

SER 321 B Session

SI Session

Thursday November 16th 2023

7:00 - 8:00 pm MST

Agenda



Review Distributed Structures

Joining a Peer to Peer Cluster

Assignment 5 Structure

Consensus

SI Session Expectations

Thanks for coming to the **SER 321** SI session. We have a packed agenda and we are going to try to get through as many of our planned example problems as possible. This session will be recorded and shared with others.

- If after this you want to see additional examples, please visit the drop-in tutoring center.
- We will post the link in the chat now and at the end of the session.
 - tutoring.asu.edu
- Please keep in mind we are recording this session and it will be made available for you to review 24-48 hours after this session concludes.
- Finally, please be respectful to each other during the session.

Interact with us:

Zoom Features



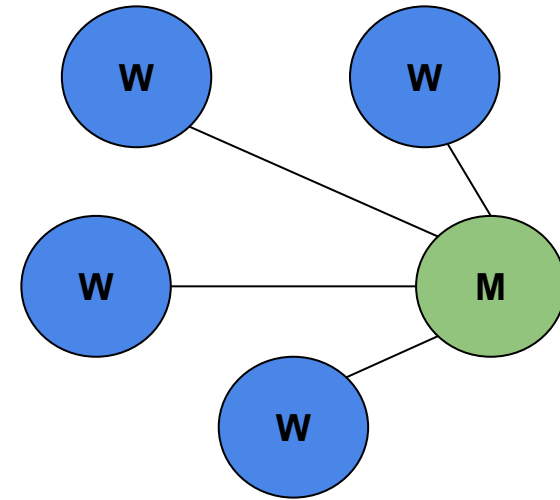
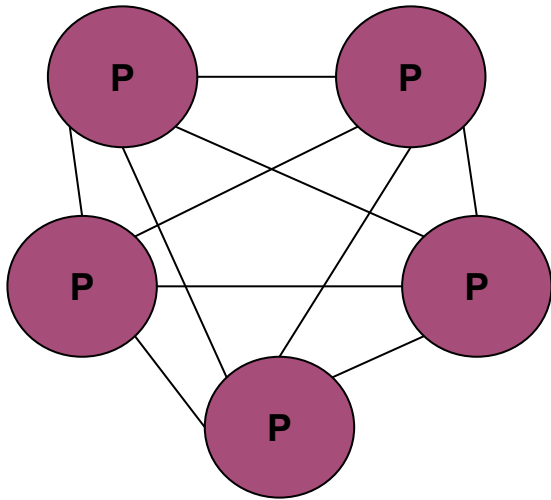
Zoom Chat

- Use the chat feature to interact with the presenter and respond to presenter's questions.
- Annotations are encouraged

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Let's list some differences

Check out the recording for the discussion!

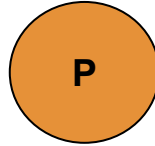


Check out the recording for the discussion!

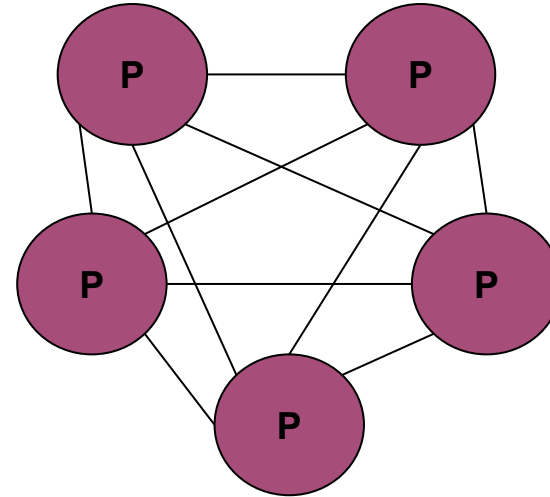
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New Nodes

How does our lonely peer join the cluster?



Should we *even let* the peer into the cluster?



