CSCI 466: Networks

Halloween Special – TOR, Dark Net, Anonymity

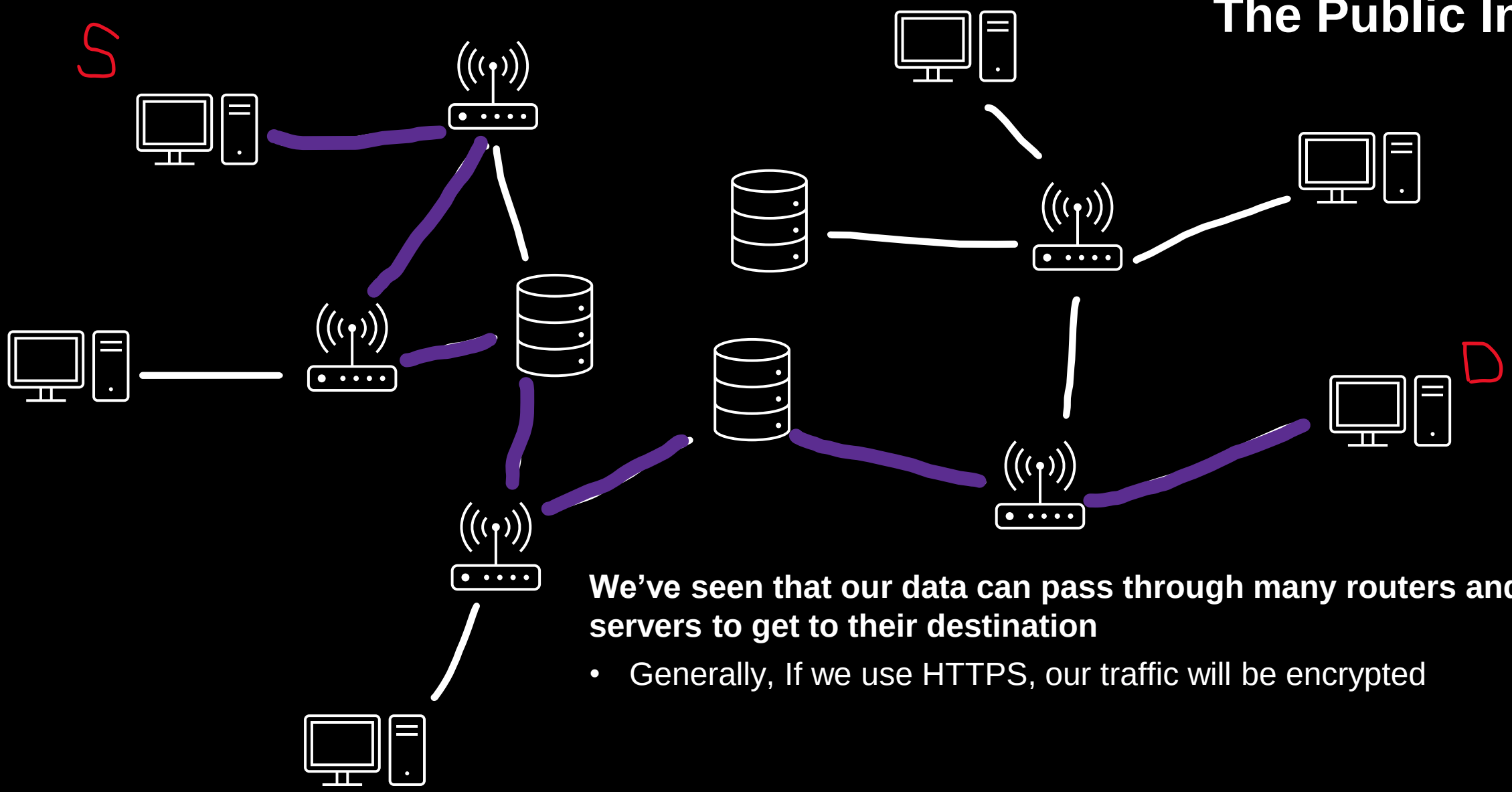
Trigger warning: We will briefly be mentioning sexual abuse and exploitation via the internet

