

Name: _____

Date: _____

Score: _____

Best Free VPN

Analyzing data monetization risks, bandwidth quotas, and server restrictions on free VPNs.

EVALUATING FREE VPNS LEARNING OVERVIEW

LEARNER

STUDENT STATUS

Network Defender Track

SECURE

CONNECTION STATUS

Shielding data packets

100%

LEAK DEFENSE

DNS & IPv6 leak protection

Welcome! This activity packet guides you through evaluating free VPN services. You will explore data harvesting risks, monthly bandwidth quotas, restricted server locations, tracker injection, and security tradeoffs.

WORKSHEET CHECKPOINTS

- ☐ **Part 1-4:** Master VPN and network security configurations.
- ☐ **Part 5-7:** Solve crossword & word search puzzles.
- ☐ **Part 8-9:** Solve case studies & cipher challenge.
- ☐ **Part 10:** Review basic & advanced FAQ pages.
- ☐ **Part 11:** Explore 10 interesting real-world facts.

Open the VPN.com Best VPNs Guide

URL: <https://www.vpn.com/vpn/best-free-vpn/>

Your Free VPN Evaluation Learning Roadmap

- Evaluate data monetization risks and logging policies of free VPNs.
- Manage daily or monthly bandwidth quotas and speed limits.
- Analyze server country constraints and physical location options.
- Implement security controls to prevent tracking on free connections.
- Compare performance metrics between free tiers and paid plans.

EVALUATING FREE VPNS INSTRUCTIONS

Answer the multiple choice and true/false questions, complete the fill-in-the-blank sentences using the word bank, match definitions, and solve the crossword and word search puzzles. Apply your knowledge to security tradeoffs and data harvesting.

DATA HARVESTING RISKS & SERVER LIMITS (INTRODUCTION)

Free VPN services often introduce severe security tradeoffs, including bandwidth quotas, limited server locations, and risk of ad-tracker script injection. Users must evaluate these constraints against secure, unlimited alternatives like Proton VPN's free tier.

READ EACH CHECKPOINT CAREFULLY AND SELECT OR WRITE THE CORRECT RESPONSE.

Checkpoint 1: Multiple Choice Challenge

1 What is the most common monetization method used by predatory free VPNs?

- ☐ A) Selling user data
- ☐ B) Hardware leasing
- ☐ C) Government grants
- ☐ D) Paid donations

2 Which provider offers a reliable free plan with no monthly bandwidth limits?

- ☐ A) Proton VPN
- ☐ B) Windscribe
- ☐ C) TunnelBear
- ☐ D) Hide.me

3 What is the standard monthly bandwidth cap on Windscribe's free plan?

- ☐ A) Ten gigabytes
- ☐ B) Two gigabytes
- ☐ C) Fifty gigabytes
- ☐ D) Five hundred megabytes

4 How many server countries are typically available on Proton VPN's free plan?

- ☐ A) Five countries
- ☐ B) Fifty countries
- ☐ C) One country
- ☐ D) None

5 What tracking mechanism is commonly injected by free mobile VPN apps?

- ☐ A) Ad trackers
- ☐ B) Registry keys
- ☐ C) Root certificates
- ☐ D) Firmware updates

Checkpoint 2: True or False Challenge

6 Question 6

Proton VPN's free tier does not enforce monthly bandwidth data limits.

☐ True ☐ False

7 Question 7

Free VPN service providers never log user IP addresses or connection timestamps.

☐ True ☐ False

8 Question 8

Predatory free VPNs often sell user browsing history to third-party ad networks.

☐ True ☐ False

9 Question 9

Windscribe's free plan allows users to access unlimited server locations worldwide.

☐ True ☐ False

10 Question 10

Ad trackers are commonly injected into the web traffic of free VPN applications.

☐ True ☐ False

Checkpoint 3: Key Term Insertion

Read each sentence below and fill in the blank with the correct term from the Word Bank.

