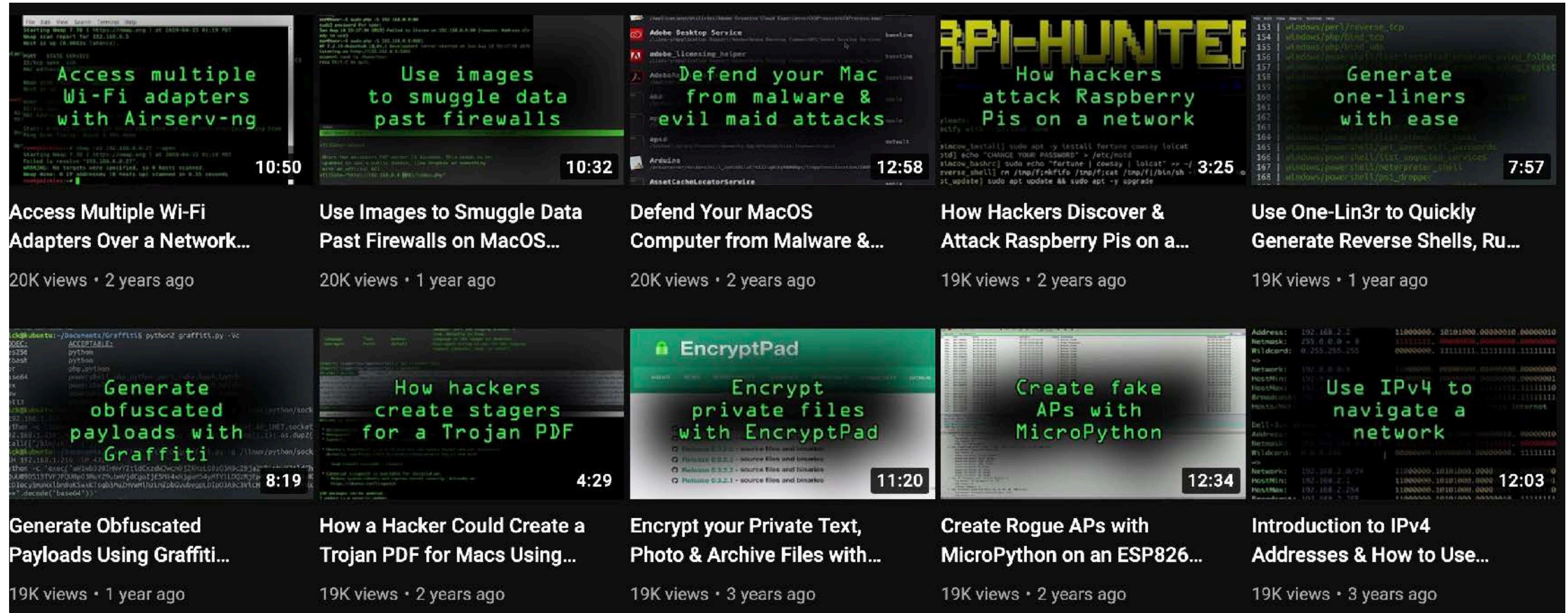
Best episodes

- 17,000,000 views (population of the Netherlands)

				
Find Information from a Phone Number Using OSIN...	The Top 10 Things to Do After Installing Kali Linux on...	Hacking Wi-Fi in Seconds with Airgeddon & Parrot...	Hunt Down Social Media Accounts by Usernames...	Set Up an Ethical Hacking Kali Linux Kit on the...
3.8M views • 2 years ago	2.2M views • 3 years ago	2M views • 4 years ago	1.7M views • 2 years ago	1.6M views • 4 years ago
				
Find Vulnerable Services & Hidden Info Using Google...	Hack Wi-Fi & Networks with the Lazy Script Framework...	Automate Wi-Fi Hacking with Wifite2 in Kali Linux [Tutorial]	Track & Connect to Smartphones with a Beacon...	Run the Kali Linux Hacking OS on an Unrooted Android...
1.5M views • 2 years ago	1.3M views • 3 years ago	1.2M views • 3 years ago	1M views • 3 years ago	786K views • 3 years ago

Worst episodes

- 173,000 views (population of Lancaster, California)

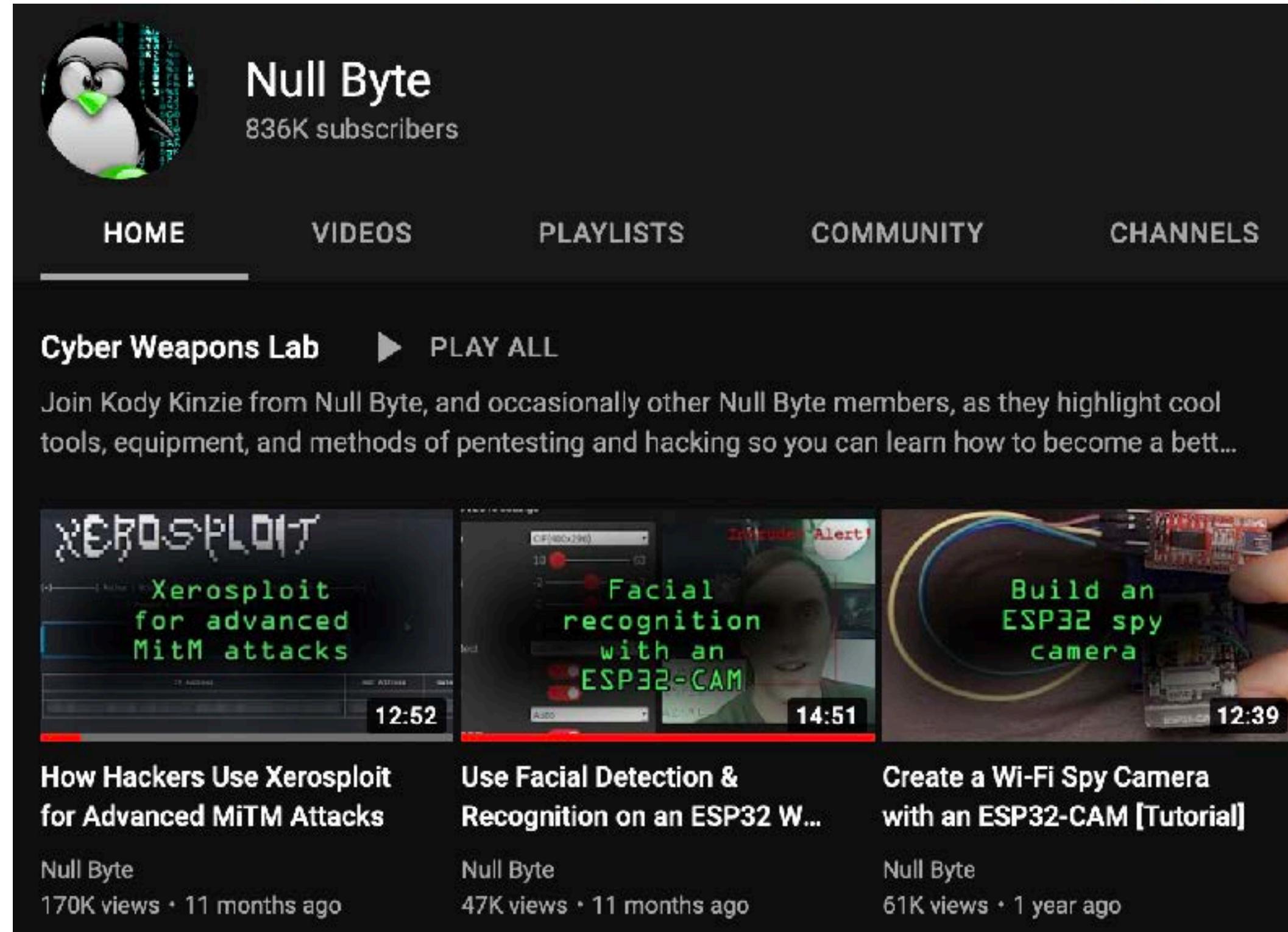


How to ruin a good idea

- Read off slides
- Awkward banter
- Inconsistent content
- Bad audio quality
- Long episodes
- Multi-part series
- Untested code
- Irrelevant brand sponsors

Where is Null Byte today?

- Aging, out-of-date content
- Parent company trying to sell
- Two serious offers but no deals
- Could vanish at any time

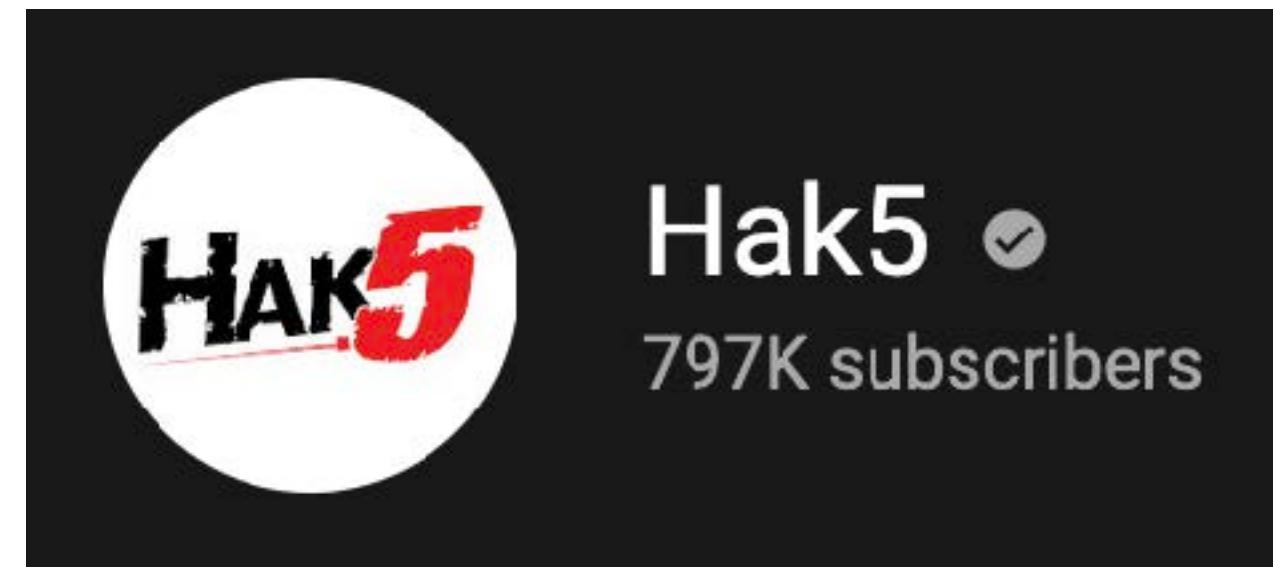


Hak5: what's better than a tutorial?

