

SOCKS Protocol Version 6

draft-olteanu-intarea-socks-6-08

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IETF 106

What's new

- DNS provided by SOCKS
- Options for Happy Eyeballs at the proxy

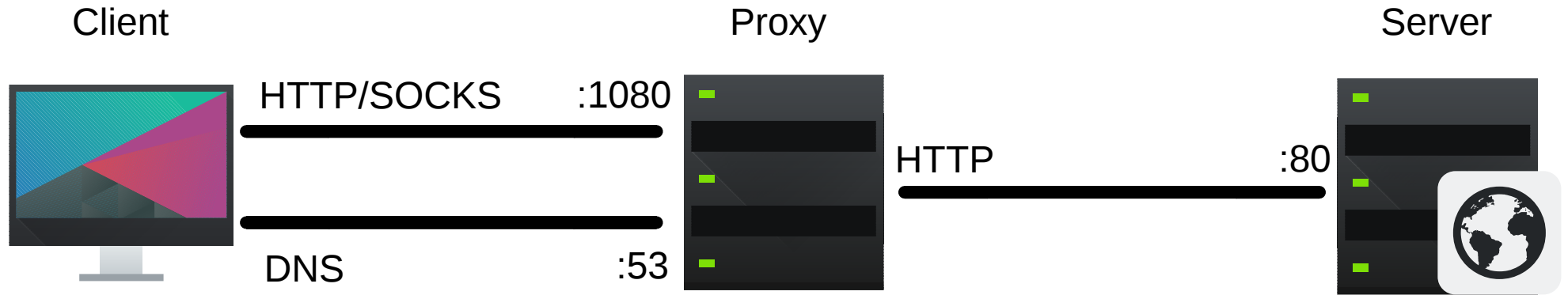
Clients need DNS-like features

- A and AAAA
 - LD_PRELOAD for non-SOCKS-aware apps: `gedaddrinfo()` separate from `connect()`
 - Happy Eyeballs: need to do queries separately
- TXT
 - ESNI
- MX, Service Binding, etc.
 - <Insert future use case here>

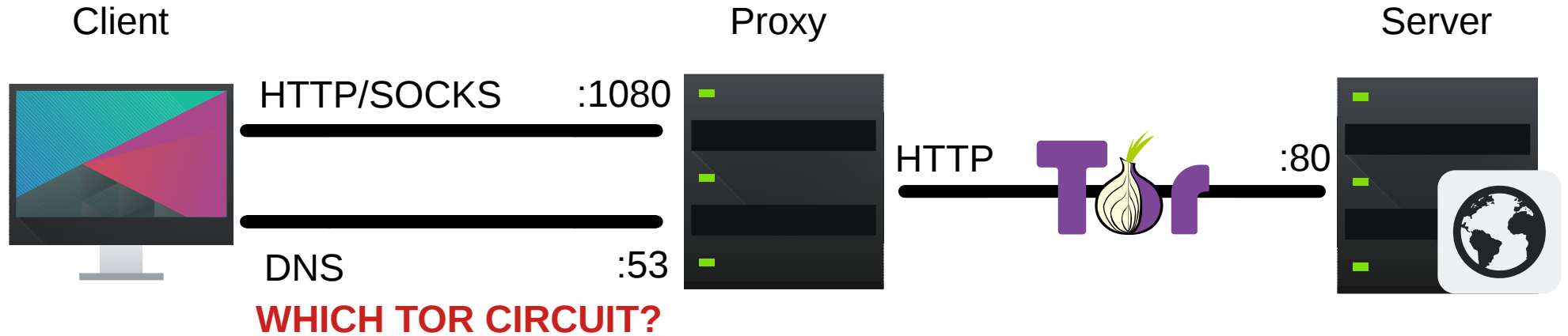
Providing DNS-like features

- Individual SOCKS options (removed in -08)
 - Have to keep up with use cases
 - Duplicate DNS functionality
 - Until -07: A, AAAA, PTR
- Having the client use DNS
 - Hard to convey policies: resolver IPs, plaintext / over TLS / over HTTPS etc., maybe credentials, etc.
 - Provide a DNS proxy

Why not separate DNS from SOCKS?



Why not separate DNS from SOCKS?



