



# The Dark Web

What is it?

Is it dangerous?

Why would I want to use it?

This presentation is for those who are curious



# The Dark Web

# There are three Webs

The Clear Web

aka ClearNet or Surface Web

The Deep Web

The Dark Web

# What is the Clear Web?

It's the web that we all use every day

Retail

Banking

News

Email

and more

# What is the Deep Web?

It's the Clear Web that isn't indexed by search engines

Pay-walled websites

Membership websites

and more

The Deep Web includes the Computer Club's website because we asked search engines not to index it.

# What is the Size of the Deep Web?

CSO Online estimates that 96% to 99% of all data on the Internet is in the Deep Web

Source: *What is the dark web? How to access it and what you'll find*, Darren Guccione, April 2, 2024, <https://www.csoonline.com/article/564313/what-is-the-dark-web-how-to-access-it-and-what-youll-find.html>

# What is the Dark Web?

It's more than one network

The best-known networks are:

Tor

I2P (The Invisible Internet Project)

hyphanet (known as Freenet until mid 2023)

Custom networks can be created



# Should I Use the Dark Web?

What is your personal threat model?



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Your threat model is not my threat model.



3:42 AM · May 15, 2017



# Should I Use the Dark Web?

What is your personal threat model?

Who am I and what am I doing here?

Who or what might try to mess with me, and how?

How much can I tolerate to protect myself?

*Source: How I learned to stop worrying (mostly) and love my threat model, Sean Gallagher, July 8, 2017, <https://arstechnica.com/information-technology/2017/07/how-i-learned-to-stop-worrying-mostly-and-love-my-threat-model/>*

# What is Tor?

It offers privacy and anonymity when accessing Clear Web websites

It offers self-contained private and anonymous services which are known as onion services

The Tor Browser is used to access Tor

Source: *A Tor Overview*, <https://2019.www.torproject.org/about/overview.html.en>

Going Deeper: *How Does Tor Really Work? The Definitive Visual Guide (2023)*, Autumn Skerritt, June 16, 2023, <https://skerritt.blog/how-does-tor-really-work/>

# Who Uses Tor?

Individuals and families to prevent tracking

Journalists to communicate with whistleblowers and dissidents

NGOs to allow workers to communicate while in a foreign country

Corporations to conduct competitive analysis and prevent employee tracking

Source: *A Tor Overview*, <https://2019.www.torproject.org/about/overview.html.en>