*All images are stolen from the internet

Announcements

- **PA3 due Nov 11th @ 11:59 PM**
- **I might be on a watch list**

The Public Internet



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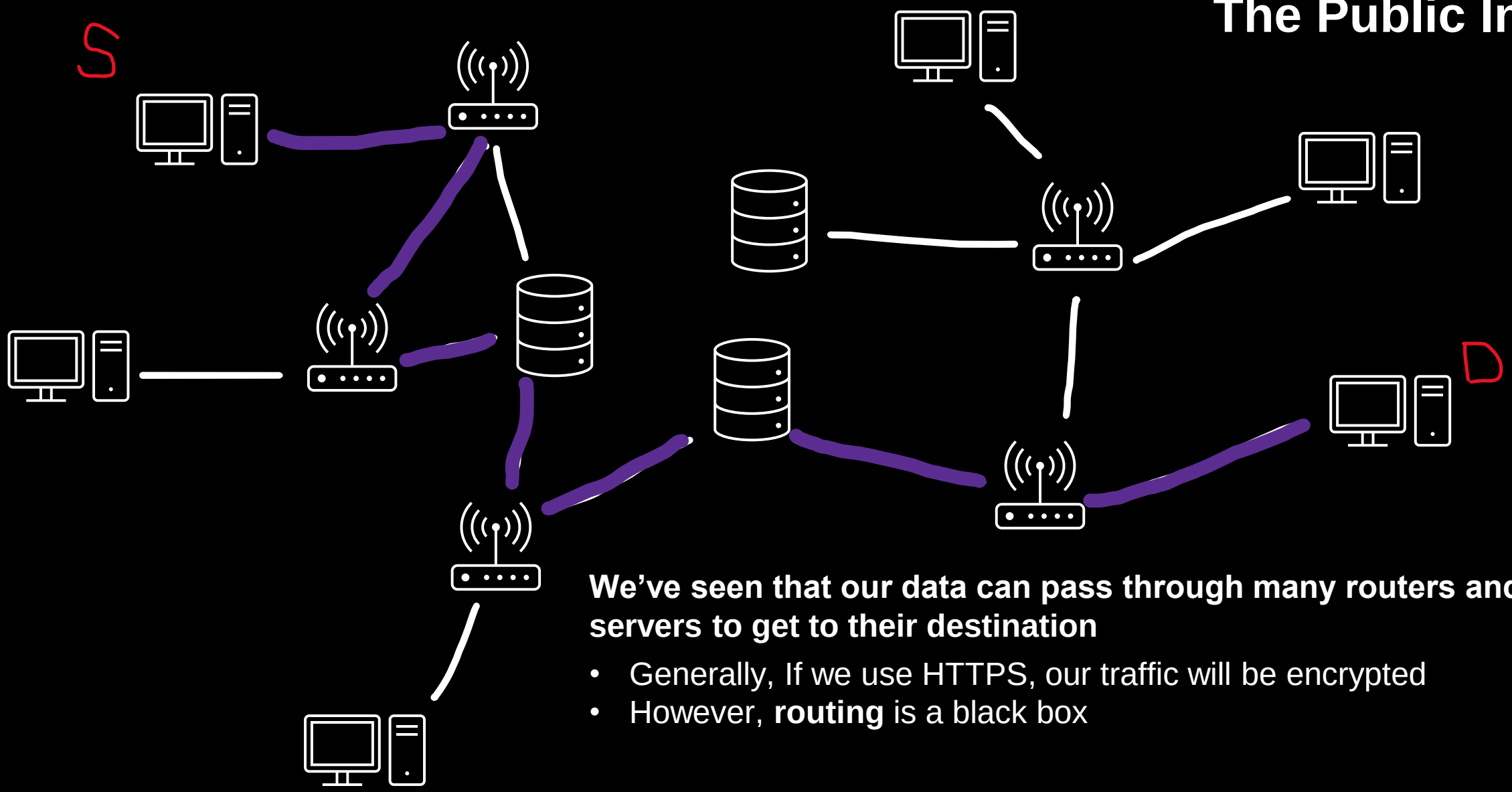

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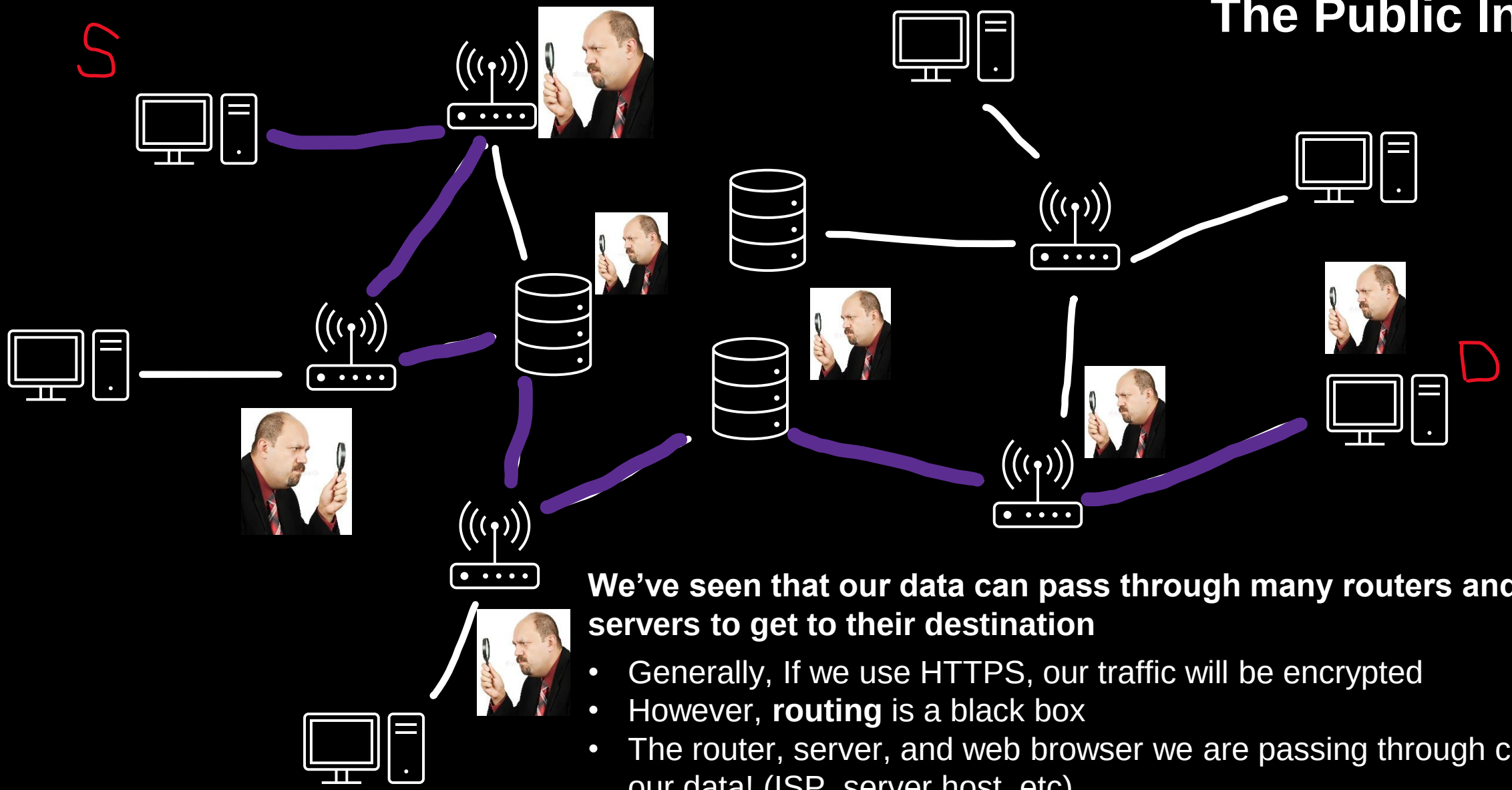

