

SCTP-SDP

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(2) AGENDA

- ACTIVE/PASSIVE + TLS ROLE
- IDENTICAL 5-TUPLE
- PROTO VALUES
- IANA SCTP fmt REGISTRY

(3) ACTIVE/PASSIVE + DTLS ROLE

- **SCTP**

- ACTIVE endpoint establishes SCTP connection
- O/A: SDP 'setup' attribute used to negotiate ACTIVE endpoint
- Identical to TCP (RFC 4145)

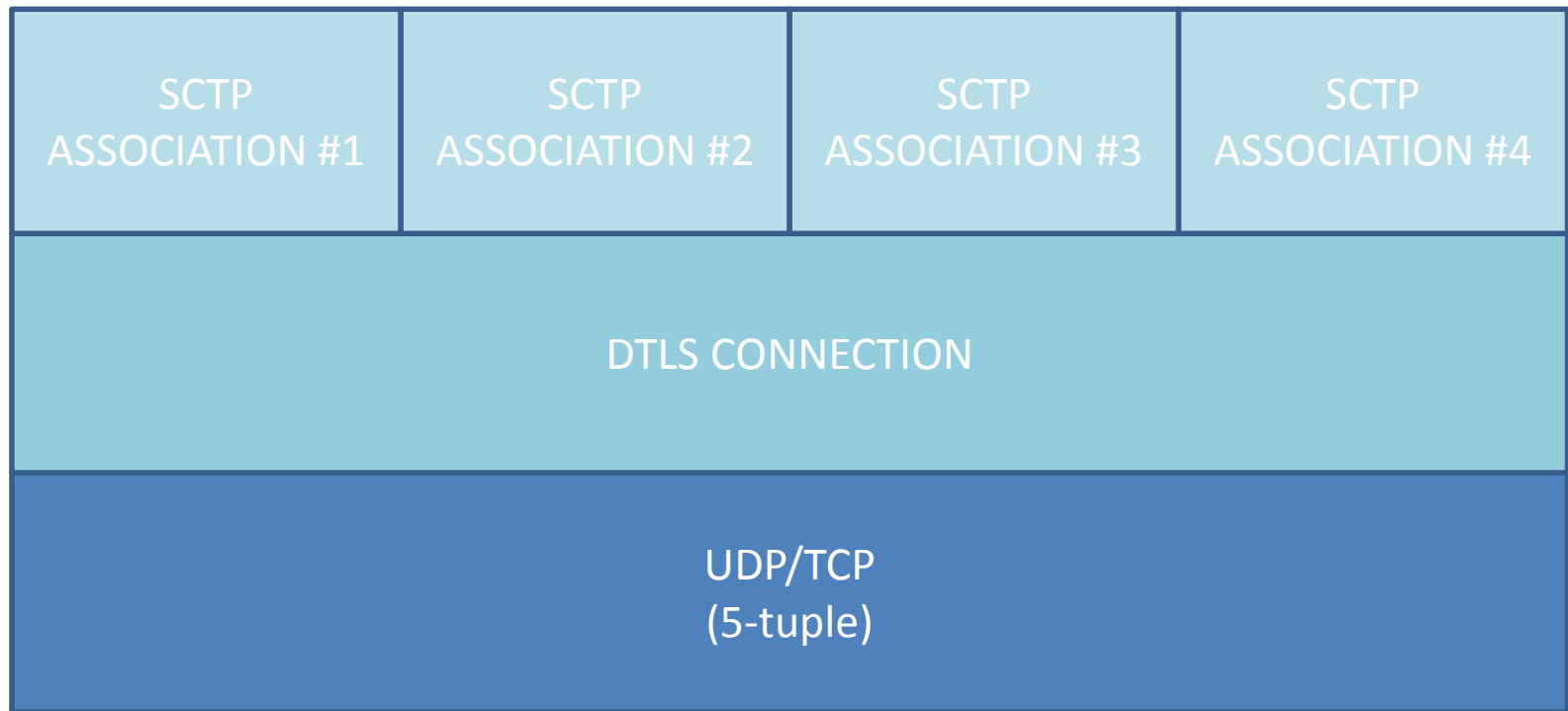
(4) ACTIVE/PASSIVE + DTLS ROLE

- **SCTP/DTLS (“DTLS over SCTP”)**
 - ACTIVE endpoint establishes SCTP association
 - ACTIVE endpoint sends ClientHello (TLS Client)
 - O/A: SDP ‘setup’ attribute used to negotiate ACTIVE endpoint
 - Identical to TLS (RFC 4572)

