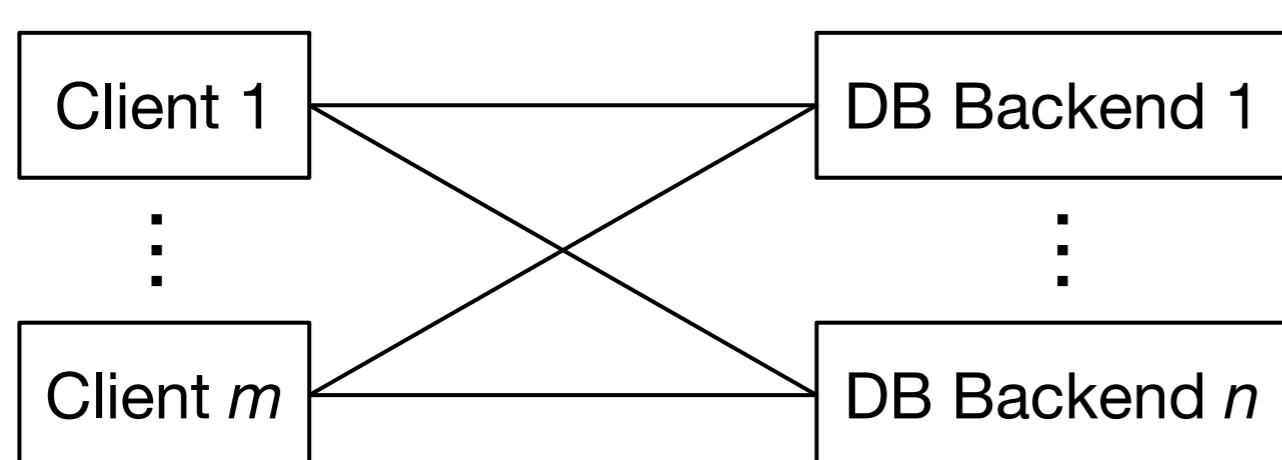


Eliminating the Bandwidth Bottleneck of Central Query Dispatching Through TCP Connection Hand-Over

Query Dispatching

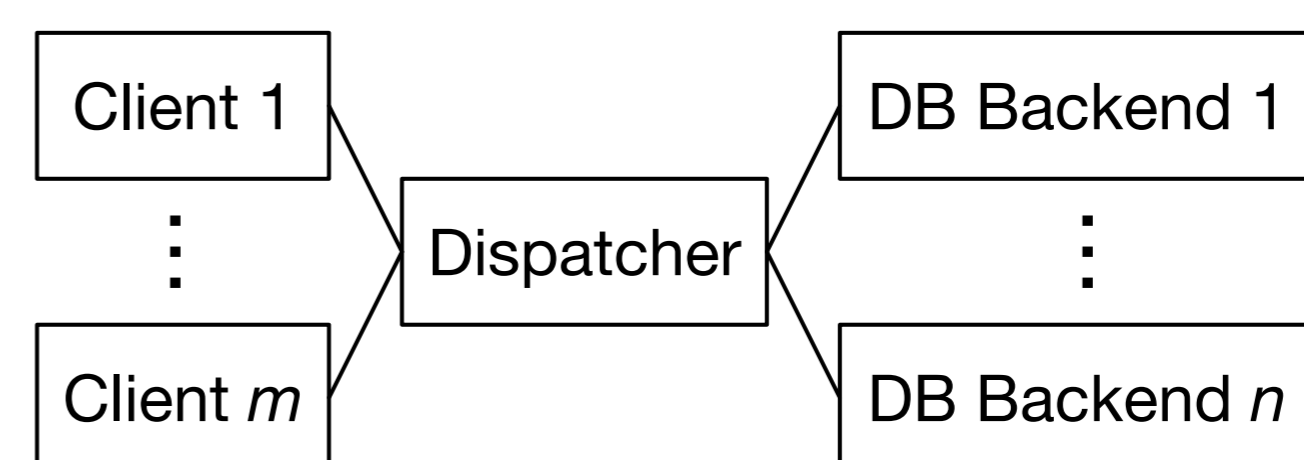
In scale-out databases, client queries must be routed to individual backend servers for processing.