- Need context for DNS query
 - Otherwise: privacy leaks, suboptimal CDN use

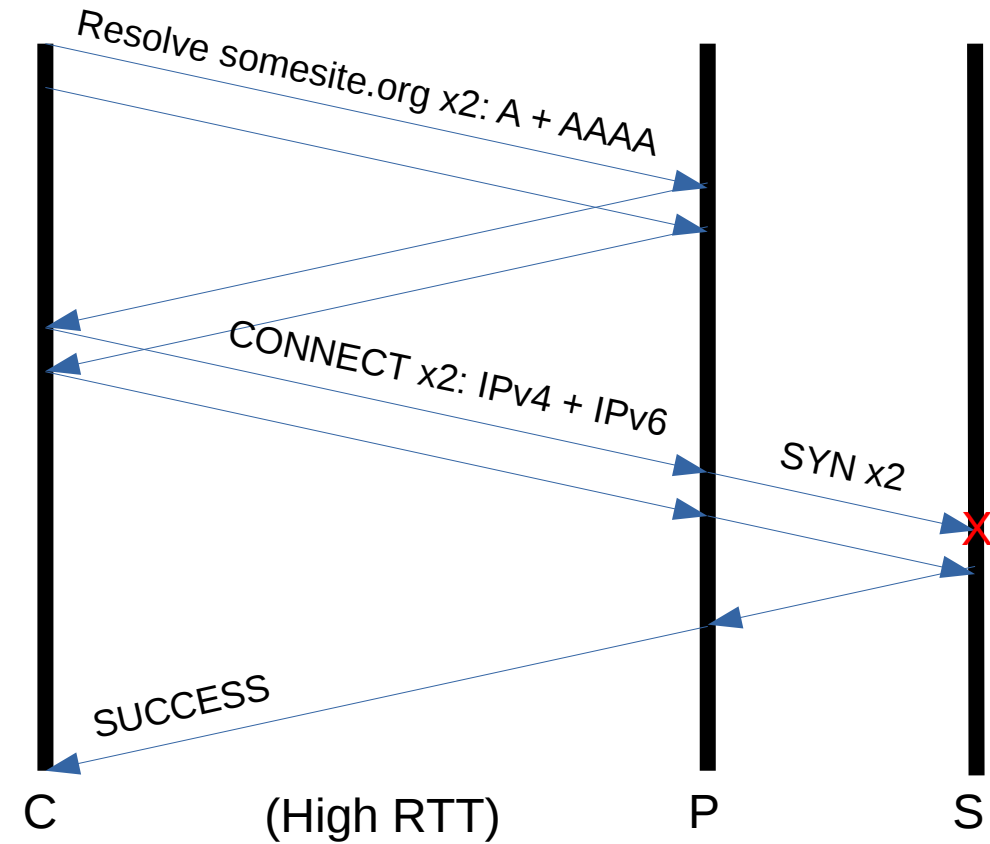
DNS provided by SOCKS

- Clients make CONNECT request to 0.0.0.0:53
 - Proxy needn't provide a valid bind address
- Plaintext DNS over SOCKS (opt. over TLS)
 - TCP by default: SOCKS + UDP more cumbersome to use
- Implementation in Sixtysocks
 - Run separate DNS proxy locally
 - Translate 0.0.0.0:53 to 127.0.0.1:53

