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Signalling the UDP Encapsulation for DCCP

draft-ietf-dccp-udpencap-07.txt
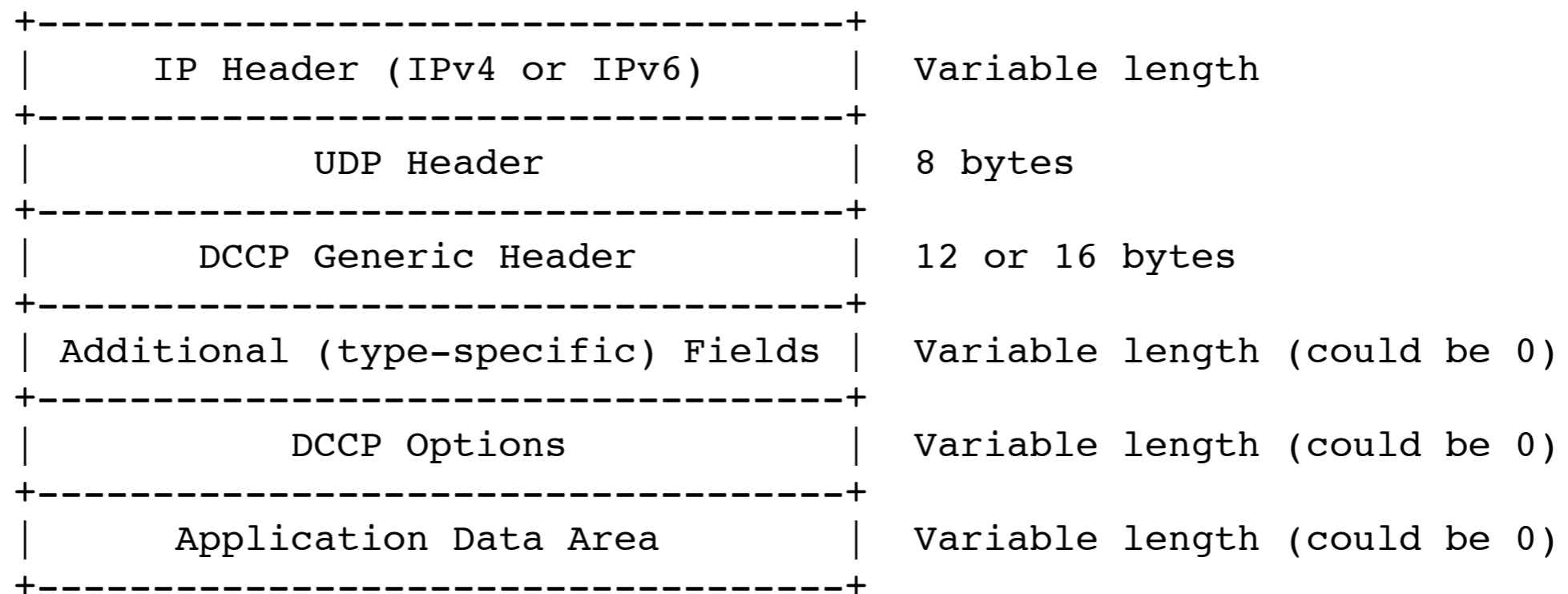
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Background

- ## DCCP is a relatively new transport protocol

  - Connection oriented, client-server, unreliable, datagram transport

  - RFCs 4340 – 4342

- ## Mapping of RTP onto DCCP defined in RFC 5762

  - Signalling uses a new `proto` in SDP `m=` line to indicate DCCP, plus the SDP connection-oriented media extensions [RFC 4145]

```
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 5004 DCCP/RTP/AVP 99
a=rtcp-mux
a=rtpmap:99 h261/90000
a=dccp-service-code:SC=x52545056
a=setup:passive
a=connection:new
```

Example SDP offer

DCCP Encapsulation into UDP

- ● An encapsulation of DCCP in UDP is defined in draft-ietf-dccp-udpencap-07

  - ● Wraps DCCP packets in UDP packets, to ease NAT traversal

```
+------------------------------------+
|      IP Header (IPv4 or IPv6)      |   Variable length
+------------------------------------+
|            UDP Header              |   8 bytes
+------------------------------------+
|        DCCP Generic Header         |   12 or 16 bytes
+------------------------------------+
| Additional (type-specific) Fields  |   Variable length (could be 0)
+------------------------------------+
|           DCCP Options             |   Variable length (could be 0)
+------------------------------------+
|        Application Data Area       |   Variable length (could be 0)
+------------------------------------+
```

  - ● A simple shim-layer encapsulation

  - ● In WG last call in the DCCP working group

Open Issue: Signalling

- ## How best to signal this in SDP?

  - For DCCP-in-UDP, need to signal that encapsulation is needed, and which UDP port is used

  - Some servers may support only native DCCP, some only DCCP-in-UDP, and some both

- ## Possible choices:

  - Define an SDP attribute to signal encapsulation

  - Define a new SDP `proto` for the `m=` line for DCCP-in-UDP

  - Other...?

  - How to deal with NAT traversal?

Option 1: Attribute Indicates Encapsulation

- Signal DCCP as the protocol in the `m=` line

- Define a "`a=dccp-in-udp:`" attribute to indicate that UDP encapsulation is to be used, and to specify the port

  - This is what's in the draft now

- Works well if DCCP servers generally support native DCCP, but some also support UDP encapsulation

- Inappropriate for DCCP servers that only support UDP encapsulation – which may be most of them

```
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 5004 DCCP/RTP/AVP 99
a=rtcp-mux
a=rtpmap:99 h261/90000
a=dccp-service-code:SC=x5254505
a=dccp-in-udp:9999
a=setup:passive
a=connection:new
```

Option 2: New `m=` `proto` value

- Can define DCCP encapsulated in UDP as a new protocol

- Define an attribute to specify the UDP port on which the server is listening

- How to signal a server that supports both native and UDP-encapsulated DCCP?

- Is this the right approach, or should we do something else?

```
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 5004 DCCP-UDP/RTP/AVP 99
a=rtcp-mux
a=rtpmap:99 h261/90000
a=dccp-service-code:SC=x52545056
a=setup:passive
a=connection:new
a=dccp-udp-port:9999
```

Interactions with NAT Traversal, ICE, etc.

- Signalling the UDP port only works if there is no NAT between client and server

- How do any of these mechanisms interact with signalling for NAT traversal?

  - Do we need to integrate with ICE? If so, how?

Conclusion

- Other feedback welcomed – either on MMUSIC if relating to the signalling, or to the DCCP WG

- Hoping to wrap-up this work quickly