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

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What to expect in a FEC Scheme?

FEC Scheme

- enables interoperable implementations
- goes into all tricky aspects

**code specifications**

**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

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- 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…