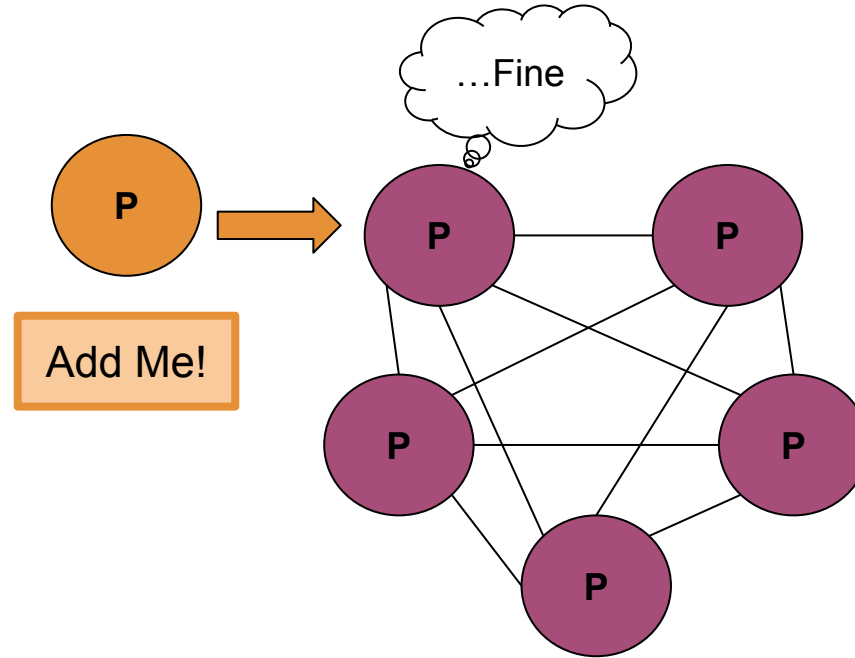
Could use Proof of Work

Assuming we *want* to allow the peer into the cluster...

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New Nodes

Check out the recording for the discussion!



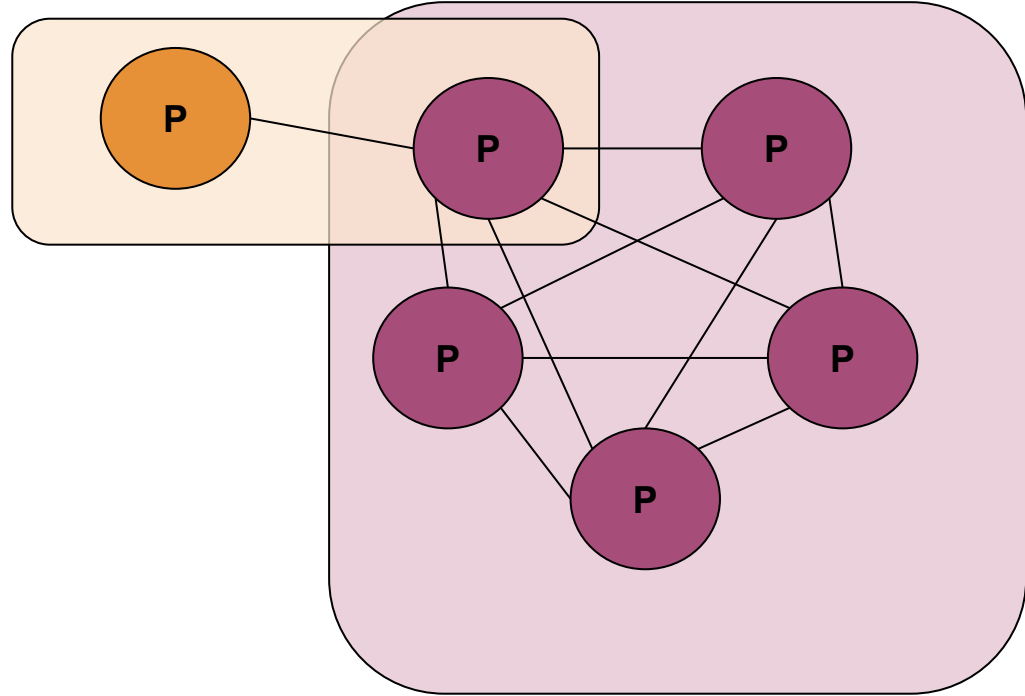
Assuming we *want* to allow the peer into the cluster...

Check out the recording for the discussion!

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New Nodes

Is that it?



Assuming we *want* to allow the peer into the cluster...

