Group 3 Auction System

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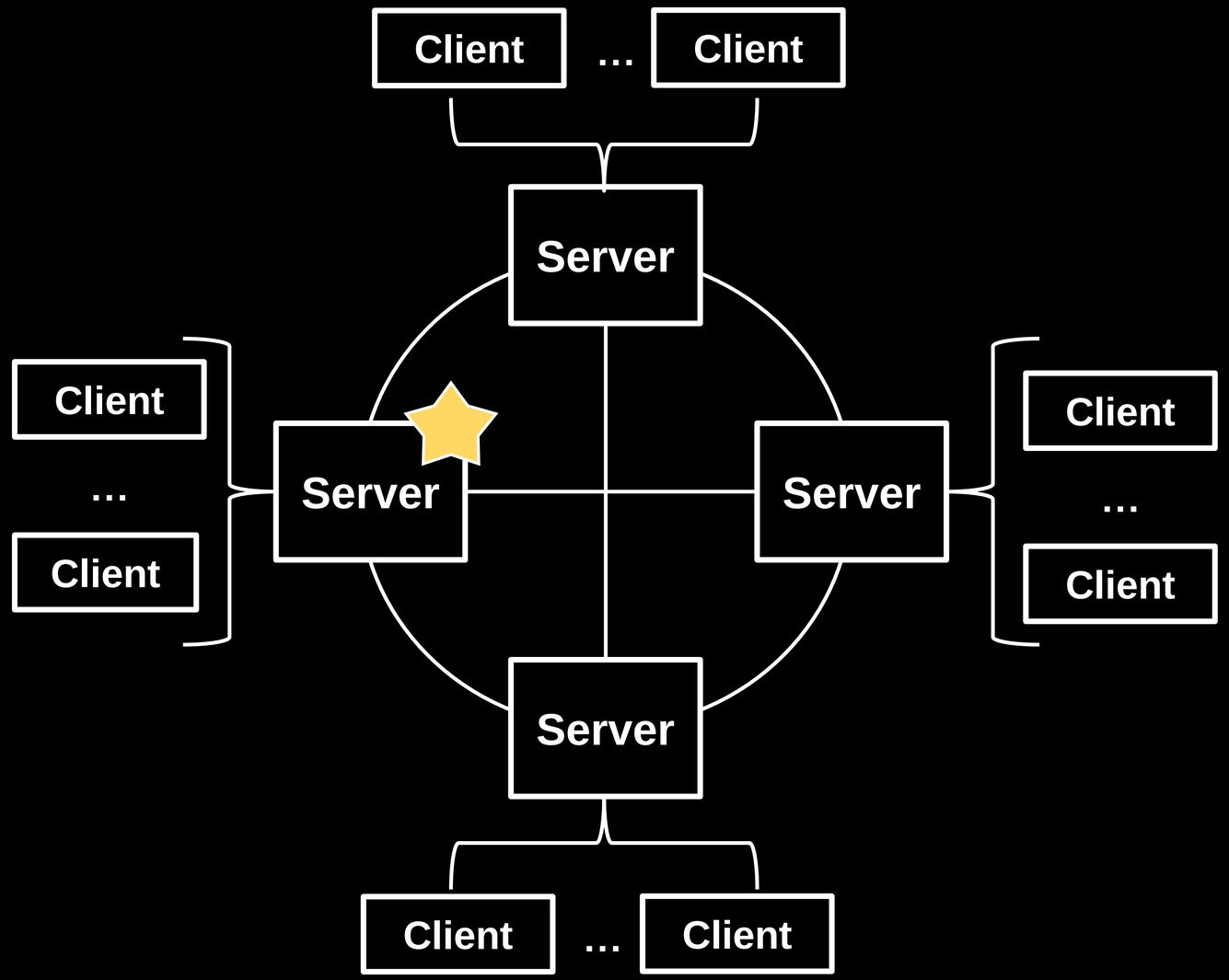
February, 2023

System Architecture



- multi-server multi-client
- main server and supplementary servers
- UDP connection between clients and servers

