Peer-to-peer networks – (due till March 25, 2009)

Exercise 4.1: Random Linear Fountain Codes (part 2/2)

Extend the application from the last exercise:

- It should be possible to define a (short) message.
- This message should be XORed with random vectors generating a sequence of packets.
- After a sufficient number of packets have been generated, the original message should
  be reconstructed.

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Exercise 4.2: Gnutella

The simplest kind of flooding can generate a large number of packets.

1) In which way does the Gnutella protocol try to mitigate this problem?

    a) What is the purpose of the DescriptorID
    b) How would you compose/generate it and why?

2) Identify situations in which unnecessary packets still occur.

3) The protocol uses two values named „TTL" and „Hops".

    a) What is the purpose of the „TTL"?
    b) For which reason is „Hops" stored in addition? Do both values carry
       redundant information? Is the additional storage of „Hops" beneficial
       for the protocol?