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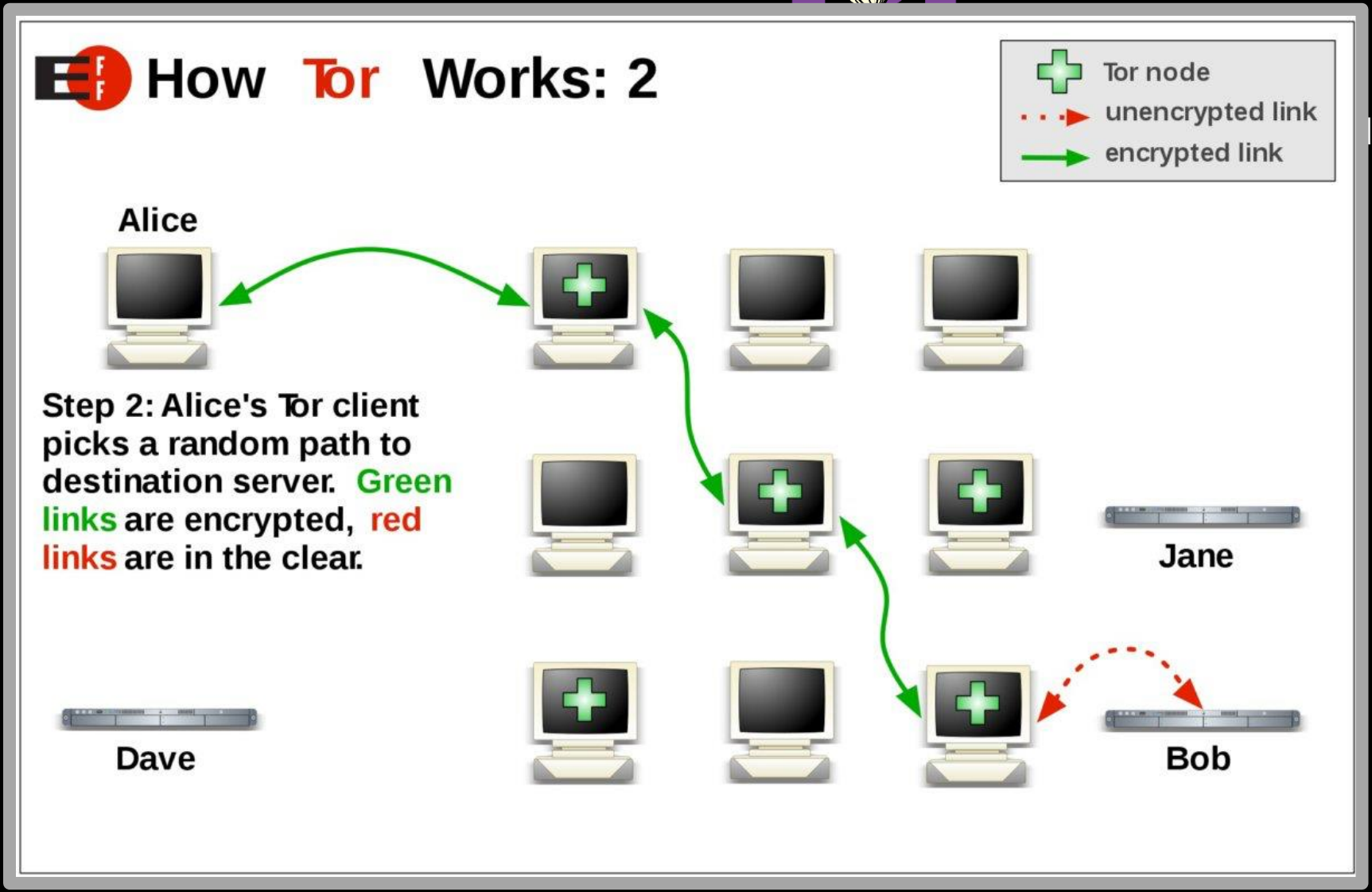
- blicly



