

Exercises

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VORTEX/IRIT/UPS

Goal

- Build a multiplayer game
- Experiment with NVE concepts
 - Peer to peer with Multicast
 - Dead-reckoning
 - Region filtering
- Client/Multi-server

First step

- Download and compile the example program
- Modify it to add the networking code (P2P with Mcast)
- You can use the example of the first course

First step



We'll use
Mcast group
225.0.0.1
and
Port 2000



When the tank moves

Send updates

Network

When you receive
updates

Move the matching
tank

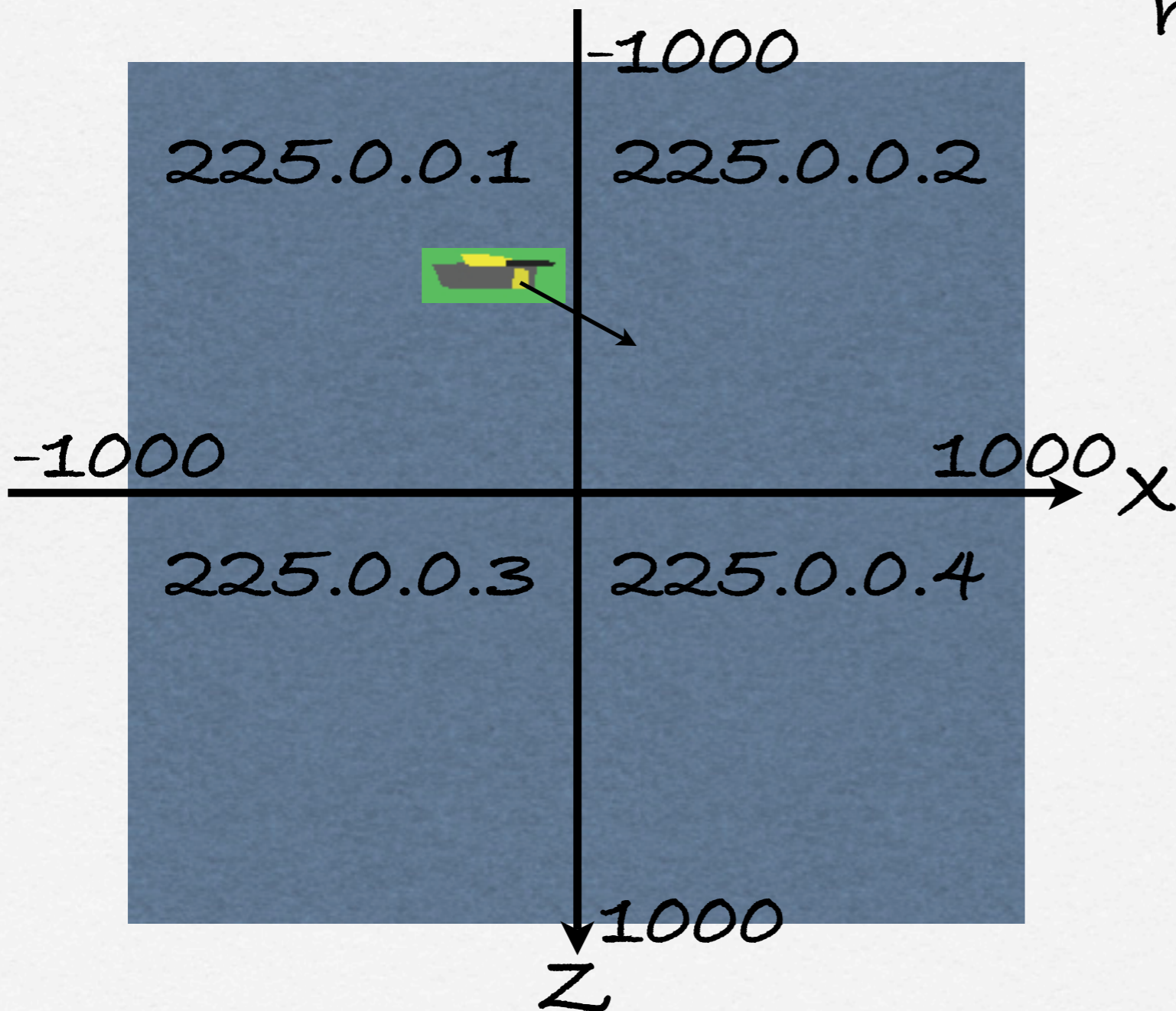
Second step

- Add dead-reckoning to your application
 - Experiment with thresholds and extrapolation algorithms

Third step

- Add region-based filtering to your application
- Use 4 multicast groups for 4 square regions (north-east, north-west, south-east, south-west)
- First only join the group you are in
- What is the influence of DR on this ?

Third step



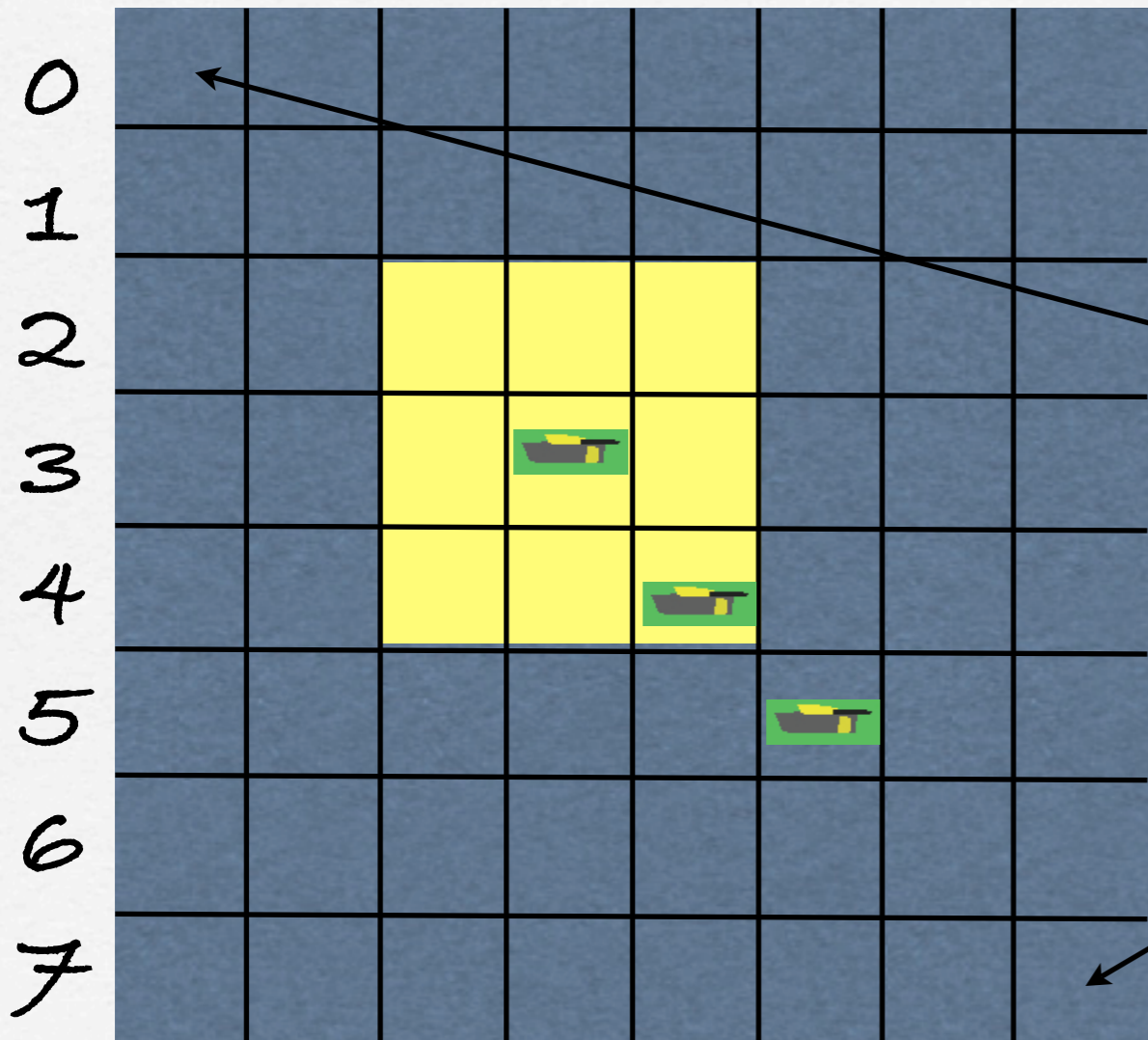
When a tank changes region, the app should leave the old group (225.0.0.1) and join the new group (225.0.0.2)

