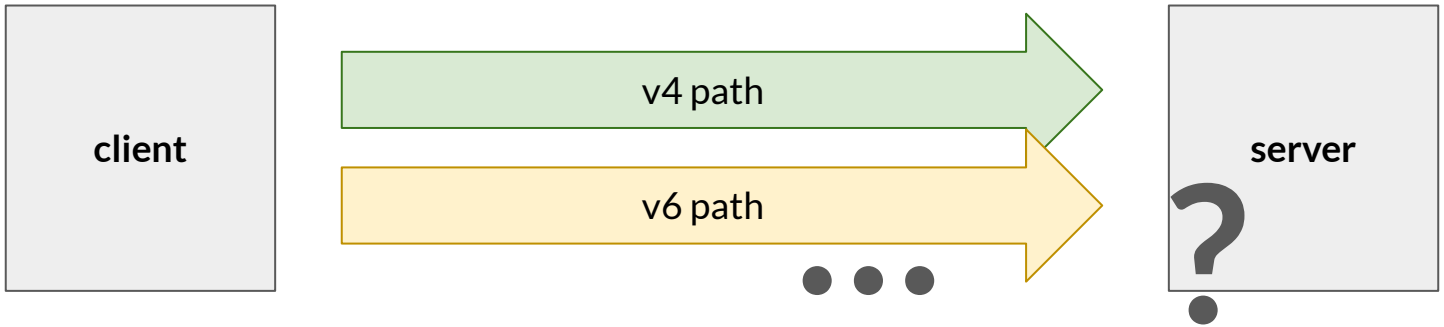
Slow Alternate Detection

and Path Selection Observability

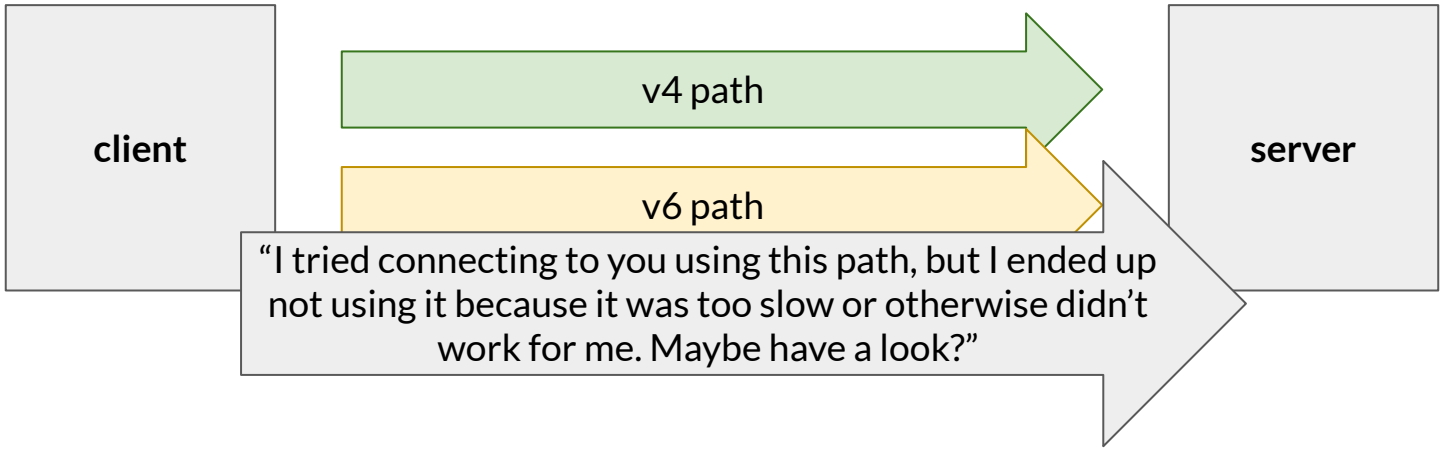
Brian Trammell - HAPPY WG

IETF 125 Shenzhen - 18 March 2026

The Problem



A Solution?


client
v4 path
v6 path
server
“I tried connecting to you using this path, but I ended up not using it because it was too slow or otherwise didn’t work for me. Maybe have a look?”

