

Specifying new FEC Scheme Internet-Drafts (e.g. RLNC): HOW-TO?

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What to expect in a FEC Scheme?

FEC Scheme

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graph TD; A[FEC Scheme] --> B[code specifications]; A --> C[signaling aspects];
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code specifications

- enables interoperable implementations
- goes into all tricky aspects

signaling aspects

- use-case dependent
 - e.g., RLC I-D is for FECFRAME
- several different FEC schemes per code feasible, differing in signaling
- typically:
 - information carried in each packet (FPI)
 - information present in session description (FFCI)

I-D structure ([rfc6363] section-5.6)

- Introduction + motivations + definitions + acronyms
- Procedures
 - the “hard part”, with pseudo code and algorithms, to define non-ambiguously all code details (parameter derivation, mapping to symbols, PRNG, coding coefficients generation)
- FEC Scheme
 - FEC Framework Configuration Information, source and repair
FEC Payload Information
- FEC code specification
 - high level description of how to assemble the various pieces and make it work, at a sender and receiver
- Security + IANA + operations and management

From RLC I-D to RLNC I-D

- RLC code specifications

- end-to-end only
- PRNG + repair symbol key
define all coding coefficients

- choose a target protocol
- solve packet identification and other potential issues



- remove PRNG + repair key
- change FPI (packet header) to carry coding coefficients
- remove FECFRAME specific parts if appropriate

- RLNC code specifications

- in-network re-encoding capable
- carry all coding coefficients within packets (FPI)

From RLC I-D to RLNC I-D (2)

- several RLNC FEC Schemes feasible / desirable
 - limited to a single source, using several delivery paths
 - **makes packet identification trivial**
 - general case with multiple sources
 - **more complex...**