

FEC Grouping Semantics in SDP

draft-ietf-mmusic-rfc4756bis-01

IETF 74 – March 2009

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FEC Framework Flexibility

- FEC Framework requires that:
 - Source and repair flows are carried in different flows
 - Each FEC scheme has a different FEC Framework instance
- We would like to support flexible source/repair flow grouping
 - A source flow **MAY** be protected by multiple instances
 - Within an instance, multiple repair flows **MAY** exist
 - Source flows **MAY** be grouped (combined) prior to FEC protection
 - 3388bis allows us to do these things (RFC 4756 needs to be updated)
- If multiple repair flows are associated with a source flow, we need a way to indicate whether they are additive or not
 - RFC 4756 does not have such semantics, thus it needs to be updated

Source and Repair Flow Association

```
          SOURCE FLOWS          | FEC FRAMEWORK INSTANCE #1
          | S1: Source Flow |-----| R1: Repair Flow
+----+ |
          | S2: Source Flow
          |
+-----+ | FEC FRAMEWORK INSTANCE #2
          | R2: Repair Flow
```

- RFC 3388: An “m” line identified by its ‘mid’ attribute **MUST NOT** appear in more than one “a=group” line using the same semantics
- RFC 4756 (based on RFC 3388) would require us to write

a=group:FEC S1 S2 R1 R2

→ No particular association

- I-D.ietf-mmusic-rfc3388bis removed this requirement

Support for Additivity

SOURCE FLOWS		FEC FRAMEWORK INSTANCE #1
S4: Source Flow	-----	R5: Repair Flow
		R6: Repair Flow
	-----	FEC FRAMEWORK INSTANCE #2
		R7: Repair Flow

- Additivity
 - Multiple repair flows may be decoded jointly to improve the recovery chances
 - Additive repair flows can be generated by the same or different FEC schemes
- **Currently, there is no SDP semantics for additivity**

New Semantics (FEC-XR) – Examples

SOURCE FLOWS		FEC FRAMEWORK INSTANCE #1
S4: Source Flow	-----	R5: Repair Flow
		R6: Repair Flow
	-----	FEC FRAMEWORK INSTANCE #2
		R7: Repair Flow

- Association

a=group:FEC-XR S4 R5 R6

a=group:FEC-XR S4 R7

- Additivity

a=group:FEC-XR S4 R5 R6 → R5 and R6 are additive

a=group:FEC-XR S4 R7 → R7 is not additive

- Note that additivity is NOT (necessarily) a transitive relation
 - Each set of additive flows MUST be explicitly stated

Next Steps

- Ready for WGLC?
 - We currently update RFC 4756; do we need to obsolete it?