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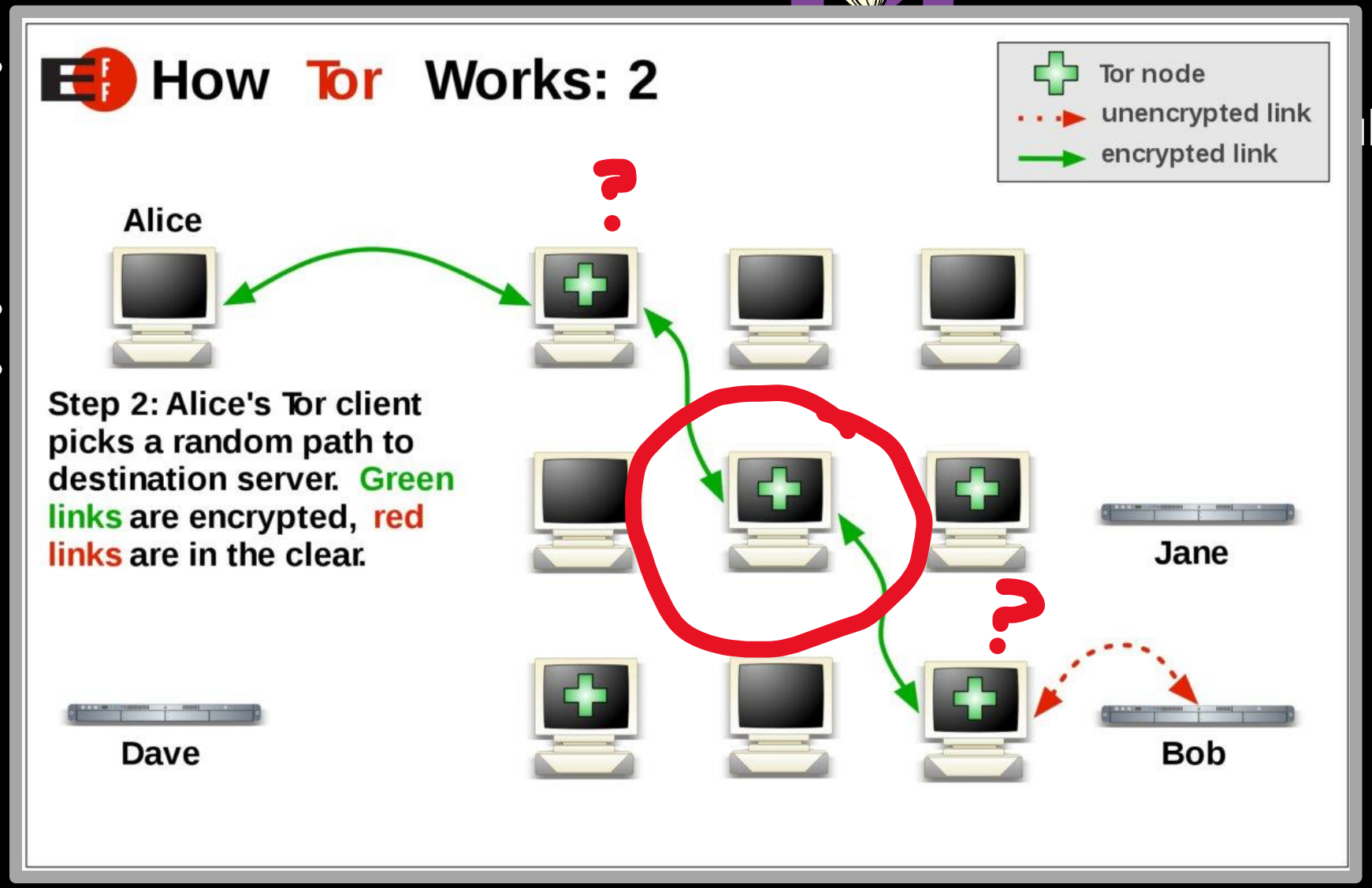

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From this Node's perspective it only can see the previous node and the next node