1. Free VPNs generate revenue through _____ policies that log and sell user histories. _____ policies that log and sell user histories.
2. The most popular unlimited bandwidth free service is provided by _____.
3. To get 10GB of free monthly data, users can sign up for _____.
4. Proton VPN's free tier restricts routing to a limit of _____ locations.
5. Predatory free clients insert hidden _____ into web traffic. _____ into web traffic.
6. Encryption reduces the raw _____ available for streaming on free tiers. _____ available for streaming on free tiers.

VOCABULARY WORD BANK

DATAMONETIZE
ADTRACKERS

PROTONVPN
COOKIES

WINDSCRIBE
BANDWIDTH

FIVECOUNTRIES
THROTTLING

Write your answers here:

- | | | | |
|----|----------------------|----|----------------------|
| 1. | <input type="text"/> | 2. | <input type="text"/> |
| 3. | <input type="text"/> | 4. | <input type="text"/> |
| 5. | <input type="text"/> | 6. | <input type="text"/> |

Checkpoint 4: Domain Concept Match

DEFINITION MATCHING

Match each vocabulary term on the left with its correct definition on the right by writing the corresponding letter (A-H) in the fillable input box.

DATAMONETIZE

E Injected script tracking user traffic.

PROTONVPN

A Selling user browsing history.

WINDSCRIBE

F Local browser data storage tokens.

FIVECOUNTRIES

C Ten gigabyte cap free provider.

ADTRACKERS

D Proton VPN free tier locations limit.

COOKIES

G Capacity cap limiting data flow.

BANDWIDTH

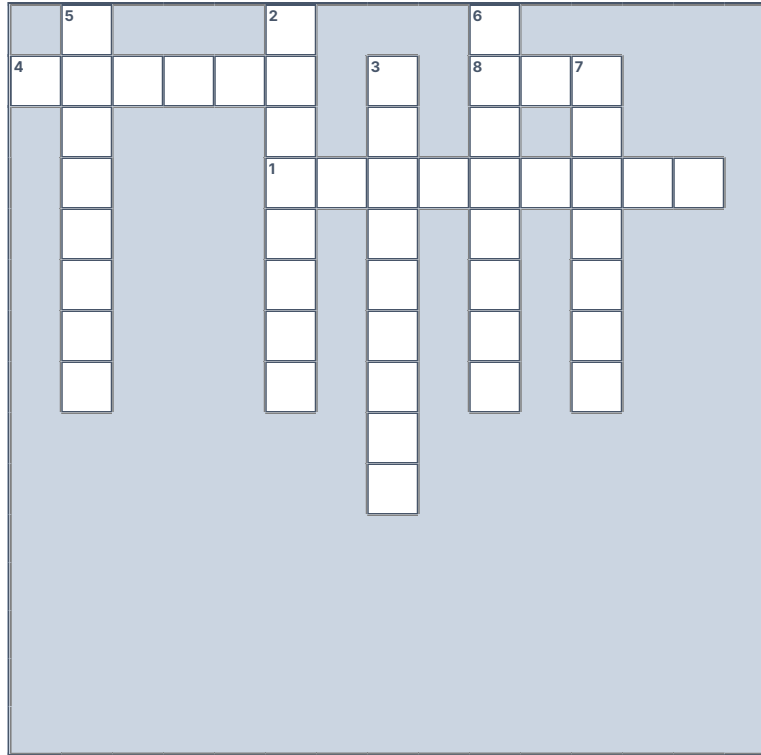
H ISP speed reduction.

THROTTLING

B Unlimited free bandwidth provider.

Checkpoint 5: Crossword Puzzle

Solve the crossword puzzle by typing letters into the active white boxes. The numbers correspond to the clues below.



ACROSS

1. Process of wrapping data packets inside other packets (9)
4. Remote server that routes traffic and hides your IP (6)
8. Internet Service Provider, logs traffic unless encrypted (3)

DOWN

2. Rules determining how data is sent and encrypted (8)
3. Rate of data transfer across a path (9)
5. Blocking site access based on location (8)
6. Security system that monitors and blocks traffic (8)
7. State of being free from tracking or surveillance (7)

Checkpoint 5 Alternative: Accessible Crossword Clues

Screen-reader and keyboard users can type the crossword answers directly in the text fields below.