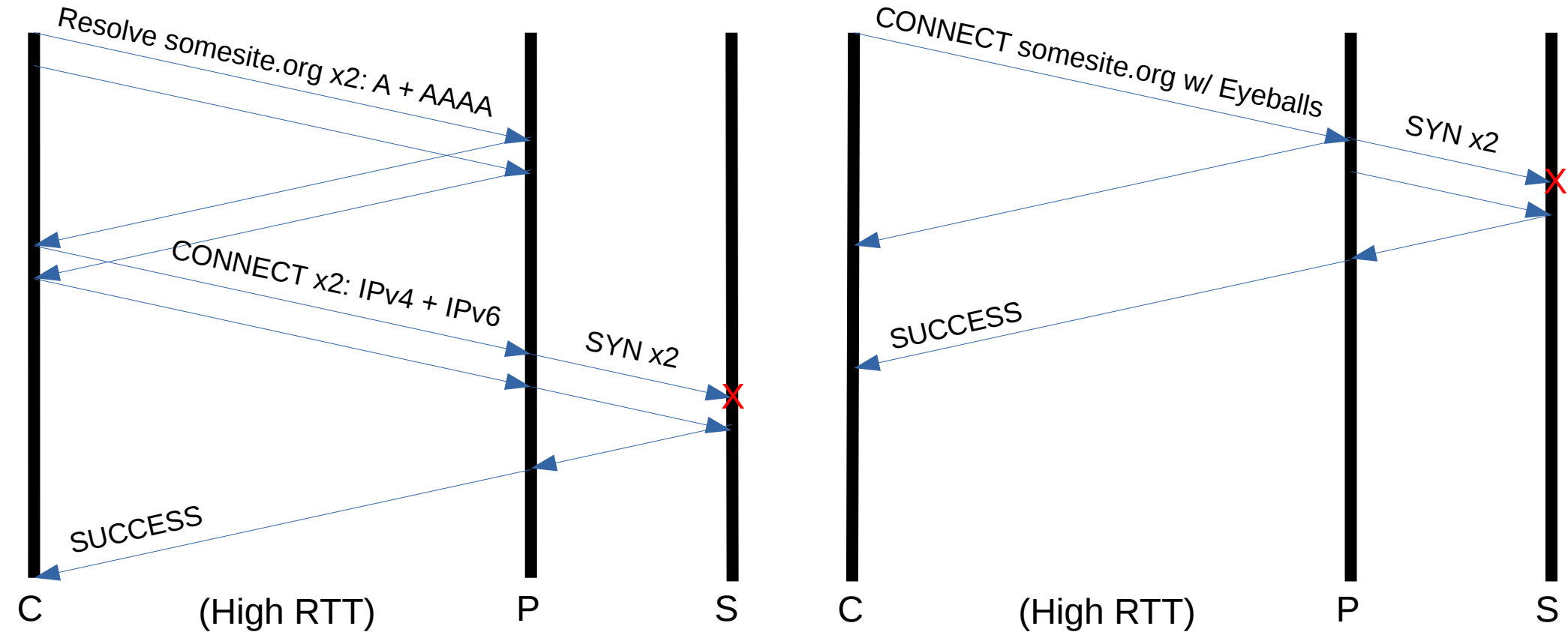
Happy Eyeballs

- RFC 8305: resolve and connect to a server using both IPv4 and IPv6, keep only one connection
 - Failover from IPv6 to IPv4
 - Better responsiveness if one is faster
- Clients can implement Happy Eyeballs locally
 - Have DNS + CONNECT

Happy Eyeballs: client vs proxy



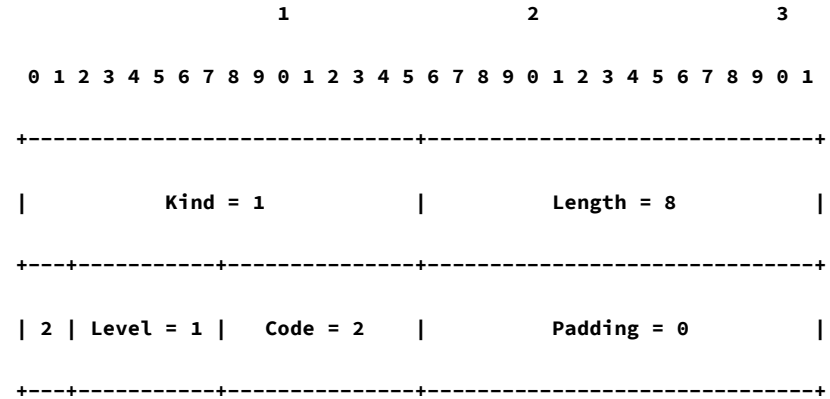
Happy Eyeballs: client vs proxy



- Sometimes it's a lot better if the proxy does it

Happy Eyeballs at the proxy

- Request MUST have a Domain Name
- At the minimum: retry using IPv4 if IPv6 fails
- No knobs from RFC8305 (yet)
- Caveat: Happy Eyeballs + TFO



Happy Eyeballs option