Implementation

Auction Component

Server **Client**

Group member service

Server **Client**

Global time synchronizer

Utils

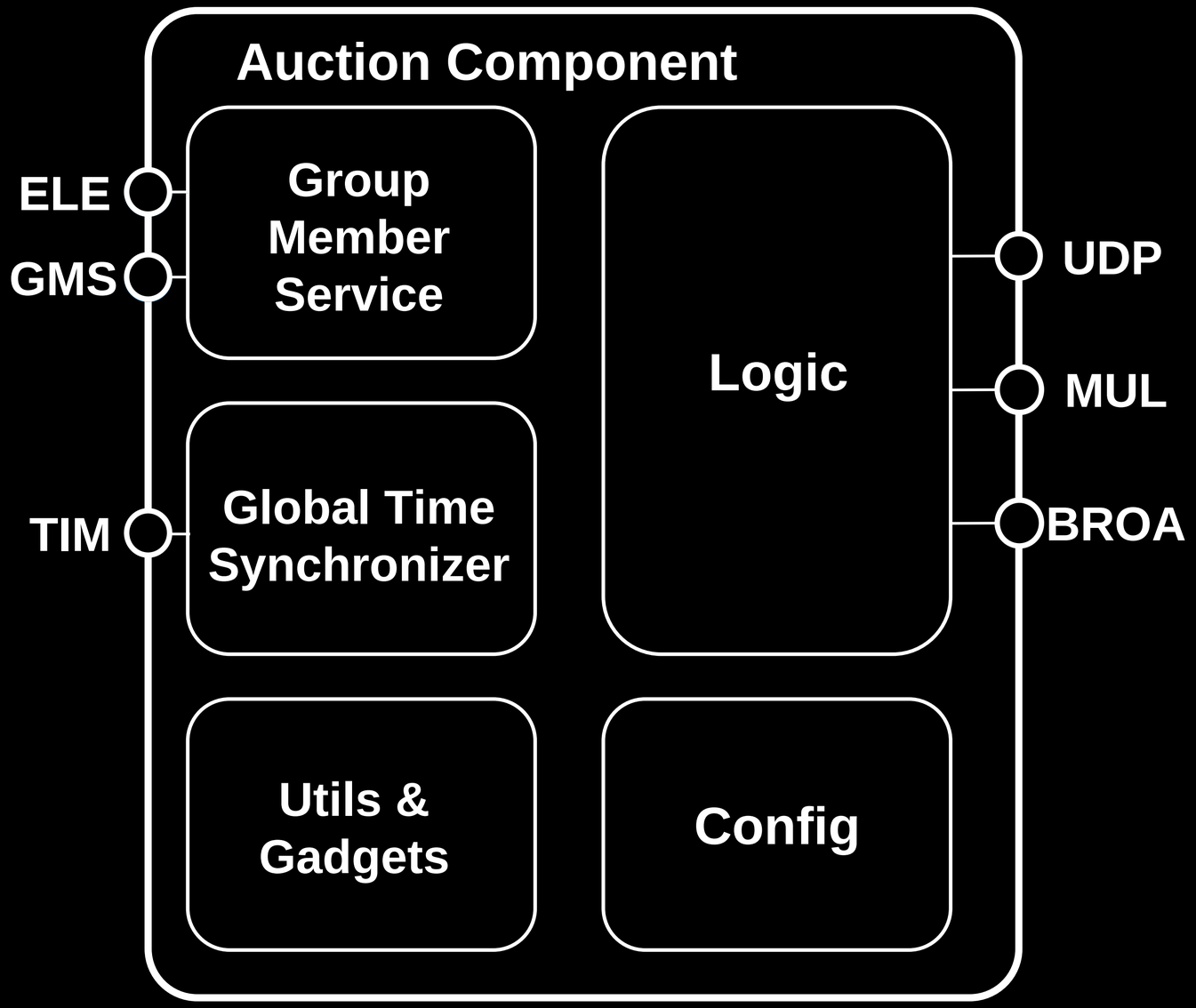
Config

Message.json

ID: YhK7HvtYyvjbnyiFaU00FQ
METHOD: SET
SEQ: 0
CONTENT: {'MAIN_SERVER': ['172.17.112.1', 10001], 'is_member': True, 'CONTACT_SERVER': ['172.17.112.1', 10001]}

METHOD	Description
JOIN	Dynamic discovery
SET	Remote parameter setter
GET	Remote parameter getter
REDIRECT	Message forwarding
BIT	Raise bit
RMI	Remote method invocation
…	…