Fourth step

- Build a more advanced region-based filtering (64 square regions)
- Use an NPSNET like solution
 - send to the current region group
 - join the neighboring regions groups

Fourth step

0 1 2 3 4 5 6 7



We'll use multicast groups
from

225.0.1.0

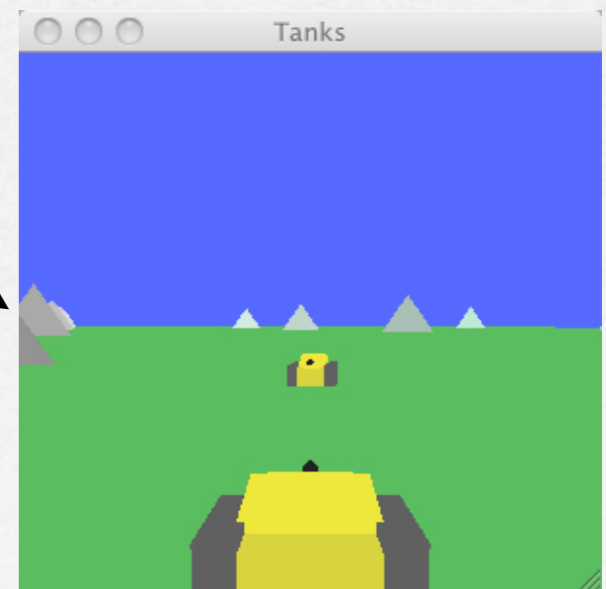
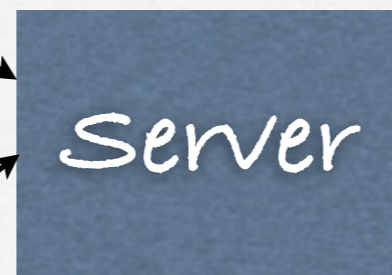
to

225.0.1.63

Fifth step

- Write an UDP server that will replace the multicasting
- The server will manage the filtering using the same square regions
- It will also manage ids
- How will DR work with this setting ?

