Pros and cons of Distributed Blackboard – Centralized

All the vessels becomes consistent. Any concurrent submission of messages by any vessel can be displayed consistent in all participating neighbors. But as we add more vessels to the blackboard all the work will be on the hands of the leader or it will become a bottleneck. So Our approach here is not scalable.

Solution cost

Number of nodes = 7 (We use 7 vessels) and from them one acts like leader node.
Payload = 1(1 entry message per each vessel)
Overall cost per post = (number_of_nodes - 1) · (payload)
Vessel 1 = 1*1 →vessel 1 sends only one message to vessel leader.
Vessel 2 = 1*1 →vessel 2 sends only one message to vessel leader.
Vessel 3= 1*1 →vessel 3 sends only one message to vessel leader.
Vessel 4 = 1*1 →vessel 4 sends only one message to vessel leader.
Vessel 5 = 1*1 →vessel 5 sends only one message to vessel leader.
Vessel 6 = 1*1 →vessel 6 sends only one message to vessel leader.
Vessel 7 (leader) = receives 6 messages from the rest of vessels.

From the results we understand that the centralized approach needs some time or exponentially growing to achieve full consistency because all the work is concentrated on the leader. When more vessels are participated the time will be increasing.