It has no idea who the original sender was

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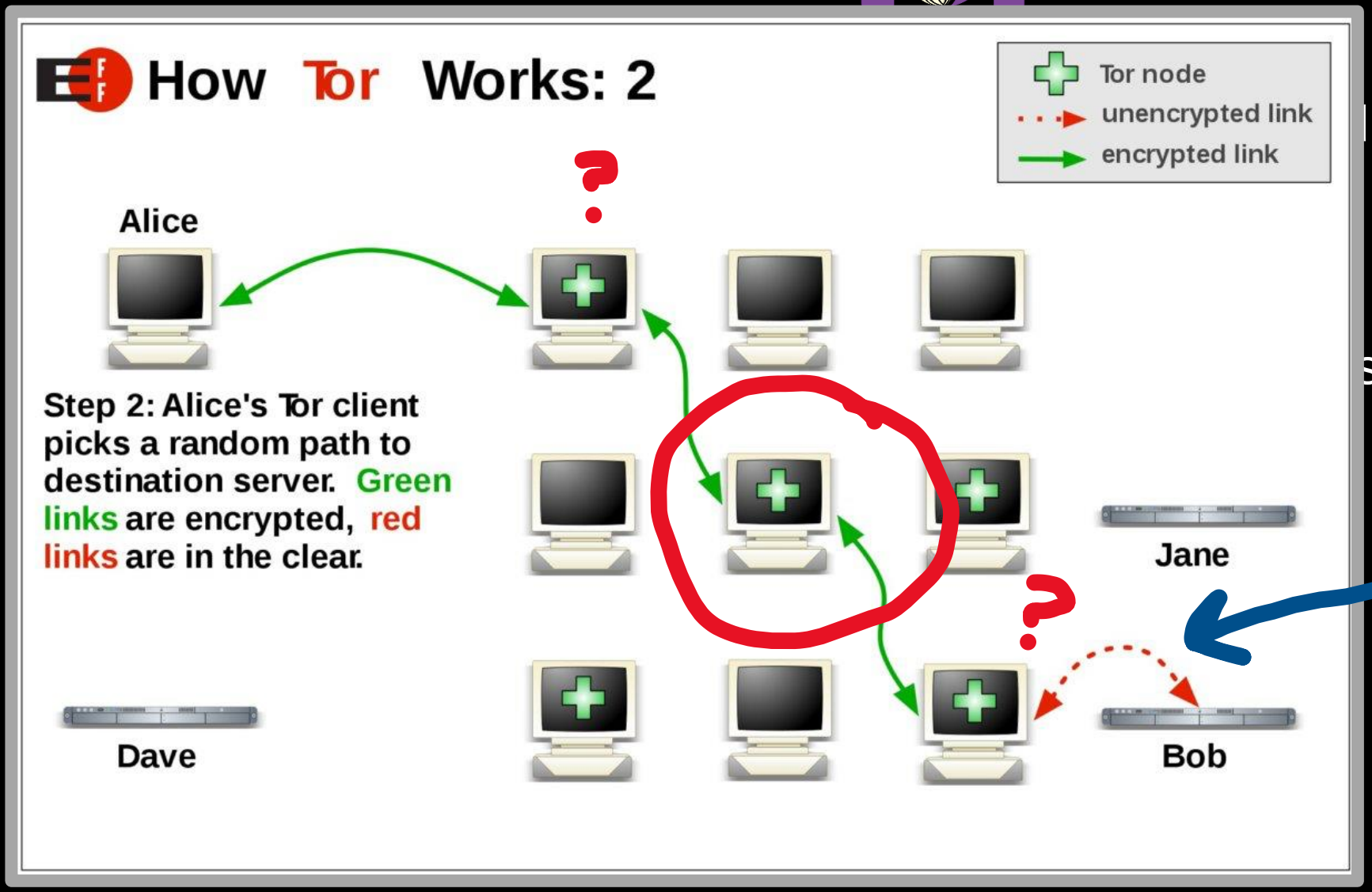

publicly

s.

Not totally safe. Messages leaving an “exit node” will be in cleartext

Random path each time!

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- Browser can be found online as a modified version of Firefox (Slow)
- → You can visit `.onion` links

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We next need to understand how search engines store, or **index** webpages

Web browsers will utilize a **web crawler** that automatically scans the internet and pulls the static content

This content is put into a database (the same database we use when we search for stuff)

A special algorithm is used to rank indexed content based on relevancy

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- "Good" uses for TOR browser:
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- "Bad" uses for TOR browser:
- → Criminal Activity that is difficult to track

Practically impossible to conduct mass surveillance

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→ Dynamic content, content that requires authentication, passwords, etc

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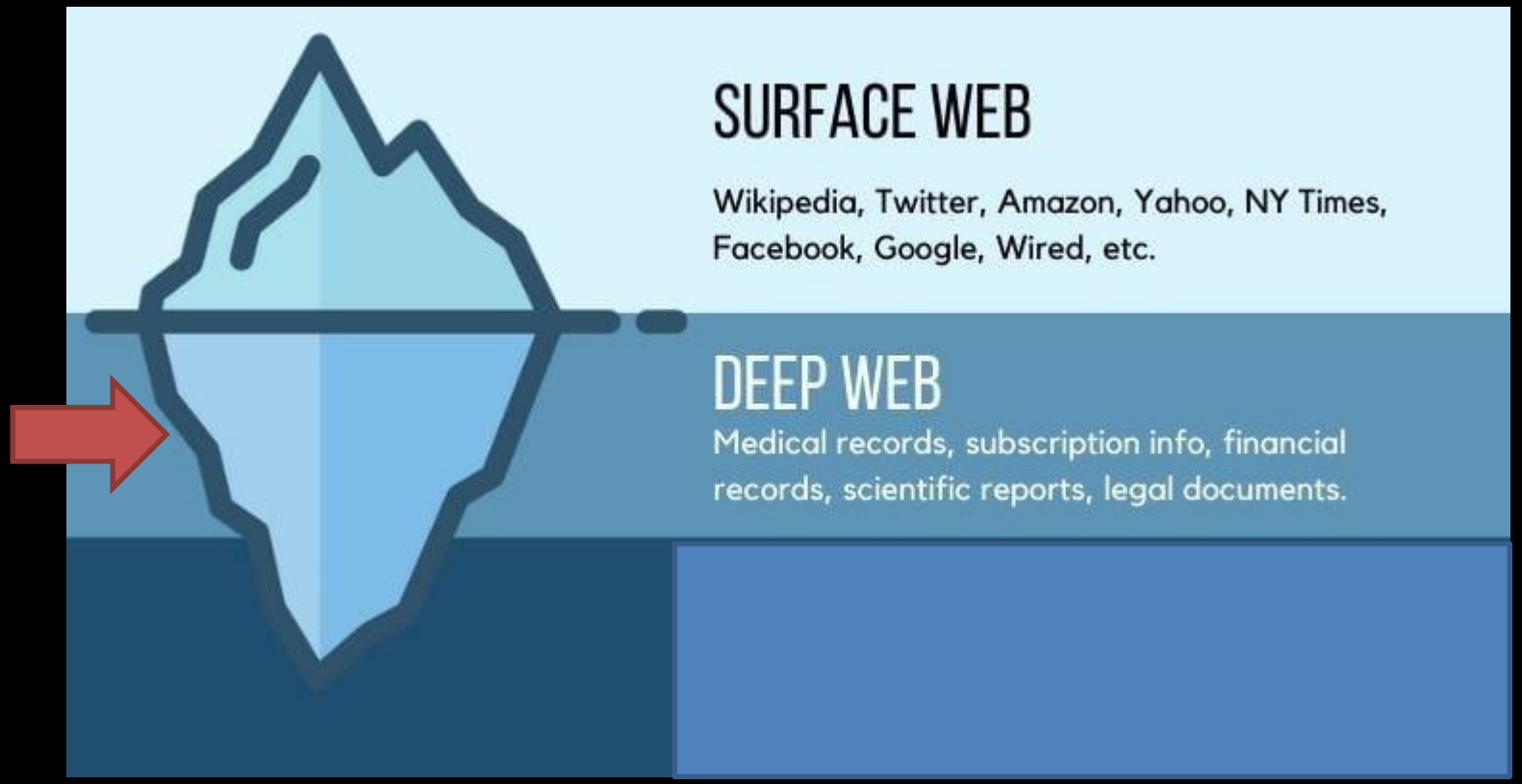
The **deep web** is the area of the internet that is not accessible by normal browsers (90%)