Going beyond tutorial content



Null Byte crew joins Hak5 as Retia team



- Hak5 is a YouTube channel created in 2005 by Darren Kitchen
- Hosts several unique shows
- Cold-emailed Darren asking to meet at RSA 2019
- Agreed to create a new show on Hak5: Retia

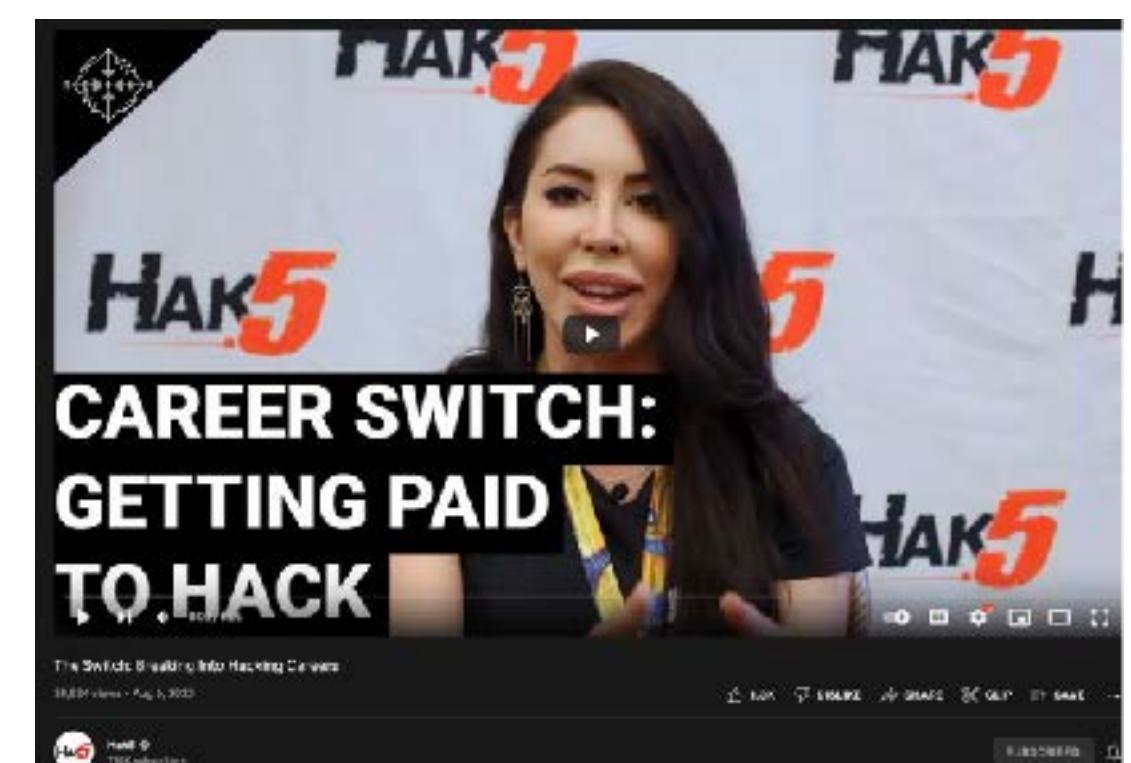
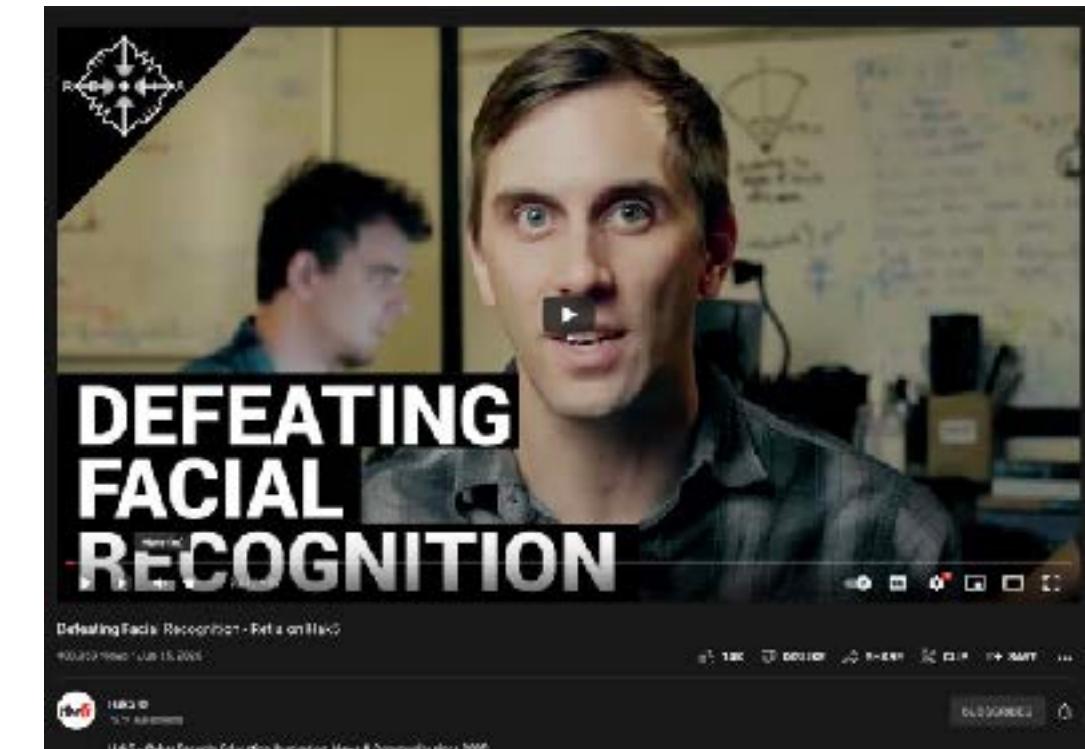
MythBusters inspiration

- MythBusters excels at teaching science to people who don't care
- Format can be applied to cybersecurity



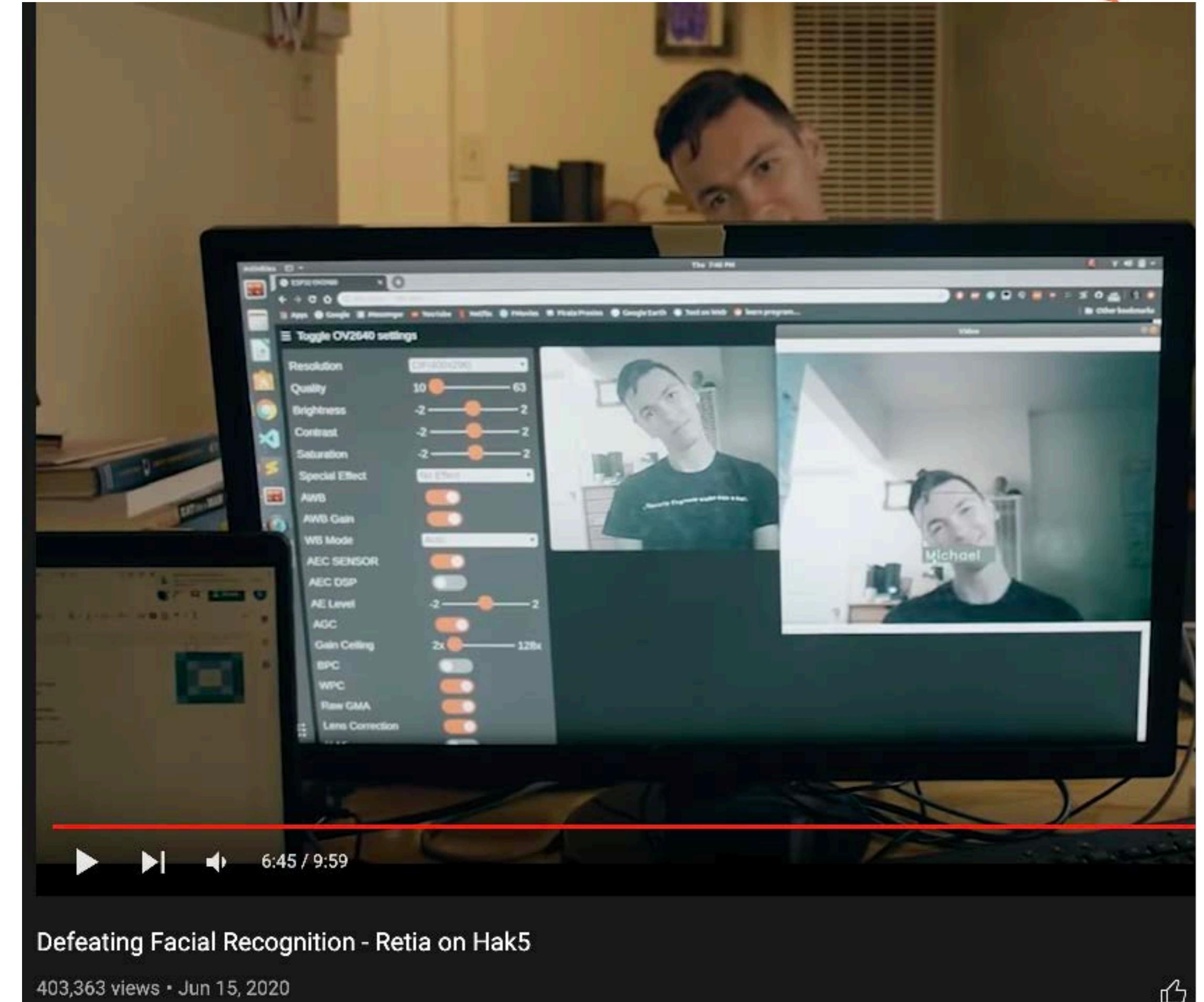
New episodes focus on:

- Testing a hacking myth or misconception
- Exploring tools hackers use
- Exploring part of hacker subculture



Flagship episode: "Defeating Facial Recognition"

- Tested which techniques work against facial recognition
- One week of pre-production, research, and scripting
- Makeup artist, three days of filming
- Highest production value ever



What does a good YouTube video look like?



Impressions and how they led to watch time

Data available May 6, 2021 – Apr 7, 2022 (337 days)

Impressions
9.5M

92.3% from YouTube recommending your content ⓘ

3.6% click-through rate

Views from impressions
340.4K

6:31 average view duration

Watch time from impressions (hour...
37.0K

Defeating Facial Recognition - Retia on Hak5

400,992 views MP3 • Jun 15, 2020

14K DISLIKE SHARE CLIP SAVE ...

Hak5 790K subscribers

1,558 Comments SUBSCRIBE

Google Dorks

Hak5

HakByte: How to find anything on the internet with Google Dorks 451 Comments

540,332 views MP3 • May 6, 2021

22K DISLIKE SHARE CLIP SAVE ...

Impressions and how they led to watch time ▲

Data available Jun 15, 2020 – Apr 8, 2022 (663 days)