# What Does the Tor Browser Do?

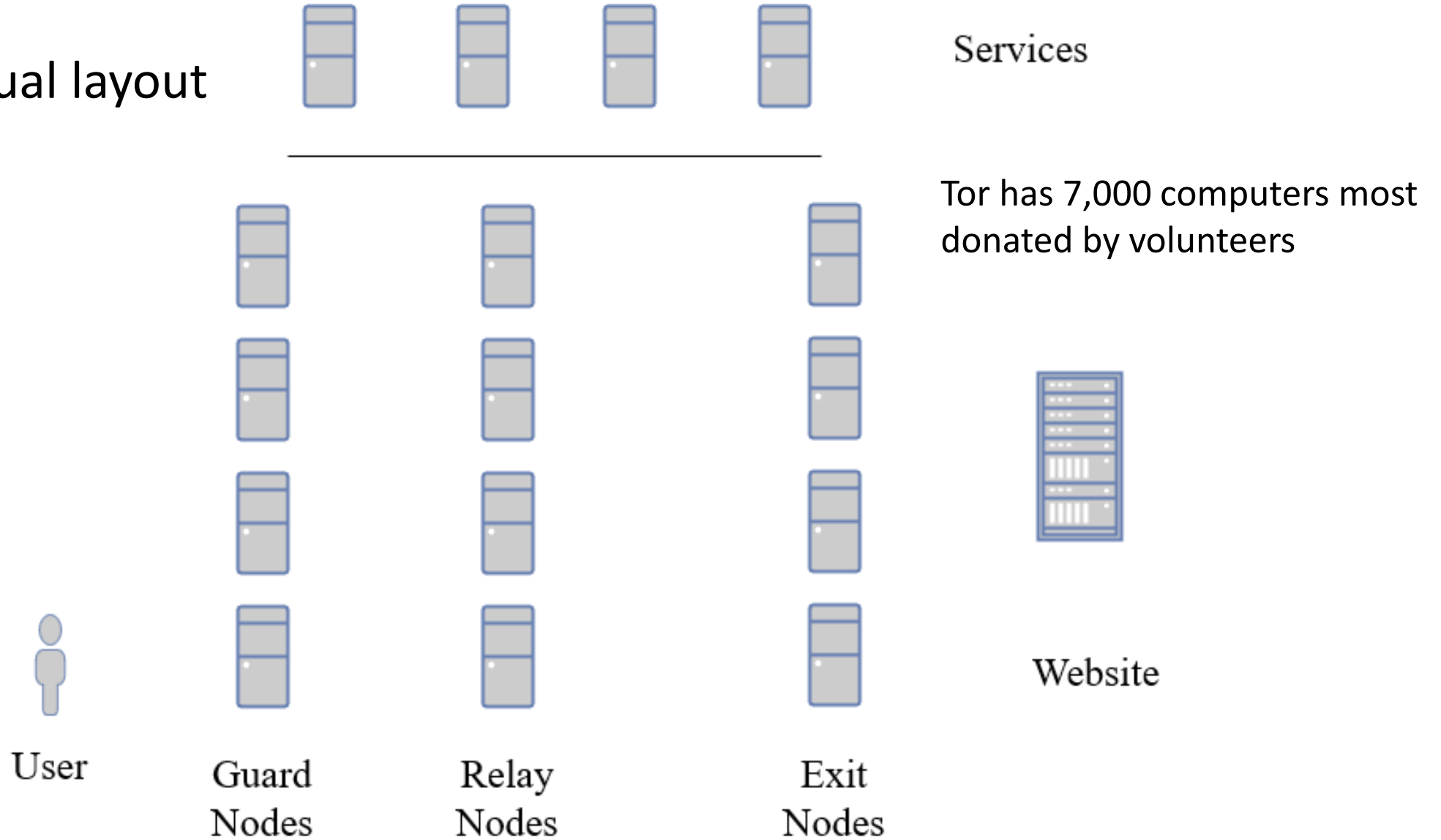
It blocks trackers. Third-party trackers and ads can't follow you

It defends against surveillance. Watchers can't see what websites you visit.

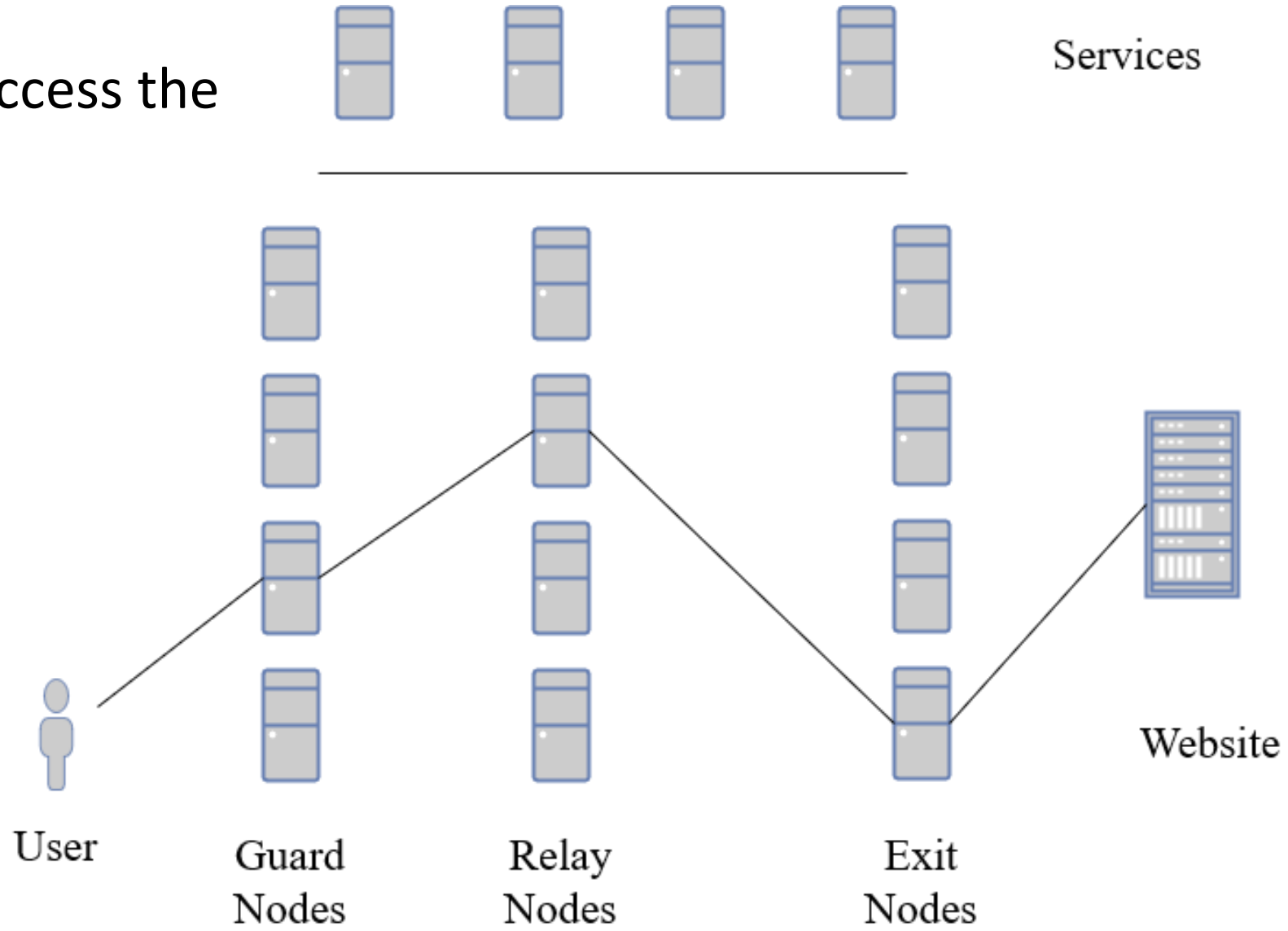
It resists browser fingerprinting. It aims to make all users look the same.