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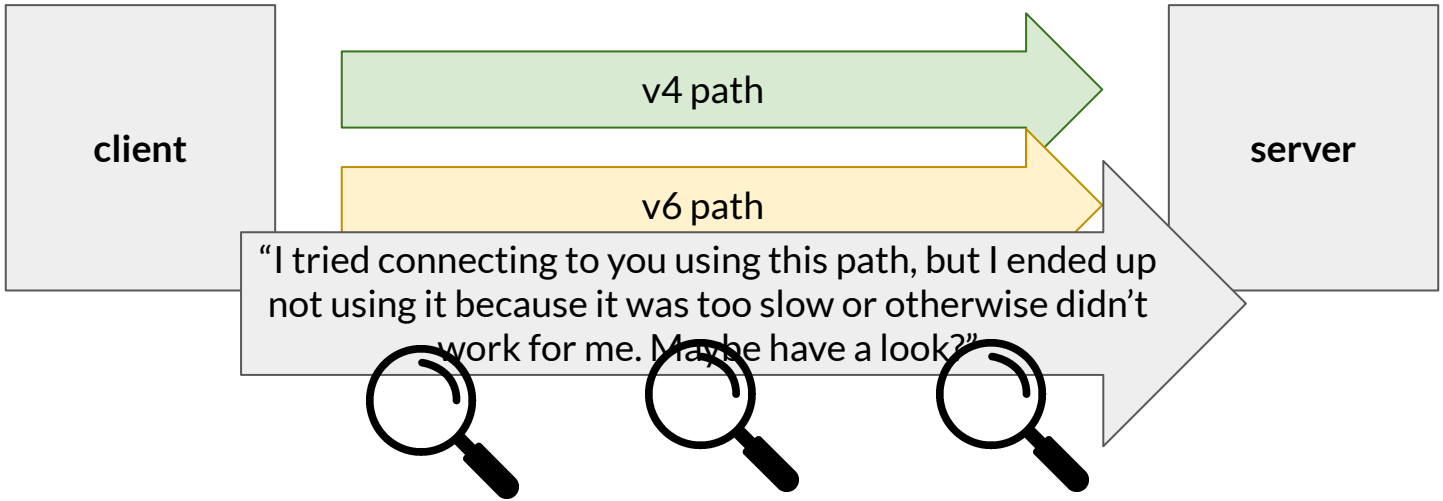
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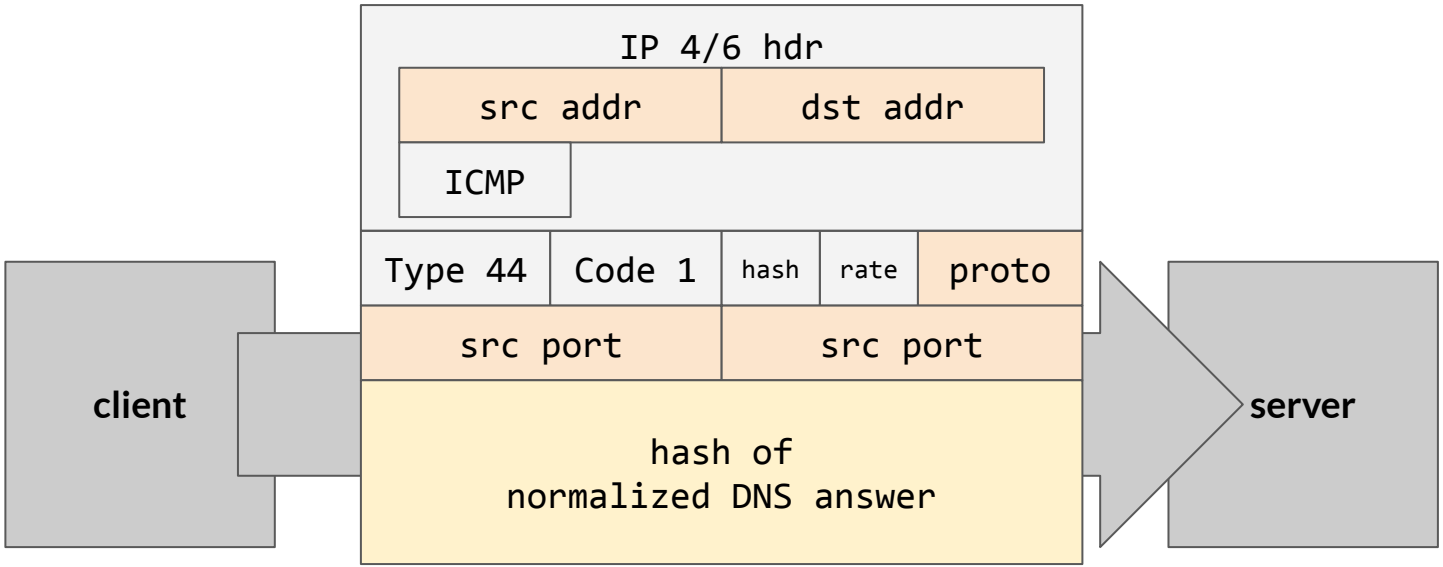
It’s 2025, let’s extend ICMP!



