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

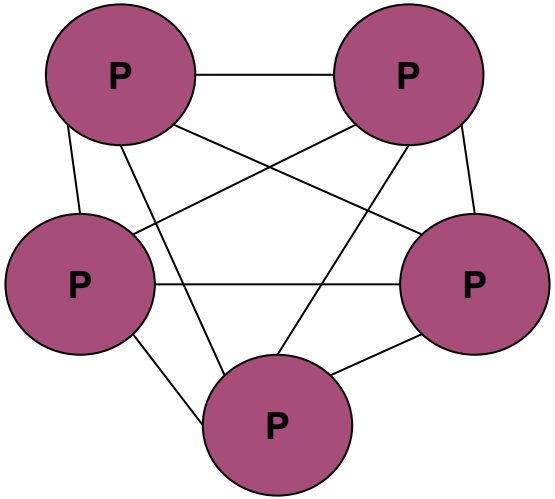
Zoom Chat

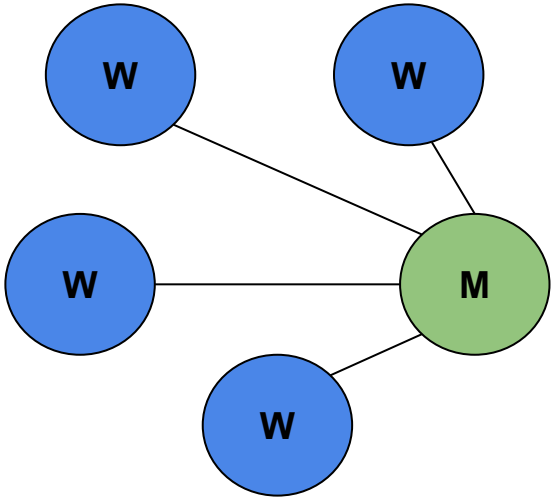
- Use the chat feature to interact with the presenter and respond to presenter's questions.
- Annotations are encouraged

Check out the recording for the discussion!

SER 321

Let's list some differences





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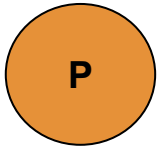
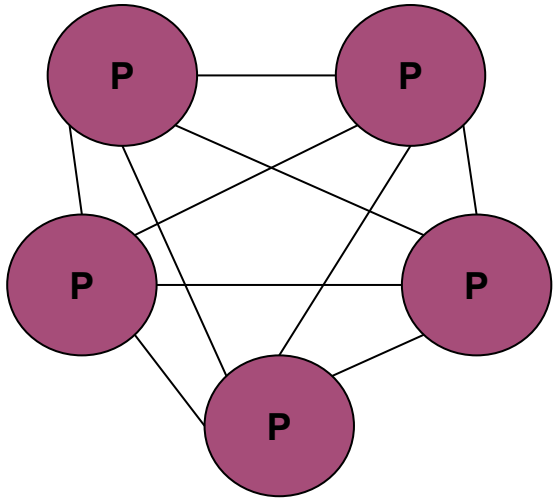
New Nodes

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…

Check out the recording for the discussion!

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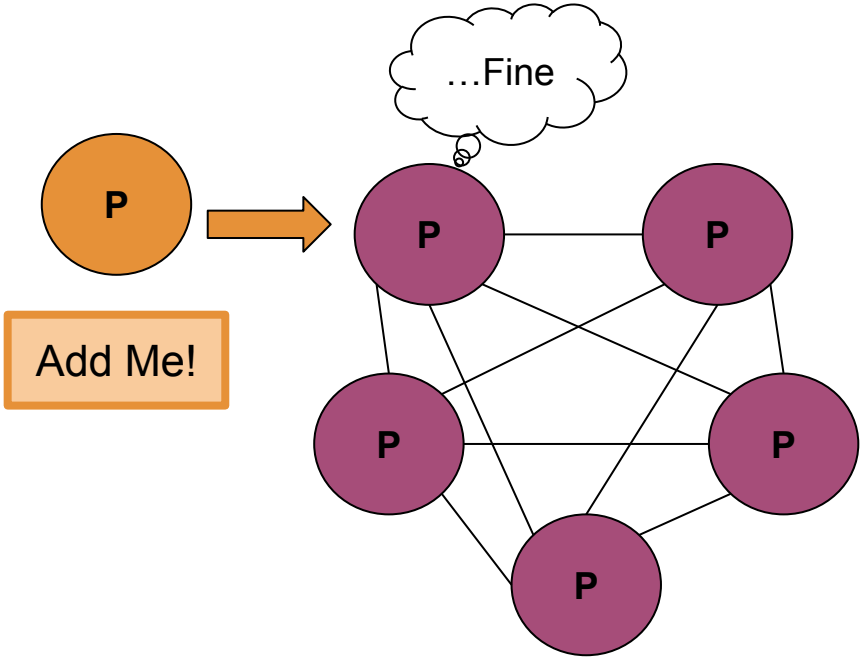
New Nodes



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

Check out the recording for the discussion!