Source: *Browse Privately. Explore Freely. – Defend yourself against tracking and surveillance. Circumvent censorship.* <https://www.torproject.org/>

# Tor's conceptual layout



# Using Tor to access the clear web





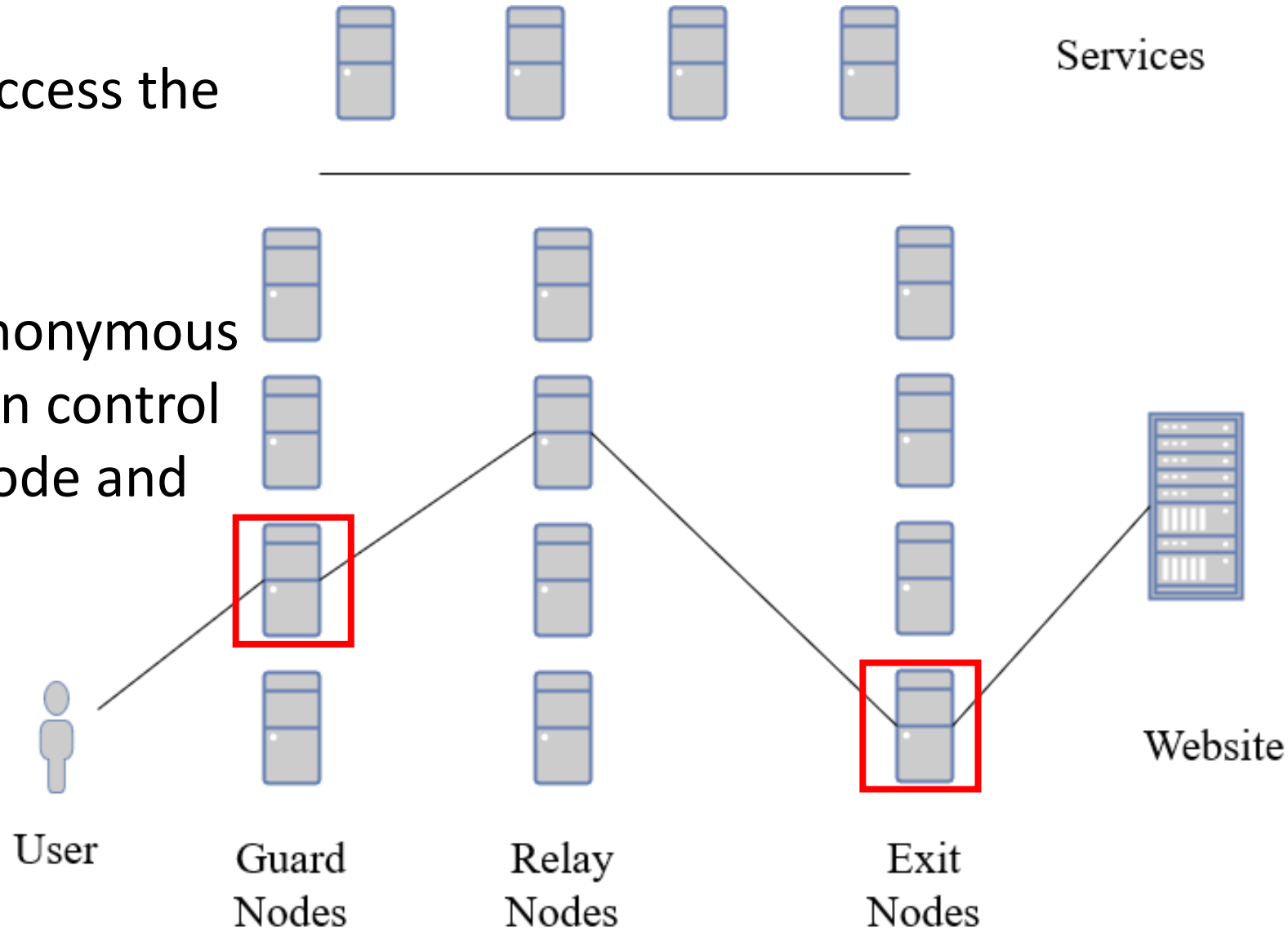
# Is Accessing the Clear Web Via Tor Dangerous?

