Using QUIC to traverse NATs



Marten Seemann

How hole punching works

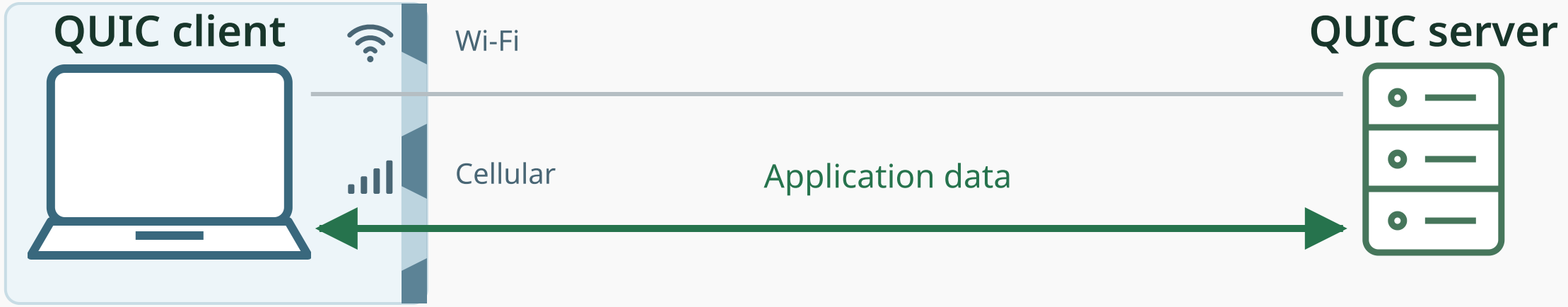


Run ICE, then QUIC

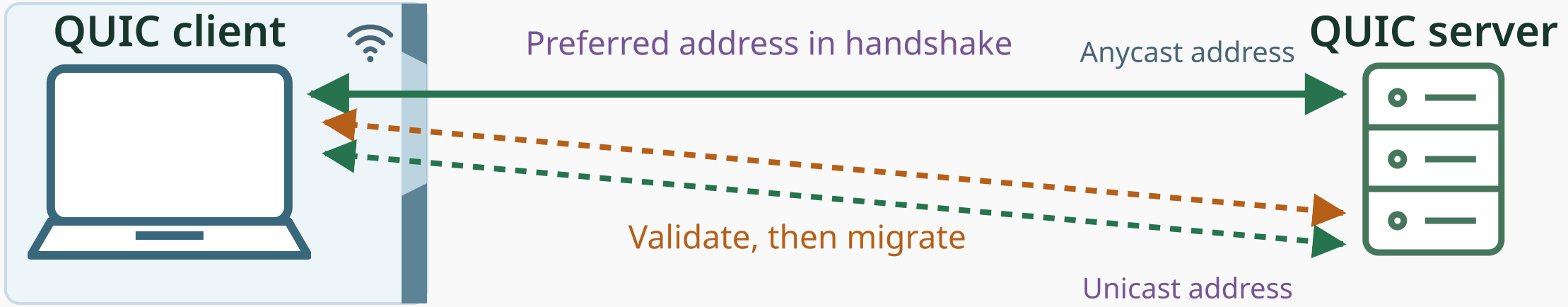


What if QUIC could do it all?

