MPTCP proxy solutions Analysis

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Content

- Purpose of MPTCP proxy.
- Comparison of different possible solutions for MPTCP proxy.

Purpose of MPTCP proxy

- Support the use of MPTCP for communication peers in case not both of the peers are capable of MPTCP.

Design Principles

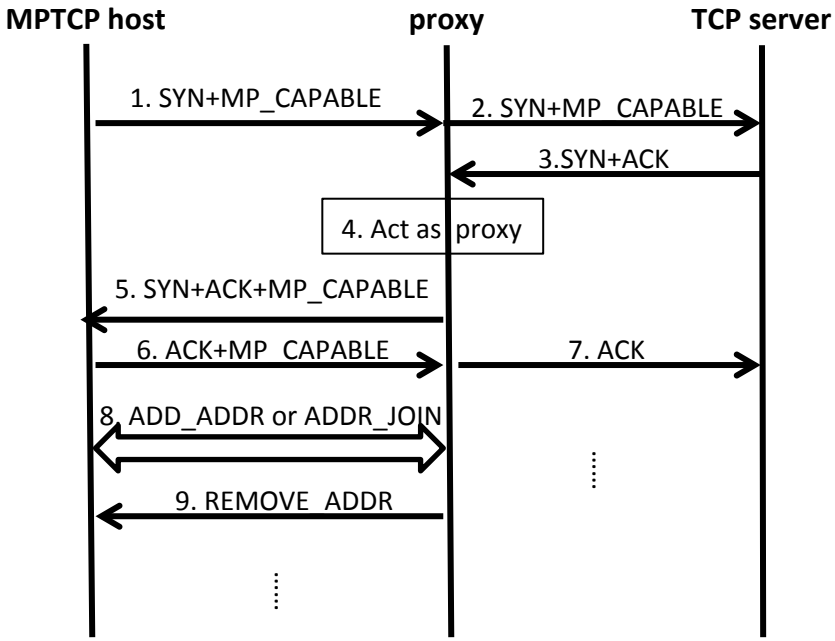
- Act as necessary
- Authentication of proxy.
- Deal with proxy selection when multiple proxies exist between the peers. (selection flexibility)

Solution1: Intercept traffic and act as proxy

- Implicitly, without modification to current MPTCP protocol.
  - e.g. ADD_ADDR, ADDR_JOIN, REMOVE_ADDR.
- Explicitly, with change to MPTCP protocol
  - with an indication, e.g. P flag, of the existence of proxy (both to end host and other proxy).

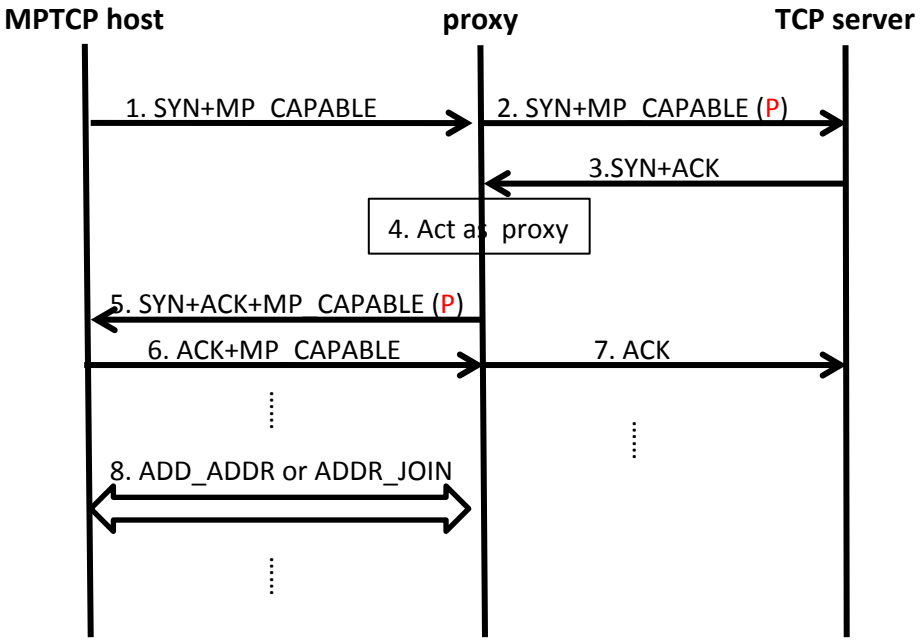
Examples

Implicitly:



Pros: no change to MPTCP protocol.
Cons: in case more than one proxies exist on the path:
1. the one near TCP server will implement proxy function.
2. each proxy needs to maintain context at initial subflow setup.

