

(Rapporteur's Group on part of Q.2&3/15)

Study Group 15 - CONTRIBUTION

Question: 2&3/15

SOURCE: IBM

Purpose: Proposal

TITLE: Ambiguous State Possible After Timer T101 Expires During TerminalCapabilitySet Exchange

ABSTRACT:

Ambiguous State Possible After Timer T101 Expires During TerminalCapabilitySet Exchange

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Description of Ambiguous State

- 1) A capability exchange is initiated when the TRANSFER.request primitive is issued by the user at the out-going CESE.
- 2) A TerminalCapabilitySet message is sent to the peer incoming CESE, and timer T101 is started. Timer T101 expires. Now suppose that a) & b) below happen simultaneously:
 - a) The outgoing CESE user is informed with the REJECT.indication primitive and the TerminalCapabilitySetRelease message is sent.
 - b) The in-coming CESE user signals acceptance of the capability exchange request by issuing the TRANSFER.response primitive and a TerminalCapabilitySetAck message is sent to the peer outgoing CESE.

.....So the Release & the Ack are sent at the same time.

- Now see the SDL diagram, Figure 9(ii)/H.245 "Incoming CESE SDL (Concluded)" on page 112 which shows the In-coming CESE SDL in AWAITING RESPONSE state. Here we see the race condition between the TRANSFER.response message from the incoming CESE user and the TerminalCapabilitySetRelease message from the peer outgoing CESE. If the TRANSFER.response wins, then the Incoming CESE sends TerminalCapabilitySetAck and goes to IDLE state.
- In IDLE state it will ignore the TerminalCapabilitySetRelease (Figure 9(i)/H.245 "In-Coming CESE SDL," page 111).
- The outgoing CESE having sent the TerminalCapabilitySetRelease message also goes back to IDLE state where it will ignore the TerminalCapabilitySetAck message (Figure 8(i)/H.245 "Out-going CESE SDL on Page 109)
- So the outgoing CESE user thinks the exchange timed out & the incoming CESE user thinks the exchange was successful. The larger the timer, the less likely this is to occur.

Proposal

A short term way to remove this race condition is to set the T101 timer large and require the CESE to notify its user when ever something abnormal is received in the IDLE state. This essentially makes it a user problem for now but a long term protocol based solution should be pursued.

References

- [1] ITU-T Recommendation H.310 (1996): "Broadband and audio-visual communications systems and terminal equipment".
- [2] ITU-T Recommendation H.245 (1995): "Control of communications between Visual Telephone Systems and Terminal Equipment".

Out-Going CESE and In-coming CESE Procedures Extracted From H.245

8.3.4.4 SDLs

The out-going CESE and the in-coming CESE procedures are expressed in SDL form in Figure 8 and Figure 9, respectively.