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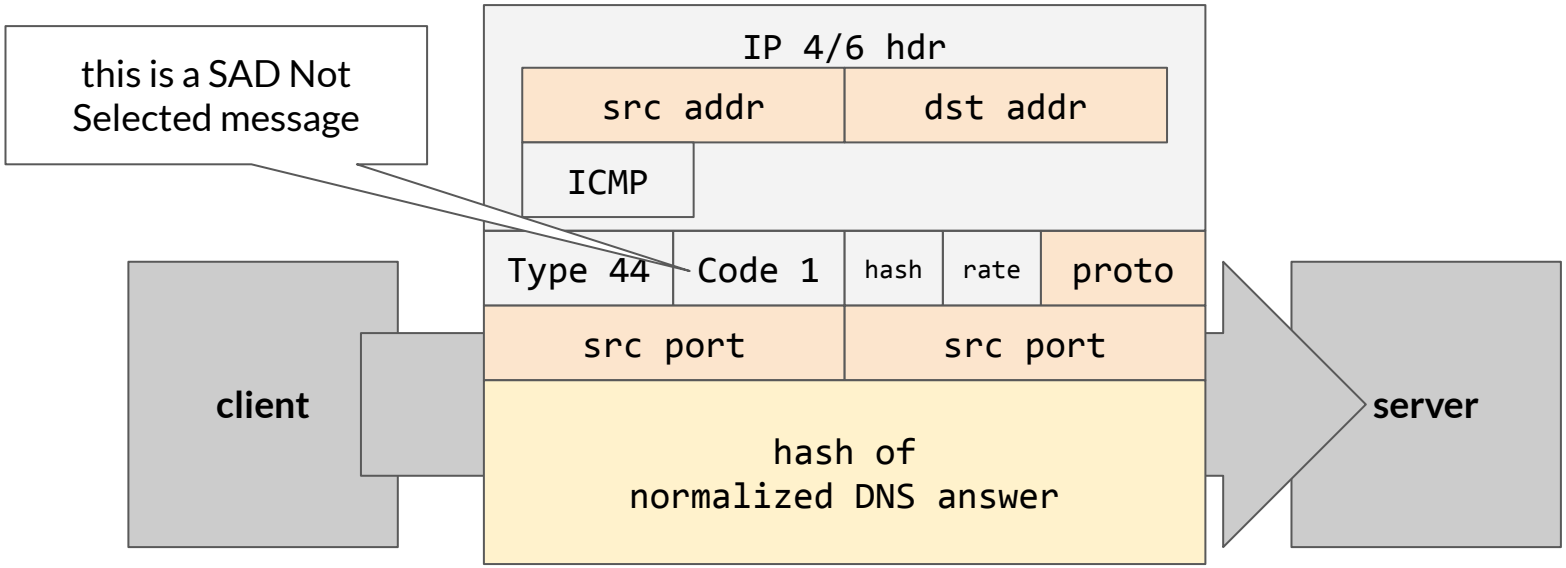