Impressions
4.3M

87.2% from YouTube recommending your content ⓘ

4.6% click-through rate

Views from impressions
195.7K

5:31 average view duration

Watch time from impressions (hour...
18.0K

Top episodes in a year



- Livestreams



- MythBusters style

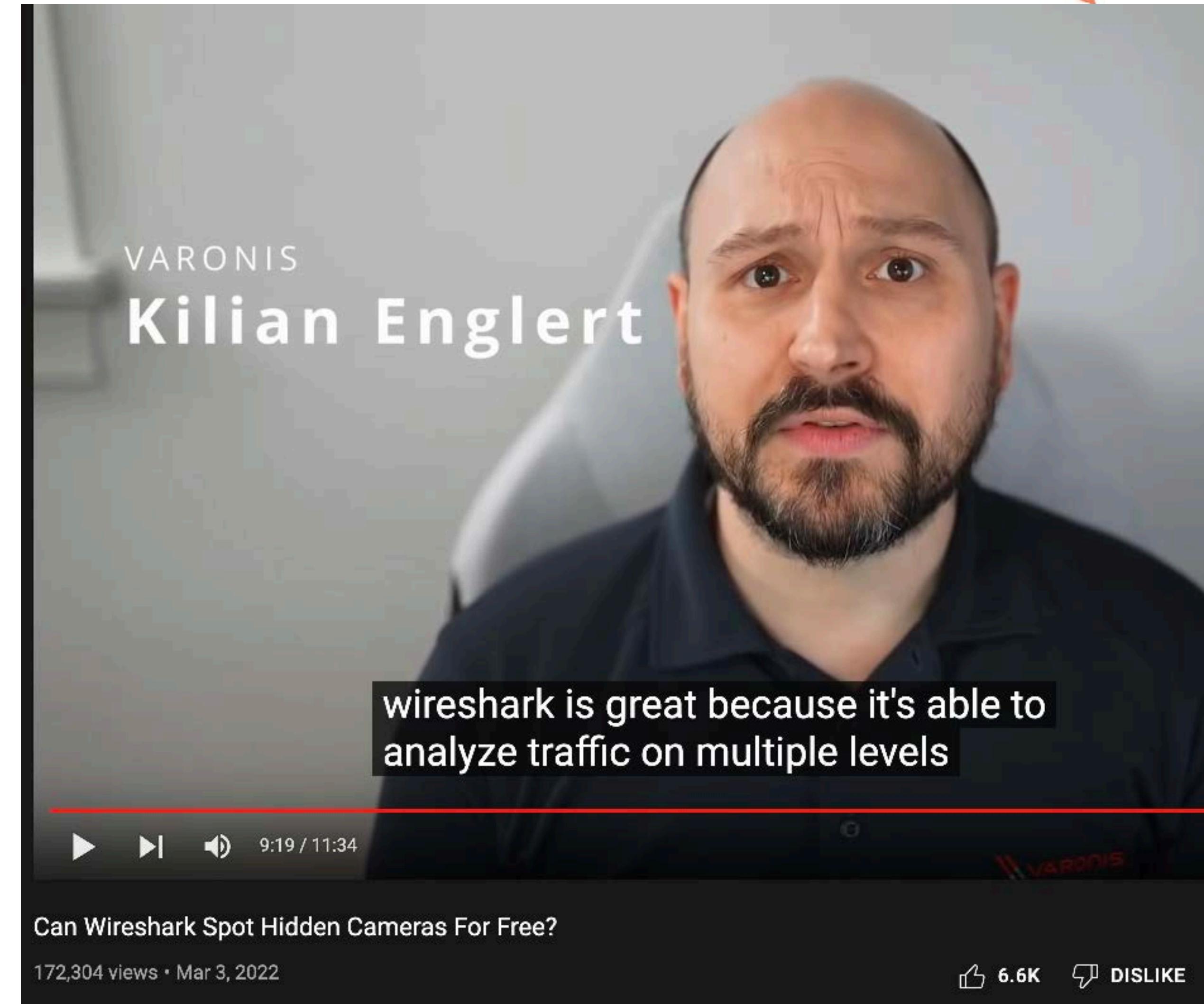


- Tutorial



How to add sponsors

- Sponsors must add value without being intrusive
- We tapped inside talent for expert interviews
- Expert insights keep the episode unbiased



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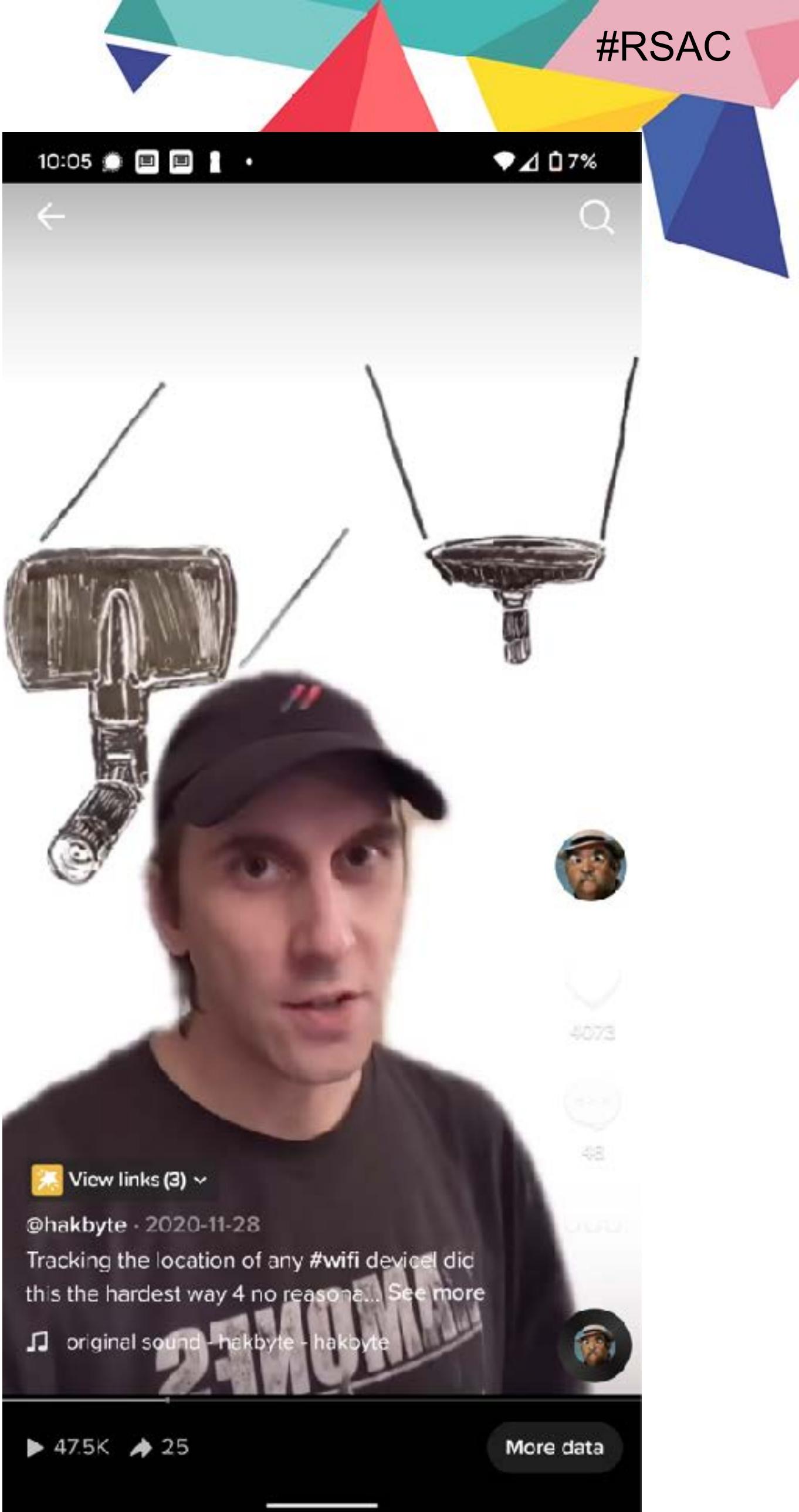
TikTok cybersecurity entertainment

The Wild West of cybersecurity content



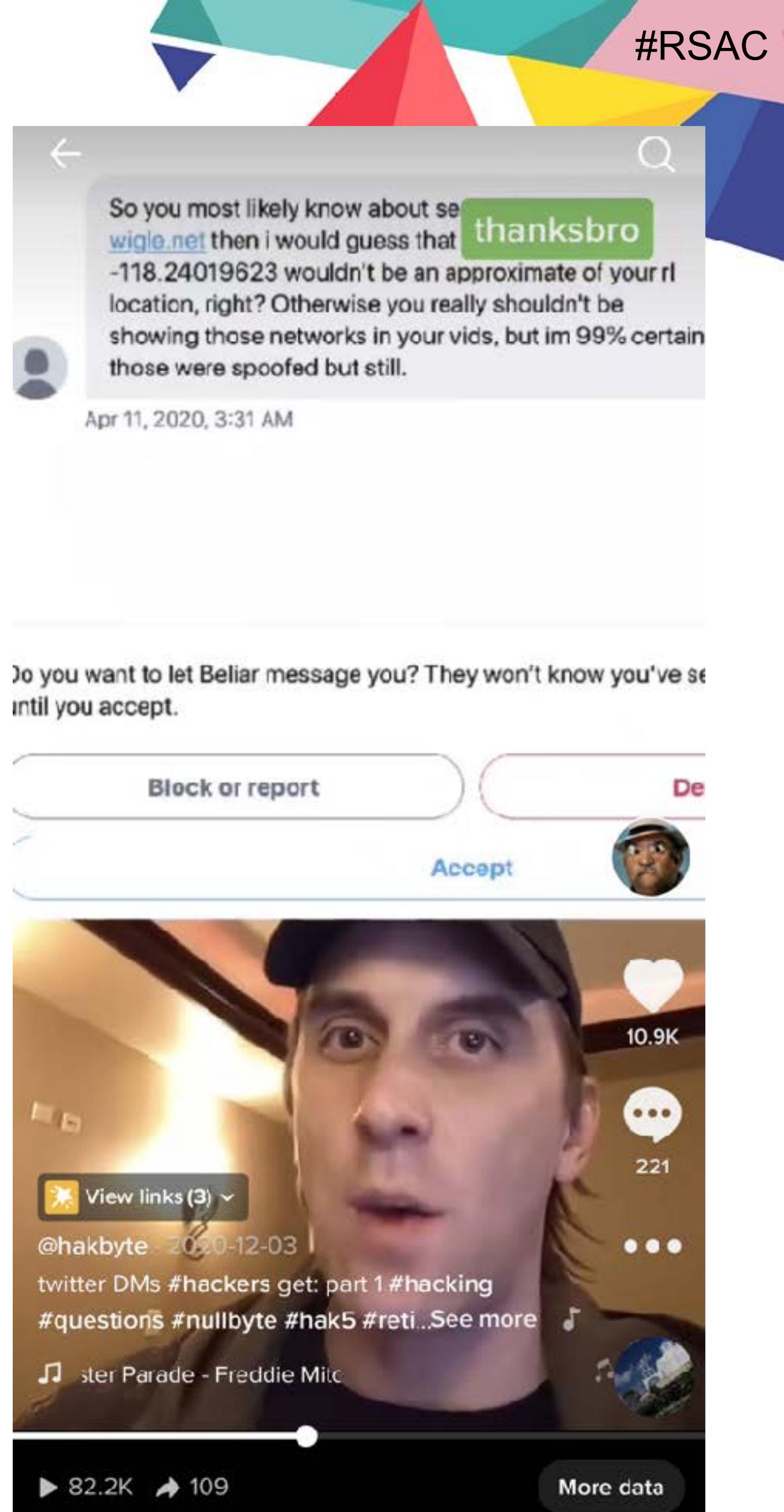
Hunting down Wi-Fi devices

- In 2020, I posted my first TikTok video
- Finding Wi-Fi devices by signal strength
- 47K views, 4K likes over several months
- Used whiteboard for illustrations
- Had to edit twice because my phone died