Implementation



- Port design
- Logic Unit
- Group Member Service
- Global Time Synchronizer

Fault tolerance

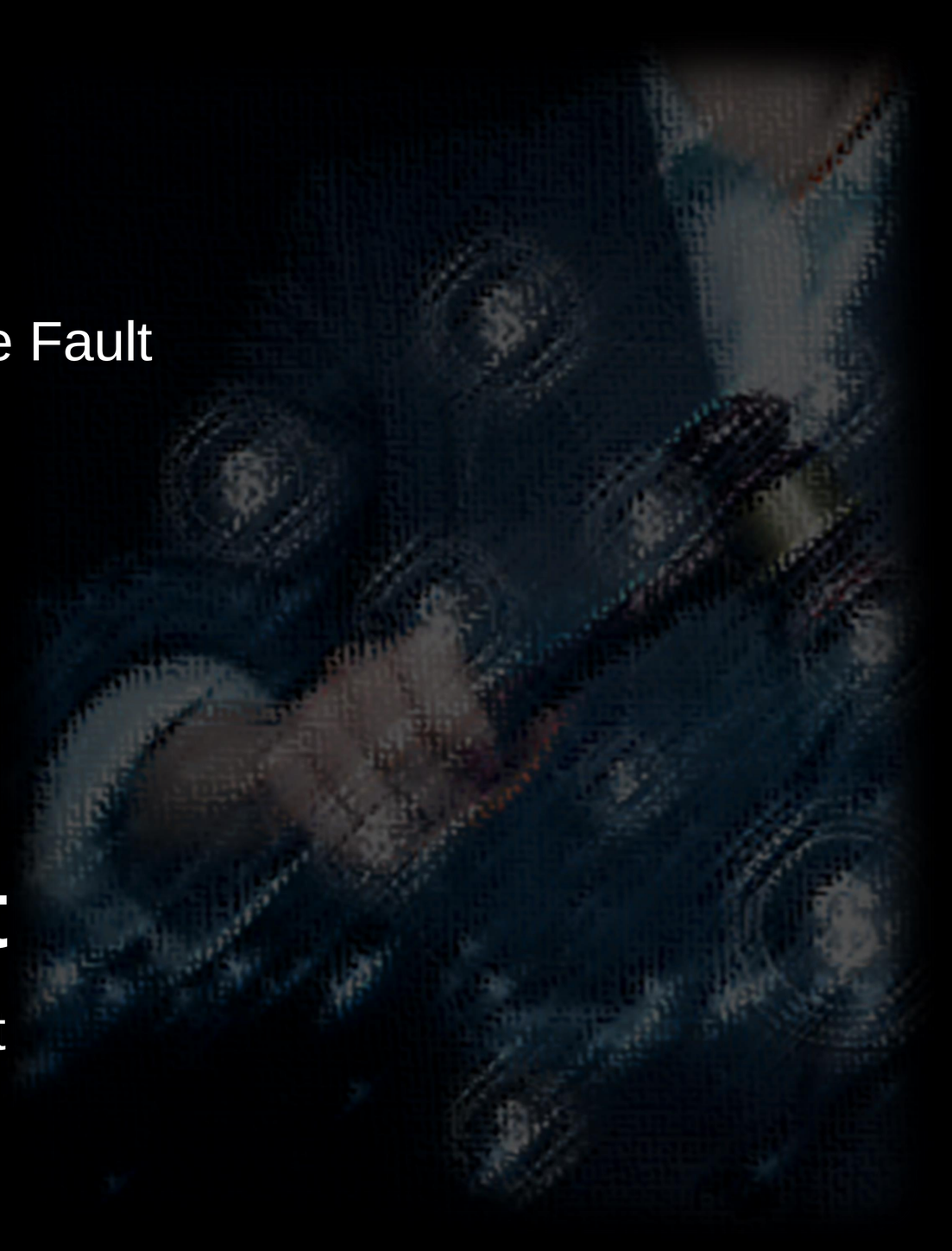
- Process crash, message omission, Byzantine Fault