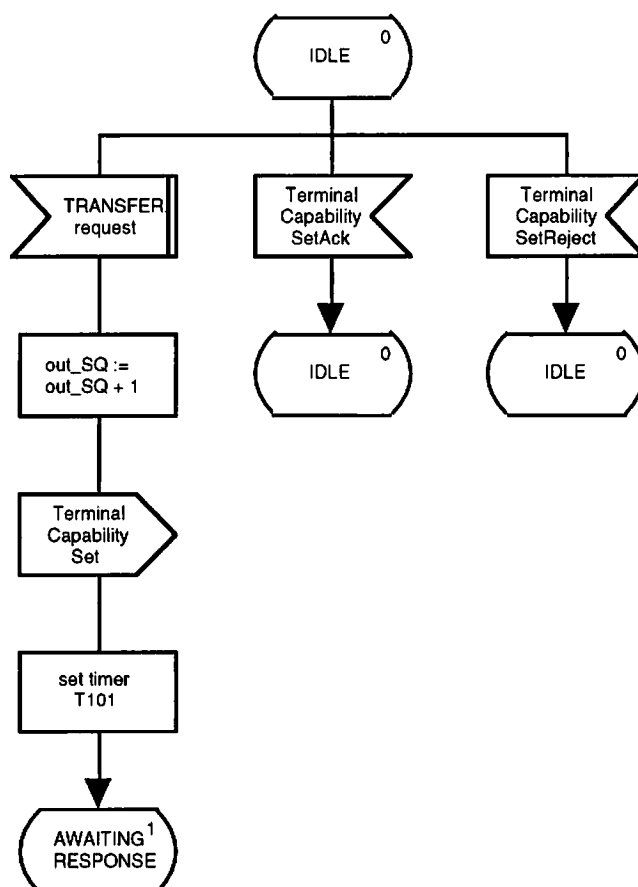


Figure 8(i) Out-going CESE SDL

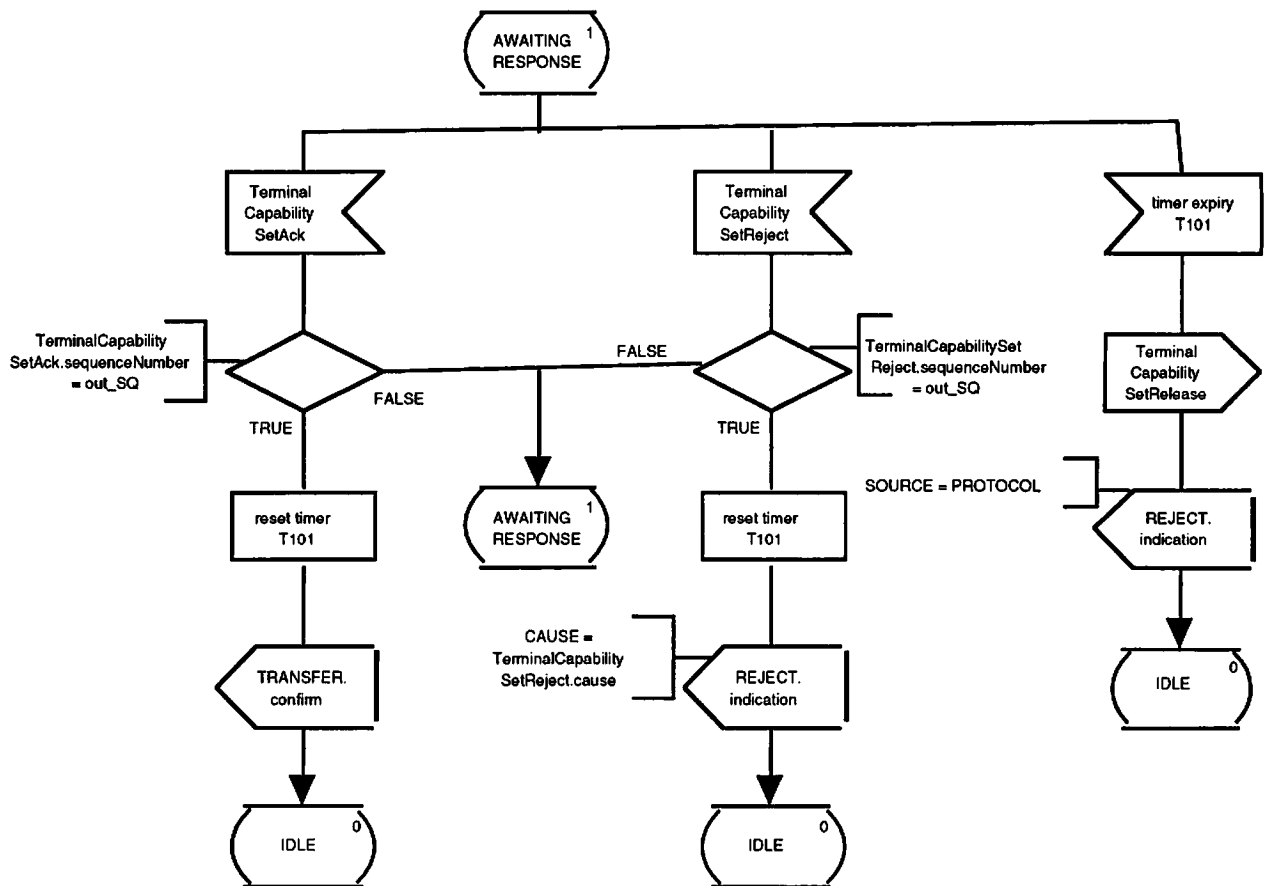


Figure 8 (ii) Out-going CESE SDL (concluded)