Tor cannot protect users from some observers

Source: *What attacks remain against onion routing?*,  
<https://support.torproject.org/about/attacks-on-onion-routing/>

Using Tor to access the clear web

You are not anonymous if someone can control your Guard Node and Exit Node.



# Is Accessing the Clear Web Via Tor Dangerous?

Criminals do not have the resources to break Tor

If you are concerned that a nation-state actor might collect your information or identify you, yes.

Going Deeper: *Tor and its Discontents*, thaddeus t. grugq, Dec 19, 2016,  
<https://medium.com/@thegrugq/tor-and-its-discontents-ef5164845908>

# Use a VPN Instead to Access the Clear Web

See the VPN article in the Computer Club's May newsletter for a beginner's explanation

The newsletter is on the Computer Club's website,  
[wvcomputerclub.org](http://wvcomputerclub.org)

Going Deeper: *Tor and its Discontents*, thaddeus t. grugq, Dec 19, 2016,  
<https://medium.com/@thegrugq/tor-and-its-discontents-ef5164845908>

# Use a VPN Instead to Access the Clear Web

A VPN is a Virtual Private Network

A VPN creates an encrypted tunnel (a pipe) through which your traffic flows

A VPN changes your Internet address to a different Internet address that only you and the VPN provider know

It is important to use a VPN provider that cannot be forced to reveal your identity

# What are Tor Onion Services?

Onion services are services, including websites, that can only be accessed over Tor

Any website can also be an onion site

# Accessing Tor Onion Services

## The Tor Browser

# Some Malicious Tor Services

Sell illegal  
drugs,  
guns,  
stolen credit cards and driver's licenses,  
human and sex trafficking

Offer the services of mercenaries and assassins

Source: *How does the Dark Web Influence Human (and Sex) Trafficking? What Security Implementations are Involved in the Dark Web?*, Kelleytina Williams and Jean Muhammed, <https://par.nsf.gov/servlets/purl/10284706>