RFC 9000: QUIC connection migration

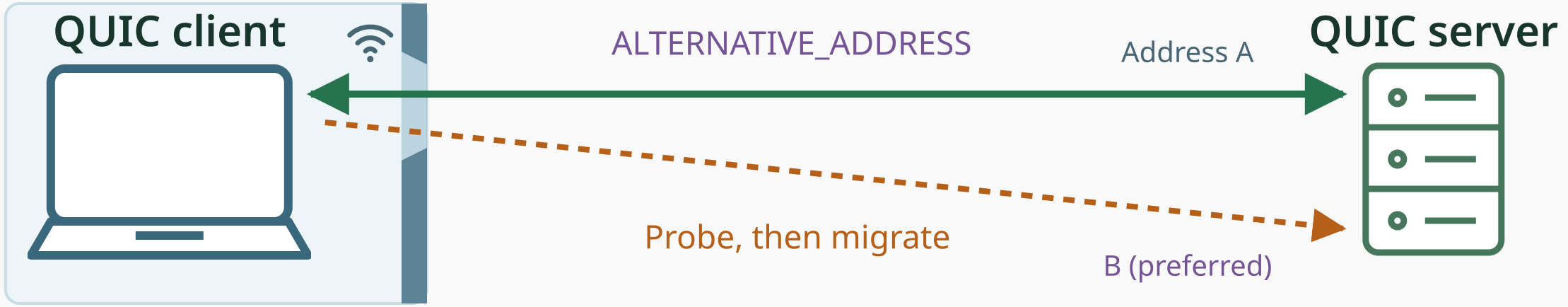


RFC 9000: preferred address



No address updates after the handshake

Ingredient 1: address advertisement

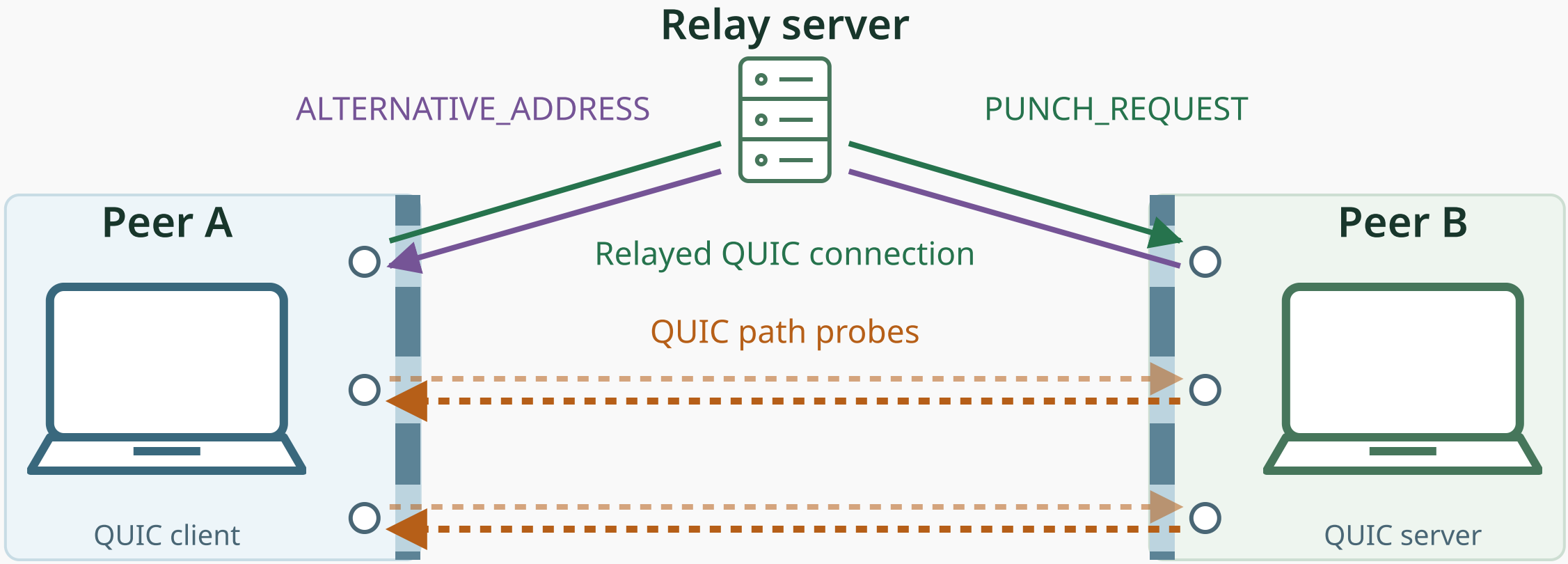


Independent use: server address changes

QUIC Alternative Server Address Frames

Marco Munizaga, Marten Seemann

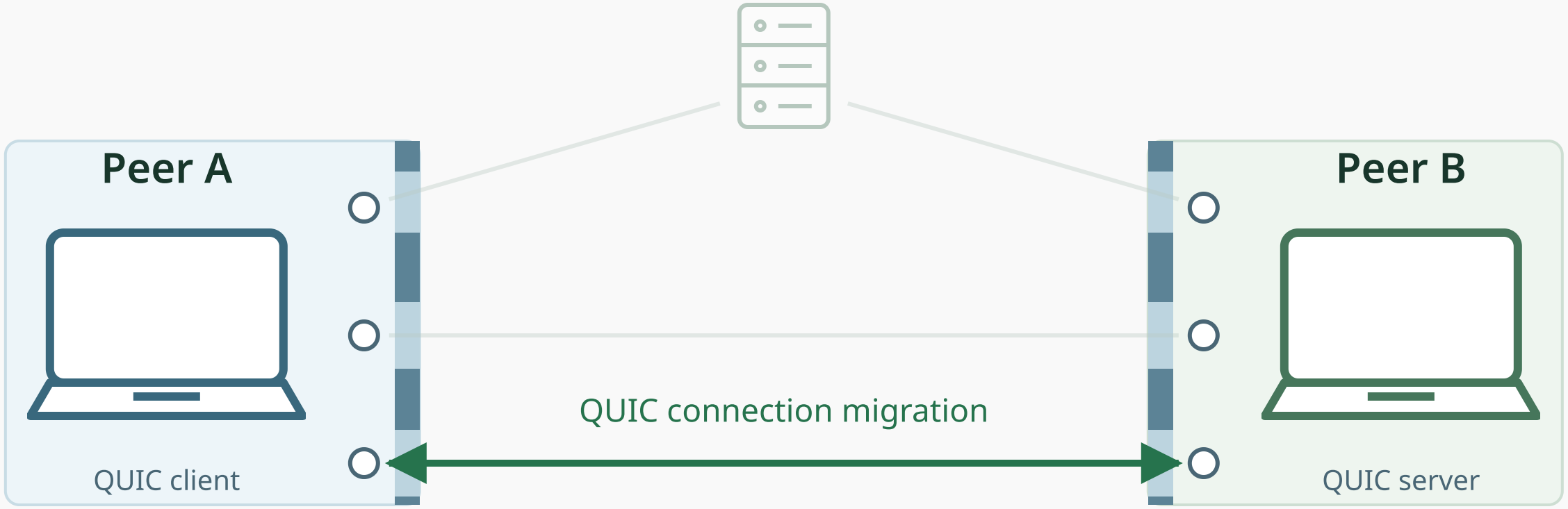
Ingredient 2: server-side probing



[Using QUIC to traverse NATs]

Marten Seemann, Eric Kinnear

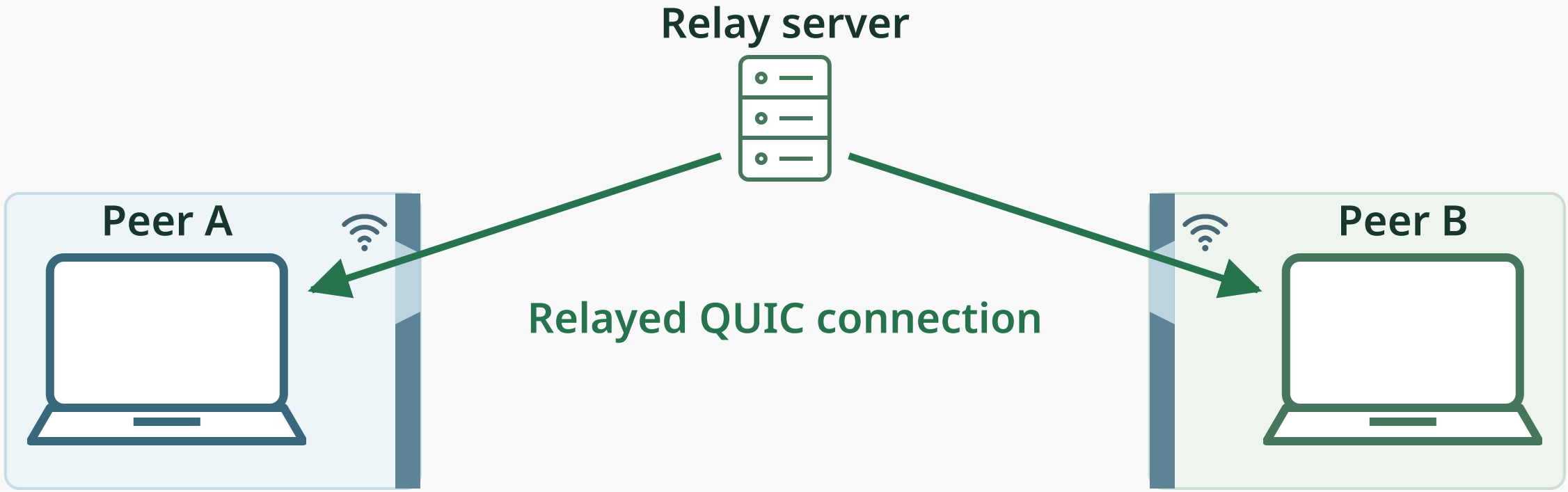
Hole punching inside QUIC



ICE and QUIC hole punching

	ICE	QUIC hole punching
Application data	After connectivity checks	During hole punching
Pairing & timing	Both endpoints run checklists	Client decides
Server	Pair candidates Schedule & run checks	Advertise addresses Probe on request

Standardize the initial relayed path?



UDP Rendezvous over HTTP
Marten Seemann

CONNECT-UDP Listen (now Bind)
David Schinazi, Abhijit Singh

Thank you

One possible starting point

UDP Rendezvous over HTTP

Marten Seemann

Ingredient 1: advertise addresses

QUIC Alternative Server Address Frames

Marco Munizaga · Marten Seemann

Ingredient 2: server-side probing

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Marten Seemann · Eric Kinnear

Discover an observed address

QUIC Address Discovery

Marten Seemann · Christian Huitema