User Perceptions of the Privacy and Usability of Smart DNS: Qualitative Codebooks

S2: What are Smart DNS services primarily used for? *(Cohen's $\kappa = 0.77$)*

- unblock (36)
  - geo-restricted (27)
  - websites (4)
  - restricted (2)
  - age-restricted (1)
- access (20)
  - geo-restricted (19)
- change/mask-ip (6)
  - hide/spoof-geographic-location (2)
- hide/spoof-geographic-location (6)
- similar-to-vpn (6)
- using-dns (2)
- anonymity-on-Internet (1)
- proxy (1)
- N/A (1)

S9 How DNS works *(Cohen's $\kappa = 0.87$)*

- maps-website-to-ip (17)
  - definition (11)
  - describes-steps (4)
  - finds-ip
    - * describes-steps (1)
- maps-domain-to-ip (15)
  - definition (5)
  - describes-steps (1)
- query-recursive-dns (12)
  - describes-steps-detailed (12)
- sdns (8)
  - proxy (4)
    - * definition (3)
    - * describes-steps (1)
  - unblocks-content (3)
    - * definition (2)
    - * describes-steps (1)
  - translates-domains-for-browsers (2)
    - * definition (2)
  - replace-isp-dns (1)
  - router-configuration-manual (1)

M4: Please explain why you think Smart DNS can affect your security and privacy in the way(s) you indicated. *(Cohen's $\kappa = 0.76$)*

- positive-impact (34)
  - limit/prevent-tracking (9)
    - * by-advertisers (1)
    - * by-government (1)
  - hides/masks-ip (8)
  - hides/masks-location (6)
  - anonymity (6)
  - security (5)
  - unblock (3)
  - hides-information (1)
  - verify-domain-validity (1)
- limited/no-impact (16)
  - doesn't-hide/mask-ip (5)
  - no-encryption (4)
  - if-honest/known-provider (2)
  - metadata-still-accessible (2)
  - not-everything-proxied (1)
  - not-intended-for-security (1)
  - police/government-subpeona-data (1)
- negative-impact (9)
  - cannot-trust-sdns/proxy (2)
  - increased-user-attack-surface (2)
  - unblocks-dangerous-websites (2)
  - risk-of-provider-security-breach (1)
  - risk-of-revealing-ip (1)
  - sdns-learns-more (1)
- depends (1)
- unsure (1)
- failed-to-answer (1)
  - don't-know (1)

M8: What was your main goal in using a Smart DNS service? *(Cohen's $\kappa = 0.79$)*

- access (43)
  - geo-restricted (30)
    - * speed-sensitive (1)
  - restricted (8)
  - Netflix (3)
  - government-restricted (1)
- video-stream (12)
  - geo-restricted (9)
    - * Netflix (5)
  - restricted (2)
- privacy (5)
  - mainly-use-vpn (1)
- security (3)
- unblock (3)
  - geo-restricted (1)
  - restricted (1)
- anonymity (2)
- avoid/limit-online-tracking (2)
  - by-government (1)
- free-trial (1)
- proxy (1)
  - decrease-latency (1)
- spoof-location (1)
- torrent-download (1)

- videogame-connectivity (1)

M10: Like other services, Smart DNS services come with a specific set of strengths and weaknesses. Given that Smart DNS services are not the only offerings capable of unblocking geo-fenced websites (for example, some VPN services can do this as well), what motivated you to specifically use Smart DNS? (Cohen's $\kappa = 0.76$)

- lower-latency (18)
- unclear (7)
- recommendation/endorsement (6)
  - by-friend (5)
  - by-youtuber (1)
- don't-know-difference (4)
- better (3)
- cheaper-than-vpn (3)
- more-effective-unblocking (3)
- mainly-use-vpn (2)
- proxies-minimum-to-unblock (2)
- safer-than-vpn (2)
- security (2)
- use-both (2)
- ad-blocking (1)
- added-safety (1)
- anonymity (1)
- curiosity (1)
- easier-to-use (1)
- efficiency (1)
- less-used (1)
- more-accessible (1)
- more-secure-than-vpn (1)
- more-stable-connection (1)
- no-software-needed (1)
- popularity (1)
- privacy-features (1)
- trustworthy (1)
- unfamiliar-with-alternatives (1)
- used-someone-else's (1)

M21: Please describe your view on the overall trustworthiness of Smart DNS. (Cohen's $\kappa = 0.81$)

- positive (33)
  - works-well (10)
  - nothing-bad (7)
  - good-reviews (3)
  - adds-security (3)
  - was-recommended (2)
  - anonymous (1)
  - caveat (1)
    * lack-transparency (1)
  - security-focused-providers (1)
  - trust-security-mechanisms (1)
- negative (12)
  - lack-transparency (5)
    * about-data-privacy (1)
  - assume-untrustworthy (2)
  - may-sell-data (1)
  - access-personal-info (1)

- used-to-break-rules (1)
- for-profit (1)
- positive-contingent (11)
  - provider-reputation (4)
  - good-reviews (3)
  - info-you-share (2)
  - most-are-legitimate (1)
  - paid-or-free (1)
  - provider (1)
  - provider-size (1)
- ambivalent-contingent (4)
  - provider (3)
  - paid-or-free (1)
  - provider-professionalism (1)
- ambivalent (2)
  - may-sell-data (1)
  - no-opinion (1)
- always-some-risk (1)
  - change-internet-path (1)
- unclear (1)

M25: How do you think they determined you were using Smart DNS? (Cohen's $\kappa = 1.0$)

- don't-know (3)
- ip-checks (3)
- location-changes (3)
- sdns-leaked-info (2)
- browser-cache (1)
- faulty-usage (1)
- location-data (1)

M29: Explain answer - Why using SDNS to access content blocked in my geographic region is/is not ethical (Cohen's $\kappa = 0.85$)

- ethical (43)
  - against-geofences (27)
  - free-open-Internet (8)
  - against-censorship (5)
  - paying-for-content (5)
  - not-harming (4)
  - geofence-is-discrimination (3)
  - available-to-others (1)
  - gives-info-access (1)
  - not-available-otherwise (1)
  - not-disabling-blocks (1)
  - not-for-illegal-behavior (1)
  - travel-restrictions (1)
- unethical (7)
  - blocked-for-a-reason (2)
  - bypassing-blocks (2)
  - lying (1)
  - not-paying (1)
  - violates-geographic-TV-rights (1)
- don't-know (5)
- contingent (2)
  - region (1)
  - use-of-access (1)
- ethical-contingent (2)

- – not-for-illegal-behavior (1)
- – reason-for-content-block (1)
- not-my-problem (1)

M31: Explain answer-Why using SDNS to access content blocked in my geographic region is/is not legal (Cohen's κ = 0.77)
- legal (31)
  - – no-local-law-against (7)
  - – not-using-for-criminal-activities (3)
  - – nothing-wrong (2)
  - – paying-for-unblocked-service (2)
  - – blockers-are-the-problem (2)
  - – no-harm-done (2)
  - – no-law-against (2)
  - – available-in-origin-country (1)
  - – mainstream-ads (1)
  - – not-blocked-by-government (1)
  - – others-do-worse (1)
  - – people-do-it (1)
  - – privacy-my-right (1)
  - – ToS-aren't-laws (1)
- don't-know (17)
- not-legal (13)
  - – blocked-for-a-reason (5)
  - – authorities-are-blockers (1)
- contingent (4)
  - – user's-local-laws (3)
  - – use-purpose (1)