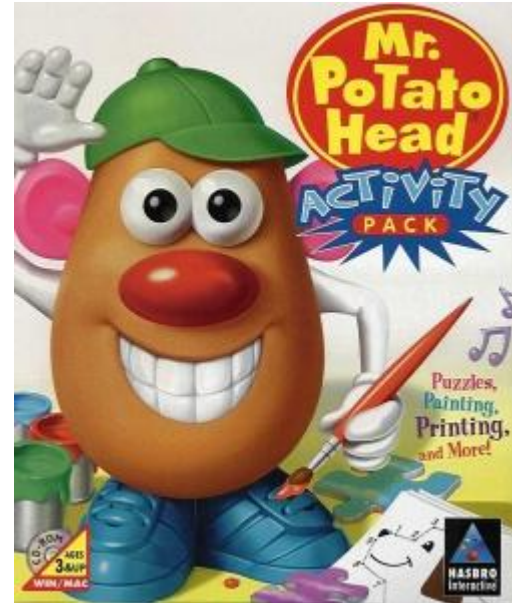


SPUD requirements

What do we need a common substrate for, anyway?

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High level requirement

Deploy new transports without middleboxes requiring DPI.



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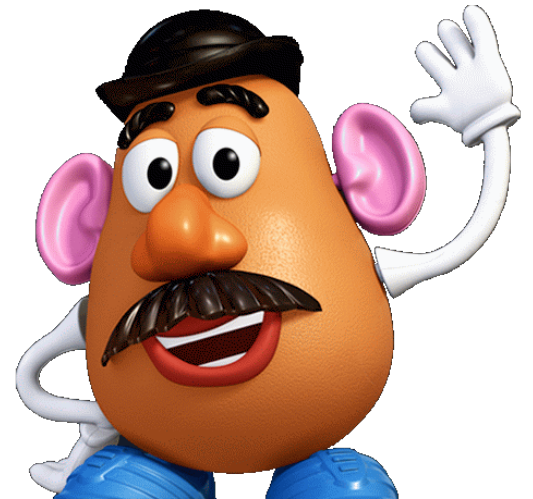
- We have limited freedom to introduce new transport protocols into the network, and what transports are built are often layered on top of UDP.
- Middlebox behavior toward those transports is erratic.
- Giving the boxes along the path hints about what transport uses are in play using a common approach enables them to adapt without DPI
- A side effect is that it permits the boxes along the path to feed hints back on the conditions affecting the transport use.

Application to path semantics

We need to be able to tell the path which UDP packets are part of the same group (tube).

We need to be able to tell the path about flow starts and stops for that grouping, so that boxes along the way can maintain state for it without heartbeats.

We may experiment with more, but these are essential. Ordinal priority among multiple groups on the same 5-tuple is one example extension.

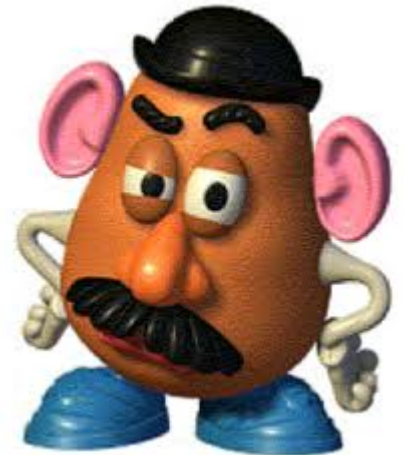


Path to application semantics

The primary requirement is for advisory messages similar to ICMP, but scoped to a grouping (tube) instead of to the destination address.

This may include information from the path on resource constraints, on available MTU, noting address family conversion, and flagging congestion.

All should be advisory, with a “trust but verify” approach.



Referenced drafts

[draft-hardie-spud-use-cases](#)

[draft-sprecher-mobile-tg-exposure-req-arch](#)

[draft-martinsen-tram-discuss-02](#)