SDP Capability Negotiation

draft-ietf-mmusic-sdp-capability-negotiation-12.txt

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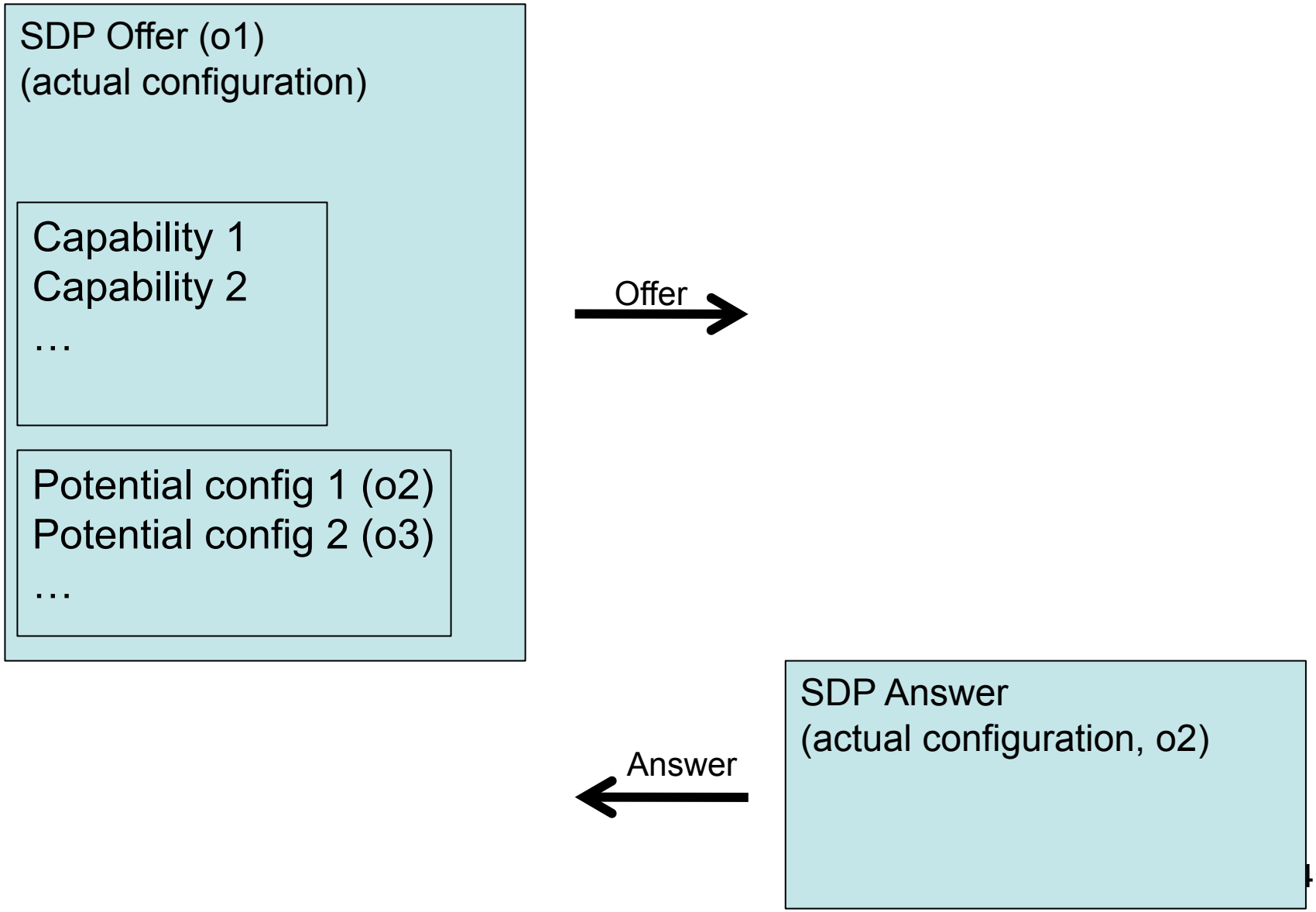
Progress and Current Status

- WGLC completed on -08 (end of 2007)
- Chair review resulted in -09 (mid 2008)
- General Area and Security Directorate review led to -10 (mid 2009)
- IESG review led to -11 and -12 (early 2010)