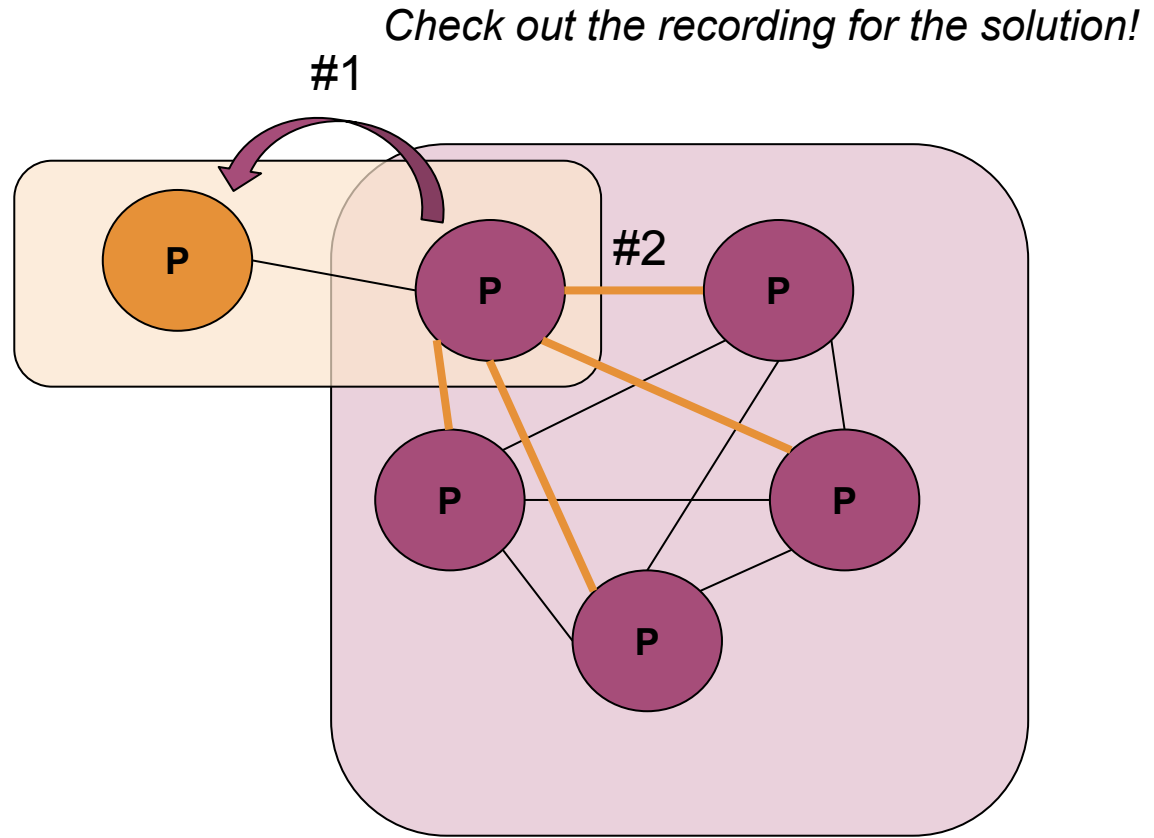
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New Nodes

Need to do two things...

1.

2.

