

# SDP Capability Negotiation

draft-ietf-mmusic-sdp-capability-negotiation-06.txt

draft-andreasen-mmusic-sdpcapneg-att-del-00.txt

draft-ietf-mmusic-sdp-capability-negotiation-reqts-01

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# IPR Statement

- **Same IPR statement as last time.**
- Cisco is the owner of one or more pending unpublished patent applications relating to the subject matter of "SDP Capability Negotiation" <draft-ietf-mmusic-sdp-capability-negotiation-05.txt>.
  - See [https://datatracker.ietf.org/public/ipr\\_detail\\_show.cgi?&ipr\\_id=761](https://datatracker.ietf.org/public/ipr_detail_show.cgi?&ipr_id=761)
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# Documents

- SDP Capability Negotiation: Requirements and Review of Existing Work
  - draft-ietf-mmusic-sdp-capability-negotiation-reqts-01
  - No update
- SDP Capability Negotiation: Deleting and Replacing Attributes
  - draft-andreasen-mmusic-sdpcapneg-att-del-00.txt
  - Draft exploring the need for deleting and replacing individual attributes
    - Issue was source of added complexity and much discussion in Prague
  - Draft concludes we can get by without this functionality
- SDP Capability Negotiation
  - draft-ietf-mmusic-sdp-capability-negotiation-06.txt
  - Core document
  - Solution document updated based on review comments, Prague review, and subsequent mailing list issue discussion.

# SDP Capability Negotiation (Core)

- Changes since -05
  - New section on Conceptual Negotiation Model
  - Allowing for session-level attribute capabilities with media-level attributes
    - Cannot be used by a potential configuration though
  - At most one “a=tcap” per media stream (plus session level)
  - Allowing “a=pcfg” to have empty configuration list to enable actual configuration order preference
  - Removed ability to delete or replace individual attributes
    - Session-level and media-level delete of all attributes still there
  - New notion of mandatory and optional attribute capabilities in a potential configuration
    - Mandatory capabilities must be supported to choose the configuration
    - Updated offer/answer procedures using these as well

# SDP Capability Negotiation (Core)

- Changes since -05
  - Added recommendation to avoid use of session-level attributes when possible, due to potential interactions
  - Fixed error in “a=acfg” grammar
  - New section on interaction with SIP Option Tags
    - Grouping framework (RFC 3388) in particular
  - New section on dealing with large number of potential configurations
    - Addressed in security considerations as well
  - New section on SDP Capability Negotiation and Intermediaries (SBCs, etc.)
  - Various editorial updates and notes added throughout

# Open Issues in Core

Some issues have recently been raised on the list:

- 1) Lack of Bandwidth Capabilities
- 2a) Transport Capabilities and RTP Payload Types
- 2b) Session Level Coordination between Potential Configurations
- 2c) Media Capabilities Negotiation
- 3) Usage of Truncated Syntax as Capability Definitions
- 4) Media Before Answer
- 5) Obsoleting RFC 3407

Some of these are outside the current requirements

Two different kinds:

- A) Prevents correct operation
- B) Lacks desired features (reduced core functionality)

# 1) Lack of Bandwidth Capabilities

- Issue:
  - Bandwidth parameter (“b”) not supported as a capability
    - No requirement for it currently
  - However different profiles may have different bandwidth requirements
    - RTP (plain), SRTP (MAC), AVPF (RTCP-feedback), SAVPF
    - RFC 3556 RTCP Bandwidth Modifiers (“b=RS” and “b=RR”)
  - Currently, “b=” value in actual configuration will have to be worst case, and RTCP Bandwidth Modifiers would need to be in the actual configuration
    - b=AS:80 [kbits per second]
    - b=RS:800, b=RR:2400 [bits per second]
- Solution Options
  - 1) Add bandwidth capabilities and associated procedures
  - 2) Note issue and limited workaround from above

# 2a) Transport Capabilities and RTP Payload Types

- Issue:
  - No inherent support in the core for media capabilities means we cannot negotiate combinations of transport protocols and media formats.
  - Examples
    - RTP Retransmission Payload (RFC 4588) should only be used with feedback based profile (e.g. AVPF)
      - Doesn't break anything to try and use with non-feedback based though (no retransmission trigger), but clearly not the intent.
    - RTP payload formats (or media formats in general) that only make sense over certain transports (e.g. TCP-based)
  - Don't have a requirement for this either
  - It is possible to remap payload types, but a cumbersome and error prone technique that requires an answer before media (hack)
- Solution Options
  - 1) Out of scope currently – leave it that way and rely on an extension (e.g. media capabilities).
  - 2) Add some form of media capabilities and associated procedures to core document.

