MODULE *SCTP*

LOCAL INSTANCE *Naturals*

LOCAL INSTANCE *Sequences*

LOCAL INSTANCE *FiniteSets*

LOCAL INSTANCE *TLC*

CONSTANT *Nil*

LOCAL $Min(s) \triangleq$ CHOOSE $x \in s : \forall\, y \in s : x \geq y$

LOCAL $Max(s) \triangleq$ CHOOSE $x \in s : \forall\, y \in s : x \leq y$

VARIABLE *conns*

$vars \triangleq \langle conns \rangle$

MODULE *Client*

CONSTANT *ID*

$Connect(dst) \triangleq$
  LET $maxId \triangleq Max(\text{DOMAIN } conns)$
      $connId \triangleq Min(\{i \in 1 \,..\, (maxId + 1) : i \notin \text{DOMAIN } conns\})$
  IN $conns' = conns \,@@\, (connId :> [id \mapsto connId,\ src \mapsto ID,\ dst \mapsto dst,\ req \mapsto \langle\rangle,\ res \mapsto \langle\rangle])$

$Disconnect(c) \triangleq$
  $conns' = [x \in \text{DOMAIN } conns \setminus \{c.id\} \mapsto conns[x]]$

$Send(c,\ m) \triangleq$
  $conns' = [conns \text{ EXCEPT } ![c.id] = [conns[c.id] \text{ EXCEPT } !.req = Append(conns[c.id].req,\ m)]]$

$Receive(c) \triangleq$
  $conns' = [conns \text{ EXCEPT } ![c.id] = [conns[c.id] \text{ EXCEPT } !.res = SubSeq(conns[c.id].res,\ 2,\ Len(conns[c.i$

$Reply(c,\ m) \triangleq$
  $conns' = [conns' \text{ EXCEPT } ![c.id] = [conns'[c.id] \text{ EXCEPT } !.req = Append(conns'[c.id].req,\ m)]]$

$Handle(c, f(\_, \_)) \triangleq Len(c.res) > 0 \wedge f(c,\ c.res[1])$

$Connections \triangleq \{c \in conns : c.src = ID\}$

$Client(ID) \triangleq$ INSTANCE *Client*

MODULE *Server*

CONSTANT ID

$Send(c,\ m) \triangleq$
$conns' = [conns \text{ EXCEPT } ![c.id] = [conns[c.id] \text{ EXCEPT } !.res = Append(conns[c.id].res,\ m)]]$

$Receive(c) \triangleq$
$conns' = [conns \text{ EXCEPT } ![c.id] = [conns[c.id] \text{ EXCEPT } !.req = SubSeq(conns[c.id].req,\ 2,\ Len(conns[c.i$

$Reply(c,\ m) \triangleq$
$conns' = [conns' \text{ EXCEPT } ![c.id] = [conns'[c.id] \text{ EXCEPT } !.res = Append(conns'[c.id].res,\ m)]]$

$Handle(c,\ f(\_,\ \_)) \triangleq Len(c.req) > 0 \land f(c,\ c.req[1])$

$Connections \triangleq \{c \in conns : c.dst = ID\}$

$Server(ID) \triangleq$ INSTANCE $Server$

$Init \triangleq$
$\land\ conns = [c \in \{\} \mapsto [e2n \mapsto Nil,\ e2t \mapsto Nil,\ req \mapsto \langle\rangle,\ res \mapsto \langle\rangle]]$

$Next \triangleq$
$\lor$ UNCHANGED $\langle conns \rangle$

* Modification History
* Last modified *Tue Sep* 21 05:40:27 *PDT* 2021 by *jordanhalterman*
* Created *Mon Sep* 13 12:21:16 *PDT* 2021 by *jordanhalterman*