Voting

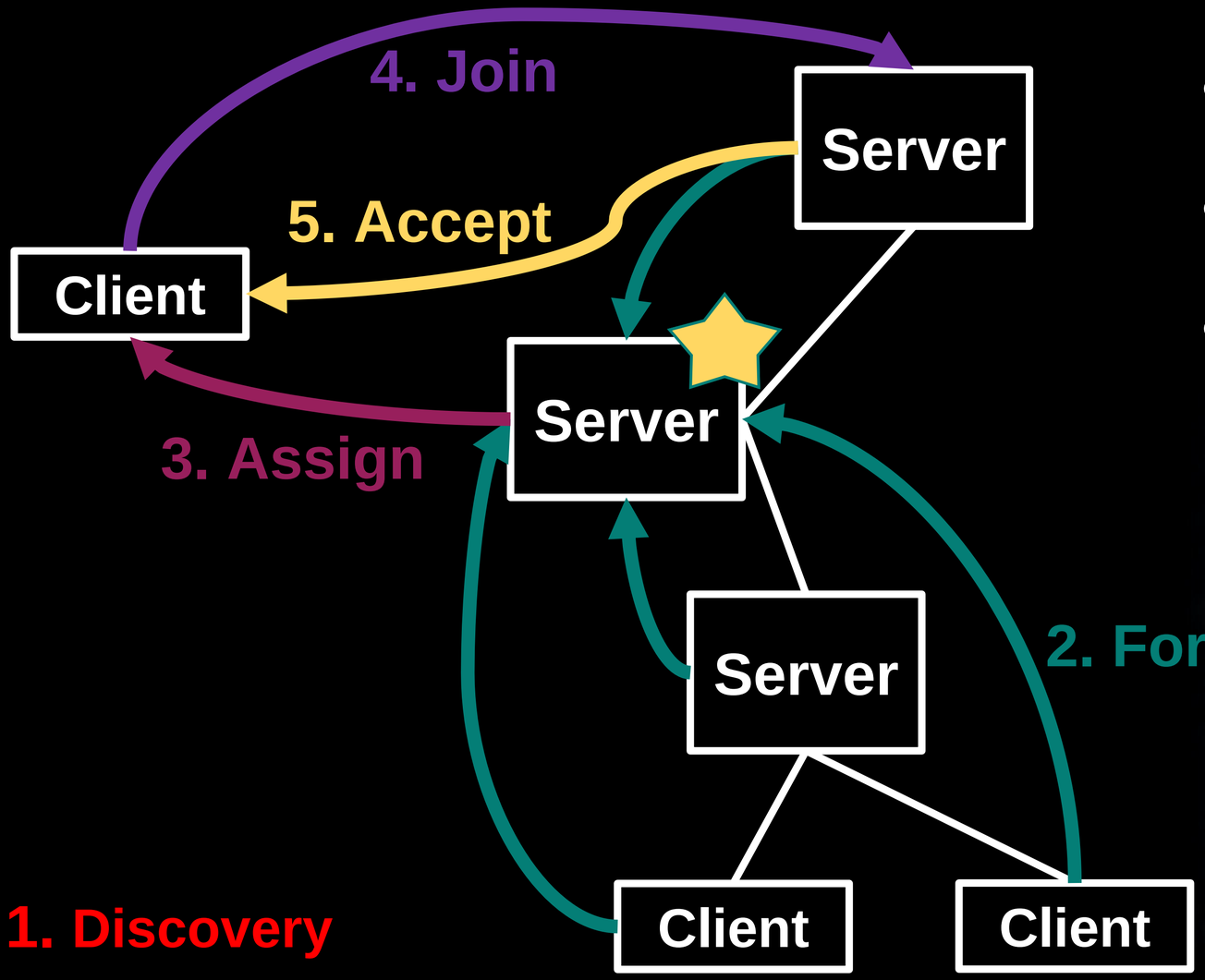
- The LaLann-Chang-Roberts algorithm

Ordered reliable multicast

- Totally ordered reliable multicast, B-multicast

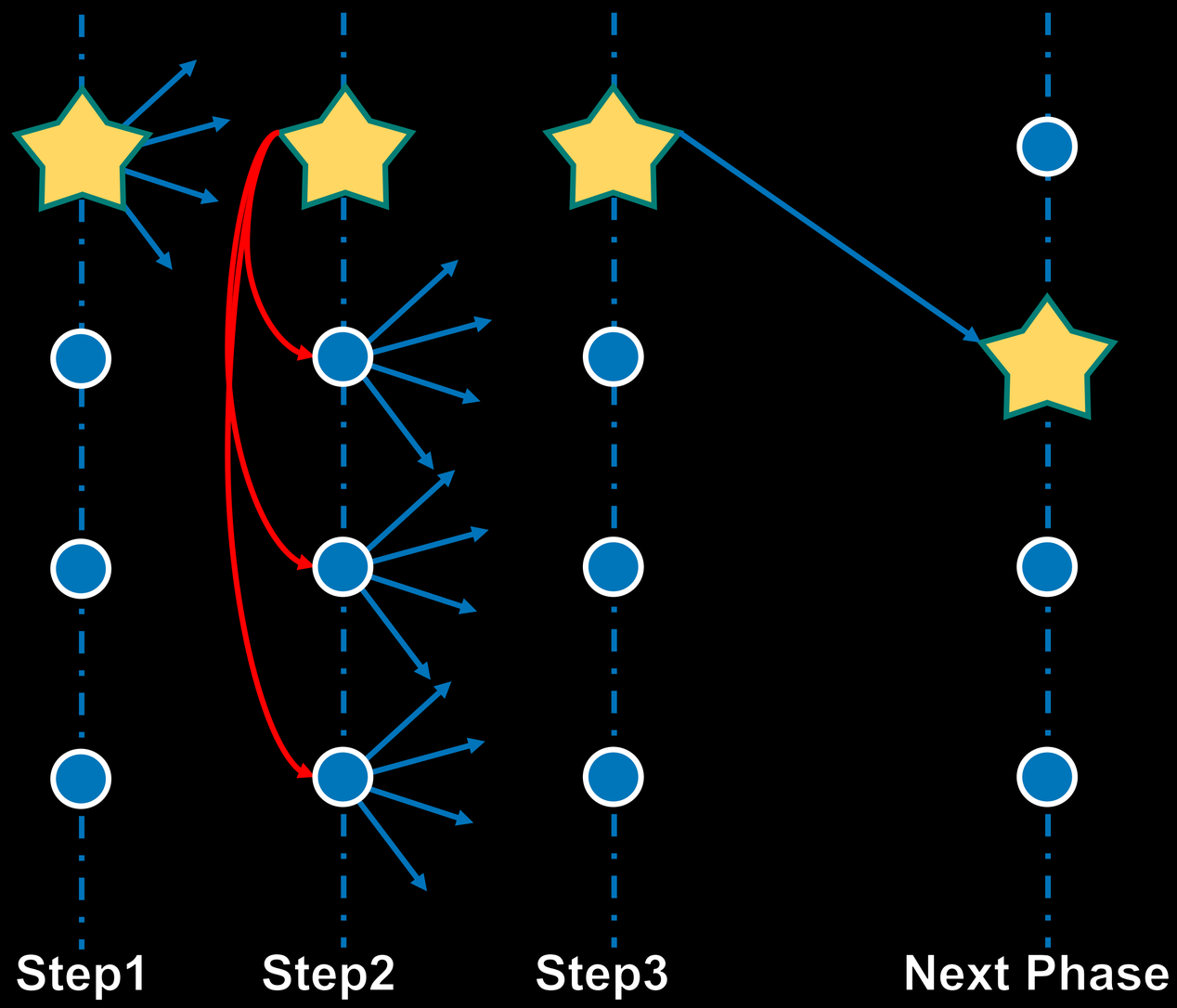


Dynamic Discovery

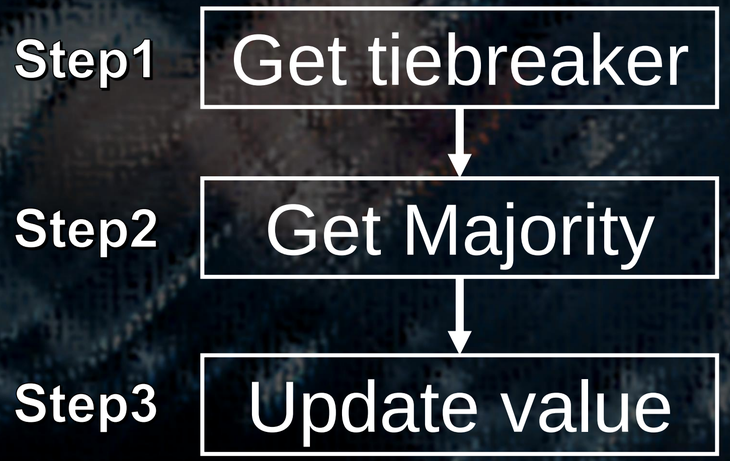


- Discovery and join
- Assign and Accept
- Message forwarding

Byzantine Agreement



- Recursive Phase King Algorithm
- King-stack



Demostration

- System Layout:

  4-servers

  5-Clients

```
echo off
cd ..
start cmd /k python Server.py --opt 0
start cmd /k python Server.py --port 10005 --opt 0
start cmd /k python Server.py --port 10010 --opt 0
start cmd /k python Server.py --port 10015 --opt 0
```

```
echo off
cd ..
start cmd /k python Client.py
start cmd /k python Client.py --port 5710
start cmd /k python Client.py --port 5720
start cmd /k python Client.py --port 5730
```

ID	PC	PORT
1	1	10000
2	1	10010
3	1	10020
4	1	10030
5	2	5720
6	2	5710
7	2	5730
8	2	5740
9	3	57??


Q & A

Thanks for attention!