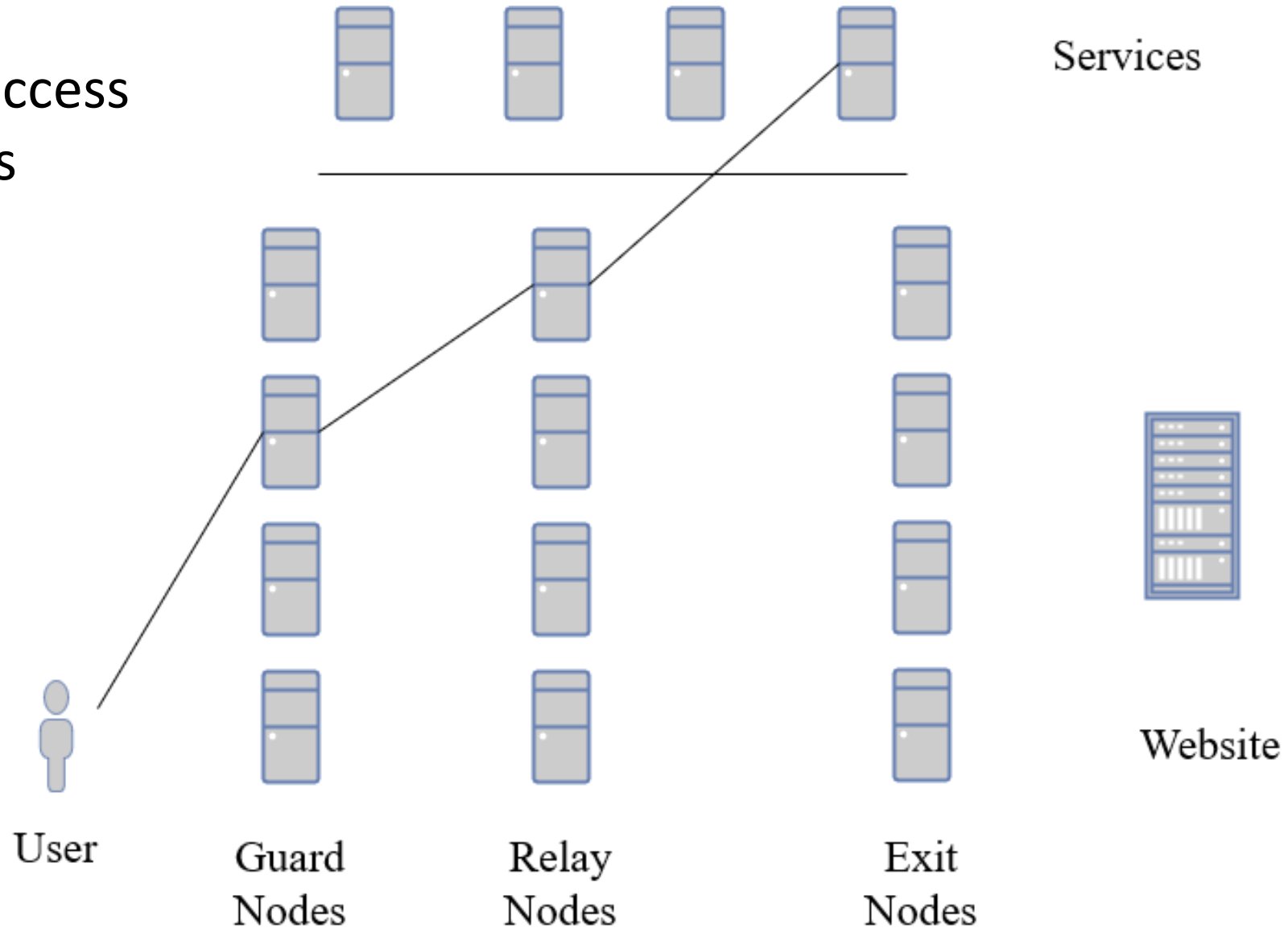
# Some Benign Tor Services

- ProPublica
- The New York Times
- Deutsche Welle
- BBC
- Facebook
- The Intercept\_
- Front Line Defenders
- Freedom of the Press Foundation
- Privacy Matters
- Electronic Frontier Foundation
- Surveillance Self-Defense
- Amnesty International
- Proton
- and more

