Profile for DCCP Congestion Control ID 4: the Small-Packet Variant of TFRC CC.

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draft-floyd-ccid4-01.txt

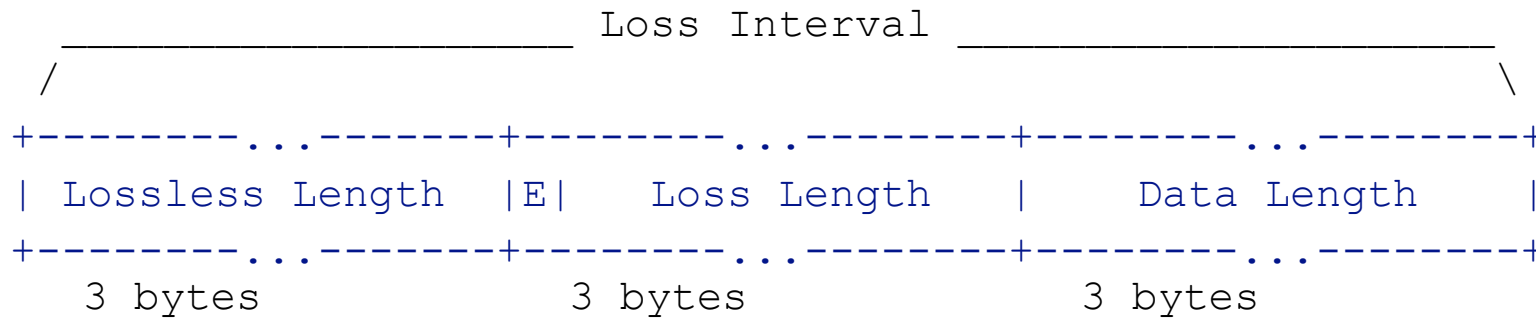July 2007

DCCP Working Group, IETF

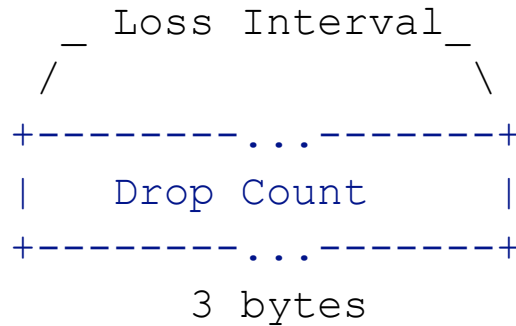Slides: http://www.icir.org/floyd/talks.html

CCID 4 differences from CCID 3

- Header size:
  - The allowed transmit rate includes headers.

- Minimum sending rate:
  - A minimum interval of 10 ms. between packets.

- Loss rates for short loss intervals:
  - The computed loss rate takes into account the number of packets dropped.
  - If the most recent loss interval is short, it is not included in the calculation of the average loss interval size.

- The nominal segment size:
  - The nominal segment size used by the TCP throughput equation is set to 1460 bytes.
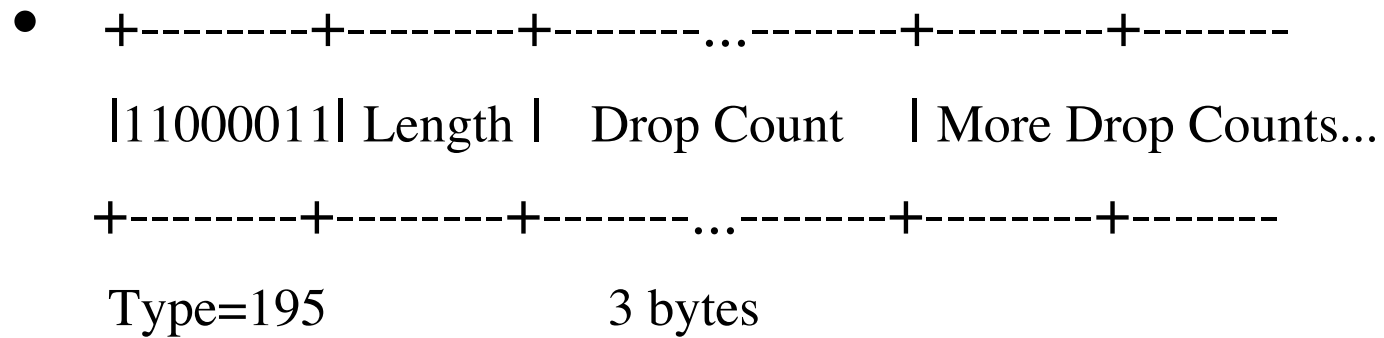
New: a CCID 3 Dropped Packets option

```
 _____  Loss Interval  _____
/                                                           \
+-------...-------+-------...-------+-------...-------+
| Lossless Length |E|   Loss Length   |     Data Length     |
+-------...-------+-------...-------+-------...-------+
   3 bytes              3 bytes              3 bytes
```

The old CCID 3 Loss Intervals Option.

```
  _ Loss Interval_
 /                \                                          \
+--------...-------+
|   Drop Count    |
+--------...-------+
      3 bytes
```

The new CCID 3 Dropped Packets Option.

The CCID 3 Dropped Packets Option

- Specified in draft-kohler-dccp-ccid3-drops-01.txt (available from http://www.read.cs.ucla.edu/dccp/).

```
+--------+--------+-------...------+-------+------
|11000011| Length |   Drop Count   | More Drop Counts...
+--------+--------+-------...------+-------+------
Type=195                3 bytes
```

New since draft-floyd-dccp-ccid4-00:

- Feedback from Ian McDonald:
  - Changed the assumed DCCP-Data header size (for 48-bit sequence numbers).
  - Added that the CCID4 sender can send two packets in a burst, if limited by OS granularity.
  - Added that the implementer may track Faster Restart and implement it before an explicit update to the CCID4 RFC.
- Added an example to Section 8.4:
  - Of when errors can occur in using the Window Counter to detect loss intervals of at most two round-trip times.
- Added a subsection:
  - describing calculation of the average loss interval in TFRC-SP.

Next steps:

- I think this is straightforward.
- Ready to become a WG item.
- Ready for WG last call.