SDPng Update

draft-ietf-mmusic-sdpng-01.txt

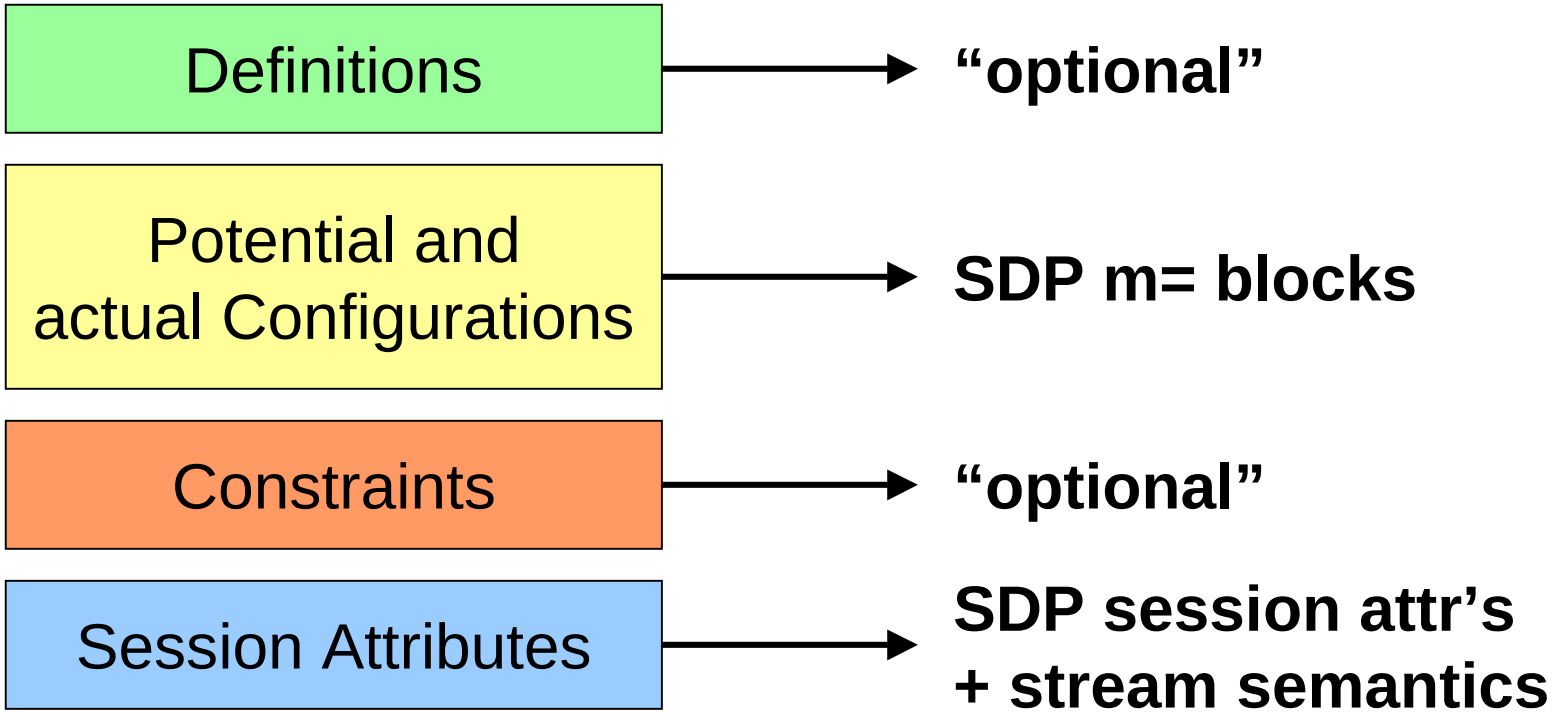
Dirk Kutscher	dku@tzi.org
Jörg Ott	jo@tzi.org
Carsten Bormann	cabo@tzi.org

Overview

- Changes in draft-ietf-mmusic-sdpng-01.txt
- Definition and extension mechanisms
- Issues identified so far
- Next steps

General SDPng Model

Four different sections



SDPng Syntax

- XML
  - Structured description instances
  - Formal validation
    - DTDs, schemas provide rules
  - Extensibility
    - Namespace concept
  - Ubiquity
    - Parsers may already be implemented in end systems
  - Address encoding size (compression) later
    - Signaling compression…

SDPng Model in XML

Definitions	Elements for defining codecs, transport mechanisms, referring to existing definitions
Potential and actual Configurations	Elements for listing configurations that are combinations of definitions (may either reference or define inline)
Constraints	Reference configurations and express constraints on combinations, number of instantiations etc.
Session Attributes	Elements for meta information on individual applications (i.e., streams, sessions), referencing configuration definitions.

Scope of the SDPng Specification

SDPng consists of

- Base specification
  - Overall structure of SDPng documents
  - Common data types and element types
- Basic rules packages (“profiles”)
  - Define how to express commonly used parameters
    - Codecs, RTP parameters etc.

Schema Definitions

- Basic definitions (“libraries”)
  - Specific codec definitions, RTP payload type definitions etc.

