ACTIVITIES

ACTIVITY 3.1

Read RFC3264 except for the following sections: 5.2, 6.2, 9, 11, 12 , 13 ,14 ,15 ,16 ,17.

ACTIVITY 3.2

1. Consider the following multimedia communication scenario:
    a. There are 3 RTP end systems (A, B and C) and a network entity: N
    b. N acts as a relay for the SDP messages.
    c. N can also, if needed, generate or perform manipulation of the SDP signalling
    d. N is not involved in the exchange of media (it is not an RTP entity)

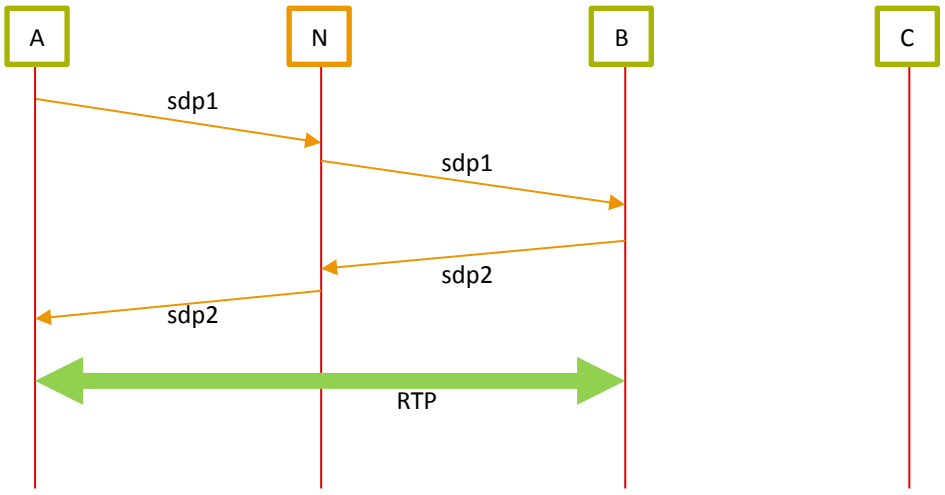
2. A supports the following media and encodings:
    a. Audio: A-law, iLBC
    b. Video: H.261
    c. Text: T.140

3. B supports the following media and encodings:
    a. Audio: A-law
    b. Text: T.140

4. C supports the following media and encodings:
    a. Audio: A-law
    b. Video: H.261

5. A and B perform an SDP exchange through N and , as a consequence of it, agree on setting up an SDP session consisting of an audio RTP session and a text RTP session. The RTP streams start to flow from and to both end systems.

6. The flow and exchanged SDP messages are shown next:



SDP1:

```
v=0
o=a 2890844526 2890844526 IN IP4 a.lab.example.com
s=
c=IN IP4 a.lab.example.com
t=0 0
m=audio 49170 RTP/AVP 8 97
a=rtpmap:8 PCMA/8000
a=rtpmap:97 iLBC/8000
m=video 51372 RTP/AVP 31
a=rtpmap:31 H261/90000
m=text 11000 RTP/AVP 98
a=rtpmap:98 t140/1000
```

SDP2:

```
v=0
o=b 2808844564 2808844564 IN IP4 b.lab.example.com
s=
c=IN IP4 b.lab.example.com
t=0 0
m=audio 49174 RTP/AVP 8
a=rtpmap:8 PCMA/8000
m=video 0 RTP/AVP 31
m=text 11200 RTP/AVP 98
a=rtpmap:98 t140/1000
```

7. Consider we now want to re-arrange the existing media session such that now it flows between A and C (instead of between A and B). This could correspond, for instance, to the execution of a call transfer service. The session in B would be destroyed. Please answer to the following questions:
    a. What would be the SDP exchange necessary to enable this re-arrangement? Provide a sequence diagram including a valid content for the SDP messages.
    NOTE: The session in A should just be modified (not destroyed and re-created)
    b. It is requested that at least 2 different solutions are provided for the problem. It has to be stated what are the pros and cons of each solution.