ACROSS CLUES

1 Across: Selling user browsing history. (12 letters):

3 Across: Ten gigabyte cap free provider. (10 letters):

5 Across: Injected script tracking user traffic. (10 letters):

7 Across: Capacity cap limiting data flow. (9 letters):

DOWN CLUES

2 Down: Unlimited free bandwidth provider. (9 letters):

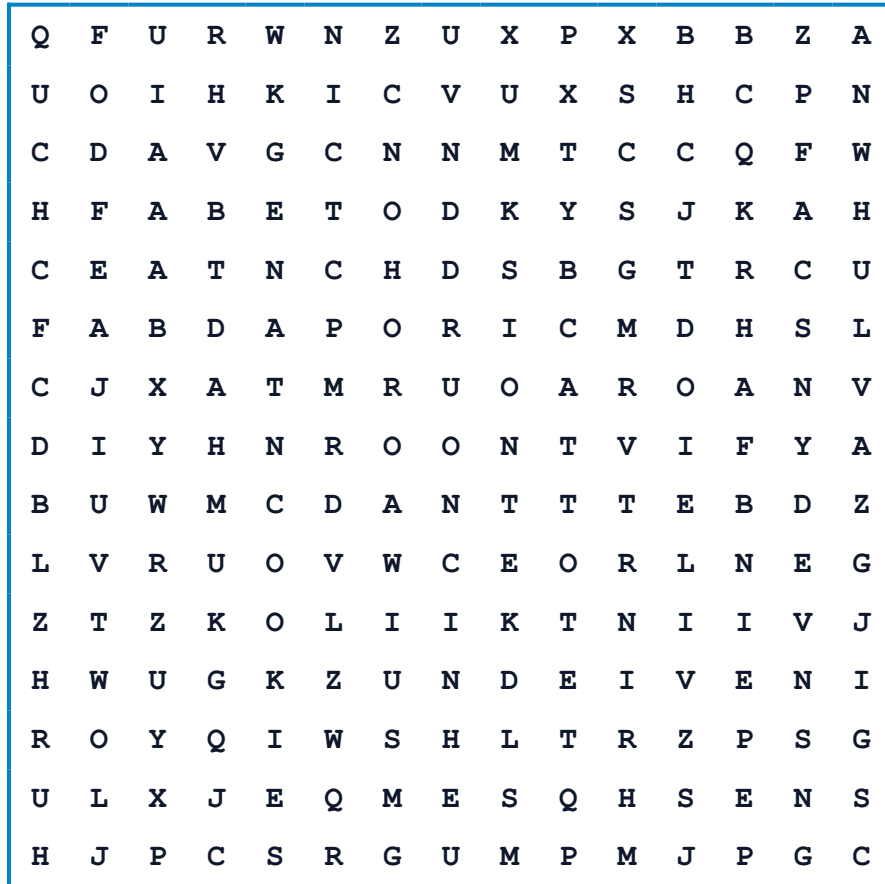
4 Down: Proton VPN free tier locations limit. (13 letters):

6 Down: Local browser data storage tokens. (7 letters):

8 Down: ISP speed reduction. (10 letters):

Checkpoint 6: Hidden Word Search

Find the 8 key vocabulary terms hidden in the grid below. Words can be horizontal, vertical, or diagonal.



VOCABULARY WORD LIST

DATAMONETIZE
ADTRACKERS

PROTONVPN
COOKIES

WINDSCRIBE
BANDWIDTH

FIVECOUNTRIES
THROTTLING

Checkpoint 6 Alternative: Accessible Vocabulary Matching

Match each of the 8 vocabulary terms from the Word Search to its correct definition by writing the letter (A-H) in the blank space.