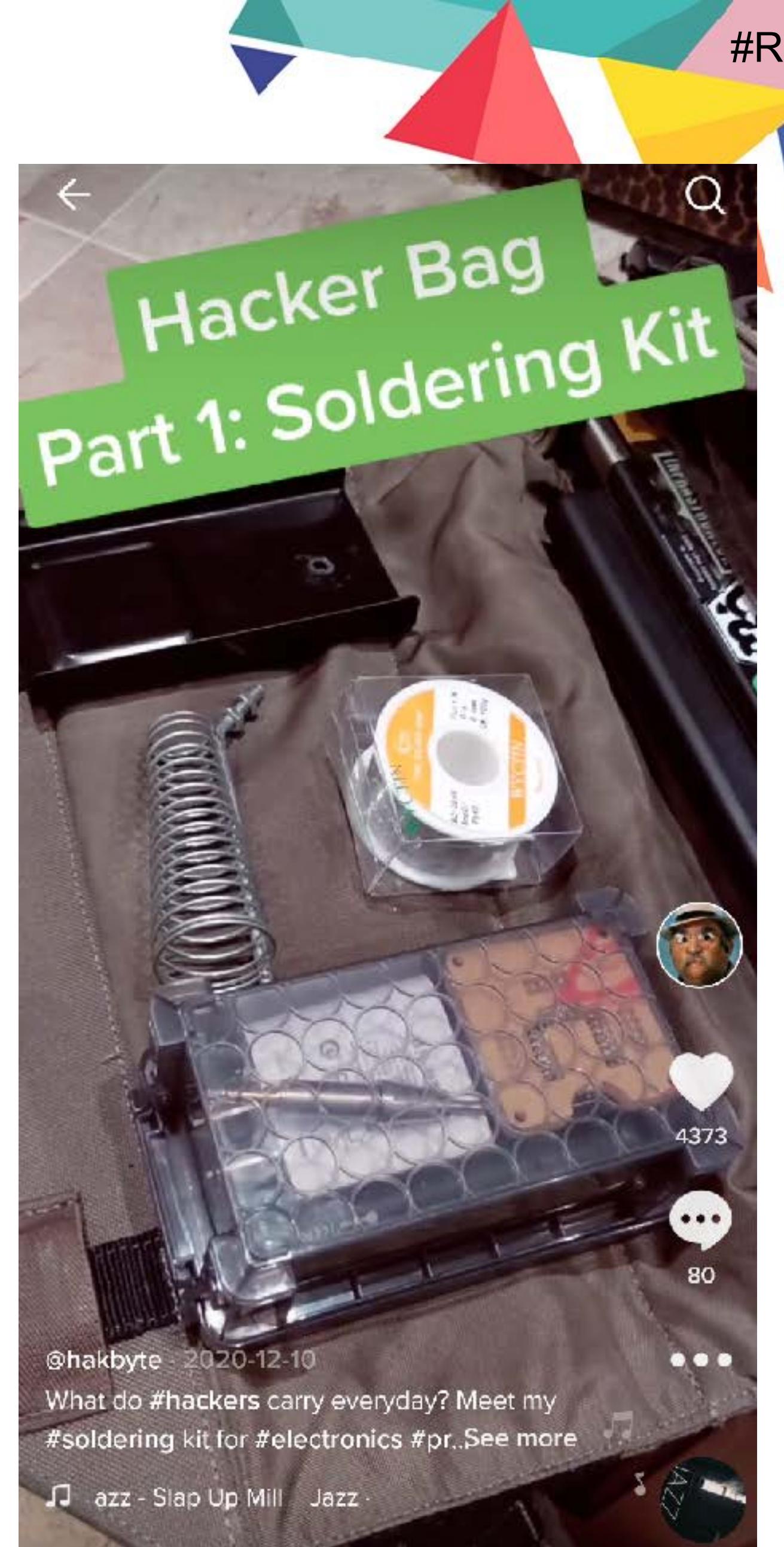
Twitter messages hackers receive

- Series responding to DMs I receive on Twitter from hosting Null Byte
- Picked the strangest questions
- 82K views and 10K likes
- Had to edit twice because my phone died
- Second episode taken down for harassment and bullying



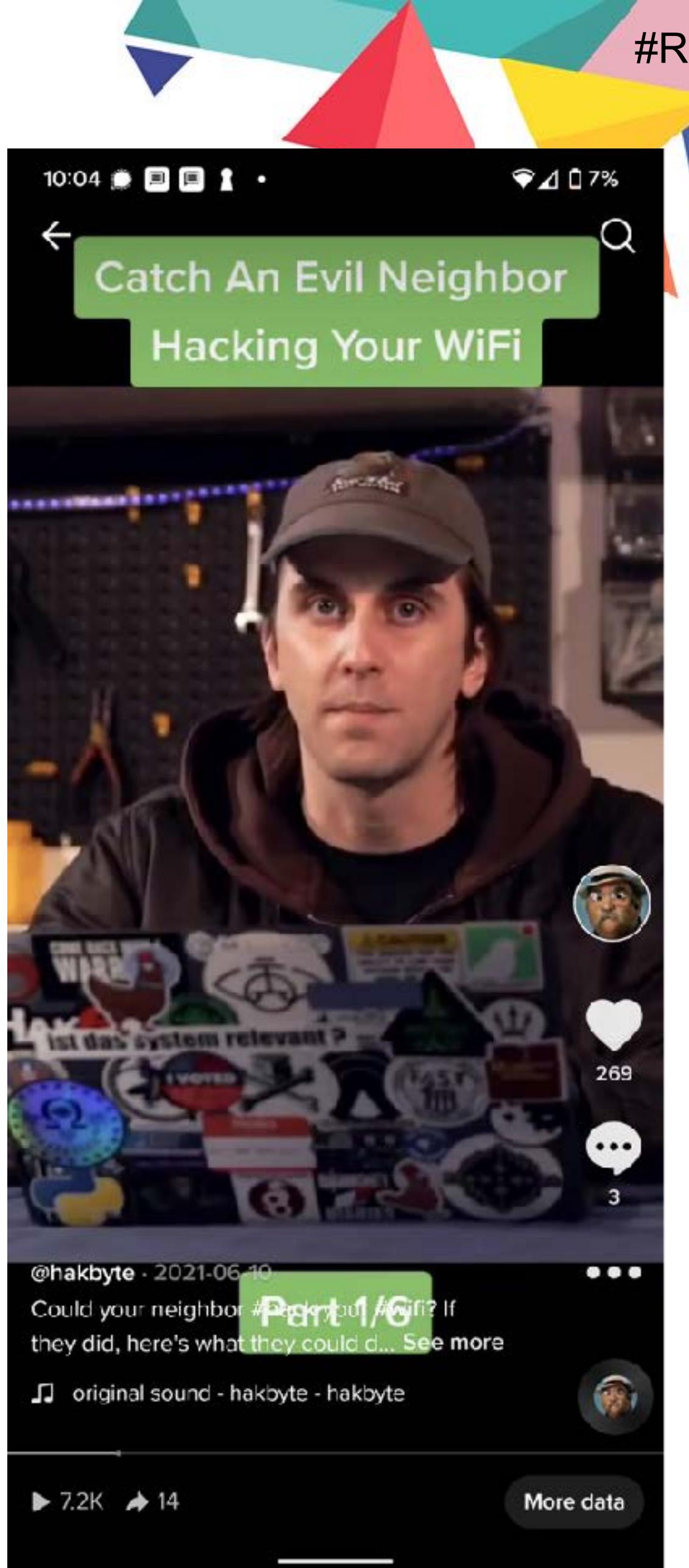
“What’s in a Hacker’s Bag?”

- Episode on common items hackers carry
- Focused on an electronics soldering kit
- 37K views and 4K likes
- Not taken down for harassment
- Started using adobe Rush to edit
- Only edited one time



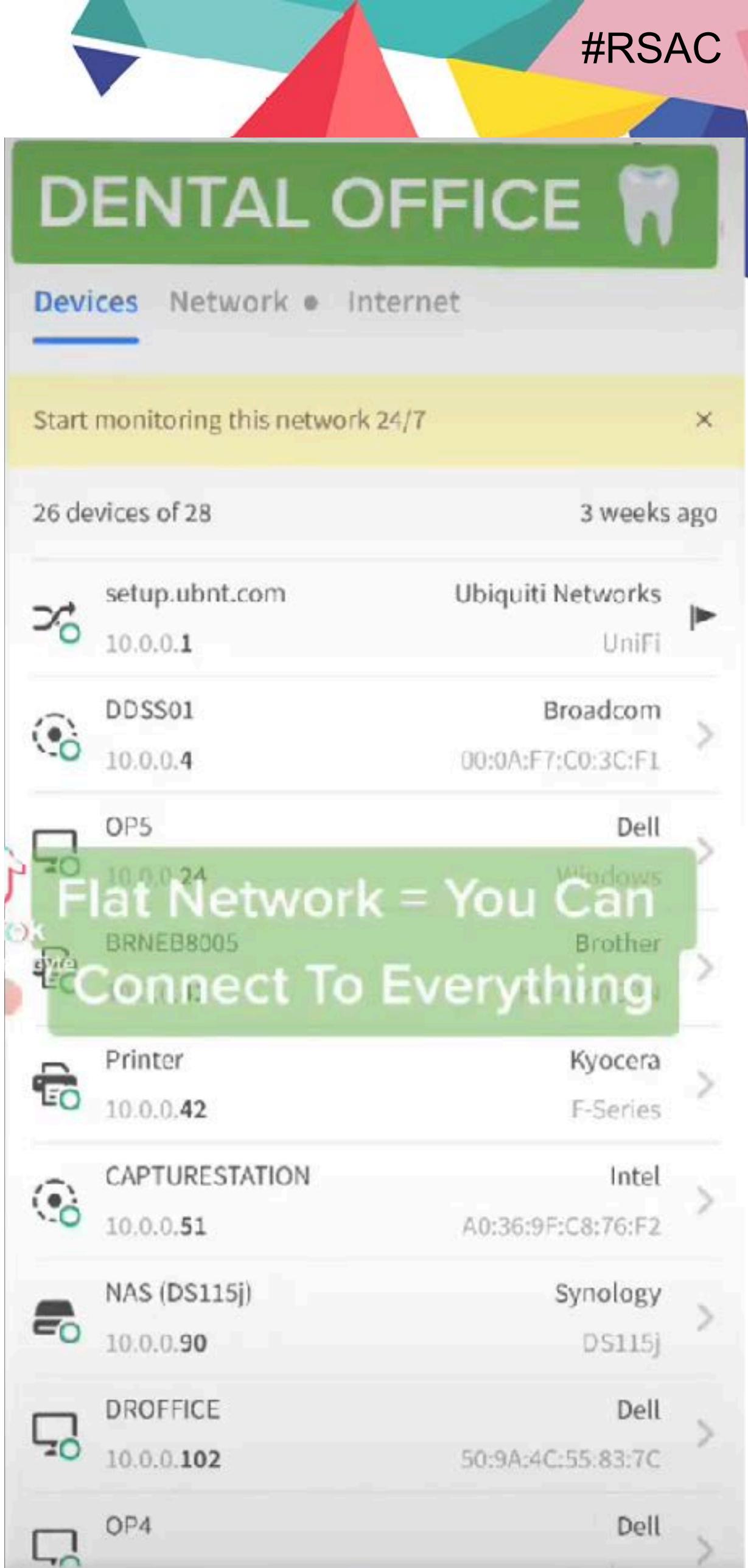
“Detect Someone Hacking your Wi-Fi”

- Tried recycling Hak5 content into small pieces
- 7K views and 272 likes
- Taken down for harassment and bullying
- Reinstated five days later
- Not much of an impact



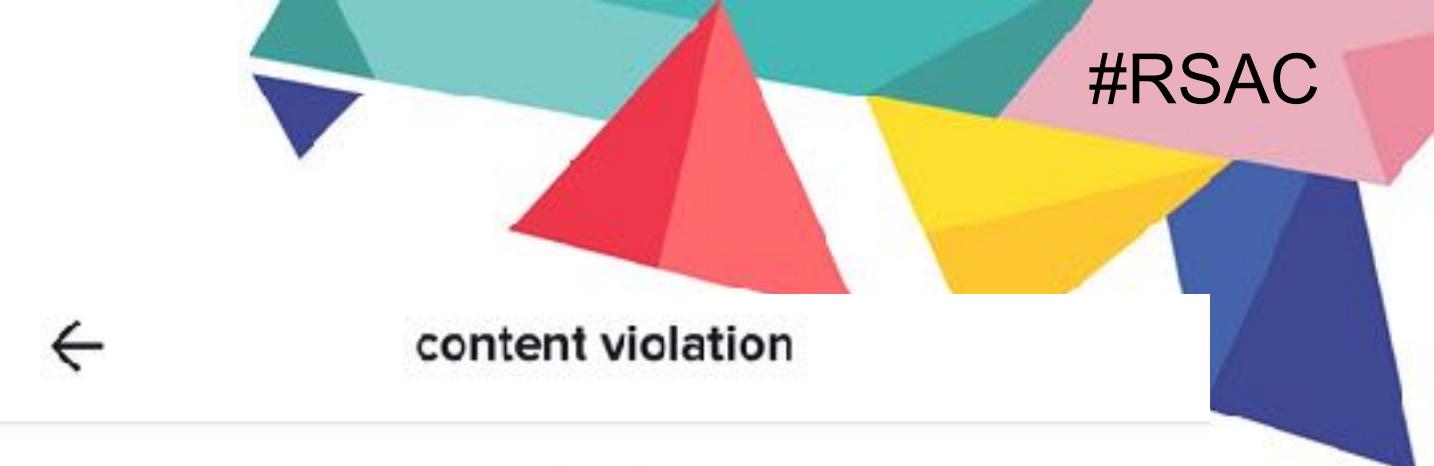
“How I’d Hack My Dentist”

- Series pointing out flaws in everyday businesses and how they could be exploited
- First case was a nonspecific dental office
- Played it safe; no clearly identifying information
- Showed what a flat network looks like
- Explained attackers could access internal devices



Immediate takedown

- Taken down for harassment and bullying (of an anonymous dental office) within eight hours
- After the initial takedown, content permanently removed
- Also flagged as “illegal activities and regulated goods” for good measure



!