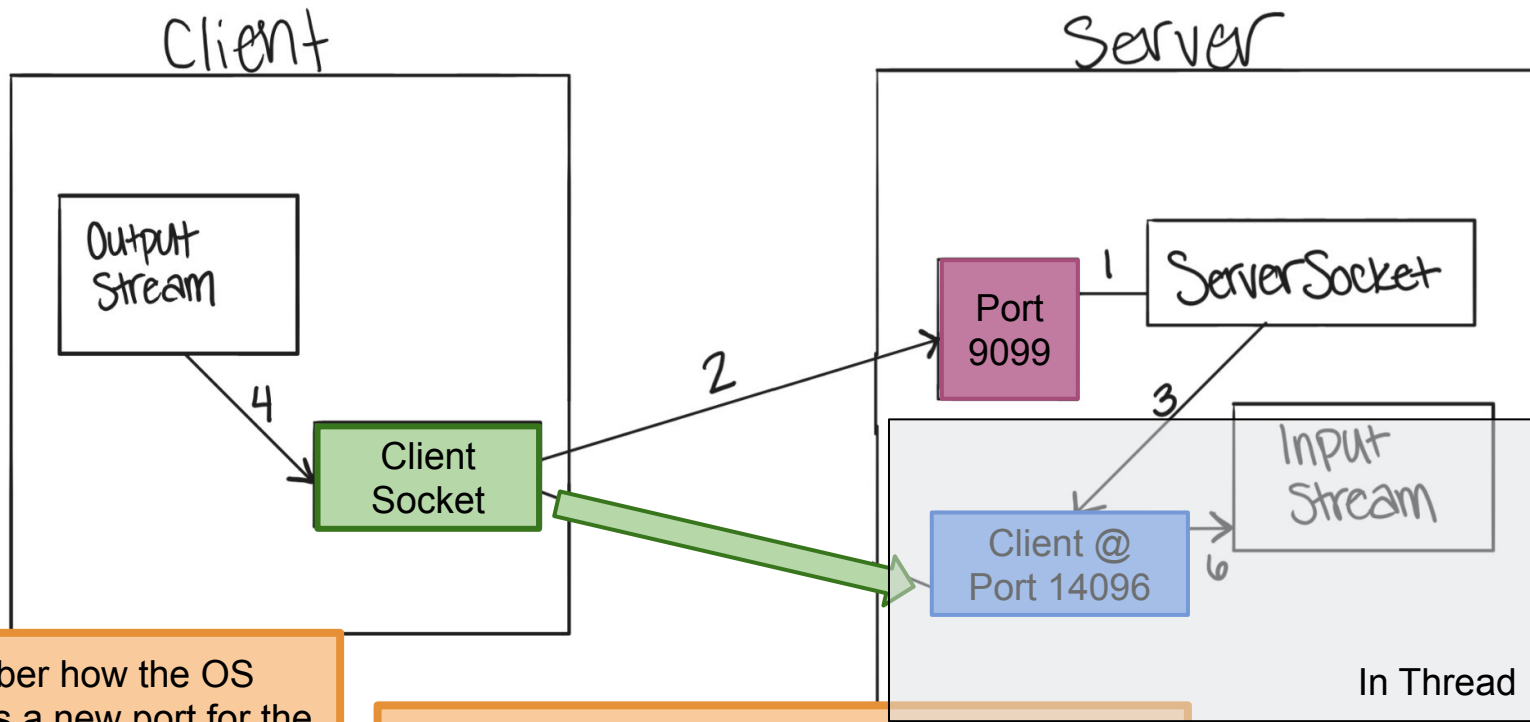


Assuming we *want* to allow the peer into the cluster...

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Quick Aside for Peer to Peer

```
Values of the Client Socket Object after Connection:  
Inet Address: /127.0.0.1  
Local Address: /127.0.0.1  
Local Port: 9099  
Allocated Client Socket (Remote Port): 14096
```



Remember how the OS allocates a new port for the client?

And how did we handle that in a thread again?

ThreadedSocketServer from examples repo

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Quick Aside for Peer to Peer

```
Values of the Client Socket Object after Connection:  
Inet Address: /127.0.0.1  
Local Address: /127.0.0.1  
Local Port: 9099  
Allocated Client Socket (Remote Port): 14096
```

```
ServerSocket serv = new ServerSocket(portNo);  
while (true) {  
    System.out.println("Threaded server waiting for connects on port " + portNo);  
    sock = serv.accept();  
    System.out.println("Threaded server connected to client-" + id);  
    // create thread  
    ThreadedSockServer myServerThread = new ThreadedSockServer(sock, id++);  
    // run thread and don't care about managing it  
    myServerThread.start();  
}
```

Client
Socket

Client @
Port 14096

Input
Stream

In Thread

Remember how the OS
allocates a new port for the
client?

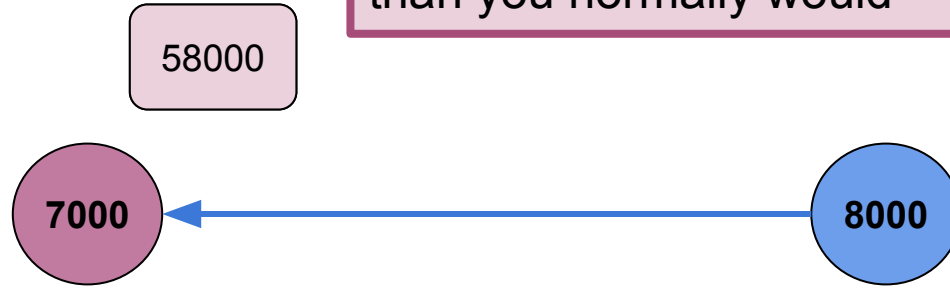
And how did we handle that in a thread again?

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Quick Aside for Peer to Peer

IF YOU USE PEER TO PEER

Because we use threads to *simulate* the nodes, we have to handle the communication a little differently than you normally would



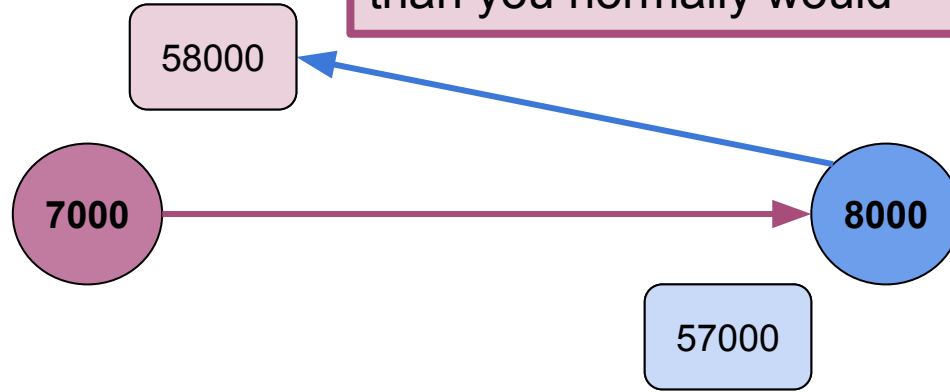
Check out the recording for the discussion!