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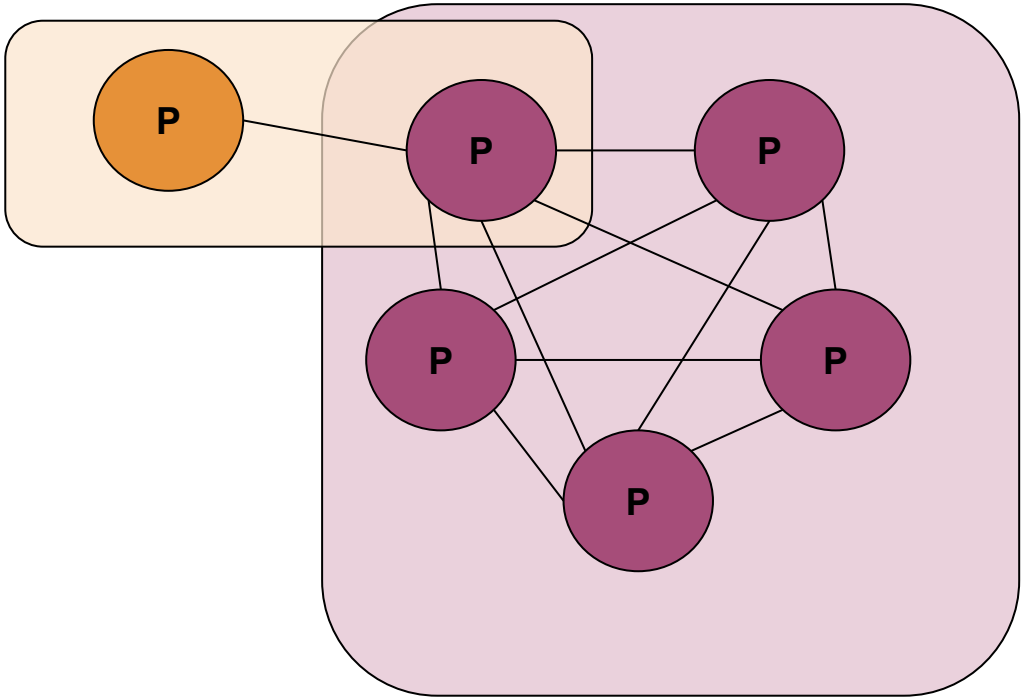
New Nodes

Is that it?



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

Check out the recording for the solution!

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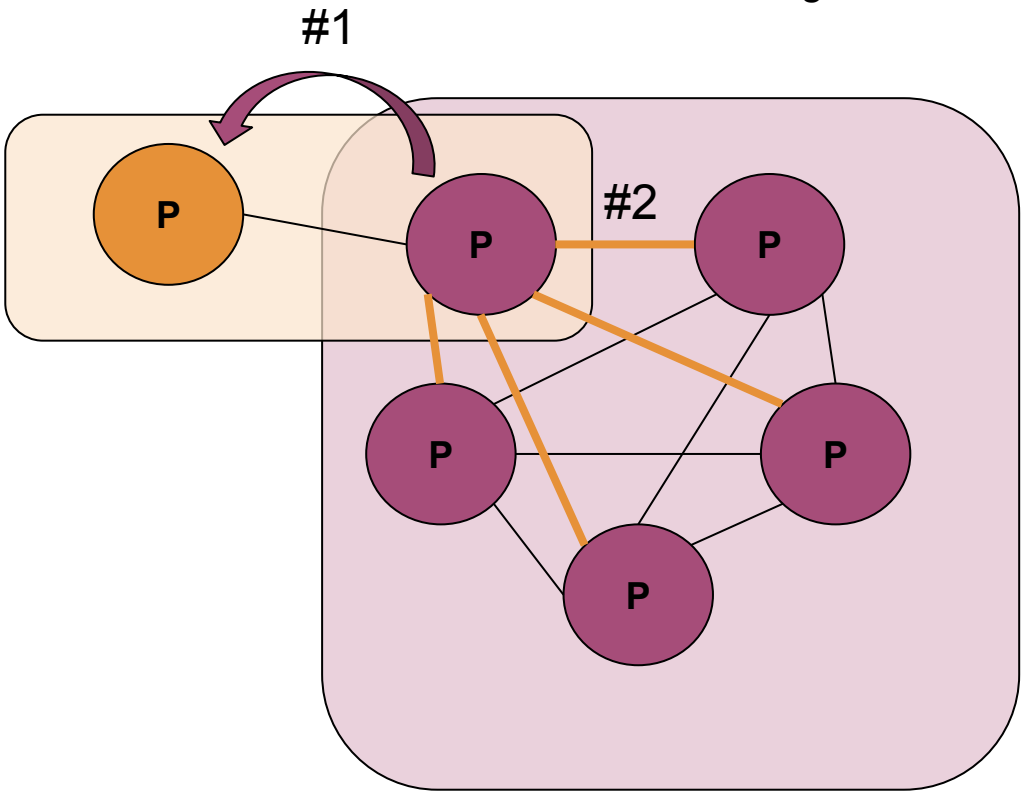
New Nodes