- This includes information such as emails, financial information, records, private social media content, personal data

Pretty benign stuff, but remember that this data requires authentication to access



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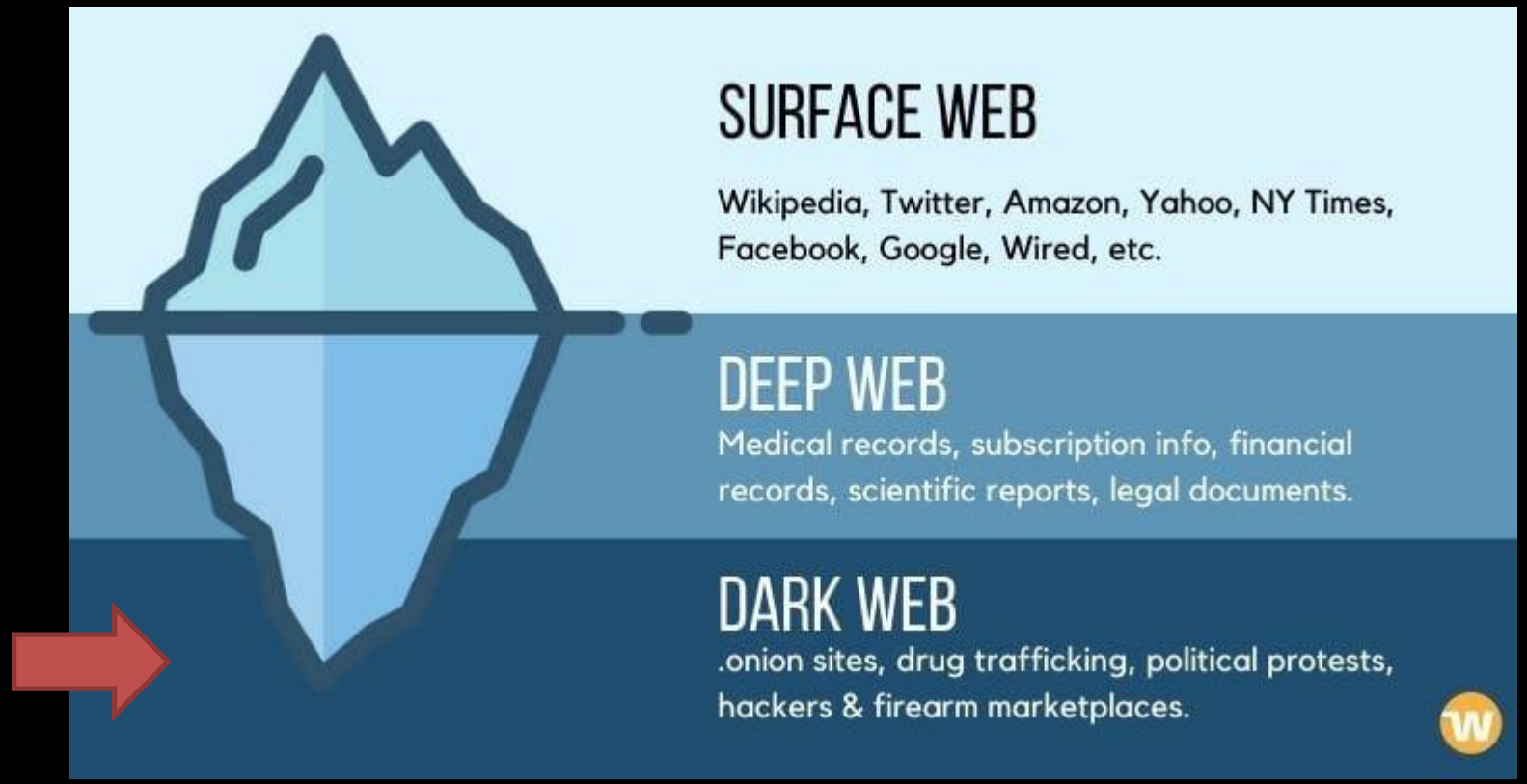
The **deep web** is the area of the internet that is not accessible by normal browsers (90%)