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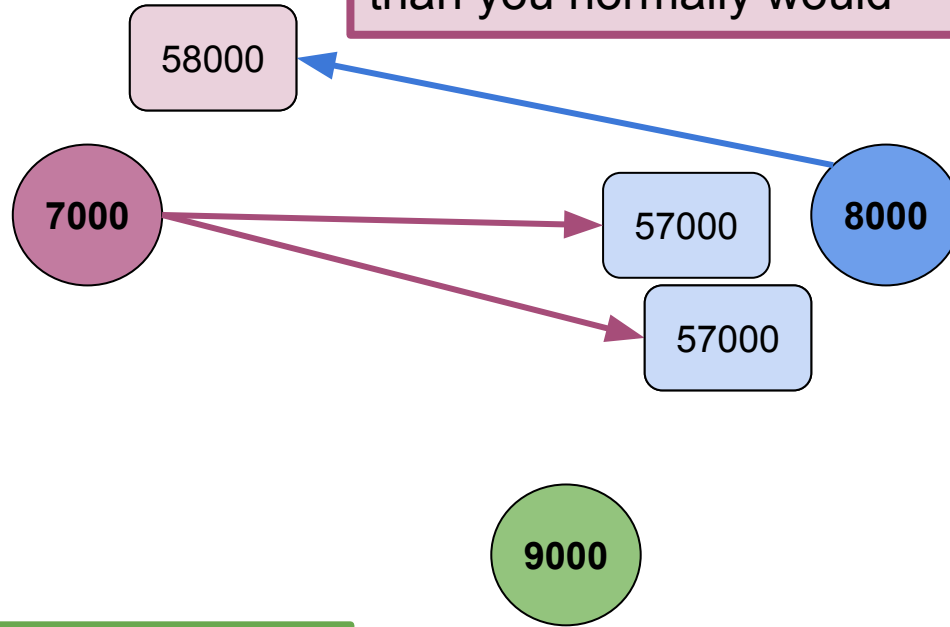
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Quick Aside for Peer to Peer

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What happens for this third peer?

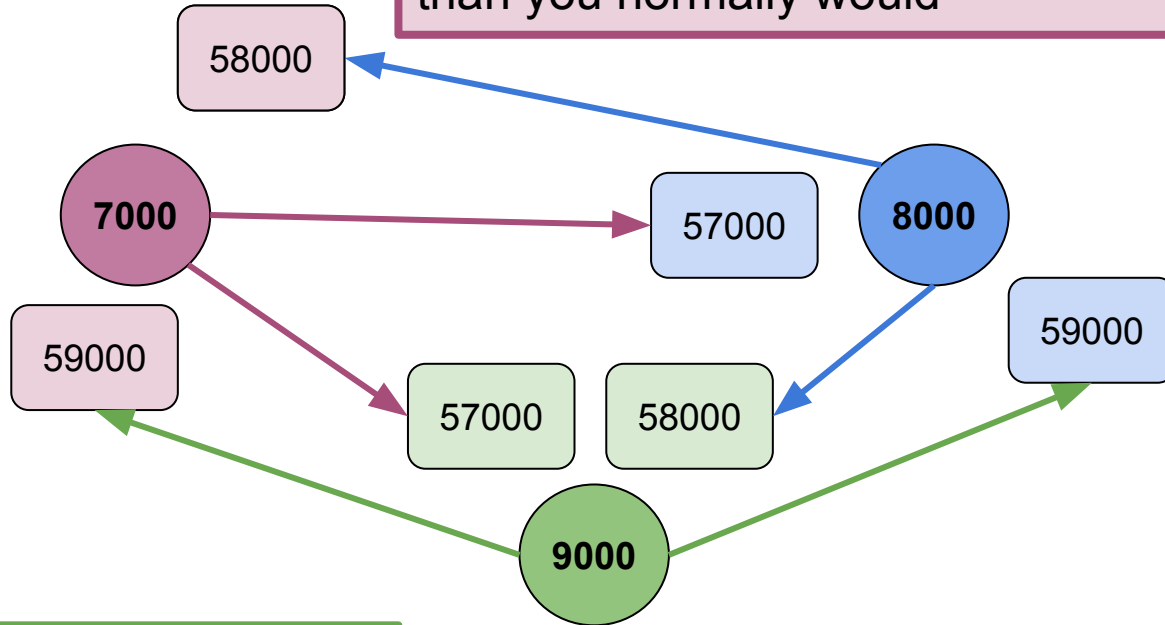
Check out the recording for the discussion!