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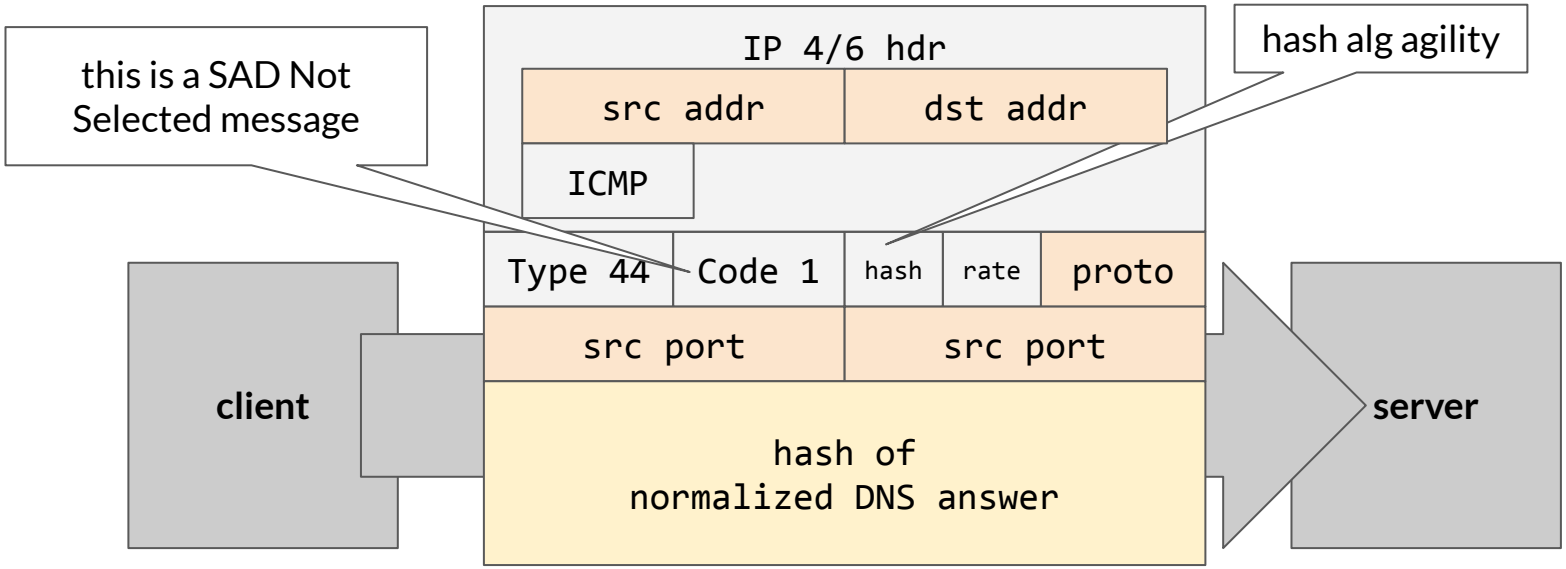

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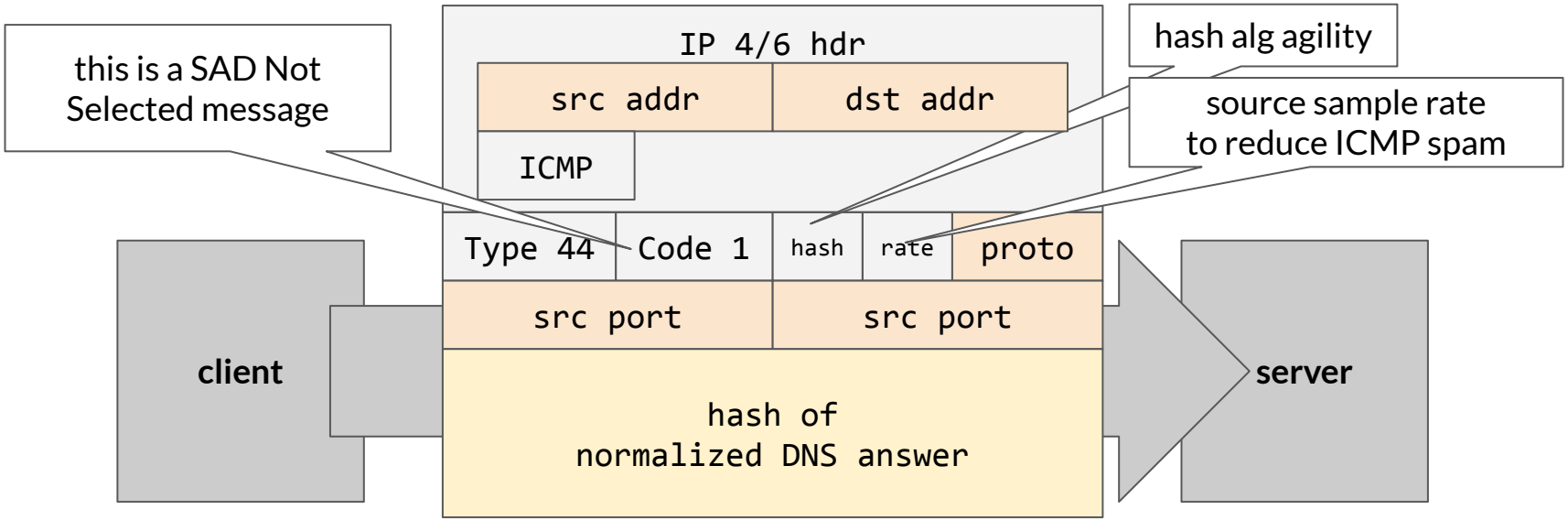