VOCABULARY TERMS

- A. DATAMONETIZE
- B. PROTONVPN
- C. WINDSCRIBE
- D. FIVECOUNTRIES
- E. ADTRACKERS
- F. COOKIES
- G. BANDWIDTH
- H. THROTTLING

DEFINITIONS & MATCH FIELDS

- 1. Selling user browsing history.
- 2. Unlimited free bandwidth provider.
- 3. Ten gigabyte cap free provider.
- 4. Proton VPN free tier locations limit.
- 5. Injected script tracking user traffic.
- 6. Local browser data storage tokens.
- 7. Capacity cap limiting data flow.
- 8. ISP speed reduction.

Checkpoint 7: Scrambled Word Challenge

Unscramble the letters below to reveal key domain brokerage concepts and terms. Write your answers in the input boxes provided.

1. MAETNODZTIED

5. RERCDATSRA

2. OTNVPROP

6. SKEIOOC

3. IERNSCIWBD

7. HTDWIADNB

4. UFNTVREOCESII

8. GTLITRHNHON

Checkpoint 8: Domain Brokerage Case Studies

Apply the concepts you have learned to solve the real-world scenarios below.



CASE STUDY 1: DATA HARVESTING

Scenario: A student downloads a generic free VPN on their phone to access social media. They notice that they are suddenly bombarded with highly targeted advertisements based on their search terms.

Discussion Question: What business model is this free VPN provider using to generate revenue?



CASE STUDY 2: BANDWIDTH QUOTAS

Scenario: An employee uses Windscribe's free tier to work remotely. After downloading several large software packages, their connection suddenly disconnects and refuses to rejoin.

Discussion Question: What network restriction did the employee hit during their downloads?

Final Challenge: Decrypting the Cipher

A network engineer secures routing channels and client tunnels. Use the Letter-to-Number key below to decrypt the message by writing the matching letters in the blank spaces.

LETTER-TO-NUMBER ENCRYPTION KEY

A=1	B=2	C=3	D=4	E=5	F=6	G=7	H=8	I=9	J=10	K=11	L=12	M=13
N=14	O=15	P=16	Q=17	R=18	S=19	T=20	U=21	V=22	W=23	X=24	Y=25	Z=26

16 18 15 20 15 14 22 16 14

$\frac{\quad}{15}$
 $\frac{\quad}{6}$
 $\frac{\quad}{6}$
 $\frac{\quad}{5}$
 $\frac{\quad}{18}$
 $\frac{\quad}{19}$
 $\frac{\quad}{21}$
 $\frac{\quad}{14}$
 $\frac{\quad}{12}$
 $\frac{\quad}{9}$
 $\frac{\quad}{13}$
 $\frac{\quad}{9}$
 $\frac{\quad}{20}$
 $\frac{\quad}{5}$
 $\frac{\quad}{4}$
 $\frac{\quad}{2}$
 $\frac{\quad}{1}$
 $\frac{\quad}{14}$
 $\frac{\quad}{4}$
 $\frac{\quad}{23}$
 $\frac{\quad}{9}$
 $\frac{\quad}{4}$
 $\frac{\quad}{20}$
 $\frac{\quad}{8}$

6
18
5
5
20
9
5
18

Decoded cybersecurity message:

TIP: EACH NUMBER REPRESENTS THE POSITION OF THAT LETTER IN THE ALPHABET (E.G. 1 = A, 2 = B, 26 = Z).

Checkpoint 10: Basic VPN FAQs (Part A)

Review the most common questions and answers regarding Virtual Private Networks (VPNs) and tunneling.

Q1: How do free VPNs make money?

predatory free VPNs log and sell user browsing history, inject advertisements, or restrict features to upsell paid plans.

Q2: Which free VPN is the safest?

Proton VPN's free tier is widely considered safe because it operates under a strict no-logs policy and offers unlimited data.

Q3: Do free VPNs limit bandwidth?

Yes, most free services impose monthly data caps ranging from 500MB to 10GB to limit resource consumption.

Q4: What is data harvesting?

The practice of collecting and compiling user activity logs to sell to marketing and advertising companies.

Q5: Why are there so few server locations on free tiers?

To minimize hosting costs and incentivize users to upgrade to premium plans with global networks.

