PERC Double
draft-jennings-perc-double

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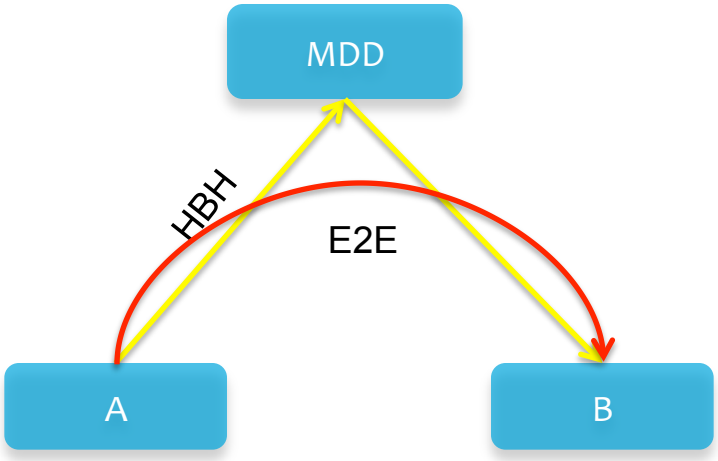
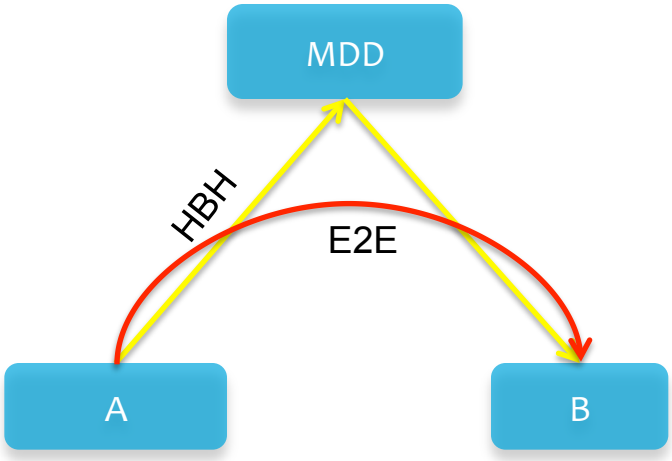
Problem



- Some things we don't want the middle to see (like the media content)
- Some things we want the MDD to be able to change
- Any fields the MDD changes need to be preserved somehow so the receiver can authenticate the packet E2E

The Double Solution



- Double uses normal SRTP twice – once end to end (E2E) and once between clients and MDD (HBH).
- For any RTP header field that the MDD changes, the MDD includes the original value in an RTP header extension so the receiver can authenticate the original value
- Uses all our existing SRTP security
- From SRTP point of view, just looks like new transform that is defined in terms of two other SRTP transforms

