

Forgive Us our SYNs: Technical and Ethical Considerations for Measuring Internet Filtering

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We provide an overview of technical and ethical considerations for measuring Internet filtering, focusing on client-side and network side channel techniques. Client-side measurements are any measurement that relies on software deployed on a network vantage point. Users are typically involved in installing and running the measurement software, and informed consent process to ensure users are aware of risks in doing so should be followed. However, the relative risk is highly contextually specific, and can vary depending on the location and background of the user running the measurement. Network side channel techniques do not require installation of special software. These techniques send packets to machines such as SYNs or pings with spoofed

source addresses to cause those machines to automatically send responses to the spoofed addresses. By taking advantage of the common implementation details of many network stacks, these techniques can measure whether the responses were received by the machine at the spoofed address by exploiting the way that information flows throughout these machines' stacks. It is impractical to obtain prior informed consent for network side channel experiments. These techniques are interventions into an environment, and to be done responsibly research risk has to be reduced to a minimum. We identify open questions these distinct approaches raise and discuss possible mitigations for ensuring responsible network measurement experiments.

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