Checkpoint 10: Basic VPN FAQs (Part B)

Review the most common questions and answers regarding Virtual Private Networks (VPNs) and tunneling.

Q6: Can free VPNs leak my IP address?

Yes, many low-quality free VPNs lack DNS and WebRTC leak protection, exposing your true location.

Q7: Do free VPNs support torrenting?

Almost all free tiers block P2P traffic to prevent bandwidth abuse and legal copyright complaints.

Q8: What is an ad tracker?

A script or cookie injected into network traffic to monitor user behavior across multiple websites.

Q9: Are mobile free VPNs safe?

Many mobile app store free VPNs contain hidden tracking code and lack secure encryption standards.

Q10: How does Windscribe's free plan work?

It provides 2GB of data monthly by default, which increases to 10GB if you confirm a valid email address.

Checkpoint 11: Advanced VPN FAQs (Part A)

Explore advanced technical aspects of VPN tunneling protocols, mobile client integrations, and enterprise deployment.

Q1: How do free VPNs inject trackers into HTTP traffic?

They intercept unencrypted HTTP requests at the gateway level and append custom tracking scripts or cookies before delivery.

Q2: Why is Proton VPN's free tier financially viable?

It is supported by their paid premium tier users, allowing them to offer a limited, secure free plan without data monetization.

Q3: What are the risks of root certificate installs on free VPNs?

Some predatory free clients require installing root certificates, allowing them to decrypt secure HTTPS traffic via MITM attacks.

Q4: How does a data quota lock function on client software?

The server monitors usage bytes and sends a tear-down command to the client once the database quota matches the threshold.

Q5: What is the security impact of DNS leak exposure on free VPNs?

It allows local ISPs to record every domain query, rendering the VPN's tunnel encryption useless for privacy.

Checkpoint 11: Advanced VPN FAQs (Part B)

Explore advanced technical aspects of VPN tunneling protocols, mobile client integrations, and enterprise deployment.

Q6: Why do free VPNs cause higher latency congestion?

Because thousands of users are crowded onto a very small number of free server nodes, overloading available bandwidth.

Q7: How can I block tracking cookies injected by VPN clients?

By routing traffic through browser extensions that enforce HTTPS-only and block ad domains at the client level.

Q8: What are Autonomous System Number (ASN) blocks on free VPNs?

Streaming platforms block entire ASN ranges associated with free VPN host centers, preventing bypass attempts.

Q9: How do free VPNs handle DMCA copyright notices?

They block P2P ports entirely to avoid receiving copyright notices and legal actions from content owners.

Q10: What is the Fourteen Eyes risk for free VPN hosting?

If a free host operates within member states, local courts can compel them to log traffic metadata.

Part 11: 10 Real-World VPN Facts & Insights

Review real-world facts regarding VPN encryption speeds, protocol audits, mobile connectivity, and enterprise remote work.

1. VPN INSIGHT

Predatory free VPNs often monetize services by harvesting user logs and selling them to marketers.

2. VPN INSIGHT

Proton VPN provides a zero-logs free plan with unlimited bandwidth supported by premium subscriptions.

3. VPN INSIGHT

Windscribe offers a 10GB free monthly data quota if users register with a verified email address.

4. VPN INSIGHT

Free VPN tiers restrict server selections to a handful of countries to reduce operational costs.

5. VPN INSIGHT

Ad trackers are frequently embedded in the code of free mobile VPN client applications.

6. VPN INSIGHT

Many free VPN clients lack WebRTC leak protection, leaking the user's local IP address.

7. VPN INSIGHT

Peer-to-peer file sharing is blocked on almost all free VPN nodes to prevent network abuse.

8. VPN INSIGHT

Free VPN servers suffer from severe congestion, causing high ping latency and slow speeds.

9. VPN INSIGHT

Predatory clients can execute man-in-the-middle attacks by forcing root certificate installations.

10. VPN INSIGHT

The Federal Trade Commission has actively audited and warned against predatory free VPN apps.

Technical References & Sources

The study guide and interactive puzzles are compiled from global technical standards, specifications, and regulatory frameworks.