(5) ACTIVE/PASSIVE + DTLS ROLE

- **DTLS/SCTP (“SCTP over DTLS”)**
 - ACTIVE endpoint sends ClientHello (TLS Client)
 - ACTIVE endpoint establishes SCTP associations
 - O/A: SDP ‘setup’ attribute used to negotiate ACTIVE endpoint
 - Identical to TLS (RFC 4572)
- **BUT...**

(6) IDENTICAL UDP/TCP 5-tuple (DTLS/SCTP)



(7) IDENTICAL UDP/TCP 5-tuple (DTLS/SCTP)

- **SDP example**

m=application **12345** DTLS/SCTP USAGE_ASSOC#1

a=sctp-port:**4060**

m=application **12345** DTLS/SCTP USAGE_ASSOC#2

a=sctp-port:**8070**

m=application **12345** DTLS/SCTP USAGE_ASSOC#3

a=sctp-port:**2030**

(8) IDENTICAL UDP/TCP 5-tuple (DTLS/SCTP)

- **ALTERNATIVES**

- **Alt 1:** Allow single SCTP association per DTLS connection
- **Alt2:** Allow multiple SCTP associations within single m- line
- **Alt3:** Mandate usage of BUNDLE/bundle-only

(9) Alt 1 (Single SCTP assc/DTLS conn)

SCTP ASSOCIATION #1	SCTP ASSOCIATION #2	SCTP ASSOCIATION #3	SCTP ASSOCIATION #4
DTLS CONNECTION #1	DTLS CONNECTION #2	DTLS CONNECTION #3	DTLS CONNECTION #4
UDP/TCP (5-tuple #1)	UDP/TCP (5-tuple #2)	UDP/TCP (5-tuple #3)	UDP/TCP (5-tuple #4)

(10) Alt 1 (Single SCTP assc/DTLS conn)

- **SDP example**

m=application **12345** DTLS/SCTP USAGE_ASSOC#1

a=sctp-port:**4060**

m=application **67890** DTLS/SCTP USAGE_ASSOC#2

a=sctp-port:**8070**

m=application **24680** DTLS/SCTP USAGE_ASSOC#3

a=sctp-port:**2030**

(11) Alt 2 (Multiple assoc/m- line)

- **SDP example**

m=application **12345** DTLS/SCTP USAGE_ASSOC#1-3

a=fmtp: USAGE_ASSOC#1

a=sctp-port:**4060**

a=fmtp: USAGE_ASSOC#2

a=sctp-port:**8070**

a=fmtp: USAGE_ASSOC#3

a=sctp-port:**2030**

(12) Alt 3 (MUST BUNDLE)

- **SDP example**
 - ‘mid’ and ‘group’ attributes missing

m=audio AVP/RTP 456789 101 102

m=application 0 DTLS/SCTP USAGE_ASSOC#1

a=bundle-only

a=sctp-port:4060

m=application 0 DTLS/SCTP USAGE_ASSOC#2

a=bundle-only

a=sctp-port:8070

m=application 0 DTLS/SCTP USAGE_ASSOC#3

a=bundle-only

a=sctp-port:2030

(13) IDENTICAL UDP/TCP 5-tuple (DTLS/SCTP)

- **SUGGESTION**

- **Alt 1: Allow single SCTP association per DTLS connection**

- Done in RTCWEB

- Does allow multiple data channels, but single association usage

- **Alt2: Allow multiple formats within single m- line**

- Single m- line describes multiple SCTP associations

- **Alt3: Mandate usage of BUNDLE/bundle-only**

- Each m- line will have zero port value in initial offer
- Requires at least one non-bundle m- line (audio, video,...)
- Core BUNDLE only allows one m- line with DTLS encrypted content per BUNDLE group

(14) PROTO VALUES

- **CURRENTLY**

- SCTP
- SCTP/DTLS
- DTLS/SCTP

- **SUGGESTED**

- SCTP
- SCTP/DTLS
- **UDP/DTLS/SCTP + TCP/DTLS/SCTP**

- **QUESTION**

- Where is DTLS over TCP defined?

(15) IANA SCTP fmt REGISTRY

fmt	proto	reference
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fmt

Name of format value

e.g. webrtc-datachannel

proto

For which proto value(s) fmt is applicable

SCTP, SCTP/DTLS and/or DTLS/SCTP

reference

Document which specifies semantics and usage of fmt

(16) IANA SCTP fmt REGISTRY

- **REGISTRATION OF NEW FORMAT VALUES**
 - **Alt 1:** Specification required
 - Alt 2: RFC
 - Alt 3: Standards track RFC
 - Alt 4: Something else...

(17) NEXT STEPS

- Implement outcome in new version of draft
- WGLC

THE END

THANK YOU FOR
LISTENING!