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Quick Aside for Peer to Peer

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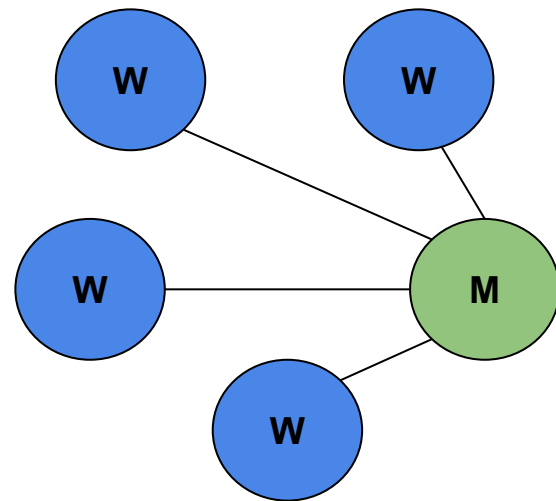
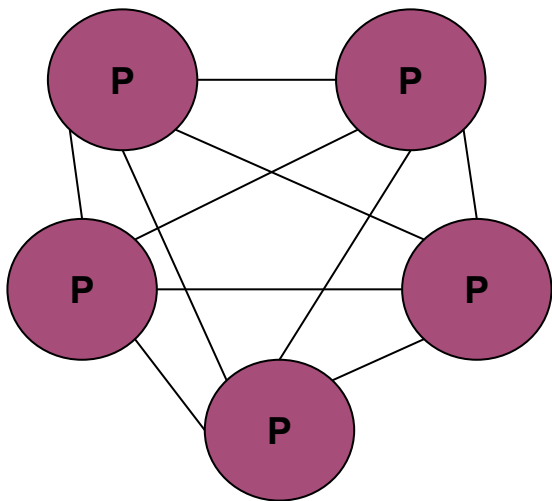
Check out the recording for the discussion!

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Assignment Structure

Check out the recording for the discussion!

What distributed structure do you want to use for Assignment 5?



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Assignment Structure

We need:

Client

Leader

Nodes

How Many?

L

N

C

Check out the recording for the solution!

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Assignment Structure

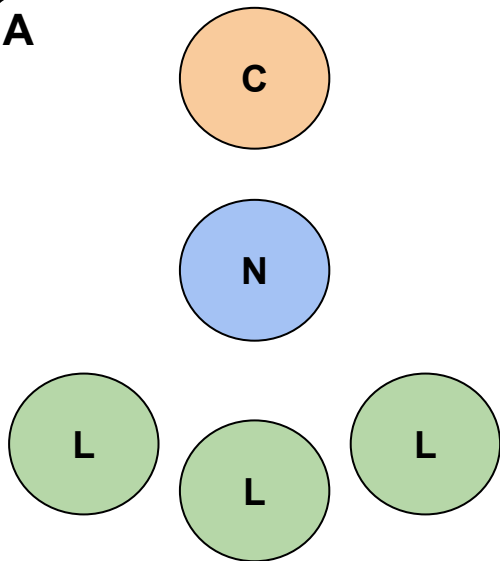
Which of these would work for this implementation?