SCHOLARLY & INDUSTRY REFERENCES

- [1] Free VPN Risks and Data Harvesting Practices. Retrieved from <https://www.vpn.com/free-vpn-risks>
- [2] Windscribe Free Tier Terms and Bandwidth Limits. Retrieved from <https://windscribe.com/features/free>
- [3] Proton VPN Free Plan and Country Locations. Retrieved from <https://protonvpn.com/free-vpn>
- [4] FTC Report on Mobile VPN Data Protection Policies. Retrieved from <https://www.ftc.gov/>
- [5] Ad Tracker Injection and Privacy Exposure Analysis. Retrieved from <https://www.eff.org/>
- [6] Browser Cookies and Session Hijacking Methodologies. Retrieved from <https://owasp.org/>
- [7] IETF RFC 2616: Hypertext Transfer Protocol - HTTP/1.1. Retrieved from <https://datatracker.ietf.org/doc/rfc2616/>
- [8] Bandwidth Throttling and Network Traffic Management. Retrieved from <https://www.cloudflare.com/>
- [9] Mobile App Store VPN Security Audit Results. Retrieved from <https://www.vpn.com/reviews/>
- [10] CISA Advisory on Predatory Free VPN Applications. Retrieved from <https://www.cisa.gov/>

Answer Key: Checkpoint 1 - Multiple Choice

1 Data Harvesting

AD NETWORKS

Correct Answer: A

TEACHING NOTE

Predatory free VPNs monetize their service by selling user logs to ad networks.

Citation: Free VPN Risks [Ref 1].

2 Unlimited Data

PROTON VPN

Correct Answer: A

TEACHING NOTE

Proton VPN offers a secure free tier that does not restrict data quotas.

Citation: Proton VPN Free [Ref 3].

3 Windscribe Limit

10GB DATA CAP

Correct Answer: A

TEACHING NOTE

Windscribe limits free users to ten gigabytes of data each month.

Citation: Windscribe Free [Ref 2].

4 Proton Server

FREE LOCATIONS

Correct Answer: A

TEACHING NOTE

Proton VPN's free tier restricts server selection to a few locations.

Citation: Proton VPN Free [Ref 3].

5 Injected Scripts

AD TRACKERS

Correct Answer: A

TEACHING NOTE

Mobile free VPNs frequently inject ad tracking scripts into HTTP traffic.

Citation: Ad Tracker Analysis [Ref 5].

Answer Key: Checkpoint 2 - True or False

6 Data Harvesting

DATA SALES

Correct Answer: True

TEACHING NOTE

Predatory free VPNs monetize their service by selling user logs to ad networks.

Citation: Free VPN Risks [Ref 1].

7 Unlimited Data

PROTON FREE

Correct Answer: False

TEACHING NOTE

Proton VPN offers a secure free tier that does not restrict data quotas.

Citation: Proton VPN Free [Ref 3].

8 Windscribe Limit

MONTHLY LIMIT

Correct Answer: True

TEACHING NOTE

Windscribe limits free users to ten gigabytes of data each month.

Citation: Windscribe Free [Ref 2].

9 Proton Server

LOCATION LIMIT

Correct Answer: False

TEACHING NOTE

Proton VPN's free tier restricts server selection to a few locations.

Citation: Proton VPN Free [Ref 3].

10 Injected Scripts

SCRIPT INJECTION

Correct Answer: True

TEACHING NOTE

Mobile free VPNs frequently inject ad tracking scripts into HTTP traffic.

Citation: Ad Tracker Analysis [Ref 5].

Vocabulary Keys & Grading Rubric

Instructor Grading Rubric: Award 1 point for each correct matching (8 points total) and context term (6 points total).