Instances

Extending SDPng

- Creating new schema definitions (“profiles”)
  - E.g. specification of ATM transport parameters
  - Define appropriate data types and element types
  - Possible solution for naming:
    - Profile definitions to reside in individual namespaces to ensure uniqueness of names
- Creating libraries
  - Provide a set of definitions that can be re-used by SDPng document instances
  - Libraries will typically based on a certain profile
    - E.g., the RTP AVP library
  - Essentially, libraries are standalone instances

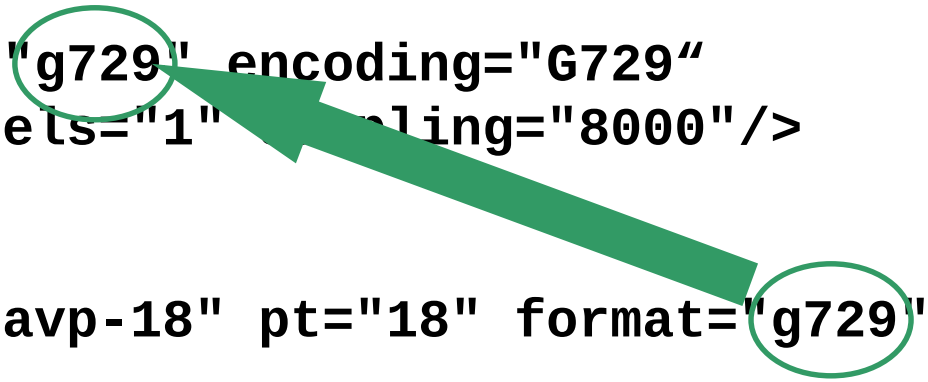
XML Definition Mechanisms

- XML Namespaces
  - Fully qualified names ensure uniqueness of identifiers
  - A namespace per profile
  - Namespace names can be registered…
- XML Schema
  - Extensibility
    - `Import` mechanism allows to import third-party definitions from different namespaces
    - Element type definitions can be derived from existing definitions
  - Expressiveness
    - Fine grained control of content models and attribute types

Example: Definitions

```
<def>
  <audio:codec name="dvi4" encoding="DVI4“
               channels="1" sampling="8000"/>
  <audio:codec name="g722" encoding="G722“
               channels="1" sampling="16000"/>
  <audio:codec name="g729" encoding="G729“
               channels="1" sampling="8000"/>

  <rtp:pt name="rtp-avp-18" pt="18" format="g729"/>
</def>
```



Example: Configurations

```
<cfg>
  <c name="interactive-audio" media="audio">
    <alt name="alt-avp-audio-18">
      <rtp:session format="rtp-avp-18">
       <udp rtp-port="7800“
            addr="224.2.0.53"/>
      </rtp:session>
    </alt>
  </c>
</cfg>
```

Definitions in draft-ietf-mmusic-sdpng-01

- Definition of audio codecs as provided by draft-ietf-avt-profile-new-11.txt
  - Schema: codec element with attribute set:
    - `name:` Name of codec definition
    - `encoding:` Identifier for the IANA registered encoding
    - `mime:` Alternative encoding specification
    - `channels:` Nr. of independent media channels
    - `sampling:` Codec sampling rate
- Proof-of-concept
  - No schema definition, no namespace
  - Will be moved to audio codec library

Definitions in draft-ietf-mmusic-sdpng-01 (2)

- Definition of RTP payload types as provided by draft-ietf-avt-profile-new-11.txt
  - Schema: pt element with attribute set:
    - `name:` Name of pt definition
    - `pt:` Payload type number
    - `format:` Reference to a codec definition
  - Optional attributes conceivable:
    - Packetization etc.
- TODO
  - Formal schema definition, namespace + library
  - Have to consider dependency on codec definition schema

Conference Attributes

- General Information about the Conference
  - Initiator, subject, contact information etc.
- Scheduling
  - For announcements and non-instantaneous invitations
- Meta-Information about media streams
- Will provide hooks for extensions

Essentially SDP-compatible

Issues

- Uniqueness of identifiers in attribute values
  - When relying on multiple independent libraries, how to avoid name collisions?
  - Prefix identifiers (like XML namespace prefixes do)?
- Referencing profiles
  - XML Schema allows documents to reference exactly one schema definition.
  - Use “integrating profile” that references all required schema definition using `import`?
- Capabilities vs. specific session descriptions
  - How to augment capability descriptions with specific transport parameters?
  - Allow for many optional elements/attributes?

Next steps

- Integrate description of XML Schema usage into draft
- Finalize formal definition of base SDPng
- Define profiles
  - Audio/video over RTP/UDP/IP first
- Reality check
  - More examples
  - Implementations

Example: Conference Attributes

```
<conf>
  <owner user="joe@example.com" id="foobar“
         version="1" nettype="IN“
         addrtype="IP4" addr="130.149.25.97"/>

  <session name="An SDPng seminar“
         info="http://www.dmn.tzi.org/ietf/mmusic/">

    This seminar is about SDPng...
    <info>http://www.ietf.org/</info>
    <contact>mailto:joe@example.comg</contact>
    <contact>sip:joe@example.com</contact>
  </session>

  <time start="3034423619" stop="3042462419">
    <repeat interval="7d" duration="1h"/>
    <repeat interval="7d" duration="1h“
            offset="25h"/>
  </time>

  <info name="interactive-audio" function="speaker">
    Audio stream for the different speakers
  <info>
</conf>
```