Client

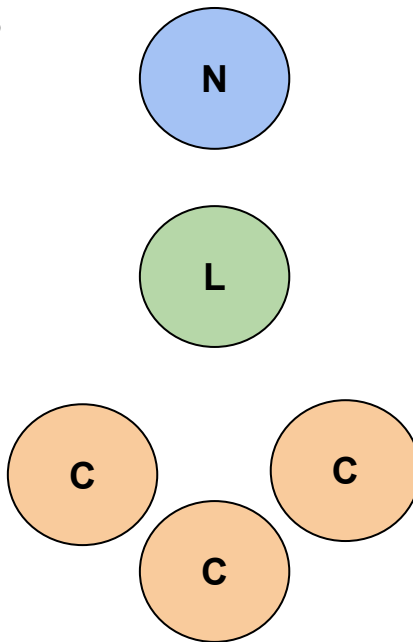
Leader

Node

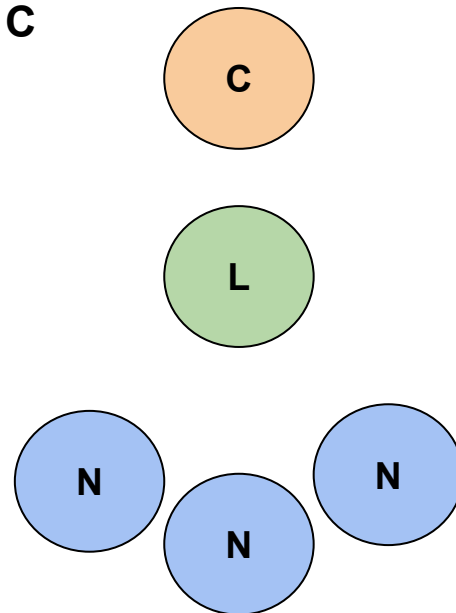
A



B



C

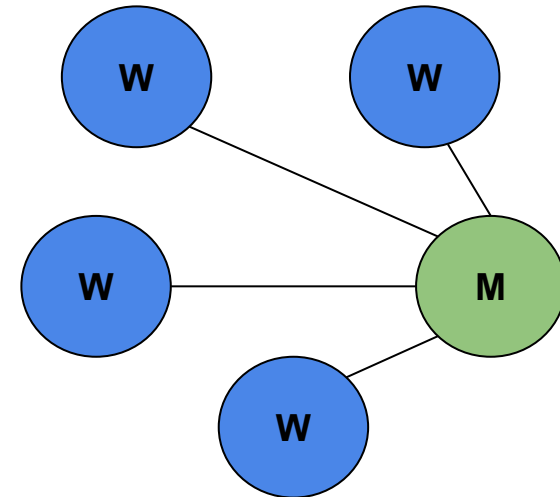
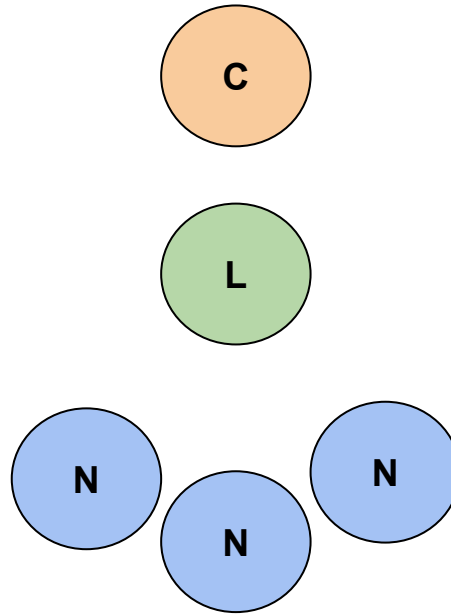


Check out the recording for the solution!

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Assignment Structure

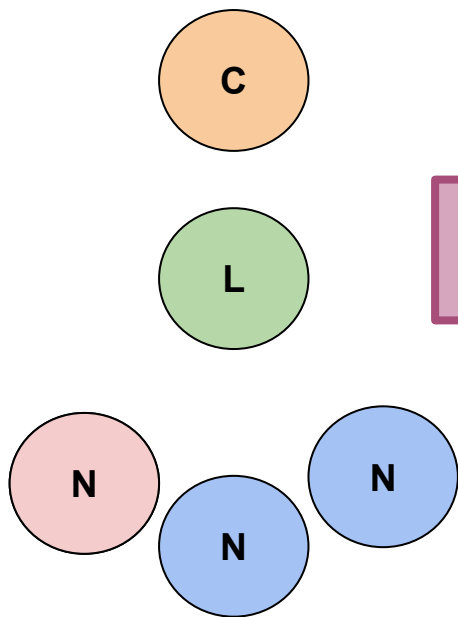
Hrm, looks familiar...



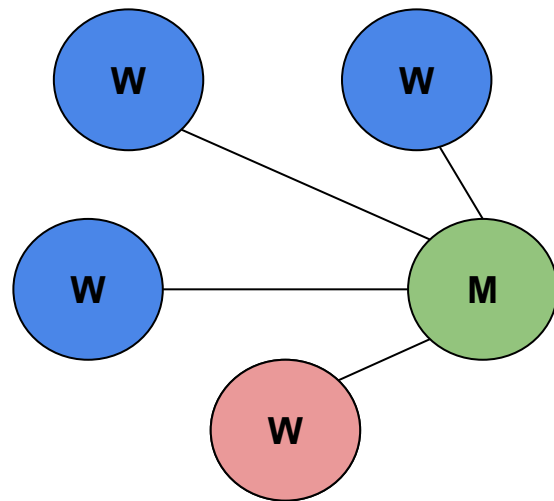
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Assignment - Consensus

How do we *find* and *handle* **faulty** nodes?