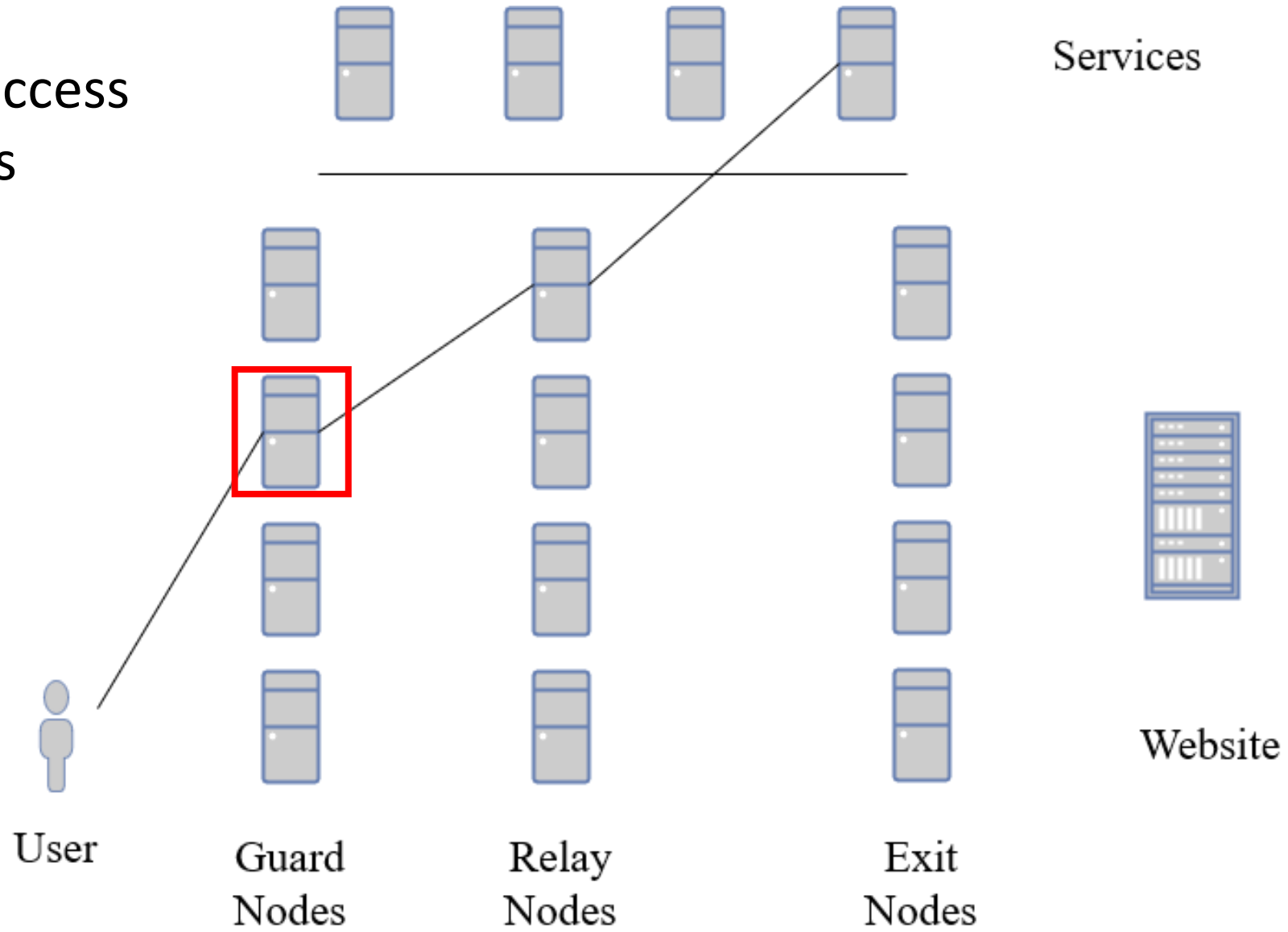
Source: <https://community.torproject.org/onion-services/>