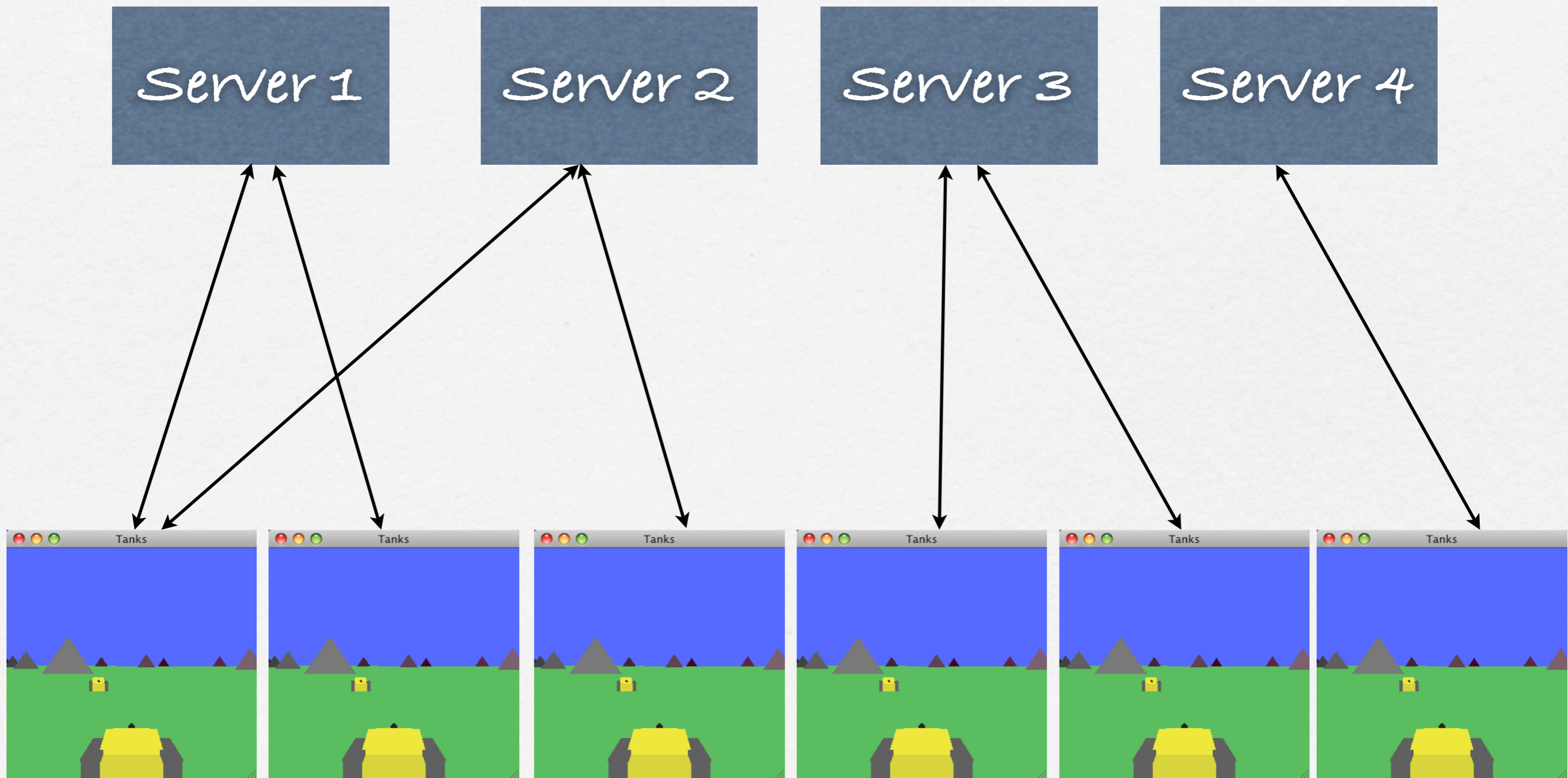
Fifth step



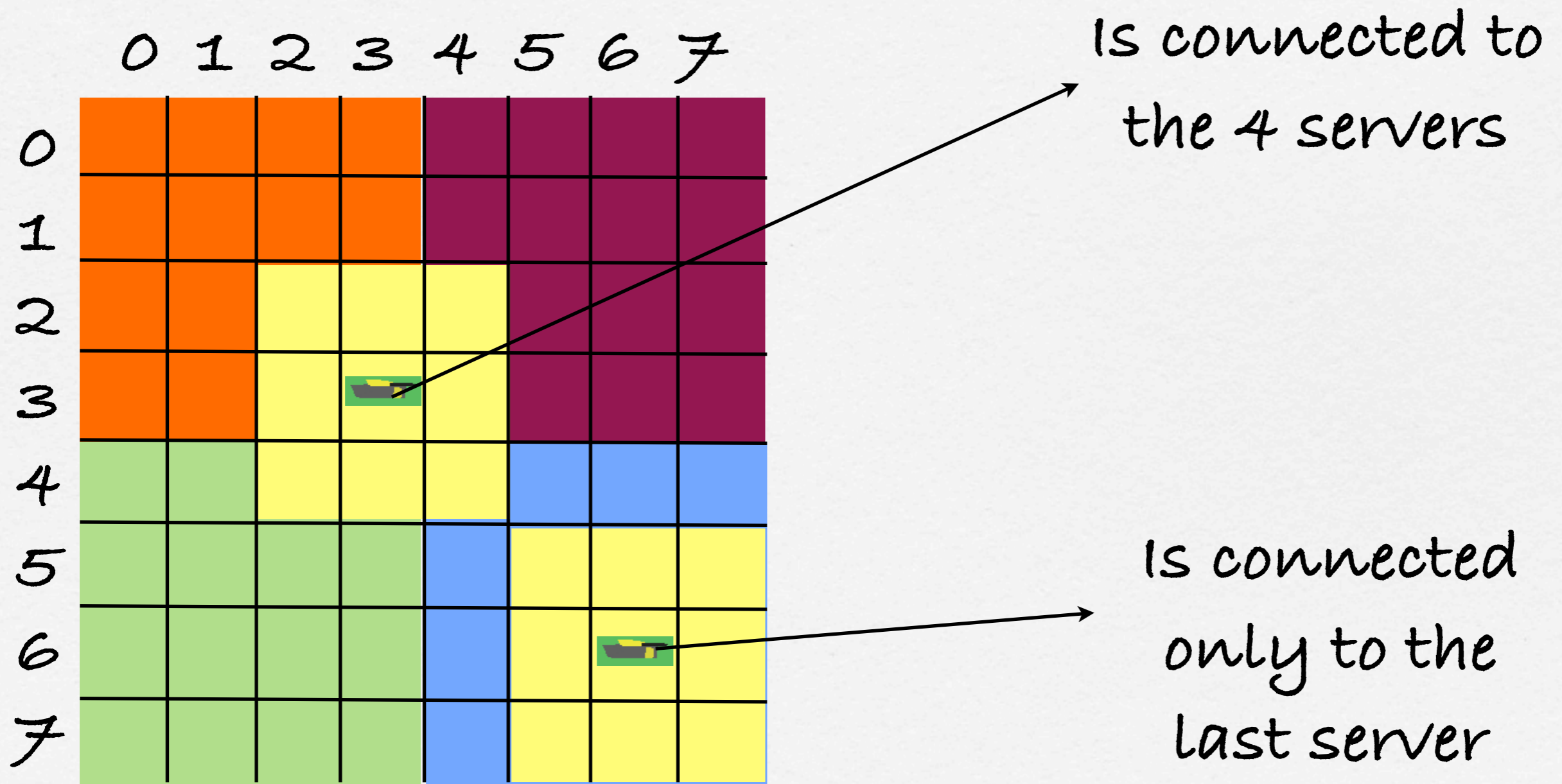
Sixth step

- Switch to a multi-server approach
 - First use 4 servers managing the big regions of the 1st region-based filtering
 - At first, a client can be connected to several servers

