Multiplexing RTP and RTCP on a Single Port

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draft-ietf-avt-rtp-and-rtcp-mux-01.txt

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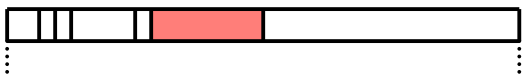
Talk Outline

- Review of the draft
  - Why, how, and when to multiplex RTP and RTCP on a single port?
- Discussion
- Future directions

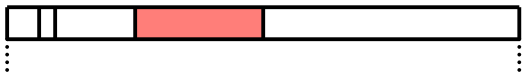
Why and How to Multiplex RTP and RTCP?

- RTP and RTCP flows typically use separate UDP ports
  - \+ Simple, clean, and efficient implementation
  - \+ Allows 3rd party RTCP only monitors for multicast
  - – Wasteful of ports
  - – Complicates NAT traversal, hindering deployment

- Multiplexing RTP and RTCP on a single port is possible if care taken with payload type assignments
  - – Recommend payload types in the range 64–95 be avoided



Initial segment of RTP header; 7 bit payload type; values 0...35 and 96...127 usually used



Initial segment of RTCP header; 8 bit packet type; values 192, 193, 200...208 used

  - – Multiplexing may disrupt links that assume full RTP header compression

Multiplexing RTP and RTCP: Unicast

- Recommend that RTP and RTCP multiplexing on a single port be allowed for unicast sessions
- Signal in SDP offer using **`a=rtcp:`** with same port as **`m=`** line:

```
v=0
o=csp 1153134164 1153134164 IN IP4 130.209.243.131
s=-
c=IN IP4 130.209.243.131
t=1153134164 1153137764
m=audio 49170 RTP/AVP 97
a=rtpmap:97 iLBC/8000
a=rtcp:49170
```

- SDP answer MUST contain **`a=rtcp:`** with matching port
  - Fall back to usual RTCP port-pair rules if not
    - Open issue: “MUST” or “SHOULD” fallback?
    - End points should be robust to unexpected RTCP, even if they don’t process it
  - With SIP forking, some answers may support multiplexing, others not

Multiplexing RTP and RTCP: Multicast

- Multiplexing disallowed for ASM sessions
  - NAT traversal issues less severe
  - Benefits of separate port for RTCP greater
    - 3rd party reception quality monitors

- Multiplexing allowed for SSM sessions
  - RTCP-only 3rd party reception quality monitors not possible with SSM
  - Signal using **`a=rtcp:`** attribute, as for unicast

Discussion

- Is allowing RTP and RTCP multiplexing a good idea? No!
  - It breaks the RTP architecture
    - There were good reasons why RTP and RTCP used separate ports
  - It cannot be made completely backwards compatible
    - Might fail with proxies that change the RTP port but don't support **`a=rtcp:`**
    - Might have undesirable interactions with SIP forking
    - Might be better to use a new attribute, rather than **`a=rtcp:`**
    - Etc... there are unavoidable issues
- Might we want to allow it anyway?
  - Better to have RTCP multiplexed with RTP, than no RTCP
    - Many reasons why RTCP thought difficult; eliminates NAT traversal excuse
  - An on-path control channel, logically separate to the media, is necessary
    - Putting control messages in RTP header extensions or shims is a mistake
    - Multiplexed RTCP is one way of getting such an on-path control channel, running another protocol on the same port is another (c.f. STUN)
  - What is the consensus of the working group?

Future Directions

- If the group believes this work should proceed:
  - Relatively minor open issues with the draft
  - Can submit -02 immediately after the meeting, with a working group last call soon after

- If not, do we want to document the issues in an informational RFC to supplement RFC 3550?