The **dark web** is the area of the internet the is hidden and requires a Tor browser

- Hosts web services for both legal/illegal activities



The Dark Net

The “Good”

- **Anonymous political discussion**
- **Selling of legal goods**
- **Whistleblowers**

*subjective (this also does not reflect my personal opinion)

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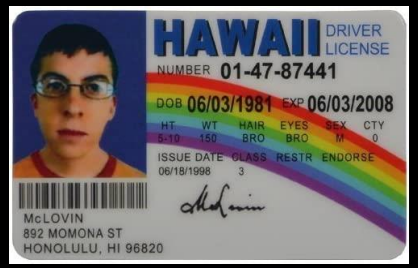
The Really Bad

- **Selling of *(illegal)* firearms**
- **Selling of Fake Identification**
- **Selling of stolen passwords/credential**
- **Crypto shenanigans + Malware**



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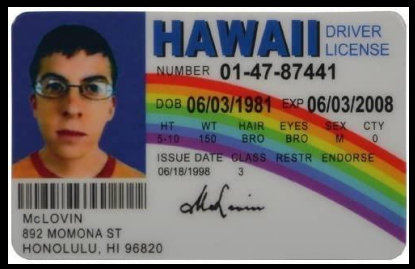

Purchased with bitcoins

The Really Ugly *(unfortunately the most common uses)*

- Selling of drugs
- Human Trafficking + Illegal Pornography
- Hitman Services

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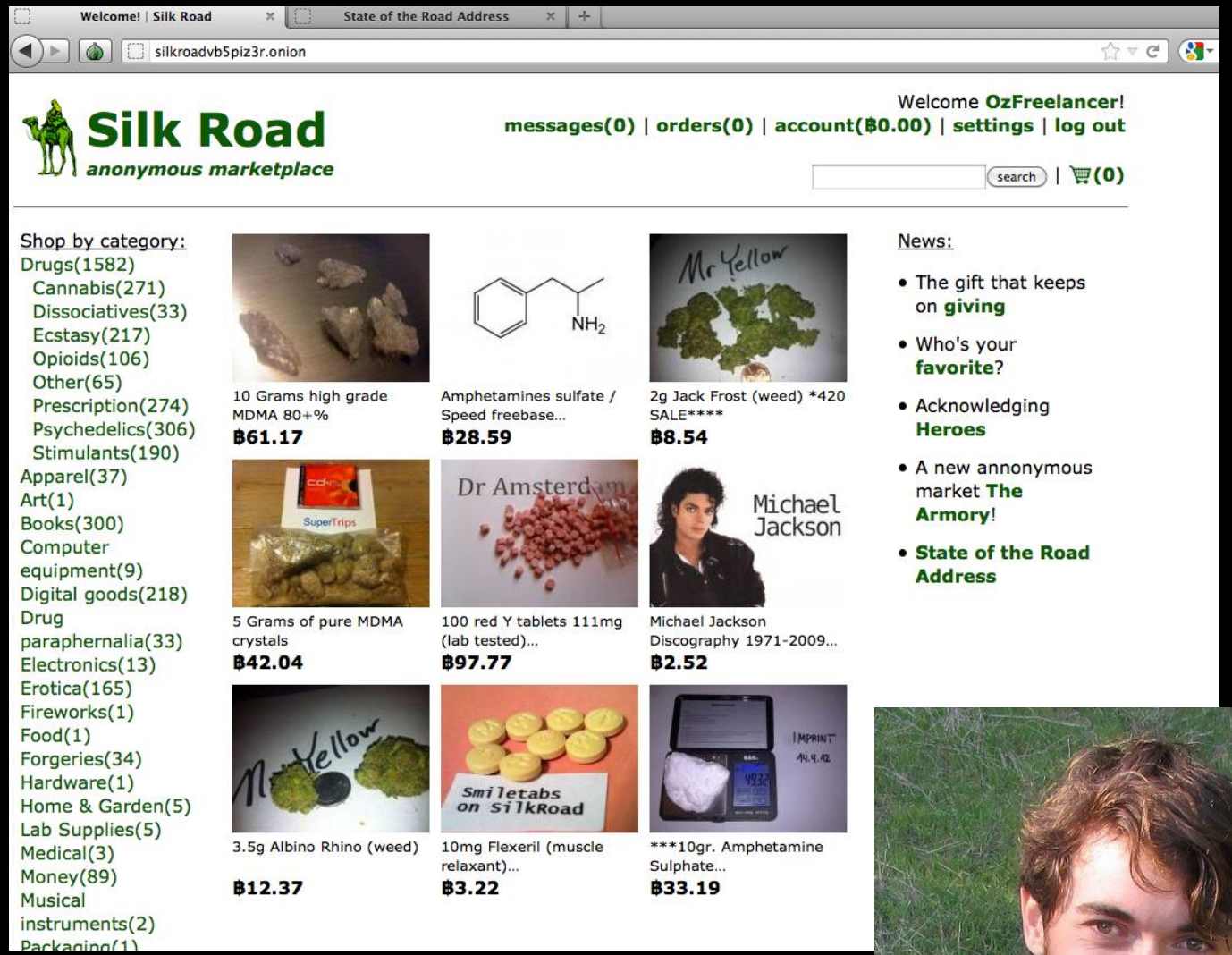
The Silk Road

