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SCTP-Based Media Transport in the Session Description Protocol. draft-loreto-mmusic-sctp-sdp-00

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Abstract

Stream Control Transmission Protocol (SCTP) provides a realiable communication channel between two end-hosts in may way similar to TCP. This document describes how to express media transport over SCTP using the Session Description Protocol (SDP). It defines the SDP 'SCTP' protocol identifier.

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1. Introduction

The Session Description Protocol (SDP) [RFC4566] provides a general-purpose format for describing multimedia sessions in announcements or invitations. RFC4145, Connection-Oriented Media Transport in the Session Description Protocol (SDP) [RFC4145], specifies a general mechanism for describing and establishing such connection-oriented stream using TCP as transport protocol. RFC 4572, Connection-Oriented Media Transport over the Transport Layer Security (TLS) Protocol in the Session Description Protocol[RFC4572], extends RFC4145 to allow session descriptions to describe media session that use the TRansport Layer Security (TLS) protocol [RFC4346].

While these transports are appropriate choices for the majority of the applications, there are applications for which SCTP[RFC4960] is more appropriate. This document defines a new protocol identifier, 'SCTP', to describe SCTP associations in SDP.

SCTP uses to describe an association the same attributes, with the same meaning, defined in RFC415 to describe an TCP connection setup: 'setup' and 'connection'.

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 [RFC2119] and indicate requirement levels for compliant implementations.

3. Protocol Identifier

The following is the ABNF for an 'm' line, as specified by RFC 2327 [RFC2327].

```
media-field =          "m=" media space port ["/" integer]
                       space proto 1*(space fmt) CRLF
```

Figure 1

This document defines a new value for the proto field: 'SCTP'.

The 'SCTP' protocol identifier is similar to both the 'UDP' and 'TCP' protocol identifiers in that it only describes the transport protocol, and not the upper-layer protocol. An 'm' line that specifies 'SCTP' MUST further qualify the application-layer protocol

using an fmt identifier. Media described using an 'm' line containing the 'SCTP' protocol identifier are carried using SCTP [RFC4960].

4. Multihoming Association Management

The Association Management is completely equal to the Connection Management described in RFC 4145 Section 6. However, a SCTP endpoint, unlike a TCP endpoint, can be multihoming.

An SCTP endpoint is considered multi-homed if there are more than one transport address that can be used as a destination address to reach that endpoint. Moreover if a client is multi-homed, it informs the server about all its IP addresses with the INIT chunk's address parameters. Thereby, the client is only required to know one IP address of the server because the server provides all its IP addresses to the client in the INIT-ACK chunk.

So for a multi-homed SCTP endpoint it is enough to insert, in the connection-address field of the 'c' line, one of the IP addresses of the server.

5. Examples

The usage of the 'setup' and 'connection' attributes conbined with SCTP-based media description is completely equal to the usage described in RFC4145.

The following examples show this equivalent usage. 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 (including 'c' lines).

5.1. Passive/Active

An offerer at 192.0.2.2 signals its availability for an application session at port 54111:

```
m=application 54111 SCTP
c=IN IP4 192.0.2.2
a=setup:passive
a=connection:new
```

Figure 2

An answerer at 192.0.2.1 receiving this offer responds with the

following answer:

```
m=application 9 SCTP
c=IN IP4 192.0.2.1
a=setup:active
a=connection:new
```

Figure 3

The endpoint at 192.0.2.1 then initiates the SCTP association to port 54111 at 192.0.2.2.

5.2. Existing Connection Reuse

Subsequent to the exchange in Section Section 5.1, another offer/answer exchange is initiated in the opposite direction. The endpoint at 192.0.2.1 wishes to continue using the existing association:

```
m=application 54321 SCTP
c=IN IP4 192.0.2.1
a=setup:passive
a=connection:new
```

Figure 4

The endpoint at 192.0.2.2 also wishes to use the existing connection and responds with the following description:

```
m=application 9 SCTP
c=IN IP4 192.0.2.2
a=setup:active
a=connection:new
```

Figure 5

The existing connection from 192.0.2.2 to 192.0.2.1 will be reused.

6. Security Considerations

See RFC 4566 [RFC4566] for security and other considerations specific to the Session Description Protocol in general.

7. IANA Considerations

This document defines a proto value: SCTP. Its format is defined in Section 3. This proto value should be registered by the IANA under

"Session Description Protocol (SDP) Parameters" under "proto".

8. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC2327] Handley, M. and V. Jacobson, "SDP: Session Description Protocol", RFC 2327, April 1998.

[RFC4145] Yon, D. and G. Camarillo, "TCP-Based Media Transport in the Session Description Protocol (SDP)", RFC 4145, September 2005.

[RFC4346] Dierks, T. and E. Rescorla, "The Transport Layer Security (TLS) Protocol Version 1.1", RFC 4346, April 2006.

[RFC4566] Handley, M., Jacobson, V., and C. Perkins, "SDP: Session Description Protocol", RFC 4566, July 2006.

[RFC4572] Lennox, J., "Connection-Oriented Media Transport over the Transport Layer Security (TLS) Protocol in the Session Description Protocol (SDP)", RFC 4572, July 2006.

[RFC4960] Stewart, R., "Stream Control Transmission Protocol", RFC 4960, September 2007.

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