MMUSIC Working Group
Internet-Draft
Expires: April 15, 2005

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October 15, 2004

Session Description Protocol (SDP) Format for Binary Floor Control Protocol (BFCP) Streams

draft-camarillo-mmusic-sdp-bfcp-00.txt

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Abstract

This document specifies how to describe BFCP streams in a SDP session description. User agents using the offer/answer model to establish BFCP streams use this format in their offers and their answers.

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1. Introduction

As discussed in the BFCP specification [5], a given BFCP client needs a set of data in order to establish a BFCP connection to a floor control server. These data include the transport address of the server, the conference identifier, and the user identifier.

Clients can obtain this information in different ways, one of them consisting of using an offer/answer [3] exchange. This document specifies how to encode this information in the SDP session descriptions which are part of an offer/answer exchange.

User agents typically use the offer/answer model to establish a number of media streams of different types. Following this model, a BFCP connection is described as any other media stream by using an SDP 'm' line, possibly followed by a number of attributes encoded in 'a' lines.

2. Terminology

In this document, the key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as described in BCP 14, RFC 2119 [1] and indicate requirement levels for compliant implementations.

3. Fields in the m Line

According to RFC 2327 [2], the 'm'line format is the following:

```
m=<media> <port> <transport> <fmt list>
```

The media field MUST have a value of "application". The port field is not used by BFCP, and MAY be set to any value chosen by the endpoint. A port field value of zero has the standard SDP meaning (i.e., rejection of the media stream).

The port field is set following the rules in [4]. Depending on the value of the setup attribute (disccused in Section 6), the port field contains the port the remote endpoint will initiate its TCP connection to, or is irrelevant (i.e., the endpoint will initiate the connection towards the remote endpoint) and should be set to a value of 9, which is the discard port. Since BFCP only runs on top of TCP, the port is always a TCP port.

We define two new values for the transport field: TCP/BFCP and TCP/TLS/BFCP.

The fmt (format) list is ignored for BFCP. The fmt list of BFCP m lines SHOULD contain a single "*" character.

The following is an example of an m line for a BFCP connection:

```
m=application 20000 TCP/BFCP *
```

4. The confid and userid SDP Parameters

We define the confid and the userid SDP media-level attributes. Their syntax is:

```
confid-attribute      = "a=confid: " conference-id
conference-id         = token

userid-attribute      = "a=userid: " user-id
user-id               = token
```

The confid and the userid attributes carry the integer representation of a conference ID and a user ID respectively.

Endpoints which use the offer/answer model to establish BFCP connections MUST support the confid and the userid attributes. A floor control server acting as an offerer or as an answerers SHOULD include these attributes in its session descriptions.

5. The k line

If the offer/answer exchange is encrypted and integrity protected, the offerer MAY use an SDP 'k' line to provide the answerer with a shared secret to be used to calculate the value of the DIGEST TLVs. The following is an example of a 'k' line:

```
k=base64:c2hhcmVkLXNlY3JldA==
```

6. TCP Connection Management

The management of the TCP connection used to transport BFCP is performed using the setup and 'connection' attributes as defined in [4].

The setup attribute indicates which of the endpoints (client or floor control server) initiates the TCP connection. The 'connection'

attribute handles TCP connection reestablishment.

Editor's note: need to address loss and re-establishment of TCP connections.

7. Association between Streams and Floors

We define the floorid SDP media-level attribute. Its syntax is:

```
floor-id-attribute    = "a=floorid:" token " mstream:" 1*(token)
```

The floorid attribute is used in BFCP m lines and associates a floor ID with a media stream. The token representing the floor ID is the integer representation of the 16-bit floorid to be used in BFCP. The token representing the media stream is a pointer to the media stream, which is identified by an SDP label attribute [6]

Endpoints which use the offer/answer model to establish BFCP connections MUST support the floorid and the label attributes. A floor control server acting as an offerer or as an answerers SHOULD include these attributes in its session descriptions.

8. Example

The following is an example of an offer sent by a conference server to a user. For the purpose of brevity, the main portion of the session description is omitted in the examples, which only show m= lines and their attributes.

```
m=application 20000 TCP/BFCP *
k=base64:c2hhcmVkLXNlY3JldA==
a=setup:passive
a=connection:new
a=confid:4321
a=userid:1234
a=floorid:1 m-stream:10
a=floorid:2 m-stream:11
m=audio 20000 RTP/AVP 0
a=label:10
m=video 30000 RTP/AVP 31
a=label:11
```

The following is the answer returned by the user.

```
m=application 9 TCP/BFCP *
a=setup:active
a=connection:new
m=audio 25000 RTP/AVP 0
m=video 35000 RTP/AVP 31
```

9. Security Considerations

TBD.

10. IANA Considerations

TBD.

10.1 SDP Attributes Registration

TBD:

11. Acknowledgments

Joerg Ott, Keith Drage, and Alan Johnston provided useful ideas for this document.

12. References

12.1 Normative References

[1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[2] Handley, M. and V. Jacobson, "SDP: Session Description Protocol", RFC 2327, April 1998.

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[4] Yon, D., "Connection-Oriented Media Transport in the Session Description Protocol (SDP)", draft-ietf-mmusic-sdp-comedia-08 (work in progress), July 2004.

[5] Camarillo, G., "The Binary Floor Control Protocol (BFCP)", draft-ietf-xcon-bfcp-01 (work in progress), August 2004.

[6] Levin, O. and G. Camarillo, "The SDP (Session Description Protocol) Label Attribute", draft-levin-mmmusic-sdp-media-label-00 (work in progress), July 2004.

12.2 Informational References

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Acknowledgment

Funding for the RFC Editor function is currently provided by the Internet Society.