Famous dark net marketplace for selling drugs, fake identities, and some legal goods

Accumulated $15 million in sales

Started by Ross Ubricht in 2011
→ Advocate for free market, Libertarian politics
→ Wanted a place “where you could buy anything anonymously with no trail whatsoever”

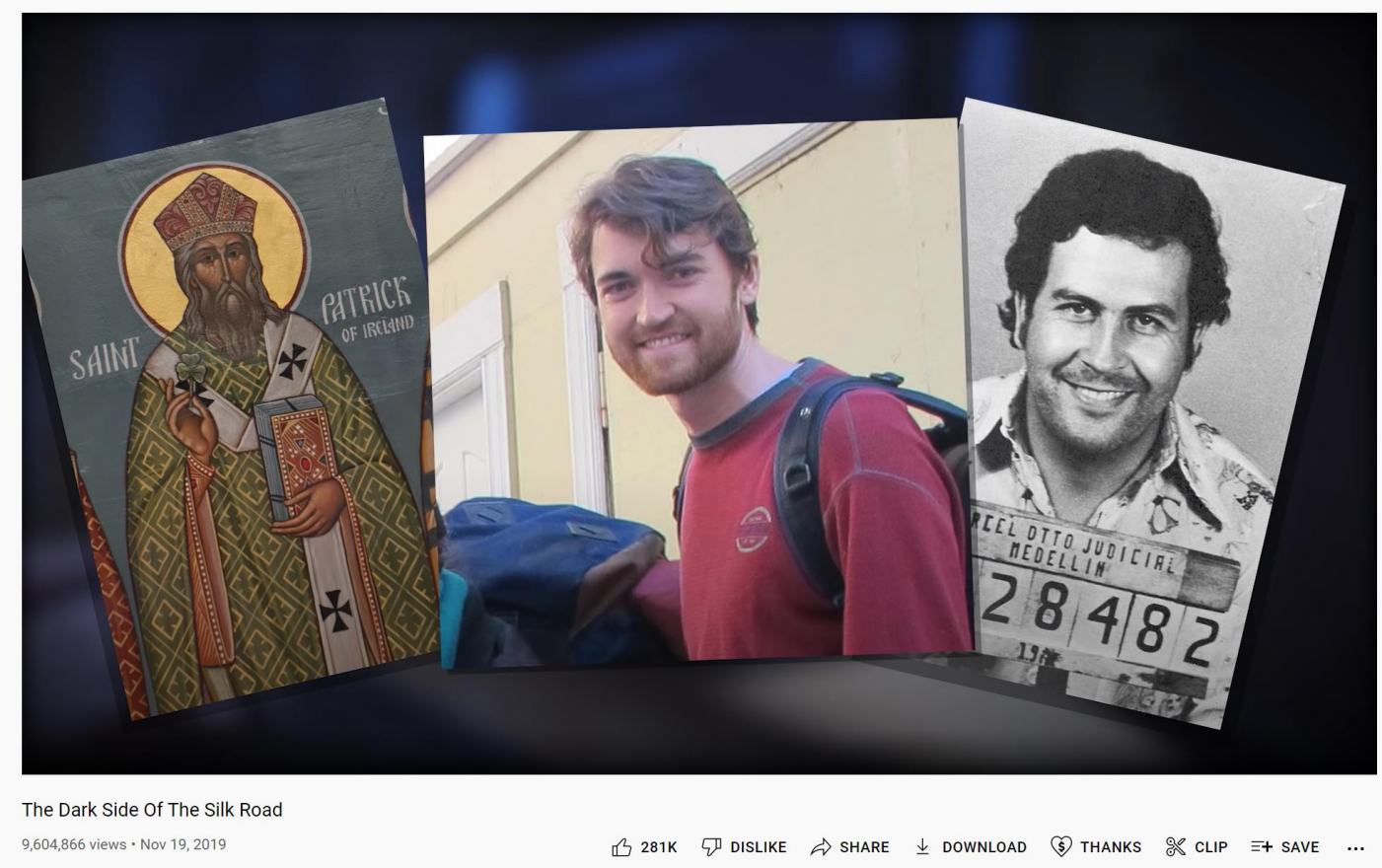
Arrested in 2013 after DEA+FBI tracked him to a San Francisco library
→ How? He posted on stack overflow with his real name (lmao)



Ross Urbricht
Aka “Dread Pirate Roberts”

Serving double life sentence in jail (rip bozo) … also allegedly hired several hitman

More…



https://www.youtube.com/watch?v=GpMP6Nh3FvU&ab_channel=BarelySociable

Legality and Policing the Darknet

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BUT, when you start engaging in illegal activities, then you have broken the law

Because the dark web is being used more as a criminal platform, law enforcement presence has also increased

How to find and arrest criminals?

- Going undercover
- Seizure of illegal websites + data
- (Legal*) malware installation

Conclusion

There are parts on the internet we cannot normally access

Unfortunately, these parts host some very evil content

You should be aware that these places exist, but I recommend not visiting them

Anonymity and privacy on the internet can be a sensitive subject, but there are tools (**TOR**) that can be used to boost your privacy

We will talk more about security and privacy on the internet in the coming weeks