Content can't be restored

It was determined that your content violates applicable laws and cannot be restored.

 Video details
Posted on C6-29 at 21:46



content violation

Illegal activities and regulated goods

We prohibit the trade, sale, promotion, and use of certain regulated goods, as well as the depiction or promotion of criminal activities. Some content may be removed if it relates to activities or goods that are illegal or regulated in the majority of the region or world, even if the activities or goods in question are legal in the jurisdiction of posting. We allow exceptions for content that provides value to the public, such as educational, scientific, artistic, and newsworthy content. [See Community Guidelines](#).

Harassment and bullying

Users should feel safe to express themselves without fear of being shamed, humiliated, bullied, or harassed. We deeply understand the psychological distress that abusive content can have on individuals, and we do not tolerate abusive content or behavior on our platform. [See](#)

Did this resolve your issue?



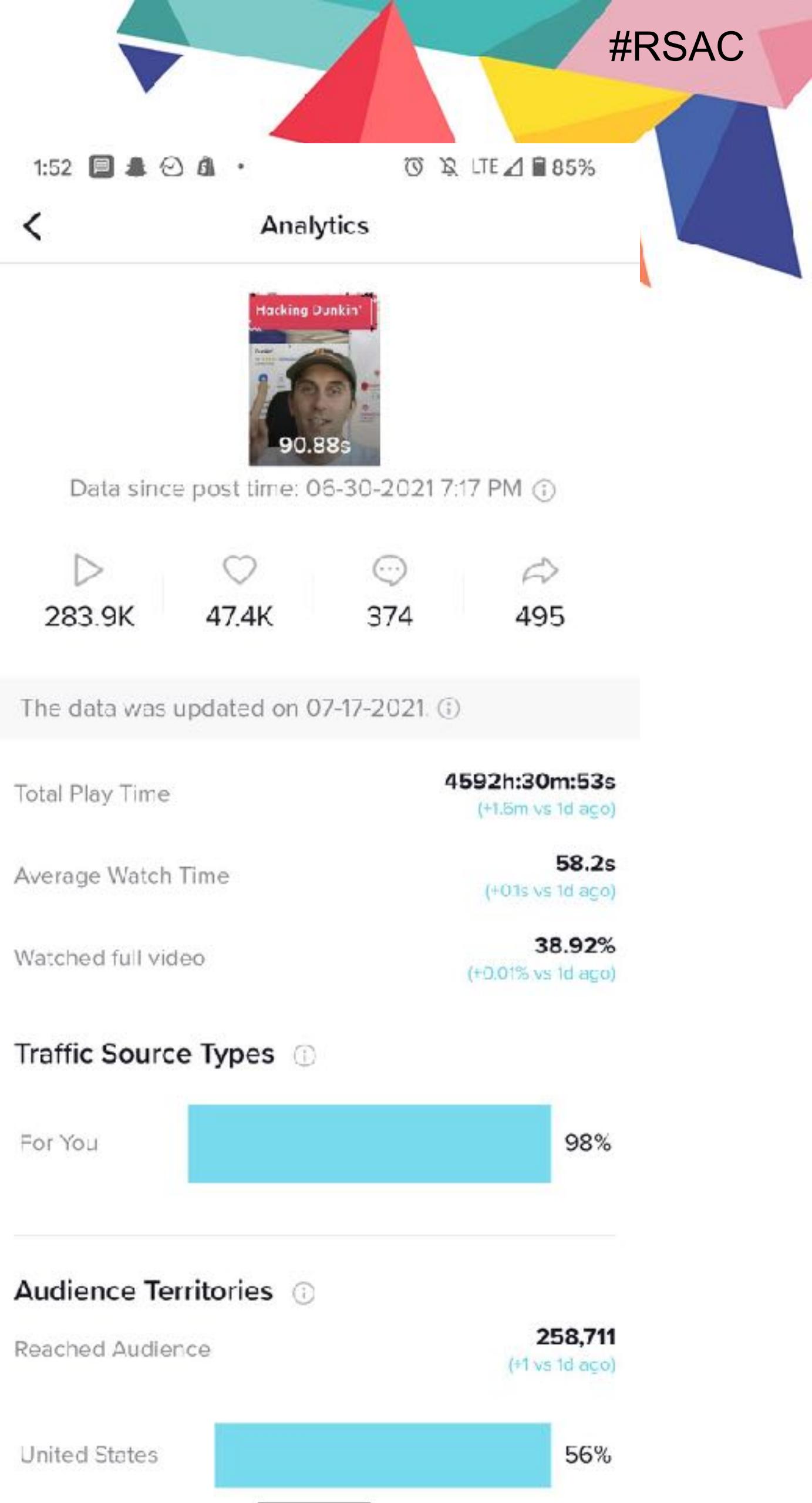
“Hacking Dunkin”

- I chose to gamble on the next episode
- Used a specific instead of anonymized business
- Released episode on an LA donut store with publicly viewable security cameras
- Pointed out attackers could see employee areas
- Reported to store in 2018; issue was fixed by 2020



Timeline of a viral TikTok video

- Posted at 4 a.m. after editing all night
- Woke up to hundreds of notifications
- Featured on "For You" page
- Flooded with thousands of new subscribers
- Call from work that a man wants me fired for making a video about how to hack a "McDonald's"



Takedown after one week

- Edgy video got 4,592 hours of watch time
- I was ruled to have bullied a donut shop
- Someone called my work furious over this
- Playing it safe got me 96 hours of watch time and was taken down faster
- I needed a break

Content can't be restored

It was determined that your content violates our Community Guidelines and cannot be restored.

Video details



"How I'd hack this coffee shop to spy on everyone #hakbyte #hak5 #nullbyte #tubitaughtme"
Posted on 06-30 at 18:17

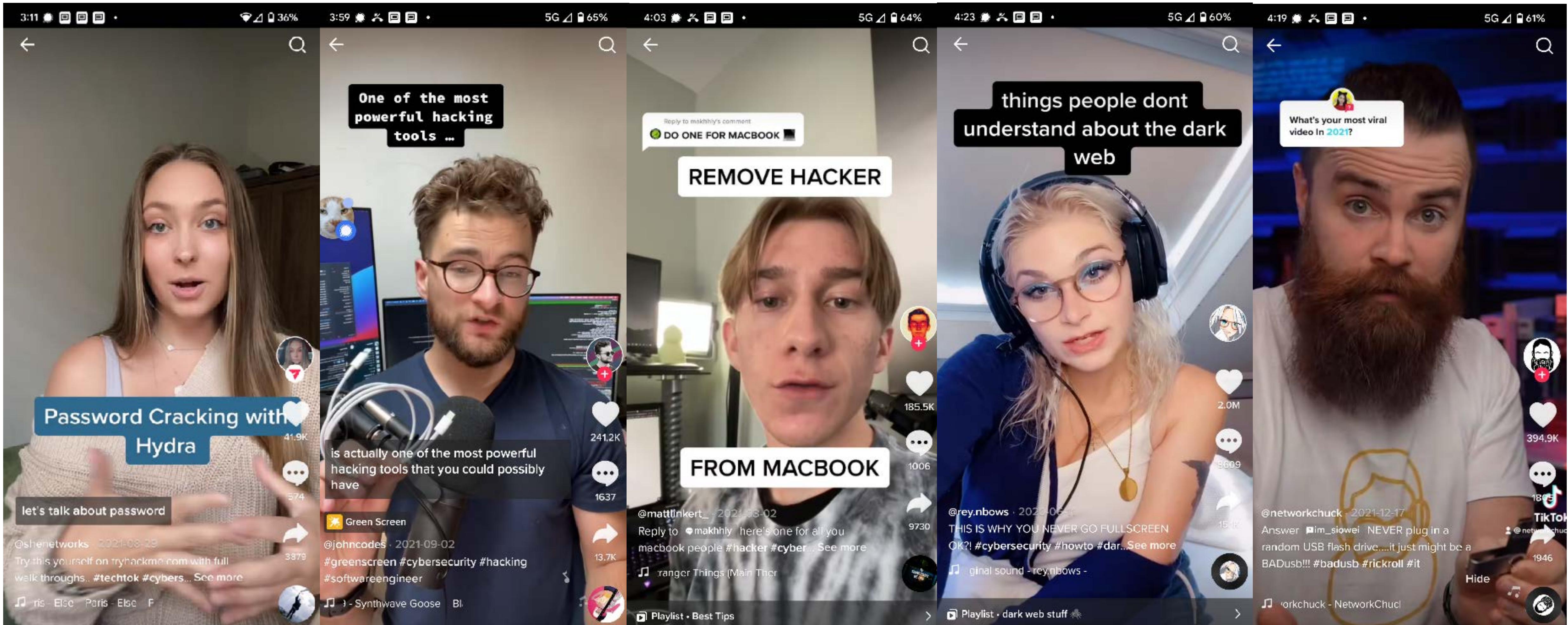


Violation reasons

Harassment and bullying

Users should feel safe to express themselves without fear of being shamed, humiliated, bullied, or harassed. We deeply understand the psychological distress that abusive content can have on individuals, and we do not tolerate abusive content or behavior on our platform. [See Community Guidelines](#).

Other successful TikTok creators



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How are brands doing this?

