# Transparent TCP to SCTP translation shim layer

Motivation:

- Augment TCP-based applications to make use of multipath transport capabilities of underlying transparent SCTP associations
- Gain path failure redundancy through the use of SCTP
- The following scenarios will be supported:
  - TCP-Client and TCP-Server via SCTP
  - TCP-Client and SCTP-Server via SCTP
  - SCTP-Client and TCP-Server via SCTP
- Porting of this functionality to Linux (Android) for broad usage on fixed and mobile devices.
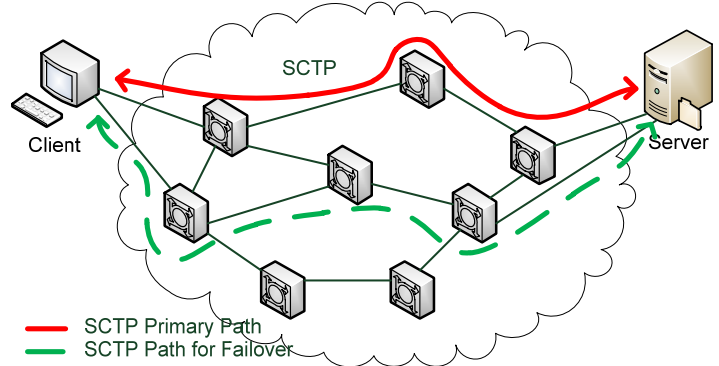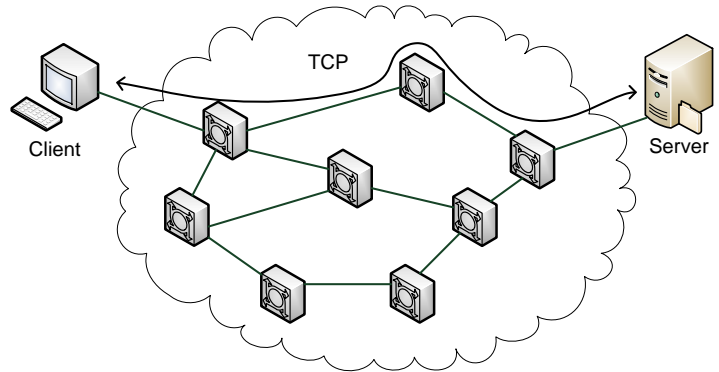
SCTP-Features:

- Multi-homing (concurrent usage of multiple interfaces)
- Multi-streaming (multiplex of data streams across all available transport paths)
- Limiting resource based attacks (i.e. DoS) through a 4-way-handshake
- Stopping blind masquerade attacks with a verification tag
- Message based
- Optimized ACK processing and cumulative transmission

Approach:

- Adding a hidden SCTP-Socket upon generation of a TCP-Socket
- Passing down the hidden SCTP-Socket to the transport layer instead of the original (parent) TCP socket
- Keeping reference to parent TCP-Socket
- Fallback to TCP in case of SCTP connection failure
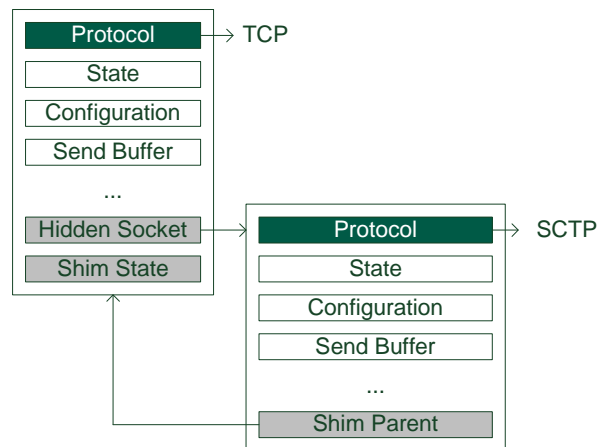
Current state & future work:

Current state:
- Implemention ported from FreeBSD 4.0 to FreeBSD 8.2

Future Work:
- Port to Linux for usage on Android

SCTP Primary Path
SCTP Path for Failover

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