Quick Recap

- Problem:
  - SDP and Offer/Answer model provides only limited capability negotiation
  - Offer contains actual configuration and cannot specify alternative (potential) configurations
    - For example: RTP versus SRTP
- Solution:
  - Define backwards compatible SDP and Offer/Answer extensions for capabilities and capability negotiation
  - Base framework document (this one) defines basic capability negotiation framework including attribute and transport capabilities
  - Extensions allow for further capabilities and associated procedures (e.g. media capabilities)

Conceptual Model



Example

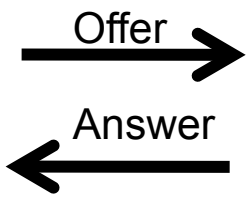
Offerer

```
v=0
o=- 25678 753849 IN IP4 192.0.2.1
s=
c=IN IP4 192.0.2.1
t=0 0
m=audio 53456 RTP/AVP 0 18
a=tcap:1 RTP/SAVPF RTP/SAVP RTP/AVPF
a=acap:1 crypto:1 AES_CM_128_HMAC_SHA1_80
   inline:WVNfX19zZW1jdGwgKCkgew...
a=acap:2 rtcp-fb:0 nack
a=pcfg:1 t=1 a=1,[2]
a=pcfg:2 t=2 a=1
a=pcfg:3 t=3 a=[2]
```

Actual Configuration

Capabilities

Potential Configurations



Answerer

```
v=0
o=- 24351 621814 IN IP4 192.0.2.2
s=
c=IN IP4 192.0.2.2
t=0 0
m=audio 54568 RTP/AVPF 0 18
a=rtcp-fb:0 nack
a=acfg:1 t=3 a=[2]
```

Actual Configuration used from offer

Attributes Defined

- Version and Extension Indication Attributes
  - Supported Capability Negotiation Extensions Attribute (`a=csup`)
  - Required Capability Negotiation Extensions Attribute (`a=creq`)
- Capability Attributes
  - Attribute Capability Attribute (`a=acap`)
  - Transport Protocol Capability Attribute (`a=tcap`)
  - Extension Capability Attributes
- Configuration Attributes
  - Potential Configuration Attribute (`a=pcfg`)
  - Actual Configuration Attribute (`a=acfg`)

Important Changes from IESG Review

- Disallowed base framework only implementations from generating media-level attribute capabilities at the session-level
  - Also added explicit processing rules for how to process them if received (invalid potential configuration).
- Disallowed attribute capabilities from embedding capability negotiation parameters and discouraged extension capabilities from similar behavior
  - Illegal example: `a=acap:1 acap:2 foo:a`
  - Also specified non-recursive processing of capabilities on the receive side as a safeguard
- ICE (pending RFC 5245) reference changed to Normative status
  - Doesn't mean you have to implement ICE to implement SDP Capability Negotiation

Important Changes from IESG Review

- ABNF changes to disallow more than 10-digit capability numbers
  - Syntax consistent with existing semantic restrictions
- Changed definition (and ABNF) for attribute-config-list (part of "`a=pcfg`") to allow for delete-attributes only
  - i.e., may not reference any attribute capabilities in "`a=pcfg`"
- Removed recommendation to use the TIAS bandwidth type [RFC3890] and added note explaining why it should not be used
  - Currently no good way of specifying bandwidth for different potential configurations with different transport protocols
  - Worst-case bandwidth can be specified in actual configuration
  - Extensions can be defined to remedy this

Open Issues or Comments

- One suggestion to define a new “a=scap” attribute for session-level attributes instead of the current use of “a=acap” (Bob Gilman)
  - Base framework only implementations MUST NOT provide media-level attributes in session-level “a=acap”
  - Concern around SDP Capability Negotiation needing to understand whether attributes are session-level or media-level
    - Inherent SDP issue that does not go away merely by changing the syntax
    - SDP offerer would still need to ensure no media-level attributes in “`a=scap`”
    - SDP answerer would still need to validate that session-level attribute capabilities contain session-level attributes (valid potential configuration)
  - Concern about understanding whether invocation of session-level attribute applies to all media streams or not
    - Inherent issue with the attribute in question (e.g. “a=key-mgmt” with MIKEY)
    - Resulting potential configuration SDP looks exactly the same, whether it came from “`a=acap`” or “`a=scap`”.
  - Proposed resolution: No clear benefit, so no change

Open Issues or Comments

- One request for editorial clarification on transport capabilities provided at the session-level (Kevin Fleming)
  - Proposed resolution: Clarify text as suggested (“transport protocol” versus “transport protocol capability”)