

Day 12: Proxies & VPNs

110110 / 1011101 Hide Identity & Protect Privacy



Used by
BOTH SIDES!



Attackers

Hide Identity



Investigators

Protect Privacy

Proxy Server

IP ? → ?

Hidden Location - ?

Anonymity - ?

VPN

Encrypted Tunnel

Secure Connection

Data Protection



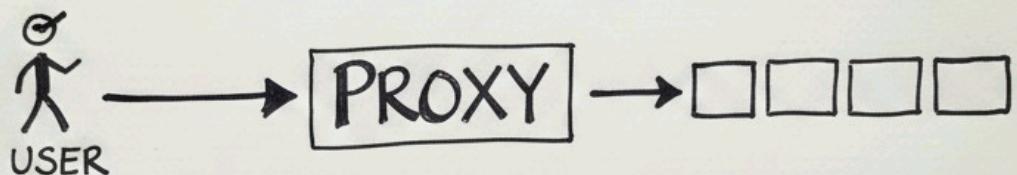
Understanding Both Sides

is Crucial in Cybersecurity!

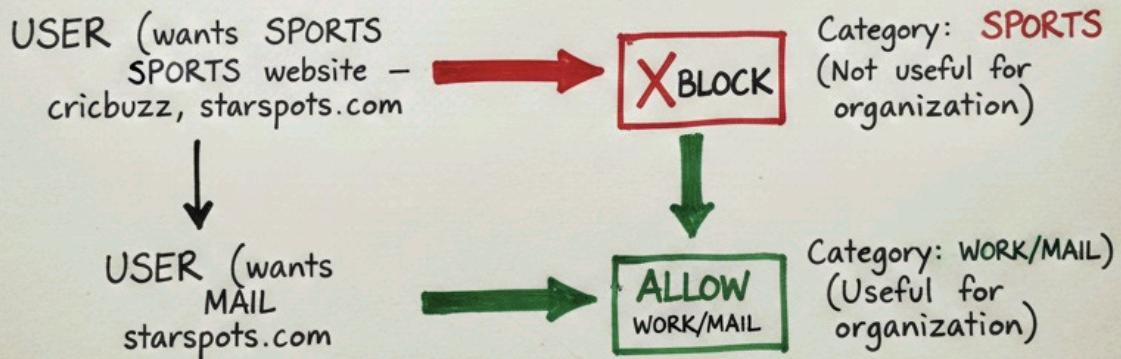


PROXY

Intermediate server. Separates (allow, block) end users from websites.



WEB RELATED ACTIVITIES: HTTP, HTTPS – CAPTURED BY PROXY



CATEGORIES:

- SPORTS: cricbluz, starspots.com
- EDUCATIONAL: Jntuk
- SOCIAL facebook.com, instagram.com
- GENERAL, POLITICAL, UNWANTED,...

🔍 What You're Seeing

- ✓ A web-based proxy service
- ✓ Works directly in your browser
- ✓ No installation required

Example: Hide.me Free Proxy

⚙️ Proxy Workflow

1. www.hide.me/proxy
2. You enter a website URL
3. Proxy fetches the site for you
→ Your real IP is hidden



✅ Features Shown

- ✓ Masks IP address & select proxy location
(e.g., Netherlands)
- ✓ Instant anonymous browsing
- ✓ No account needed



→ Your real IP is hidden

⚠️ Important Limitations

- | | |
|----------------------------------|----------------------------------|
| ✗ No full encryption | ✗ ISP can still see proxy usage |
| ✗ Browser-only protection | ✗ Browser-only protection |
| ✗ Not safe for banking or logins | ✗ Not safe for banking or logins |



The screenshot shows the Google Chrome settings interface. On the left, a sidebar lists various settings categories: You and Google, Autofill and passwords, Privacy and security, Performance, AI innovations, Appearance, Search engine, Default browser, On startup, Languages, and Downloads. A vertical scroll bar is visible on the far left. On the right, a main panel displays the 'System' section of the settings. At the top of this panel is a search bar containing the text 'prox'. Below the search bar, there are four toggle switch options: 'Continue running background apps when Google Chrome is closed' (on), 'Use graphics acceleration when available' (on), 'Show system notifications about Chrome features and tips' (on), and 'Open your computer's proxy settings' (off). A callout bubble with a white border and black text points to the fourth option, stating: 'We can manually set the proxy on browser'.

Settings

Q prox

System

- Continue running background apps when Google Chrome is closed
- Use graphics acceleration when available
- Show system notifications about Chrome features and tips
- Open your computer's proxy settings

We can manually set the proxy on browser

Network & Internet > Proxy

Use a proxy server for Ethernet or Wi-Fi connections. These settings don't apply to VPN connections.