Direct Communication



- + Latency
- Requires smart clients or static backends

Central Dispatcher



- + Simple clients / unaware of backends
- Bandwidth limited by dispatcher

Central Dispatching Implementations

Prism

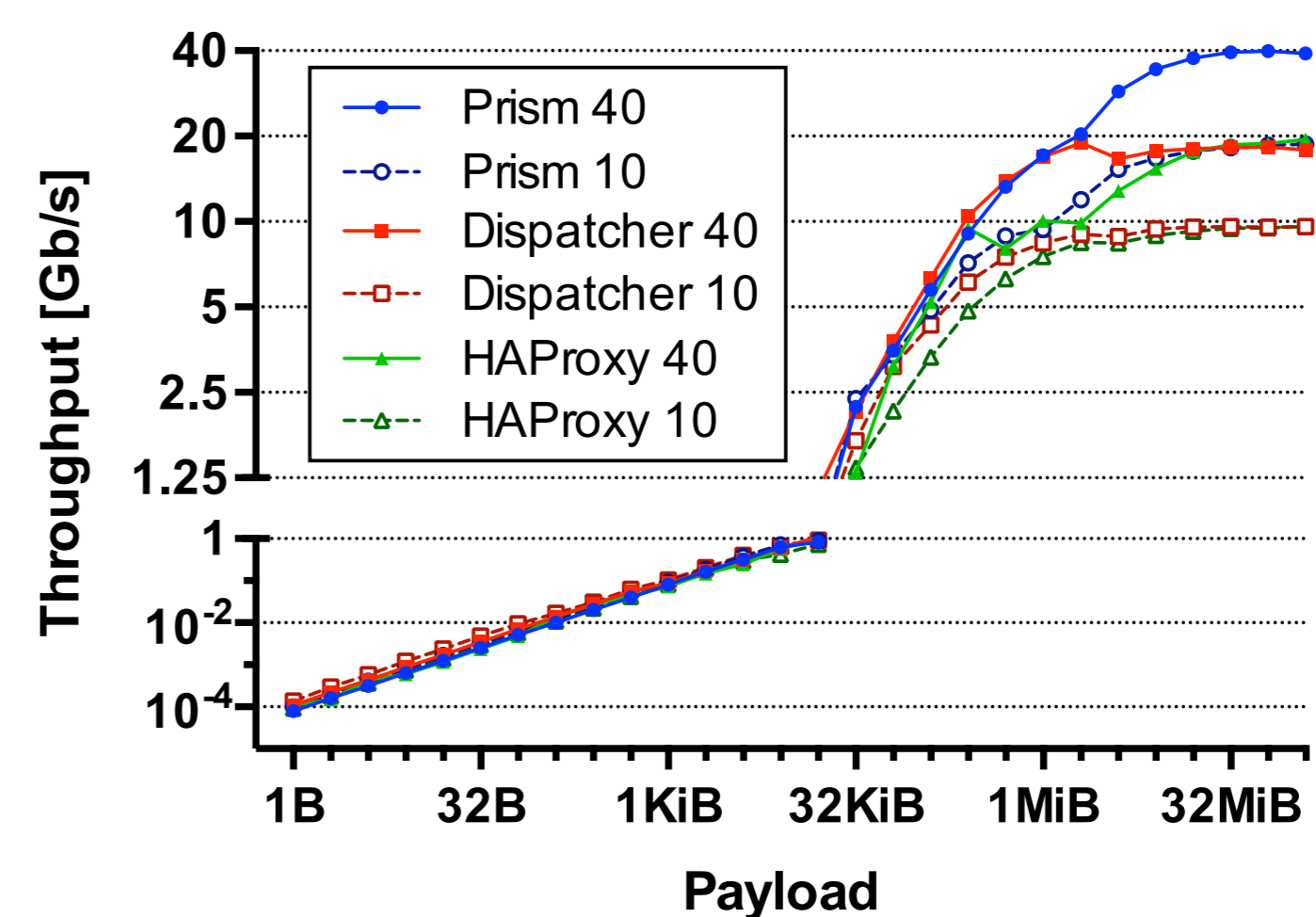
- TCP connection hand-over
- Using a reprogrammable switch

(Hyrise) Dispatcher

- Purpose-built load-balancer
- Two separate TCP connections: client \leftrightarrow dispatcher \leftrightarrow database

HAProxy

- Off-the-shelf load-balancer
- Similar design as Hyrise dispatcher



Dispatcher throughputs for varying payloads with two clients and two backends using 10G and 40G Ethernet.

Use Case and Research Focus: Partial Replication

