

# **FEC Grouping Semantics in SDP**

draft-begen-mmusic-rfc4756bis-00

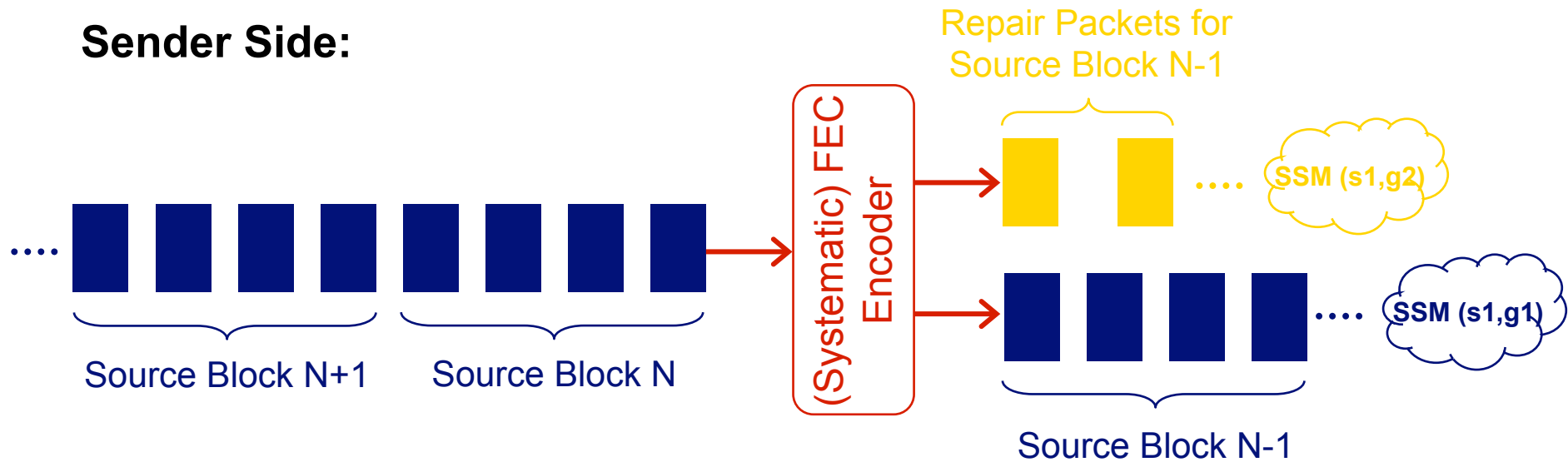
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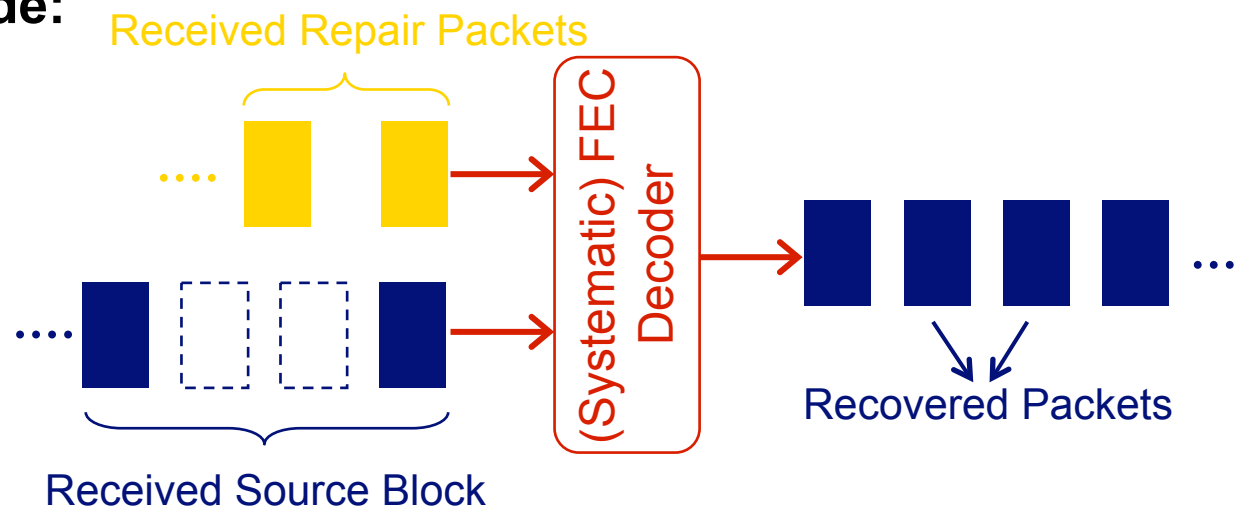
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# Forward Error Correction (FEC)

Sender Side:



Receiver Side:



# FEC Framework Flexibility

- Framework Requirements:
  - Source and repair flows are carried in different flows
  - Each FEC scheme requires a different FEC Framework instance
- We'd 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
- If multiple repair flows are associated with a source flow, we'd like to support
  - Additive repair flows that may be decoded jointly for better recovery chances
  - Prioritization among the repair flows



# Support for Additivity/Prioritization

```
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
- Prioritization
  - Prioritization lets receivers know in which order they **MUST** receive/decode the repair flows
  - The repair flows that are assigned a priority may or may not be additive
- **Currently, there is no SDP semantics for additivity/prioritization**

# 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**

# 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**

- Prioritization: Priority may be indicated by the order of the ‘mid’ values of the repair flows
  - For the example above  $\rightarrow p(R5) > p(R6) > p(R7)$
  - **Open Issue: How do we signal equal priorities?**

# Comments / Feedback

- Any need for a generic priority signaling in SDP?
- Suggestions for going forward?