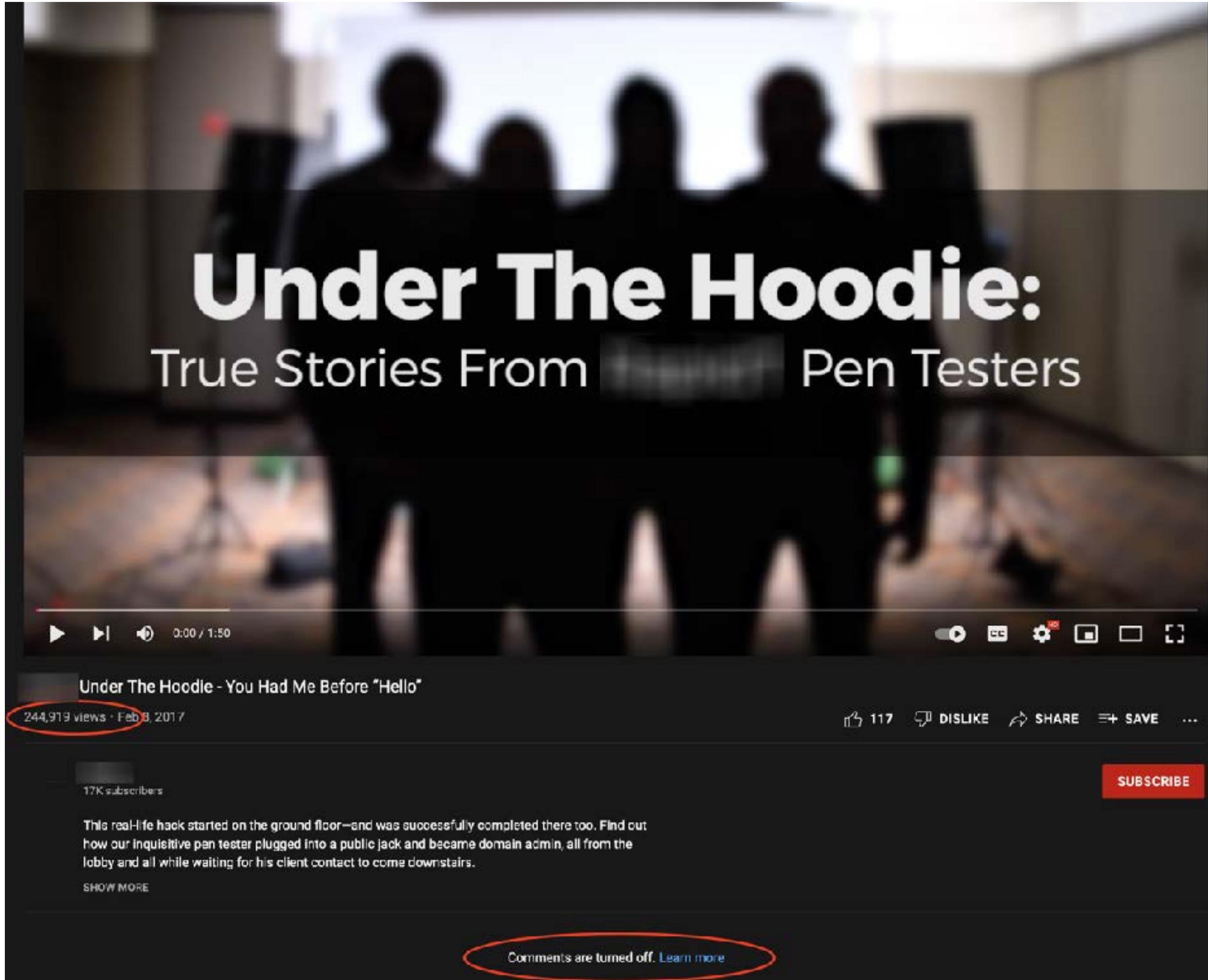


Content creators who got it right

- "Under the Hoodie"
- “Mainframe Kid” / Hacker Interviews
- Mrwhosetheboss: “I Got Hacked by an iPhone Cable”

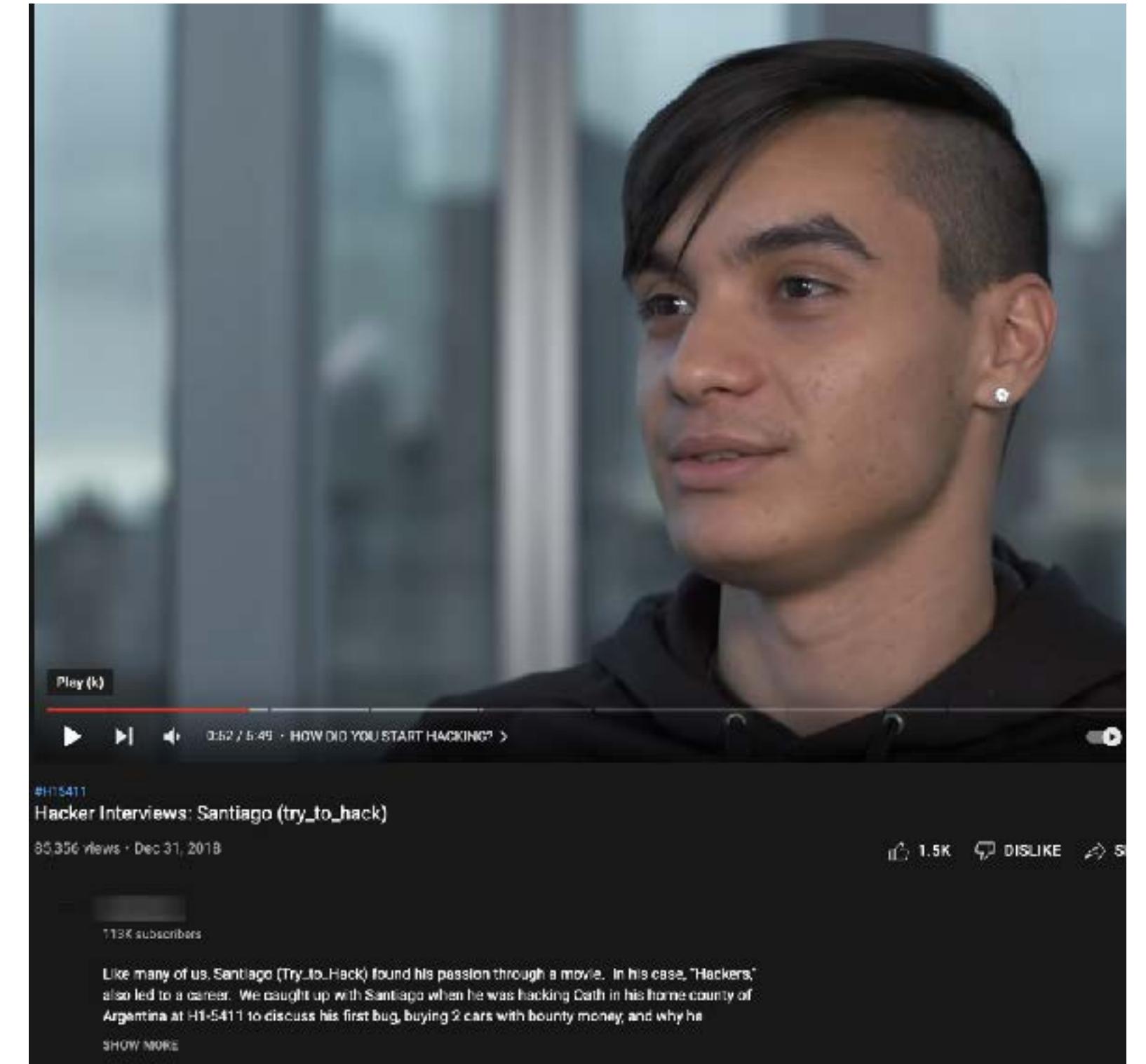
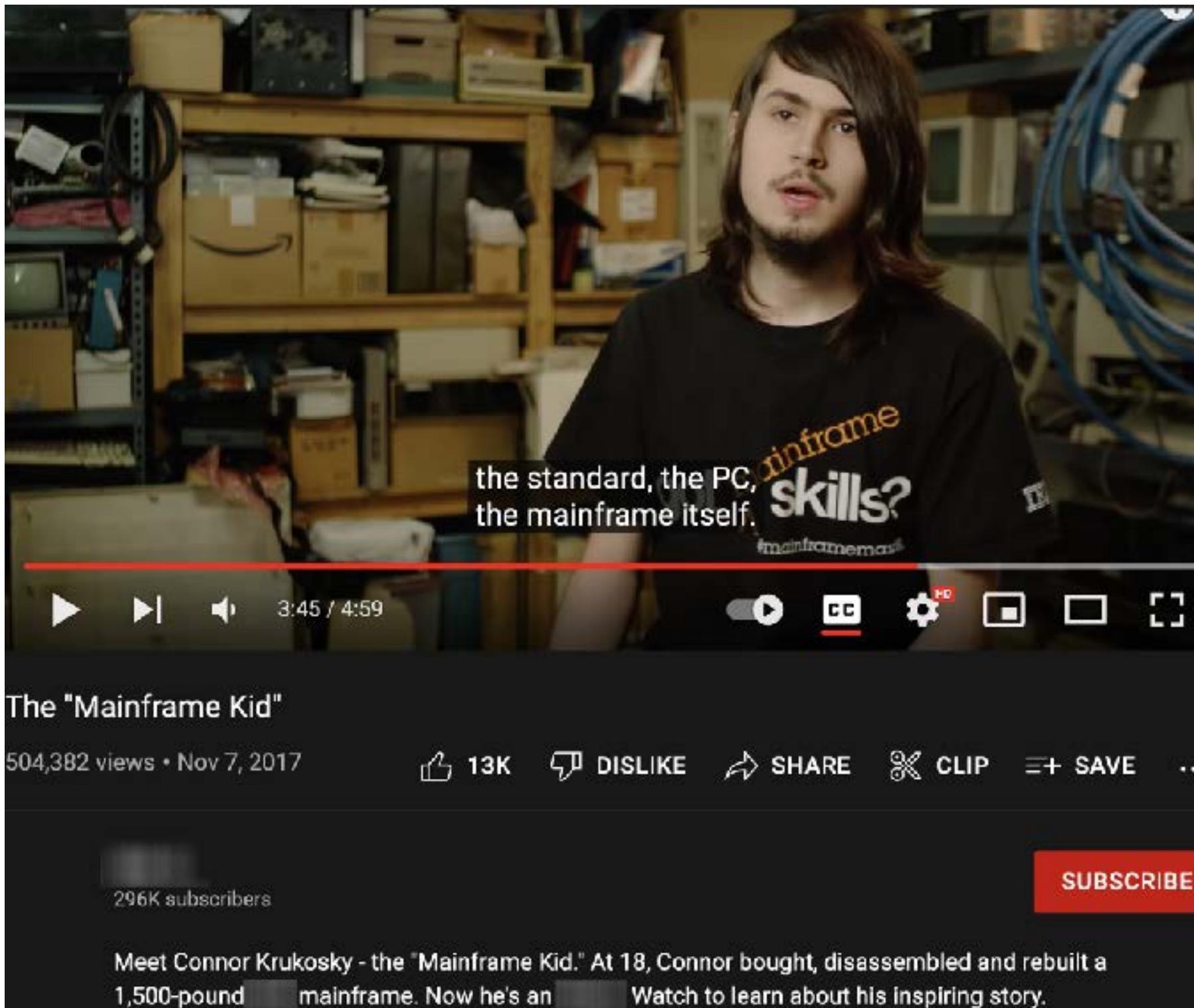
"Under the Hoodie"

- Engaging story-driven format
- Real-life examples are spicy
- Real-life risks of customers assuming they're the subject
- Comments off (I'm sure that's unrelated)



"Mainframe Kid" / hacker interviews

- High production quality
- Relies on access to personable role models



High-quality introduction video

- YouTuber Mrwhosetheboss produced episode on malicious USB cables
- High production quality, playful, fun episode
- Interviews, narrative, and motion graphics set it apart
- 2M views in just five days