Automatic proxy configuration

Automatic

Use setup script
Off

Manual proxy configuration

Use a proxy
On

Edit proxy server

Use a proxy server

On

Proxy IP address

127.0.0.1

Port

8080

Use the proxy server except for addresses that start with the following entries.

Use semicolons (;) to separate entries.

*.local

Don't use the proxy server for local (intranet) addresses

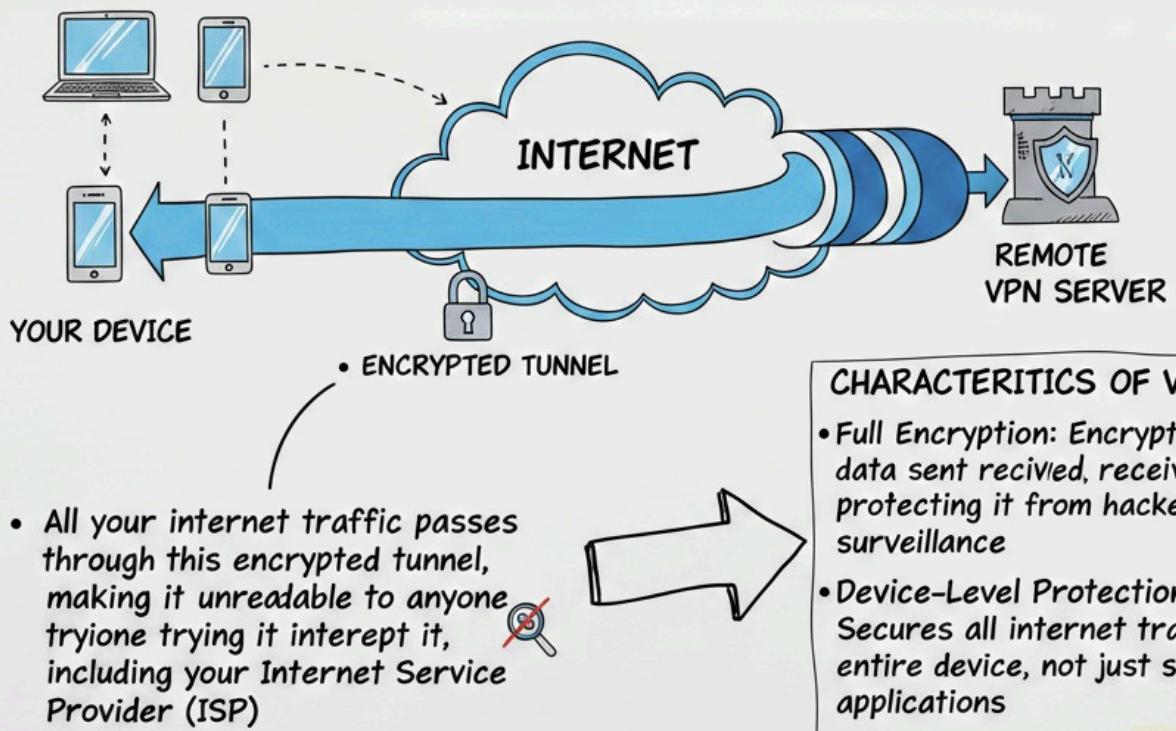
Save

Cancel

 Get help

 Give feedback

WHAT IS A VPN (VIRTUAL PRIVATE NETWORK)?



CHARACTERISTICS OF VPNs:

- Full Encryption: Encrypts all data sent received, received, protecting it from hackers, ISS and surveillance
- Device-Level Protection: Secures all internet traffic on your entire device, not just specific applications



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Types of VPNs & Why to Use Them



Understand the different VPN types & their best use cases.

Remote Access VPN

What is it?

Creates a secure, encrypted tunnel to a company network



Why Use It?

- ✓ Secure remote work
- ✓ Access internal resources

Site-to-Site VPN

What is it?

Connects entire networks securely (Office A to Office B)



Why Use It?

- ✓ Link company branches
- ✓ Secure cloud connections
- ✓ Examples: IPsec, MPLS VPNs

Mobile VPN

What is it?

- Stable, secure VPN connections for mobile devices
- ✓ Secure on-the-go access
- ✓ Handles disconnects gracefully
- ✓ Examples: IKEv2, OpenVPN, Connect



Specialty VPNs

Onion over VPN

- ✓ Extra privacy layers
- ✓ Improves Tor anonymity



Rotating IP VPN

- ✓ Frequently changing IPs
- ✓ Great for web scraping & bypassing blocks

✓ Examples: Frotton VPN, NordVPN, Mullvad VPN



HOW DOES A VPN WORK?

