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• Cisco is the owner of one or more pending unpublished patent applications relating to the subject matter of "SDP Capability Negotiation" 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

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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?