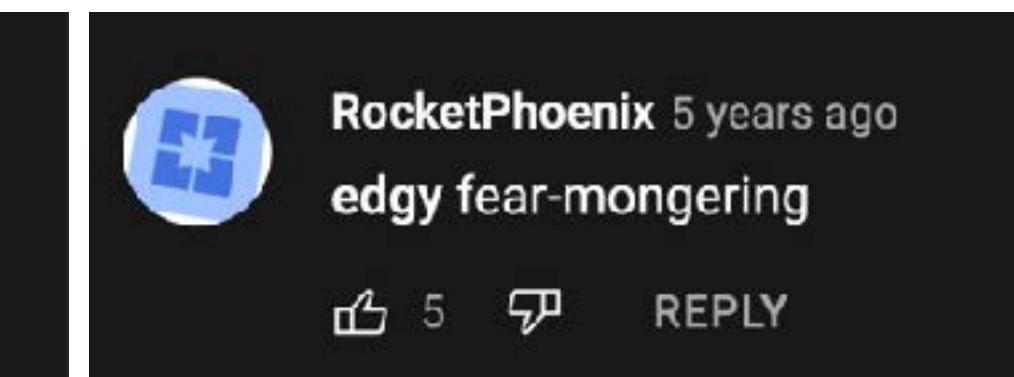
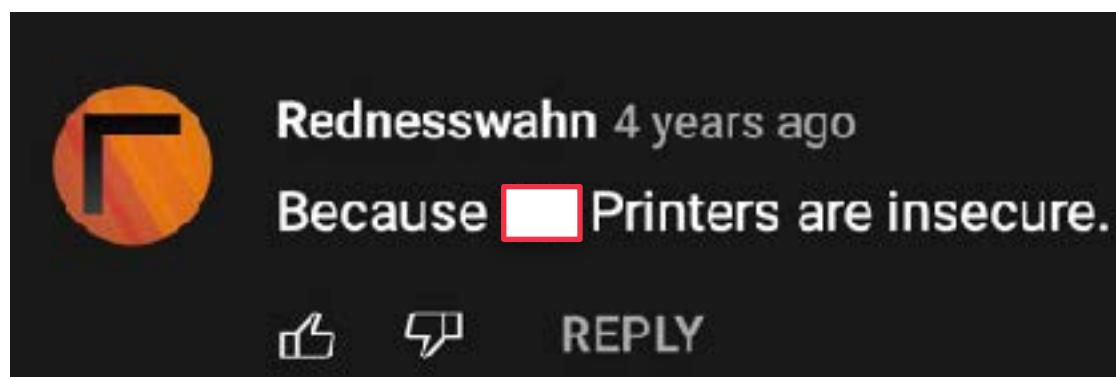
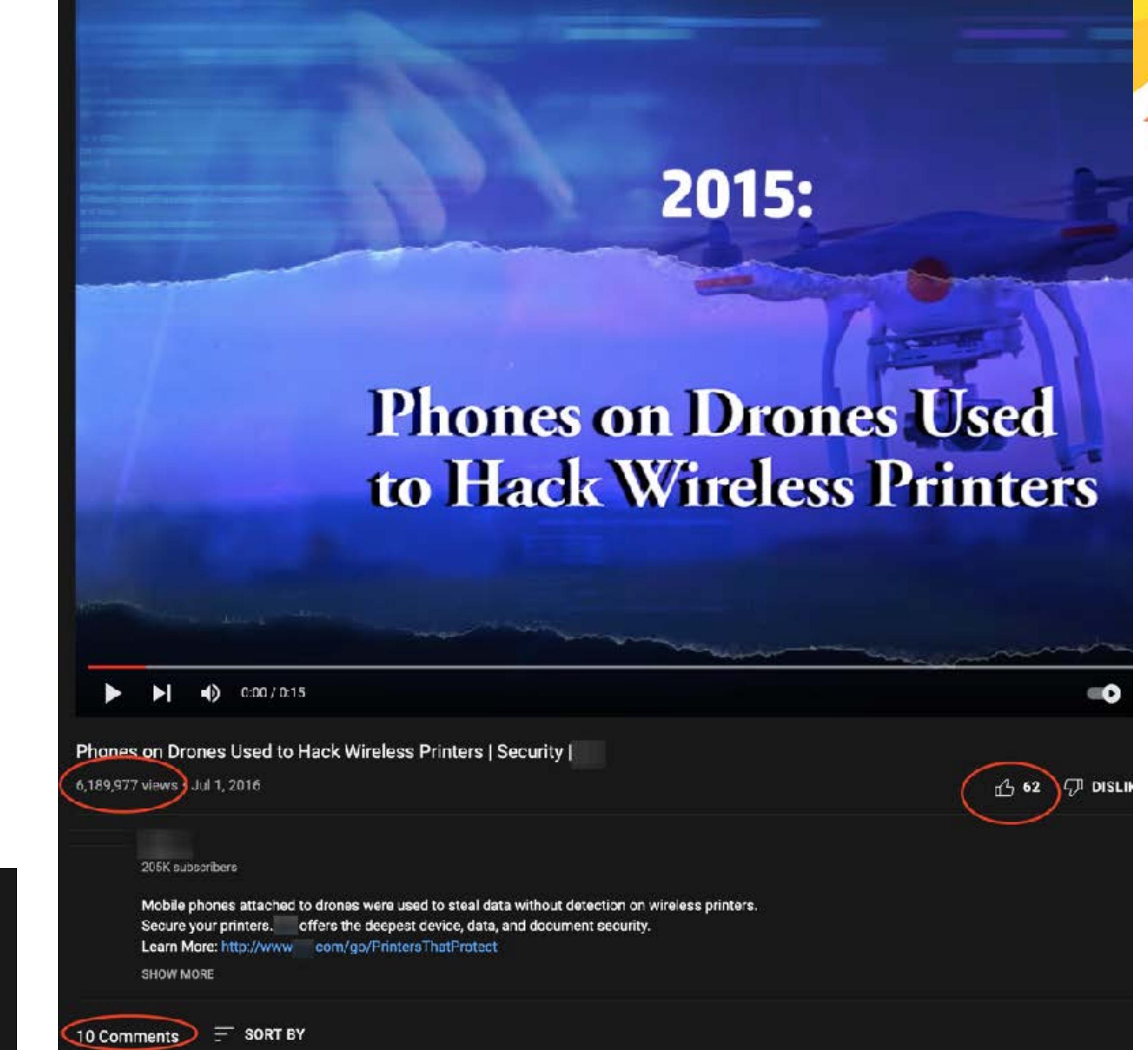
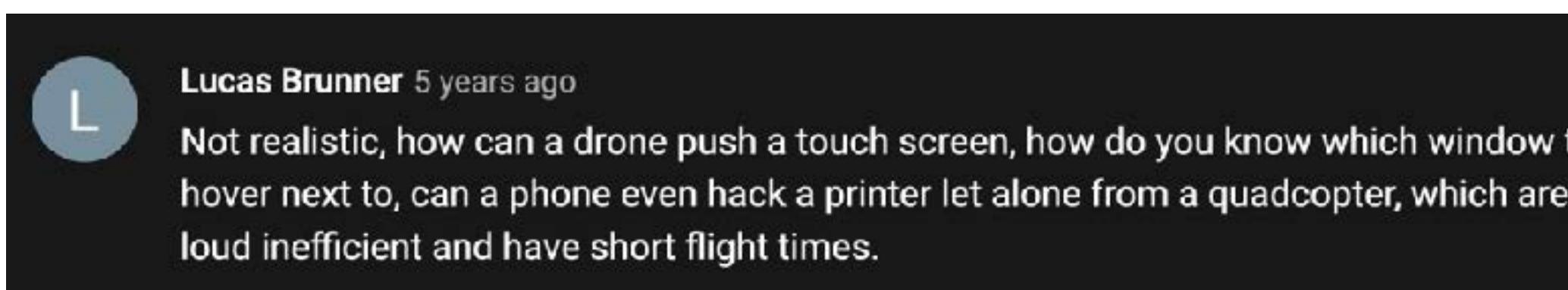


Brands that missed

- “Phone on a Drone”
- “Whiteboard Wednesdays”
- Naked lady commercial
- Unrelated-industry professional interview
- Random marketing material

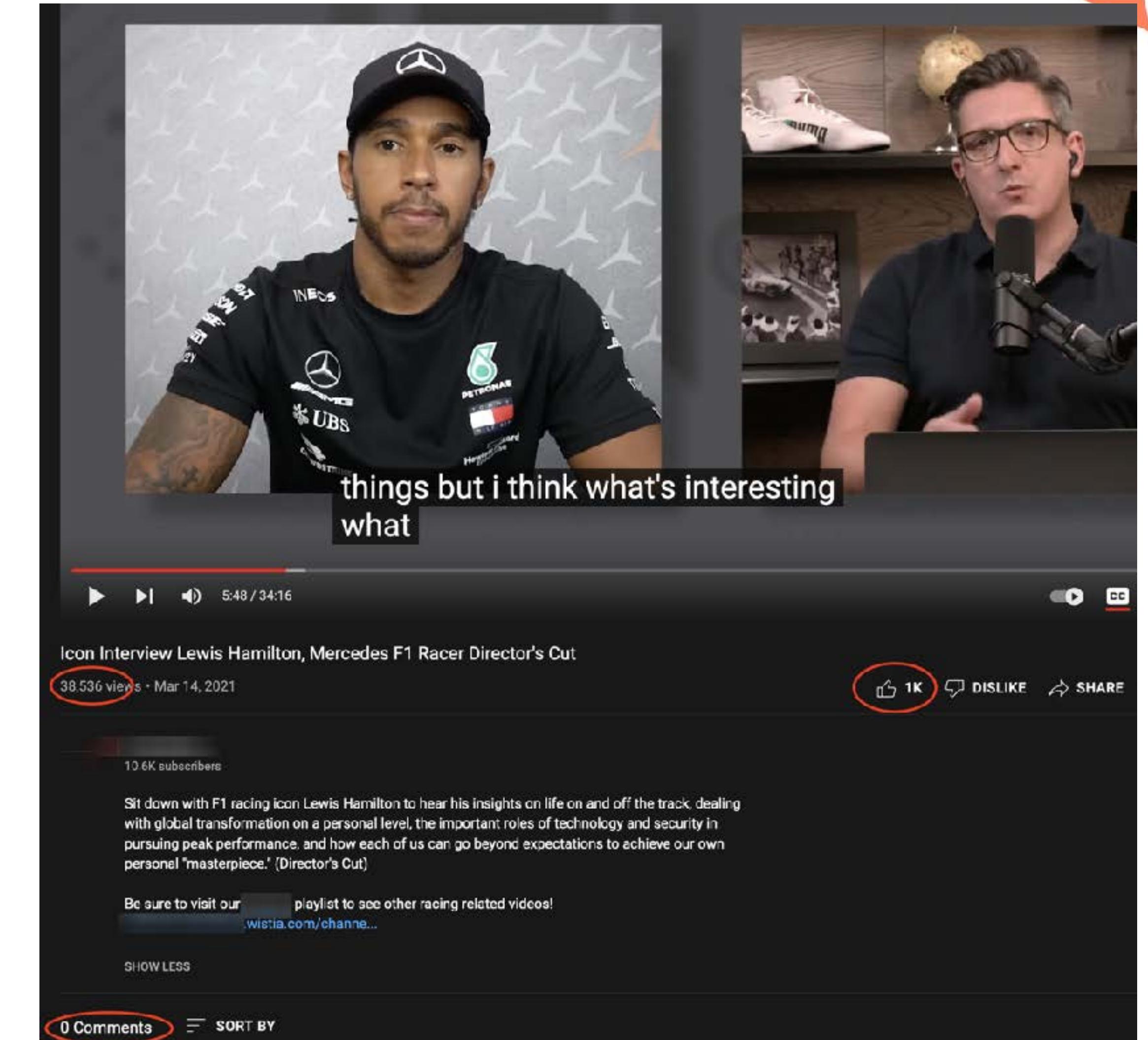
“Phone on a Drone”

- Brand's most-seen video content
- One of the worst ratios I've ever seen
- 6M views, 10 comments
- No useful information



