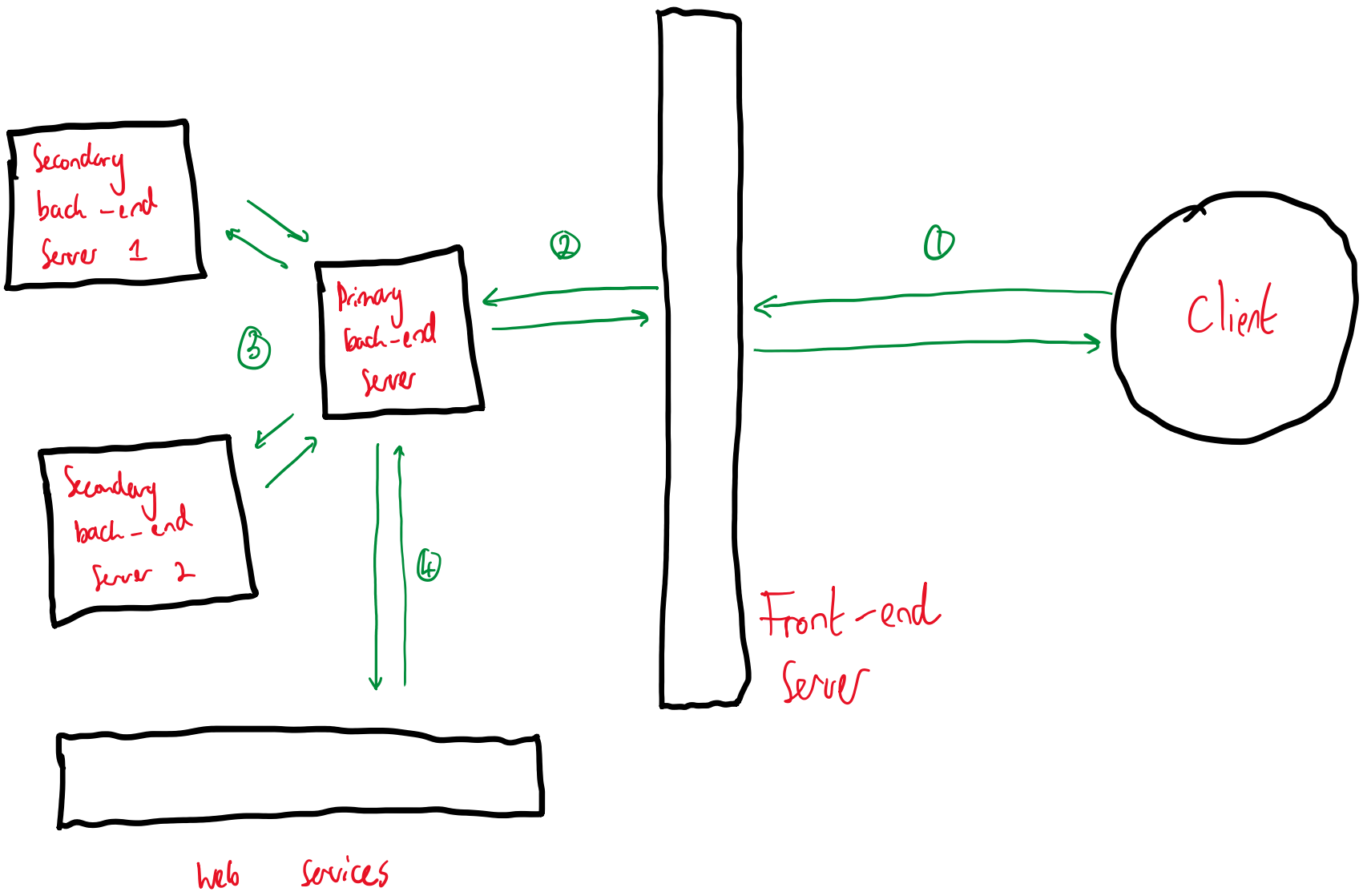
System Design

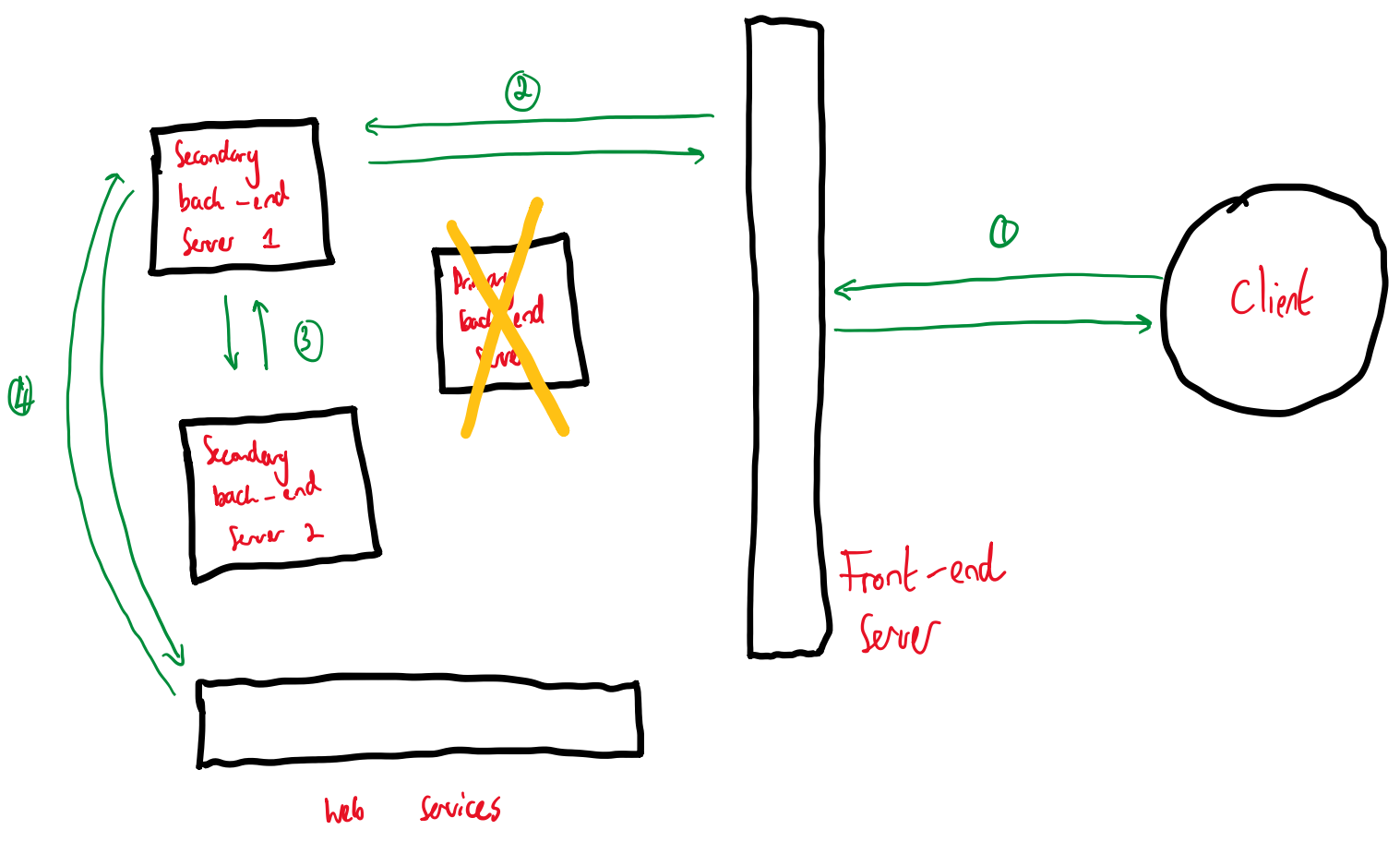
Diagram 1



When system is running with all back ends (diagram 1):

1. The client communicates with the front end server, sending requests for information / orders, and receiving responses / error messages.
2. If the primary back end server is available, the front end sends these requests to it, which returns the information / errors to the front end to send it back to the client.
3. If the secondary back end servers are available, the primary back end sends all update information (e.g. order history) to them.
4. The primary back end server communicates with the implemented web services (e.g. postcodes.io) to get address information.

Diagram 2



If the primary back end server is not available (diagram 2):

1. The client interaction with the front end server remains the same.
2. The front end server now communicates with back end server 1 instead (or back end 2 if 1 isn't available) as the new primary back end to handle all requests.
3. Updates are still send from the new back end to the remaining secondary back end server. If the old primary server comes back online, the secondary back end server 1 which has been acting as a primary server sends all updated information to the primary, and all requests are dealt with from there again.
4. Whichever back end server is acting as the primary back end can communicate with web services.