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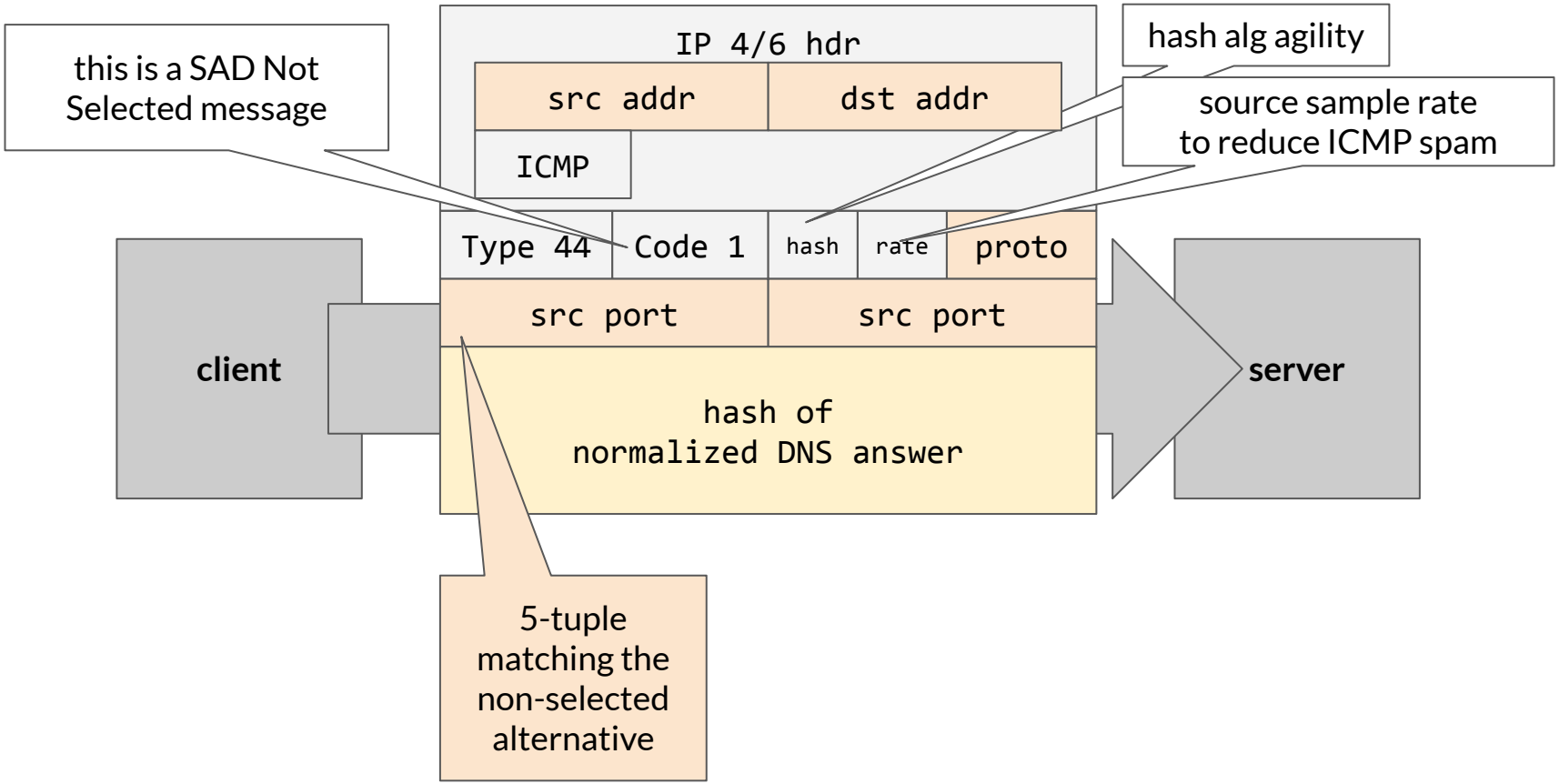

