wait, haven't we been here before?

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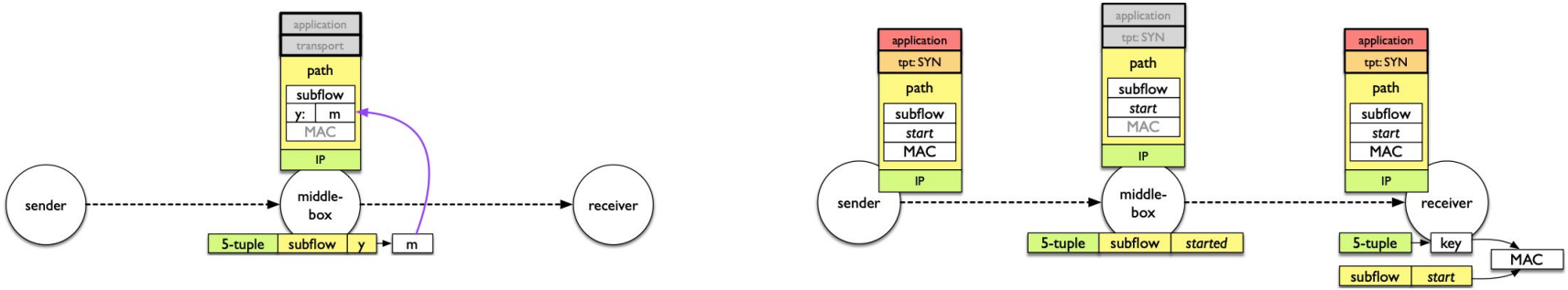
not really.

PLUS in one slide

PLUS ("Path Layer UDP Substrate") aimed to create a *generalized wire image* for *sender-to-path* and *path-to-receiver* channels *in-band*, to enable *explicit replacement* of middlebox interactions disabled by encrypting transport for privacy and evolvability.



It did not go well.

At the same meeting, QUIC chosen as the future, explicitly-minimal, L4 wire image.
(Left path signaling questions mostly unanswered, which is why we're here today)

What we learned

tl;dr: all of RFC 8558, and half of RFC 9217 (§2.2 §2.3 §2.8)

- Building a generalized approach to enable complete signal replacement: *good engineering*, *bad policy*
  - Ample room for scope creep into dystopia:
    We wanted a header to signal loss tolerance and flow start, we maybe got network signaling of the age of the end user.
- An advisory side channel next to an encrypted channel enabling collusion reduces trustworthiness.
  - Why bother to build explicit cooperative signaling without incentives to cooperate?

Habits of Highly Successful Cooperative Path Signaling

- Minimalism is essential.
  - RFC 8558: “implicit signals should be avoided… an implicit signal should be replaced with an explicit signal only when the signal's originator intends that it be used by the network elements on the path.”
  - Principle: “Your API is what a competent reverse engineer can discover about your system”.
  - In complex environments, unintended consequences scale with additional features.

- Signaling participants must align with control points.
  - Principle: “Only credible threats of network violence will be believed and acted upon.”
  - Advisory signaling tends to decay into a spiral of game theory, and nobody wants that.

a question to keep in mind today: “**Does SCONE have these habits?**”