Sixth step



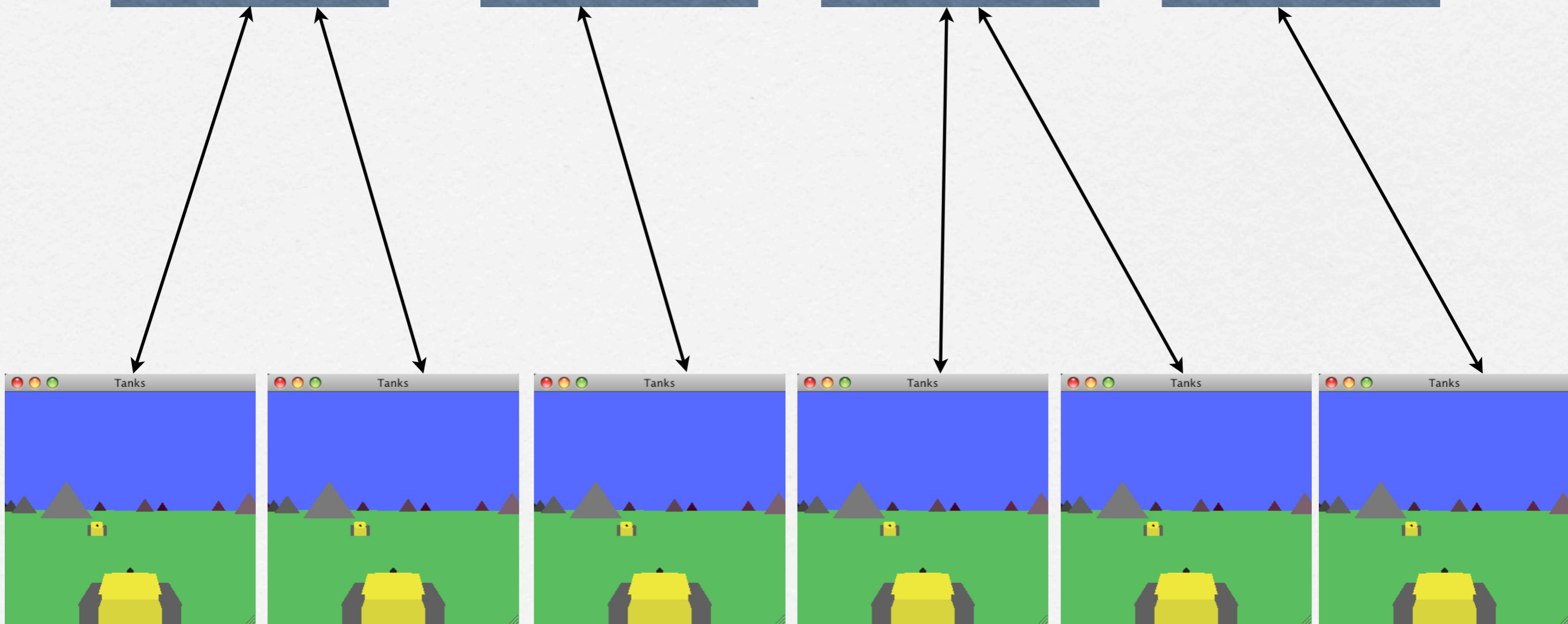
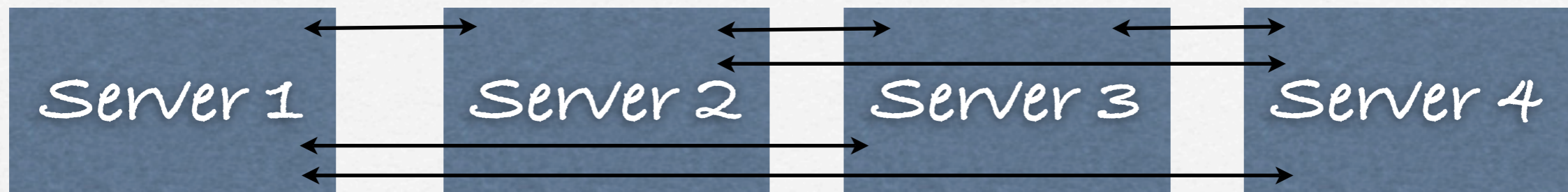
Sixth step