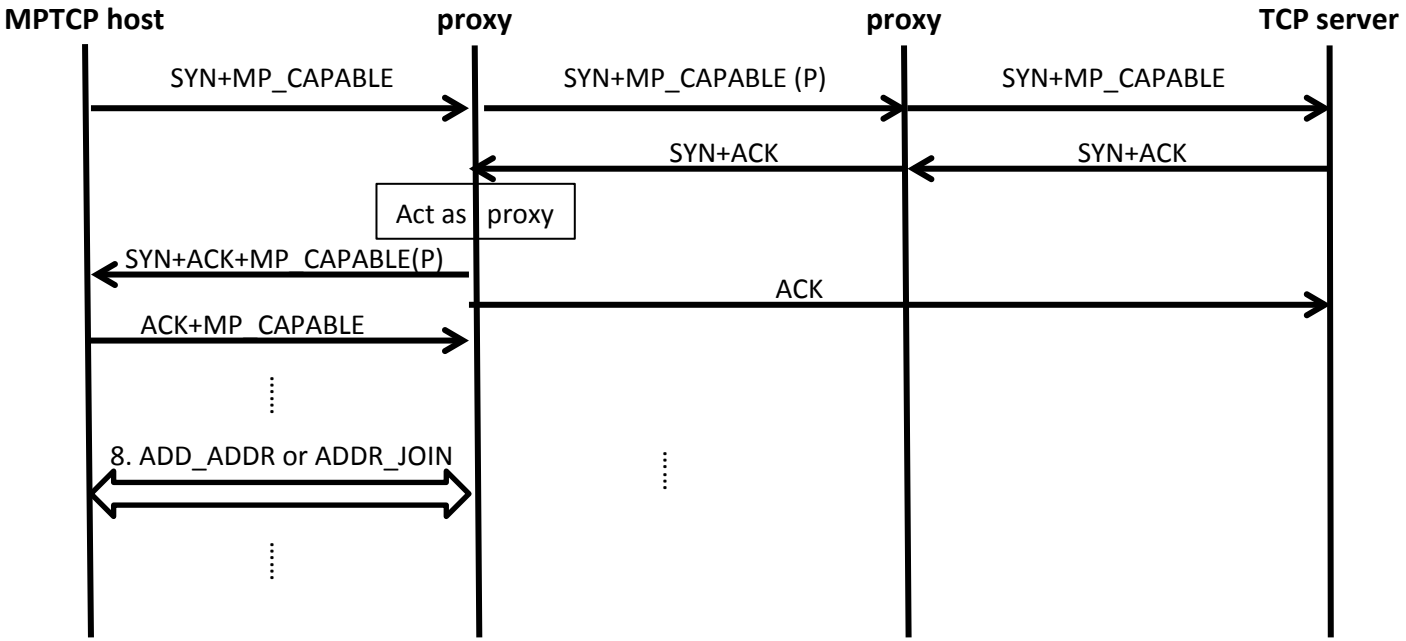
Explicitly:



Pros: provide flexible proxy selection in case more than one proxy exist; only the proxy that provide proxy function for traffic needs to maintain context at initial subflow setup.
Cons: Need change to MPTCP protocol.

Solution1: Intercept traffic and act as proxy

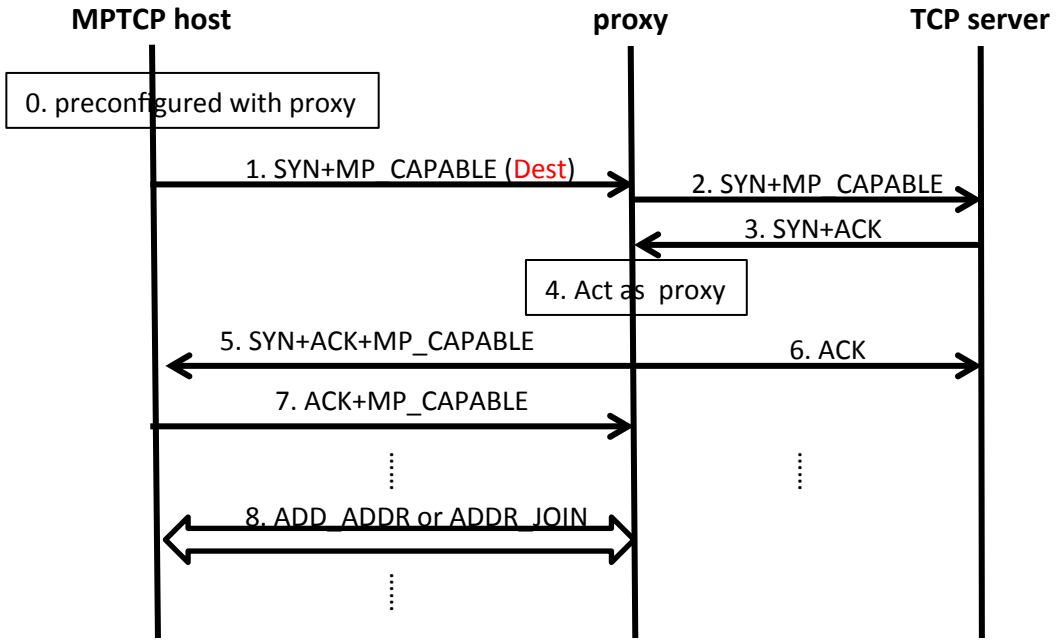
Example of more than one proxies exist:



Solution2: Explicitly preconfigured on end host

- The proxy is explicitly preconfigured on end host, host chooses to use proxy when it wants to.

Examples



Pros: host could be get involved in proxy selection.
Cons: 1. need configuration on host (hard to be widely adopted);
2. no direct method for host to know whether its peer support MPTCP or not.