New Internet Draft

Enabling Network Traffic Obfuscation - Pluggable Transports

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Why “Pluggable” Transports?

- Pluggable Transports (PTs) are a mechanism enabling the rapid development and deployment of network traffic obfuscation techniques used to circumvent surveillance and censorship
- Deep Details: https://www.pluggabletransports.info
Generalized Pluggable Transport Architecture

- PT Server software exposes a public proxy that accepts connections from PT Clients
- PT Client transforms traffic before it hits the public Internet; PT Server reverses this transformation before passing the traffic on to the Server App
- There is also an optional lightweight protocol to facilitate communicating connection metadata

Since it is undesirable to limit/specify what behaviors can be implemented in the transports themselves, the Pluggable Transports architecture instead focused on the interface of these technologies to applications themselves.
PT 2.1 Specification

- **Transport API Interface**
  - Using an in-process, language-specific API
  - PT Client Library is integrated directly into the Client App and the PT Server Library is integrated directly into the Server App
  - Communication through socket-like APIs

- **Dispatcher API Interface**
  - Using the transports as a separate process
  - On the client device, the PT Client software exposes a local proxy to the client application, and transforms traffic before forwarding it to the PT Server
  - The PT Dispatcher can be configured to provide different proxy types, supporting proxying of both TCP and UDP traffic
Transport API Architecture

Client App ↔ PT Client (Library) via Socket-like API

Public Internet (Obfuscated/Transformed traffic) ↔ Server App ↔ PT Server (Library) via Socket-like API
Dispatcher API Architecture

- Client App
- Local Proxy
- PT Client (Dispatcher)
- Public Internet (Transformed/Proxied traffic)
- PT Client (Library)
- Server App
- Local Proxy
- PT Server (Dispatcher)
- PT Server (Library)
Mix&Match Architecture

Client App

Local Proxy

PT Client (Dispatcher)

PT Client (Library)

Public Internet (Transformed/Proxied traffic)

Server App

Socket-like API

PT Server (Library)
Additional Info

- **API to IPC Adaptors**
  - Possible to produce adaptor libraries that provide language API to Dispatcher IPC

- **PT 1.0 Specification Compatibility**
  - PT 1.0 was Dispatcher API only
  - Version negotiation built in

- **Cross Language Linking**
  - Using the Dispatcher IPC Interface In-process
QUESTIONS & DISCUSSION