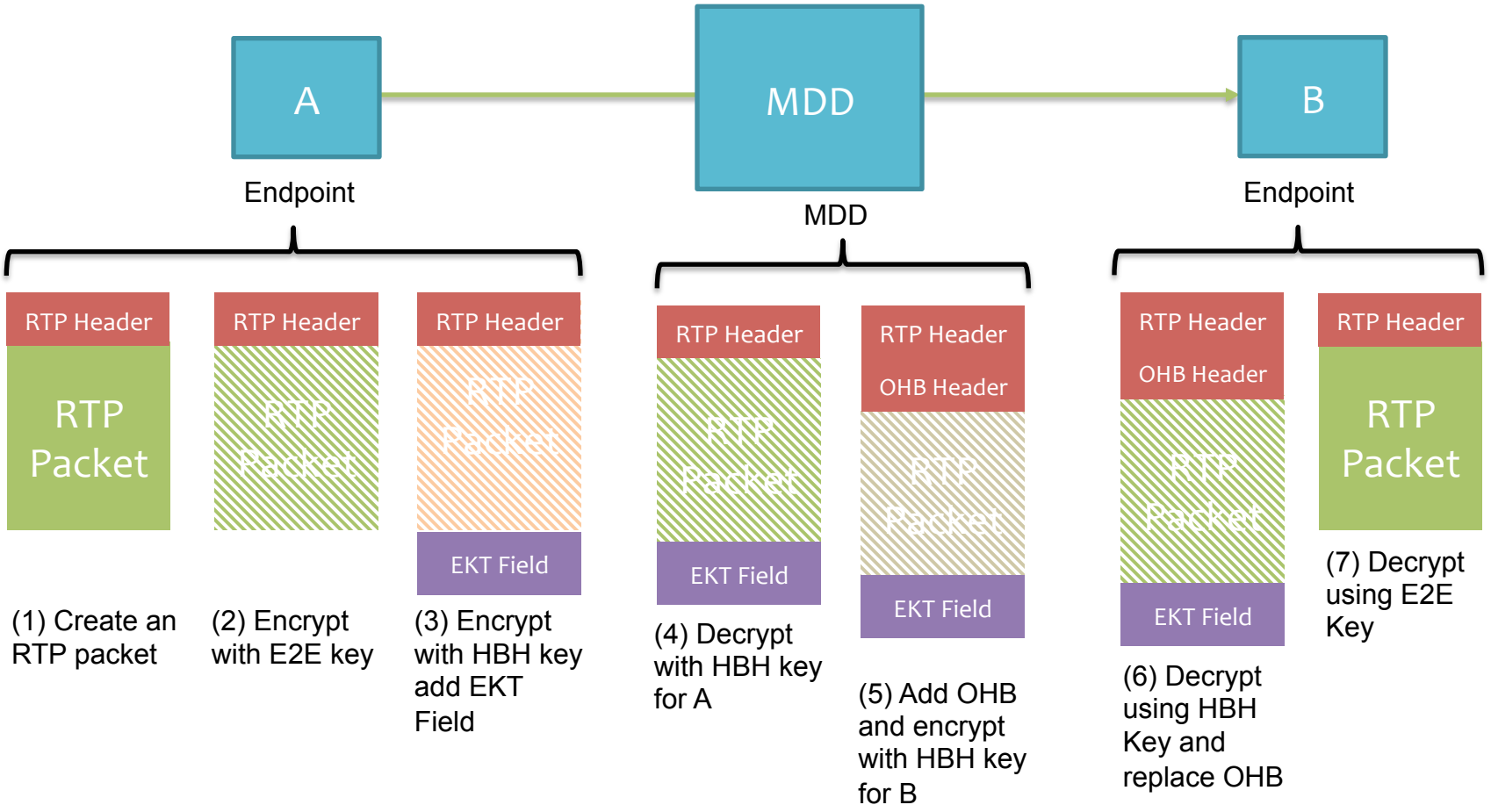
Handling things the MDD changes

- The MDD can change the Payload Type, RTP Sequence Number, or both
  - Much debate went into figuring out that is all we need (along with extensions).
- Draft defines three new RTP Header Extensions (via OHB) corresponding to above that MDD inserts to carry the changed information
- X bit derived from if there was header extensions before the OHB (Note mistake in draft of x bit)

Pro's / Con's

- Very simple to specify and implement because it's basically just calling something we already specified and implemented
- Has nearly identical security properties to what we already spent years debating and approving
  - draft-mcgrew-srtp-aes-gcm-00 published Oct 2008 took 8 years to RFC
- Leaves defining things that are useful for normal "single" encryption to the responsible WG but can use them
- Modular and fits into existing SRTP extension mechanisms

Double Packet Processing



Issue: Transform Algorithms

- DOUBLE_AEAD_AES_128_GCM_AEAD_AES_128_GCM
- DOUBLE_AEAD_AES_256_GCM_AEAD_AES_256_GCM
- DOUBLE_AEAD_AES_128_GCM_NULL_NULL
- DOUBLE_AEAD_AES_256_GCM_NULL_NULL

- Open Issue : Do We need the NULL crypto version of HBH ?