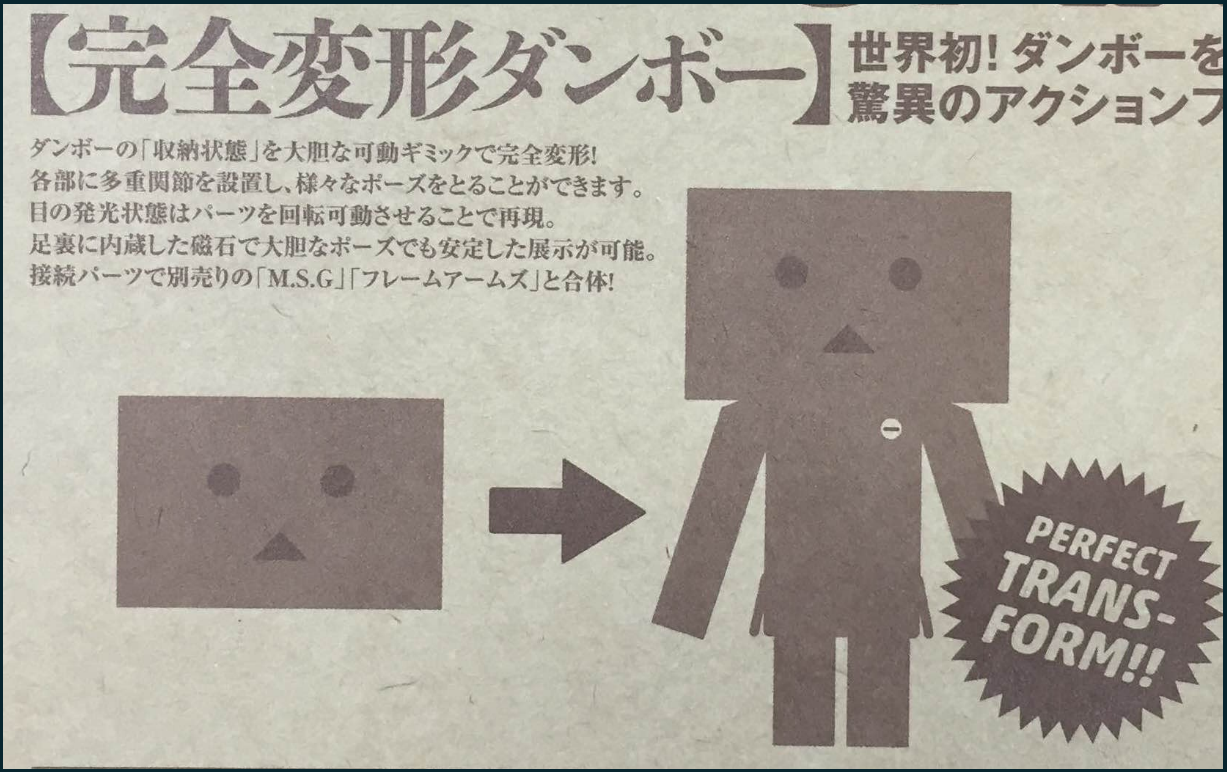
Double Encryption

draft-jennings-perc-double-00



【完全変形ダンボー】世界初!ダンボーを
驚異のアクションフ

ダンボーの「収納状態」を大胆な可動ギミックで完全変形!
各部に多重関節を設置し、様々なポーズをとることができます。
目の発光状態はパーツを回転可動させることで再現。
足裏に内蔵した磁石で大胆なポーズでも安定した展示が可能。
接続パーツで別売りの「M.S.G」「フレームアームズ」と合体!

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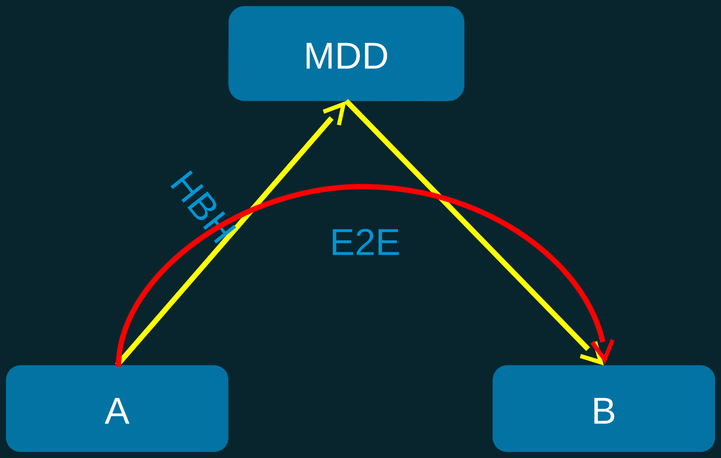
V3

What I want to talk about …

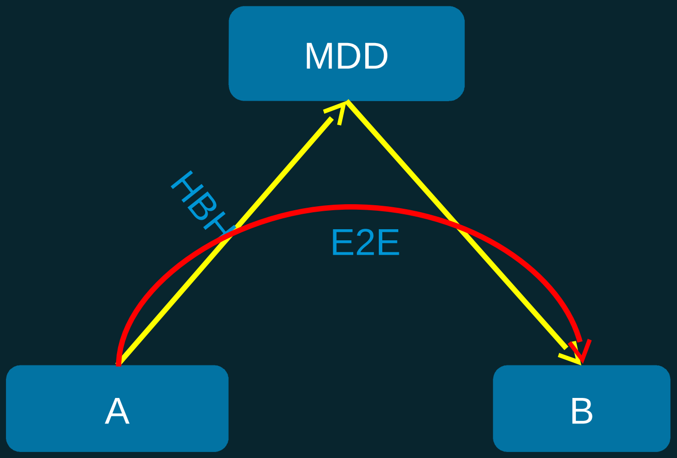
- First talk about what this is (and not pros / cons)
- Then talk about if this is the right approach

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
- Can be modular part of existing system

One usage scenario

- Endpoint joining a conference call sets up DTLS-SRTP session via MDD to some participant trusted with the E2E keys for call
- Normal EKT is used to provide a group key that is used for the conference
- The HBH half of the group key is given to the MDD

HBH: SRTP or not SRTP ?

- SRTP requires the RTP header to be revealed to network
  - Allows diagnostic and audio quality debugging tools to work without revealing contents
  - Needed for some firewall traversal schemes
- SRTP it typically lowest bandwidth way of encrypting RTP
- Even if SRTP is not desirable, we have many ways of encrypting RTP inside another protocol other than SRTP
  - Running over IPSEC to middle box
  - Running over DTLS to middle box (very common in iOS)
  - Running over a DTLS or TLS protected TURN or HTTP Connect
- This approach supports both
  - In first case: AEAD_AES_128_GCM_____AEAD_AES_128_GCM
  - In second case: AEAD_AES_128_GCM____NULL_NULL

Pro’s / Con’s

- We need to decide details of how to encode changed values

  TLV of changes vs full copy vs …. < bike shed later >

  - Very simple to specify and implement because it’s basically just calling something we already specified and implemented twice

  - Has nearly identical security properties to what we already spent years debating and approving

  draft-mcgrew-srtp-aes-gcm-00 published Oct 2008

  - 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