Source: <https://proton.me/tor>

# Using Tor to access onion services

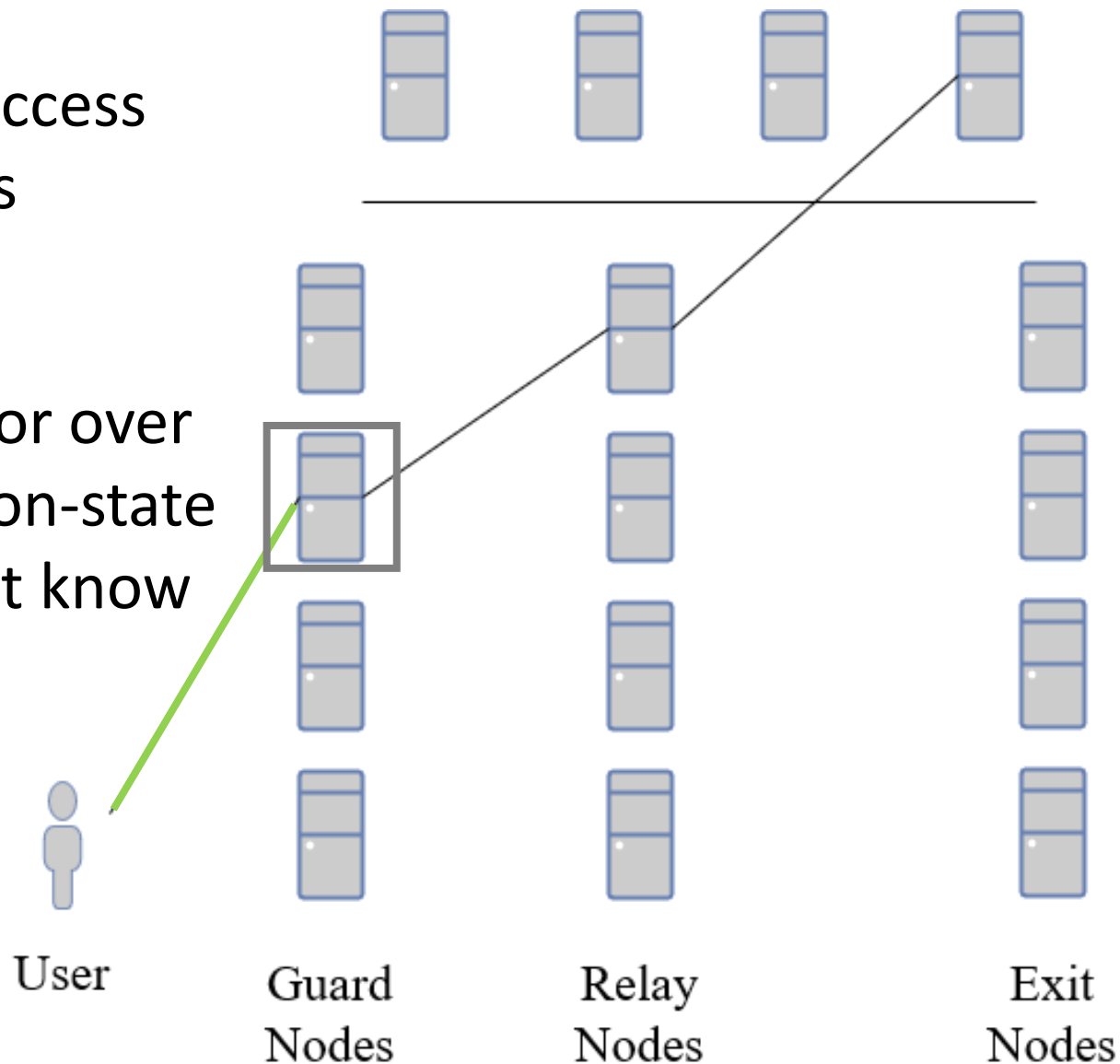


# Using Tor to access onion services



Using Tor to access onion services

When using Tor over VPN, the nation-state actor does not know who you are.



Services

The safest VPN choice is Proton's Tor over VPN.

You will need to use Firefox to access services



Website

# In Conclusion

You would use Tor to get information from the Clear Web or Onion Services if your country blocks  
access to websites, or  
access to VPNs

Tor provides bridges such as Web Tunnel which makes Tor traffic look like encrypted website traffic and changes your Internet address which enables access to Tor

Source: *Hiding in plain sight: Introducing Web Tunnel*, shelikhoo, ggus, March 12, 2024, <https://blog.torproject.org/introducing-webtunnel-evading-censorship-by-hiding-in-plain-sight/>

# In Conclusion

If you use Tor, learn how to use it safely

Using a VPN instead of Tor provides better protection for your personal information

Instructions: *Is Tor safe? Learn how secure Tor is*, Richie Koch, February 20, 2019,  
<https://protonvpn.com/blog/is-tor-safe/>

Questions?