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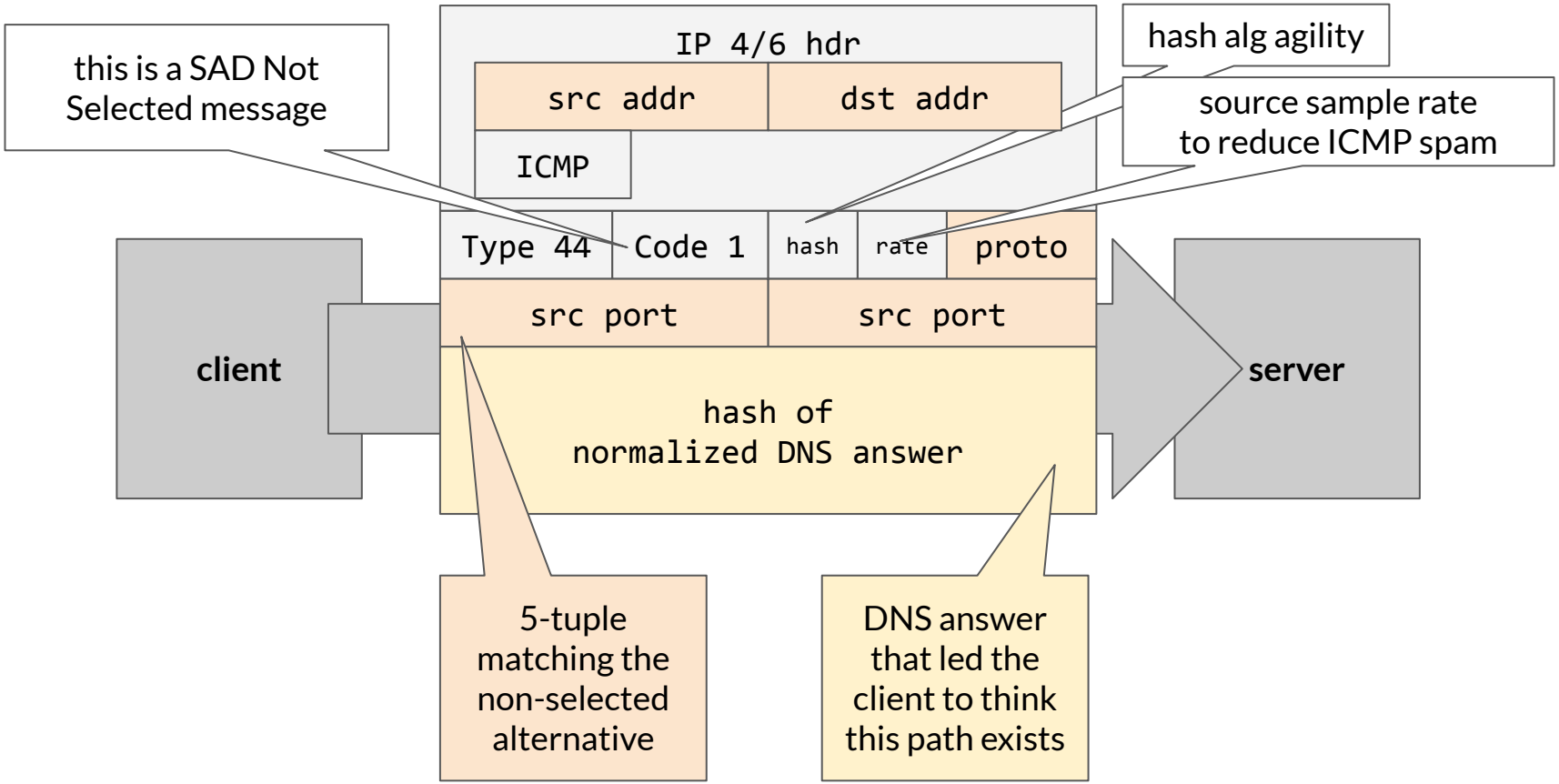

Why SAD?

- Advertises path observability of failures from where they're detected (client) to where they can be mitigated (toward the server).
  - one of the failures in success of Happy Eyeballs is that it can convert availability risk into performance penalty so acceptable that it's invisible.
  - the client always knows when a path is not selected, but all the server sees is traffic mixes.
- ICMP because this is what ICMP is for
  - And maybe a bunch of new-type ICMP messages hitting the firewall logs makes this new feature discoverable.
- Hashed DNS to keep from leaking name-level debug information to entities that don't already have it.
- Sampling to keep this from turning into a spam source
  - with sample rate advertising to make statistics easier without guessing

Even SADder?

- The client has usually has more information about the failure
  - What are the costs and benefits of sending this along too?
- The client knows the path that succeeded.
  - Could we send “Alternate Failed” messages when the alternate is unreachable?

- (Is this draft a basis for considering these questions further in the WG? Discuss.)