CHECKPOINT 4: CONCEPT MATCH KEY

A DATAMONETIZE

B PROTONVPN

C WINDSCRIBE

D FIVECOUNTRIES

E ADTRACKERS

F COOKIES

G BANDWIDTH

H THROTTLING

CHECKPOINT 3: KEY TERM KEY

1 DATAMONETIZE

2 PROTONVPN

3 WINDSCRIBE

4 FIVECOUNTRIES

5 ADTRACKERS

6 BANDWIDTH

DISCUSSION NOTES FOR INSTRUCTORS

Valuation Accuracy:

Verify that students understand how domain length, extension (.com, .ai), and commercial search volume drive appraisal pricing.

Escrow Security:

Emphasize that funds are held in licensed third-party holding accounts prior to domain WHOIS transfer verification.

Stealth Representation:

Highlight the role of NDAs and third-party representation in preventing speculative price gouging during corporate procurement.

Puzzles Keys & Instructor Notes

WORD SEARCH SOLUTION

Q	F	U	R	W	N	Z	U	X	P	X	B	B	Z	A
U	O	I	H	K	I	C	V	U	X	S	H	C	P	N
C	D	A	V	G	C	N	N	M	T	C	C	Q	F	W
H	F	A	B	E	T	O	D	K	Y	S	J	K	A	H
C	E	A	T	N	C	H	D	S	B	G	T	R	C	U
F	A	B	D	A	P	O	R	I	C	M	D	H	S	L
C	J	X	A	T	M	R	U	O	A	R	O	A	N	V
D	I	Y	H	N	R	O	O	N	T	V	I	F	Y	A
B	U	W	M	C	D	A	N	T	T	T	E	B	D	Z
L	V	R	U	O	V	W	C	E	O	R	L	N	E	G
Z	T	Z	K	O	L	I	I	K	T	N	I	I	V	J
H	W	U	G	K	Z	U	N	D	E	I	V	E	N	I
R	O	Y	Q	I	W	S	H	L	T	R	Z	P	S	G
U	L	X	J	E	Q	M	E	S	Q	H	S	E	N	S
H	J	P	C	S	R	G	U	M	P	M	J	P	G	C

CROSSWORD SOLUTION

[illegible]

INSTRUCTOR GUIDE FOR CROSSWORD SOLUTIONS

ACROSS CLUES

1 Across: **TUNNELING** Process of wrapping data packets. (3, 5)

4 Across: **SERVER** Remote computer routing traffic.

8 Across: **ISP** Internet Service Provider. (1, 9)

DOWN CLUES

2 Down: PROTOCOL Rules determining data transmission. (0, 5)

3 Down: BANDWIDTH Rate of data transfer. (1, 7)

5 Down: **GEOBLOCK** Location website restriction.

6 Down: **FIREWALL** Security monitor barrier. (0, 9)

7 Down: **PRIVACY** State of freedom from tracking.
(1, 11)

Scrambled Words & Cipher Solution Key

Grading key for the vocabulary word unscramble activity and Secret Cipher Challenge.

WORD UNSCRAMBLE KEY

1. MAETNODZTIED

DATAMONETIZE

5. RERCDATSRA

ADTRACKERS

2. OTNVPROP

PROTONVPN

6. SKEIOOC

COOKIES

3. IERNSCIWBD

WINDSCRIBE

7. HTDWIADNB

BANDWIDTH

4. UFNTVREOCESII

FIVECOUNTRIES

8. GTLITRNHON

THROTTLING

SECRET CIPHER CHALLENGE KEY

"PROTON VPN OFFERS UNLIMITED BANDWIDTH FREE TIER"

VPN & Network Case Studies Solution Key

A Case Study 1: Data Harvesting

[Instructor Solution](#)

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** A student downloads a generic free VPN on their phone to access social media. They notice that they are suddenly bombarded with highly targeted advertisements based on their search terms.
- **Recommended Strategy & Solution:** The provider is logging the student's browsing activity and selling this demographic data to ad networks.

B Case Study 2: Bandwidth Quotas

[Instructor Solution](#)

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** An employee uses Windscribe's free tier to work remotely. After downloading several large software packages, their connection suddenly disconnects and refuses to rejoin.
- **Recommended Strategy & Solution:** The employee exceeded the free plan's standard 10GB monthly bandwidth limit, disabling routing until the next cycle.