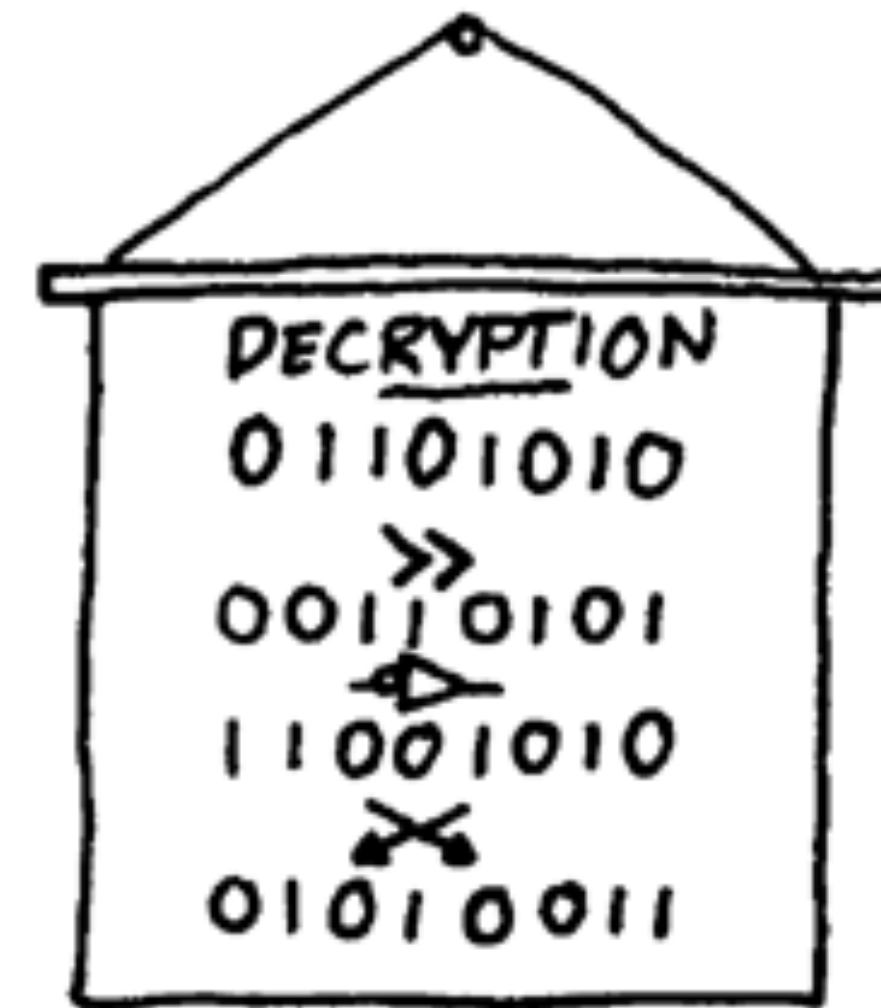


Reverse HTTP

MY CRYPTOSYSTEM IS LIKE
ANY FEISTEL CIPHER, EXCEPT
IN THE S-BOXES WE SIMPLY
TAKE THE BITSTRING DOWN,
FLIP IT, AND REVERSE IT.



I'VE BEEN BARRED FROM SPEAKING AT ANY MAJOR
CRYPTOGRAPHY CONFERENCES EVER SINCE IT BECAME
CLEAR THAT ALL MY ALGORITHMS WERE JUST
THINLY DISGUISED MISSY ELLOTT SONGS.

**Sometimes servers want to be
clients**

**Sometimes clients want to be
servers**

Why not backwards?

Terminology

- Client/Server -> HTTP roles
- Dialer/Listener -> TCP/QUIC roles

dramatis personae

- Reverse HTTP (2009): draft-lentczner-rhttp
- Peer-to-peer Extension to HTTP/2 (2015): draft-benfield-http2-p2p
- Reverse HTTP Transport (2023): draft-bt-httpbis-reverse-http
- Reverse Tunnel over HTTP (2024): draft-kazuho-httpbis-reverse-tunnel

draft-lentczner-rhttp

March 04, 2009

- Upgrade-based
- Takes over existing connection
- “As if” the dialer was now the server

draft-benfield-http2-p2p

July 20, 2015

- H2 SETTINGS advertisement
- Limited support for origin assertion
- Per-stream client/server behaviour

draft-bt-httpbis-reverse-http

July 09, 2023

- New goal - origin protection
- DNS service binding advertisement
- Client certs for origin establishment
- Almost perfectly the opposite of the 2009 draft, with added TLS goodness

draft-kazuho-httpbis-reverse-tunnel

February 20, 2024

- Adds HTTP/1.1 support via Upgrade
- Again aimed at protecting origin servers
- Byte-level tunnelling

dramatis personae

- Reverse HTTP (2009): draft-lentczner-rhttp
- Peer-to-peer Extension to HTTP/2 (2015): draft-benfield-http2-p2p
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Taxonomy

	Byte Tunnel	Re-use HTTP
Unreachable is bad	draft-lentczner-rhttp	draft-benfield-http2-p2p
Unreachable is good	draft-kazuho-httpbis-reverse-tunnel	draft-bt-httpbis-reverse-http