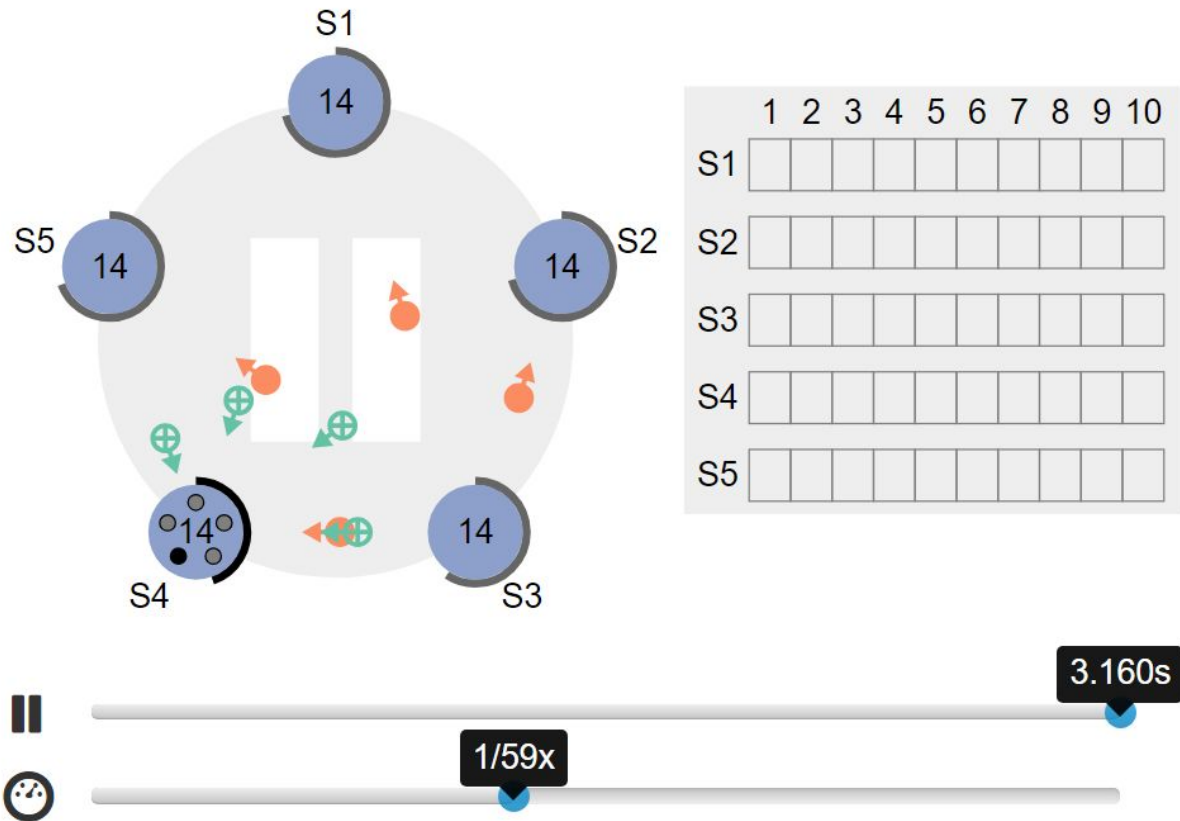
Consensus!



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RAFT

RAFT



Questions?

Survey:

https://bit.ly/asn_survey



Upcoming Events

SI Sessions:

- Sunday, November 19th 2023 at 7:00 pm MST
- Monday, November 20th 2023 at 4:00 pm MST
- Sunday, November 26th 2023 at 7:00 pm MST

Review Sessions:

- **Monday, November 27th 2023**
- **5:00 - 7:00 pm MST**

More Questions?

Check out our other resources!

tutoring.asu.edu



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Services



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[Access the drop-in queue](#)

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2-

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1. Click on 'Go to Zoom' to log onto our Online Tutoring Center.
2. Click on 'View the tutoring schedule' to see when tutors are available for specific courses.

More Questions?

Check out our other resources!

tutoring.asu.edu/online-study-hub

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Online Study Hub

Online peer communities for students and tutors, YouTube channels, and Tutorbots.



What are online peer communities?

Individual courses have an online peer community that allows you to connect with your peers to post and answer questions and to develop study groups.



How can tutoring center videos help?

Videos can help supplement the learning you're doing in and outside of class and include step-by-step methods for how to understand concepts.



How does the Tutorbot work?

You can ask the Tutorbot questions about course concepts and the Tutorbot will recommend additional resources and examples to help address your questions.

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Business


ACC 231

Uses of Accounting Info I

 [Peer Community](#)

ACC 241

Uses of Accounting Info II

 [Peer Community](#)

CIS 105

Computer Applications and Information Technology

 [Peer Community](#)

Don't forget to check out the Online Study Hub for additional resources!

Additional Resources

[CourRepo](#)

[Dining Philosophers Interactive](#)

[Raft Interactive](#)