## 2b) Session Level Coordination between Potential Configurations

- Issue
  - Draft discusses the need for coordinated negotiation of session-level attributes between different media streams
    - Grouping framework is one possible use case
      - Consider FEC [RFC4756], and Retransmission/FID [RFC4588]
    - Based on currently defined attributes, it suggests that in practice the core can get by without a solution to this which is hence not provided.
  - Related issue is coordinated negotiated between different media streams in general
    - Exemplified by session-multiplexing with RTP Retransmission Payload
    - Layered codecs could be a significant issue as well
      - Discussed early on, but left out of scope
      - Big can of worms....

# 2b) Session Level Coordination between Potential Configurations

- Issue, cont.
  - We currently do not have core requirements to support this however, we have the following enhancement requirements:
    - Alternative media format negotiation (REQ-10)
    - Valid Combinations of Media Lines (REQ-150)
    - Valid Combinations of Media Formats between Media Streams (REQ-160)
  - How much of an issue is this in practice for a basic endpoint wanting to use FEC or RTP Retransmission ?
- Solution Options
  - 1) Leave out of scope in core and address with extension
  - 2) Get Use Case Scenarios documented (real soon) and defer decision based on that (example call flows)
  - 3) Include limited form of media capabilities to specifically address the RTP Retransmission and FEC scenarios.
  - 4) Include full-fledged media capabilities in core

# 2c) Media Capabilities Negotiation

- Issue
  - Media Capabilities Negotiation is out of scope in the core, but acknowledged as an extension
    - Separate Media Capabilities draft in progress (no update this IETF)
      - draft-ietf-mmusic-sdp-media-capabilities-01.txt
  - Magnus would like to see further treatment of this topic and possibly added functionality in the core spec to address this
    - Doesn't necessarily imply that full-fledged media capabilities and associated negotiation has to be in the core.
- Solution Options
  - 1) Leave as-is, and assume that core is sufficiently general to accommodate media capabilities as an extension
  - 2) Halt progress on core until further work on media capabilities has been done and then reevaluate
  - 3) Make media capabilities part of core

# 3) Usage of Truncated Syntax as Capability Definitions

- Issue
  - Core allows for attribute capabilities to contain only the attribute name, even when the attribute is an “a=<attribute>:<value>” type of attribute
    - Document does not say these cannot be used in a potential configuration
      - Editorial mistake that will be corrected
  - Idea was to be have a shorthand for indicating support for certain types of functionality
    - For example “a=crypto” attribute without all the parameter details (incl. keying material)
  - Arguably, the use cases are limited
    - Most attributes need some value information to convey helpful information from a capability point of view
- Solution Options
  - 1) Remove
  - 2) Leave as-is, modulo clarification provided above

# 4) Media Before Answer

- Issue
  - Sending media before answer when not using the actual configuration can result in problems on the receiving side
  - The issue is well understood and documented in the core currently
  - Is the current text and associated requirements sufficient, or do we need more ?
- Solution Options
  - 1) Leave as-is
  - 2) Need more
    - If so, what and where ?

# 5) Obsoleting RFC 3407

- Issue
  - Core document says it Obsoletes RFC 3407
  - Core document does not provide all the functionality of RFC 3407:
    - Media Capabilities (albeit crude in RFC 3407)
    - Bandwidth parameters as capabilities
    - Minimum and maximum values for capability values
  - RFC 3407 is currently used and referenced by other specifications
    - PacketCable (NCS, TGCP, 2.0), ITU-T V.150.1
- Solution Options
  - 1) Have core obsolete RFC 3407
  - 2) Wait for media capabilities and have it obsolete RFC 3407
  - 3) Do not obsolete RFC 3407

# Next Steps

- Are we getting ready for WGLC ?