Discussion of 1af exchanges

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Classes of participants

- End-device (ED)
- Network-attachment-point (NAP)
- Network-infrastructure-device (NID)

Note: an NAP is also an NID to other NIDs
Scenarios

1) ED to NAP
2) ED1 to ED2
3) NID1 to NID2
Roles

• Initiator or Requestor
• Responder
Situations

1) Scenario 1 where ED starts
2) Scenario 1 where NAP starts and reverses role
3) Scenario 2 where Either ED1 or ED2 can start
4) Scenario 2 where Starting ED wishes to be responder
5) Scenario 2 where Responding ED wishes to be initiator
6) Scenario 2 with race condition one ED will become responder (if no ‘natural’ responder, lowest MAC takes role)

Situations 3 – 6 with NIDs
Comments on EAP Methods

• All but one Situation presented work with any EAP method
• This one is where either peer can start the EAP method with no impact on outcome
  – This includes Situations 3 and 6
  – E.G. a Diffie-Hellman based method
Exchanges

• ‘Classic’ – Situations 1, 3
• ‘Role Reversal v 1 – Initiator wishes to be Responder’ – Situation 2, 4
• ‘Role Reversal v 2 – Responder wishes to be Initiator’ – Situation 5
• ‘Race condition’ – Situation 6
  – Both parties start at the same time
‘Classic’ – Situations 1, 3

Init
Start-Accept-Control
Start-Accept-Control
EAP res Ident

Resp
Start-to-Control
EAP req Ident

EAP Success|EAP Failure
‘Role Reversal v 1 – Initiator wishes to be Responder’ – Situation 2, 4

Init
Start-to-Control
EAP req Ident

Resp
Start-Accept-Control
EAP req Ident

EAP Success|EAP Failure
‘Role Reversal v 2 – Responder wishes to be Initiator’ – Situation 5

Init
Start-Accept-Control

EAP req Ident (Avoid attack by waiting for 2nd Start-Accept-Control and no Start-to-Control)

Resp
Start-Accept-Control

EAP res Ident

EAP Success|EAP Failure
‘Race condition’ – Situation 6

Init
Start-Accept-Control
Start-Accept-Control
EAP res Ident

Resp
Start-Accept-Control
Start-to-Control
EAP req Ident (Avoid attack by waiting for 2nd Start and Start-to-Control)

EAP Success|EAP Failure