

FEC Grouping Semantics in SDP

draft-begen-mmusic-rfc4756bis-00

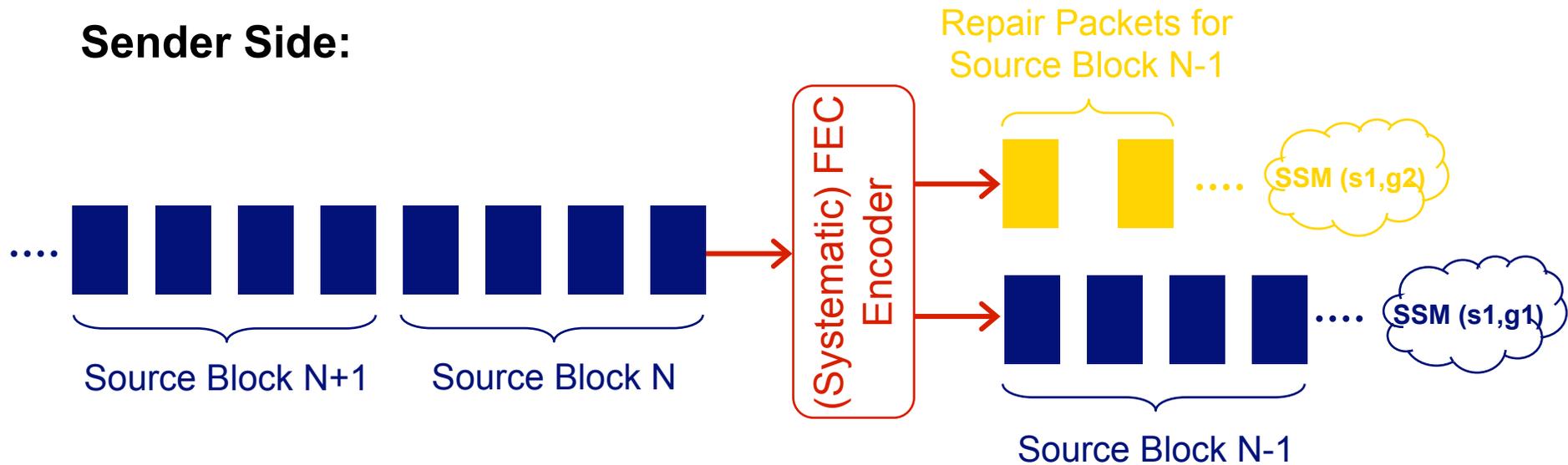
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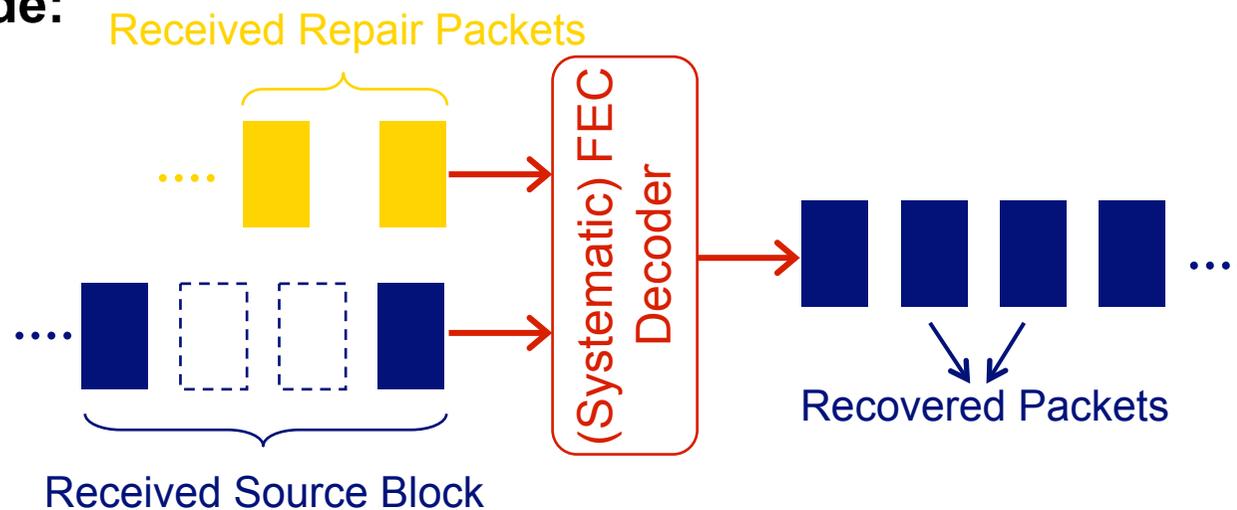
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Forward Error Correction (FEC)

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?