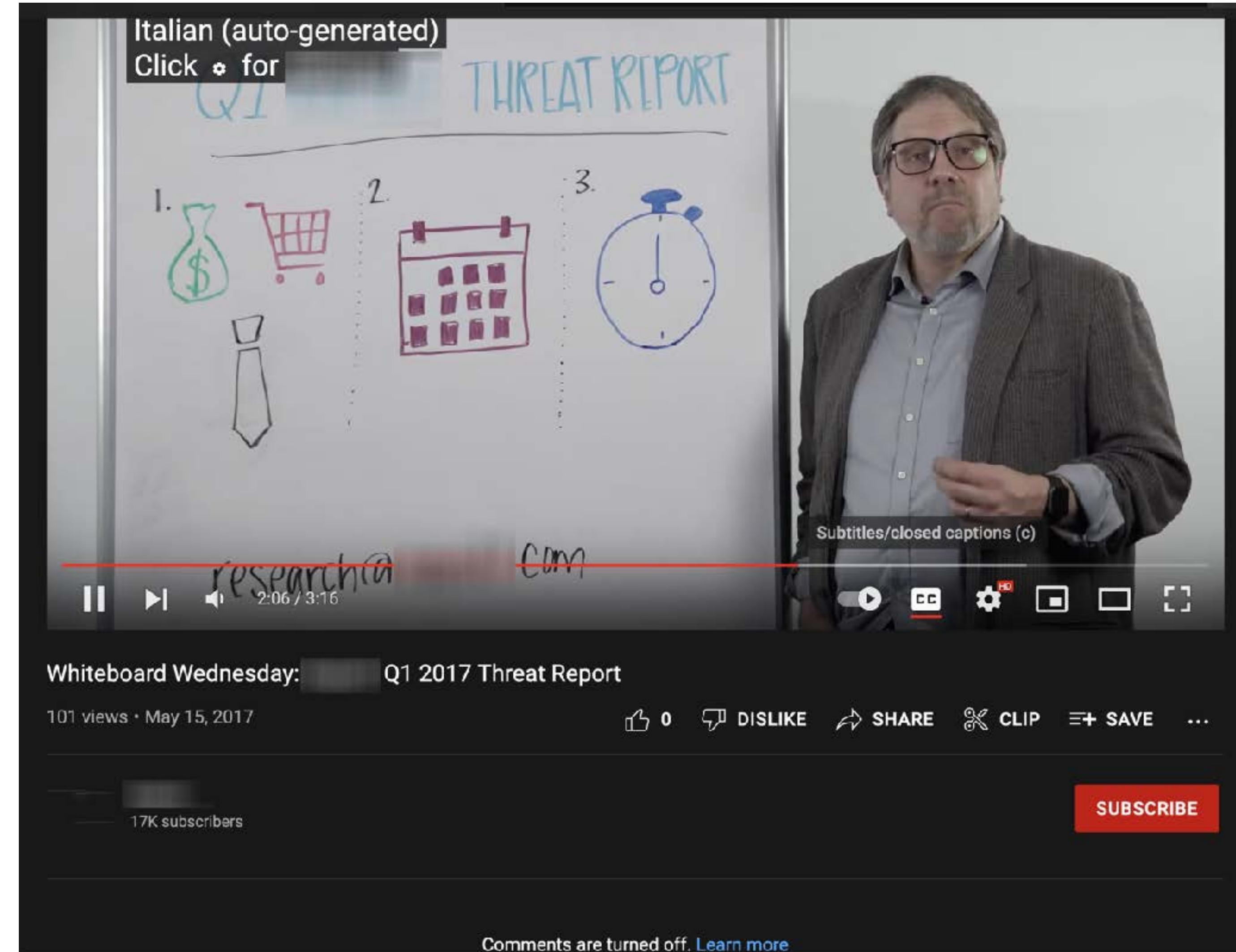
Unrelated-industry professional interview

- Making someone from an unrelated industry talk about cyber content
- Worst of both worlds
- Low engagement
- I was the first comment



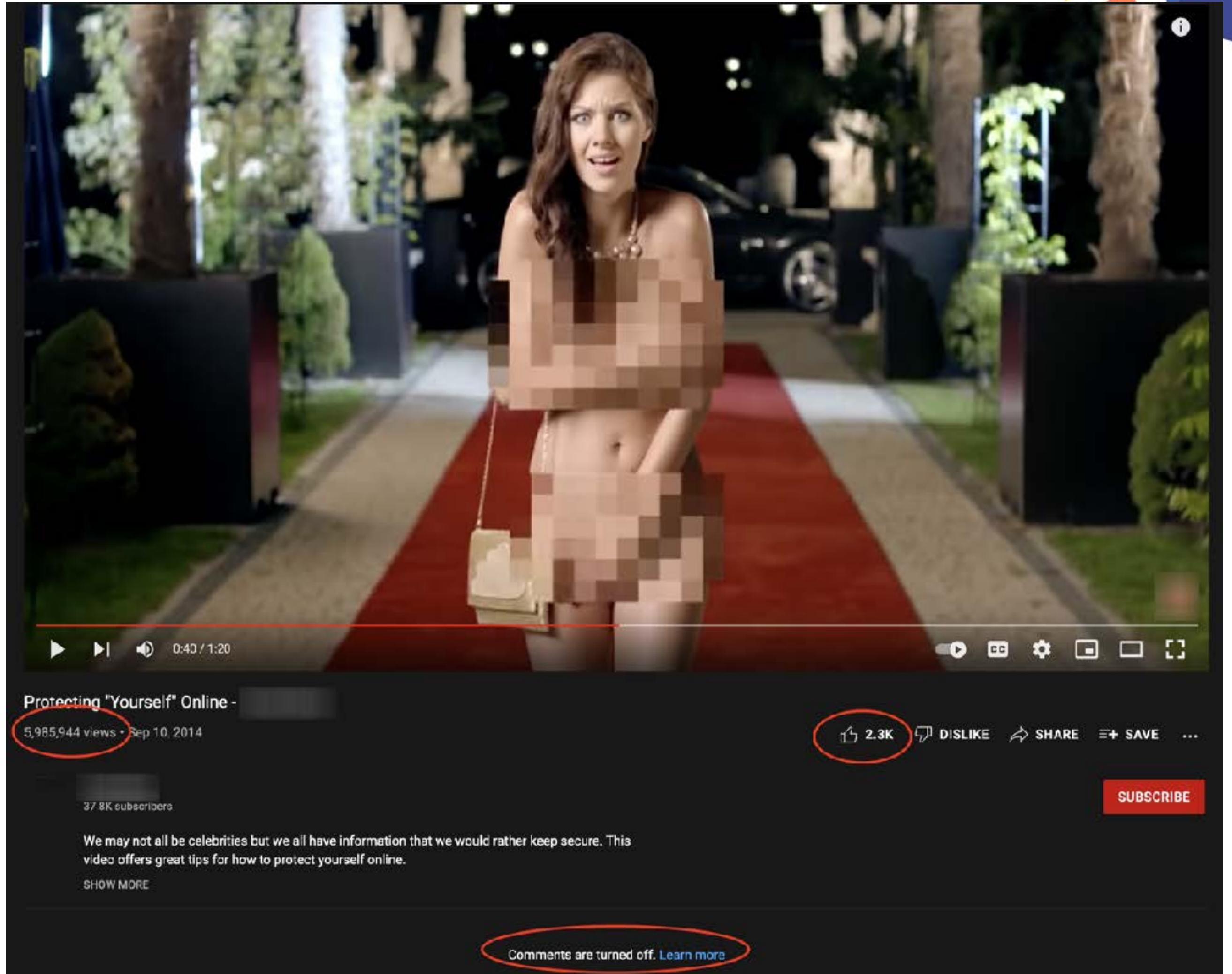
“Whiteboard Wednesdays”

- Good idea
- Low production value
- Uncomfortable hosts
- Dry topics
- Comments are off
- Subtitles in Italian



The naked lady

- The most-seen content by this infosec company stars a naked lady
- Comments are off
- I would not have done this...



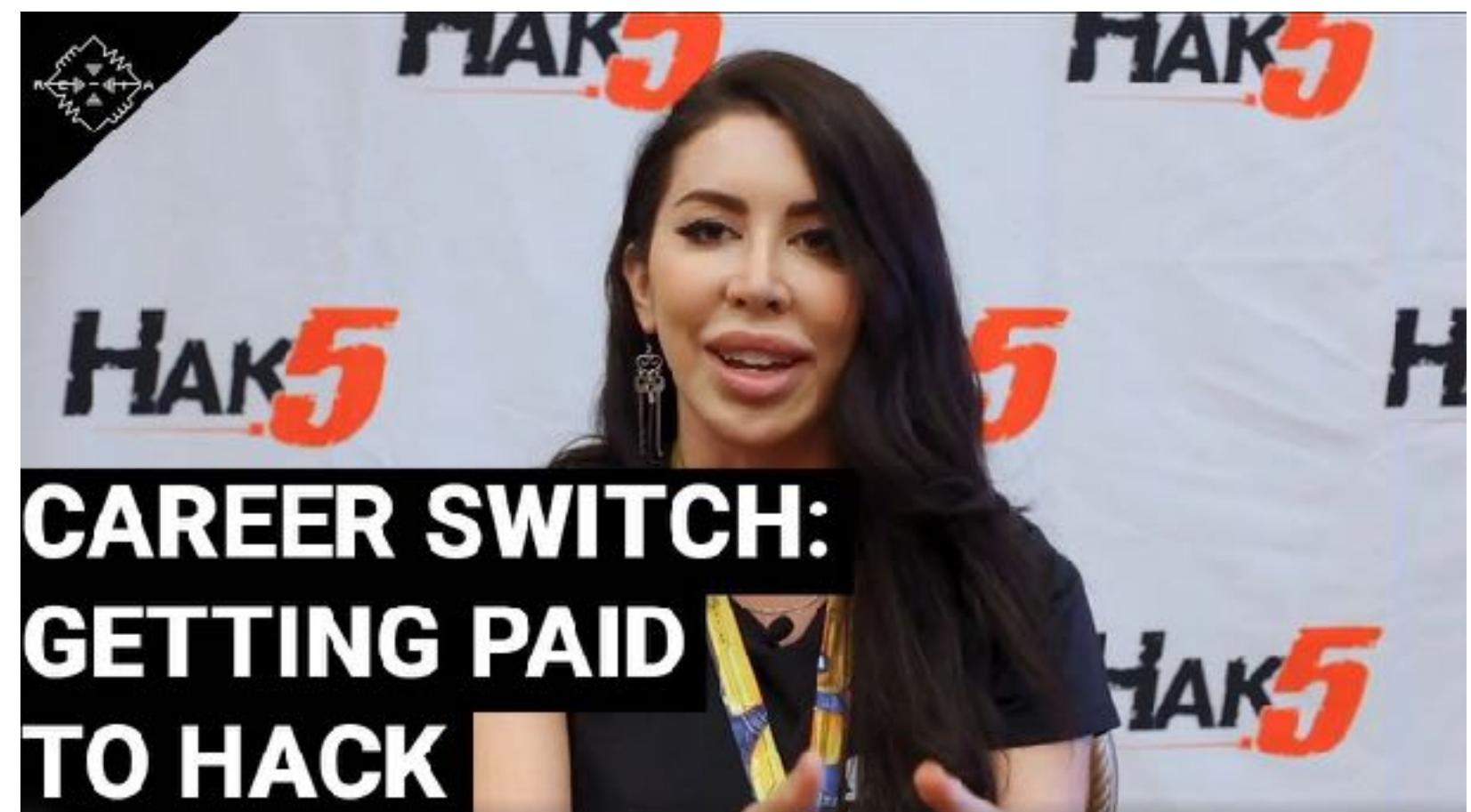
Random marketing material

- Too many owners = sales material polluting marketing efforts
- 17K subs have no idea what content they're going to get
- Is 109 views worth posting this?



Takeaways

- Infosec content shouldn't be dry or boring
- Authentic, useful, and balanced content spreads rapidly
- Gen Z learns about cybersecurity careers through social media
- Amplifying nontraditional creators helps attract diverse talent



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Thank you!

Follow me at [@KodyKinzie](https://twitter.com/KodyKinzie) for more