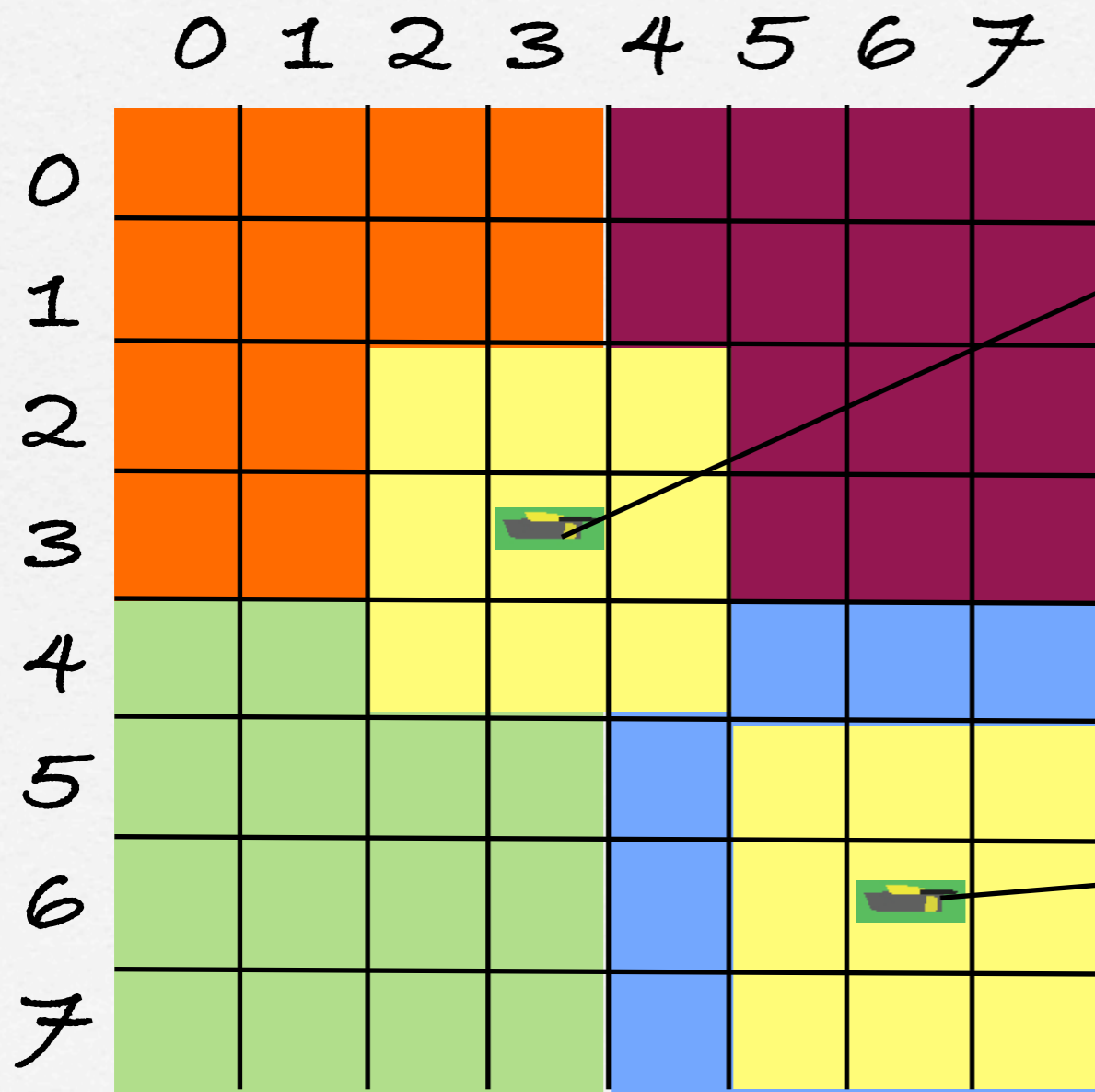
Seventh step

- Now you only want your client connected to one server
- Servers will therefore communicate

Seventh step



Seventh step



Is connected
only to the
1st server

Is connected
only to the
last server