ACTIVITY 3.3

1. Consider the following multimedia communication scenario:
    a. There are 3 RTP end systems (A, B and C) and a network entity: N
    b. N acts as a relay for the SDP messages.
    c. N can also, if needed, generate or perform manipulation of the SDP signalling
    d. N is not involved in the exchange of media (it is not an RTP entity)

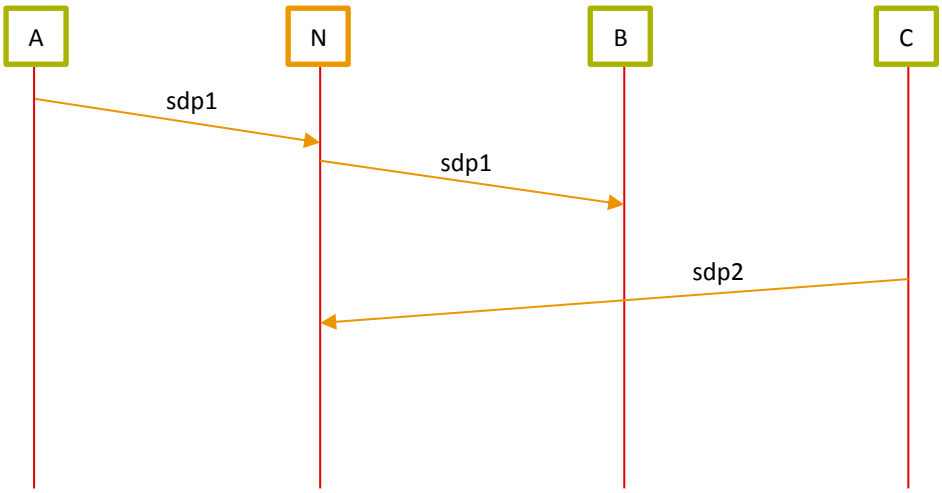
2. A supports the following media and encodings:
    a. Audio: A-law, μ-law, iLBC
    b. Video: H.261
    c. Text: T.140

3. B supports the following media and encodings:
    a. Audio: μ-law
    b. Text: T.140

4. C supports the following media and encodings:
    a. Audio: A-law, iLBC
    b. Video: H.261

5. A sends an SDP offer to B. While A is waiting to receive the SDP answer , C sends a new SDP offer to N signalling its desire to capture the communication and to establish the session between A and C, instead of between A and B. This could correspond to an scenario of Call PickUp service.

6. The flow and exchanged SDP messages are shown next:



SDP1:

```
v=0
o=a 2890844526 2890844526 IN IP4 a.lab.example.com
s=
c=IN IP4 a.lab.example.com
t=0 0
m=audio 49170 RTP/AVP 0 8 97
a=rtpmap:0 PCMU/8000
a=rtpmap:8 PCMA/8000
a=rtpmap:97 iLBC/8000
m=video 51372 RTP/AVP 31
a=rtpmap:31 H261/90000
m=text 11000 RTP/AVP 98
a=rtpmap:98 t140/1000
```

SDP2:

```
v=0
o=c 2890844526 2890844526 IN IP4 c.lab.example.com
s=
c=IN IP4 c.lab.example.com
t=0 0
m=audio 48776 RTP/AVP 8 99
a=rtpmap:8 PCMA/8000
a=rtpmap:99 iLBC/8000
m=video 56323 RTP/AVP 31
a=rtpmap:31 H261/90000
```

7. The questions posed are the following:
    a. What should the SDP exchange resume in order to allow C to capture the communication? Provide a sequence diagram including a valid content for the SDP messages.
    NOTE: The session in A should just be modified (not destroyed and re-created).
    b. It is requested that at least 2 different solutions are provided for the problem. It has to be stated what are the pros and cons of each solution.