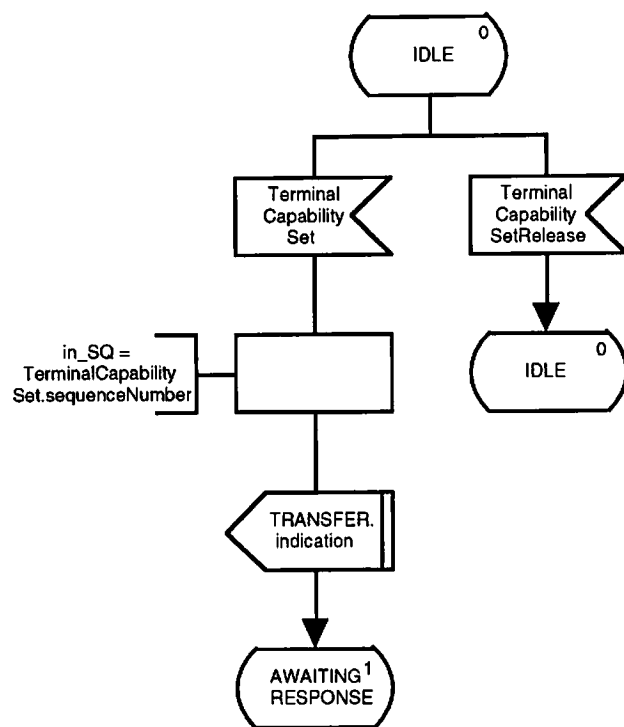


Figure 9 (I) In-coming CESE SDL

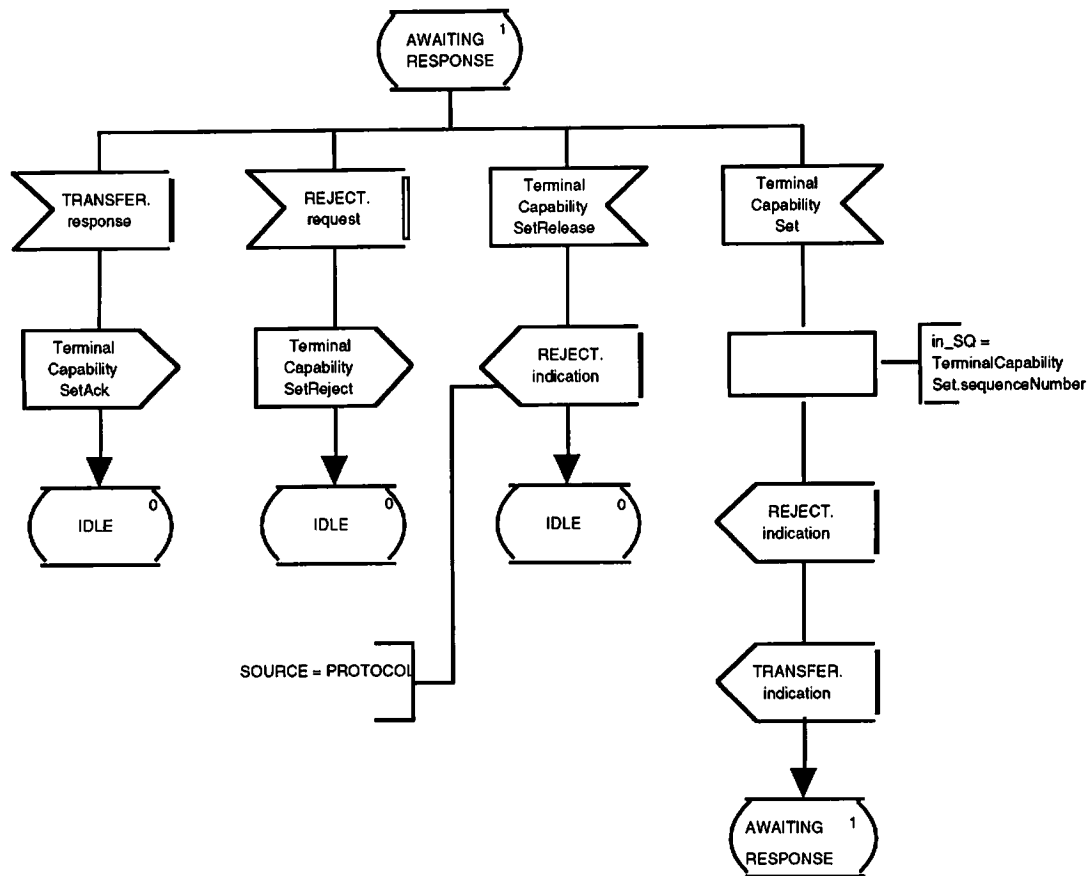


Figure 9 (ii) In-coming CESE SDL (concluded)