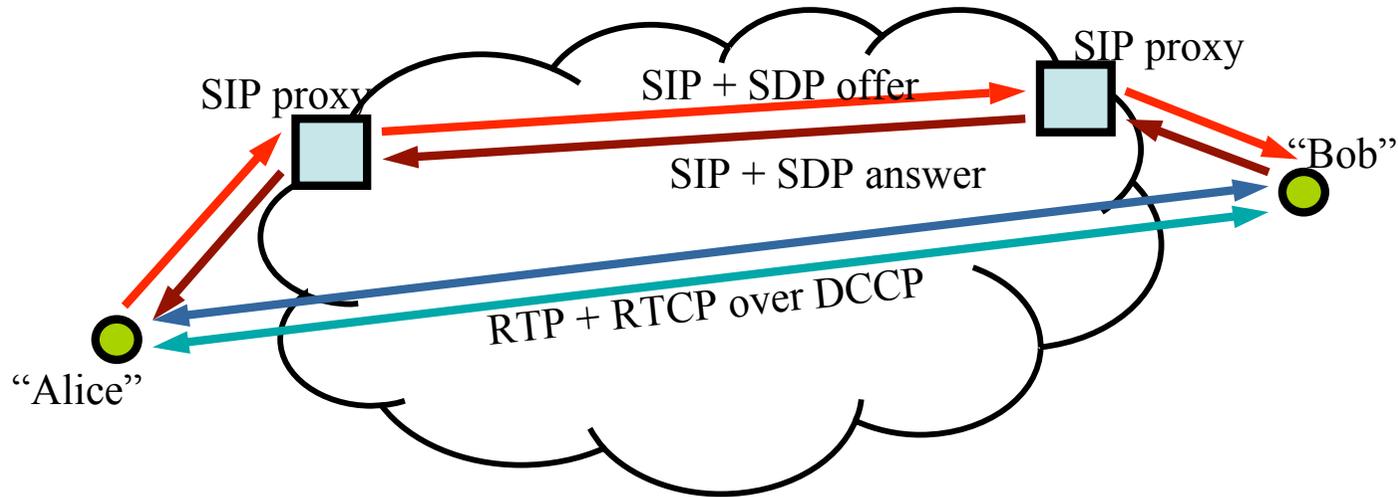


RTP and the Datagram Congestion Control Protocol

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draft-perkins-dccp-rtp-01.txt

Overview of Draft



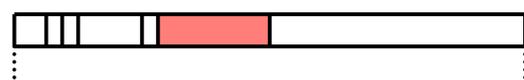
- RTP widely used for transport of real-time media on IP networks initiated by a control protocol such as SIP
- DCCP is a desirable transport service for real-time applications
- This draft combines them, defining:
 - A framing mechanism to allow transport of RTP over DCCP
 - Extensions to SDP to allow negotiation of RTP over DCCP sessions

Framing RTP over DCCP: Basics

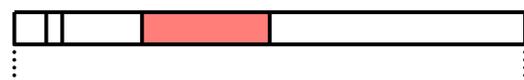
- RTP sessions comprise two flows:
 - Media data packets: one RTP data packet \leftrightarrow one DCCP datagram
 - Control packets: one compound RTCP packet \leftrightarrow one DCCP datagram
- Keep DCCP connection open for duration of RTP session
 - Send periodic zero-length DCCP-Data packet as NAT keep-alive
- MAY use partial checksum if supported by payload format, but checksum MUST cover DCCP and RTP header

Framing RTP over DCCP: RTP and RTCP

- RTP and RTCP typically flow over separate UDP connections
 - Wasteful of ports
 - Complicates NAT traversal
- It is **RECOMMENDED** that RTP and RTCP share a single DCCP flow, multiplexed by payload type



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

- Safe to multiplex if RTP payload types 64...65 and 72...79 avoided
- Not a concern in practice \Rightarrow recommend always multiplex

Framing RTP over DCCP: Open Issues

- Provide advice on implementation of congestion control within RTP applications
- Discuss how RTCP interval affected by congestion control:
 - RTP uses nominal “session bandwidth” to calculate RTCP interval
 - Not clear appropriate when using DCCP, since actual session bandwidth can vary widely
 - Two options:
 - Use nominal bandwidth, accepting that RTCP interval may be inaccurate
 - Modify RTCP rules to account for actual session bandwidth \Rightarrow complex
 - For future study

Signalling RTP over DCCP

```
v=0
o=alice 1129377363 1 IN IP4 192.0.2.47
s=-
c=IN IP4 192.0.2.47
t=0 0
m=video 51370 DCCP/RTP/AVP 99
a=rtpmap:99 h261/90000
a=dccp-service-code:SC=x52545056
a=setup:passive
a=connection:new
```

Usual SDP + comedia
signalling

- Register new protocols for use on **m=** line
- Add **a=dccp-service-code:** attribute
 - Now aligned with definition in DCCP spec
 - Now register four service codes: **SC:RTPA**, **SC:RTPV**, **SC:RTPT**, **SC:RTPO**
 - Standard service codes for typical RTP media types
- Allow **a=rtcp:** to signal separate RTP and RTCP flows
 - Consequence of recommending multiplexed transport by default

Summary and Future Directions

- Seek comments on design choices:
 - Recommendation to always multiplex RTP and RTCP
 - Registration of standard service codes for RTP media
- Future directions:
 - Add discussion of congestion control for media
 - Add discussion of impact of congestion control on RTCP interval
 - Implementation?
- Accept as working group draft?

Detailed List of Changes Since -00

- Extensive editorial changes and clarifications
- Clarify that the DCCP connection remains open for the duration of the RTP session.
- Update discussion of multiplexed RTP and RTCP in section 4.3
- Clarify signalling of the RTCP port.
- Align the syntax of the “a=dccp-service-code:” SDP attribute with that defined in section 8.1.2 of the DCCP specification.
- Register standard service codes for RTP sessions.
- In section 4.5, explicitly document which profiles can be used with DCCP.
- In section 4.1, mandate that partial checksums cover the RTP and DCCP headers (SHOULD → MUST)
- Rewrite normative language in section 4.4