Need to do two things…

1.

2.



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

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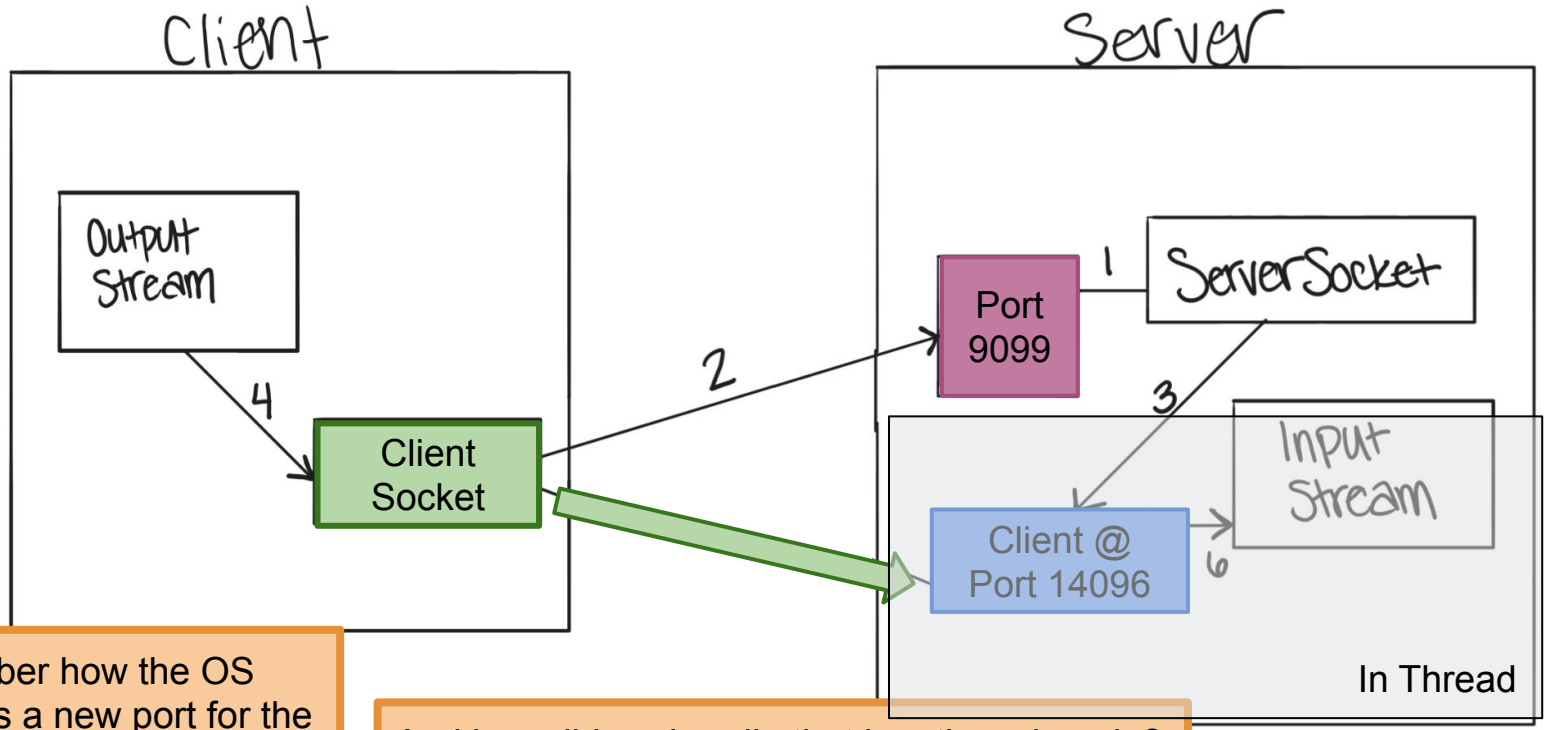
Quick Aside for Peer to Peer

```
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?

ThreadedSockServer from examples repo

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Quick Aside for Peer to Peer

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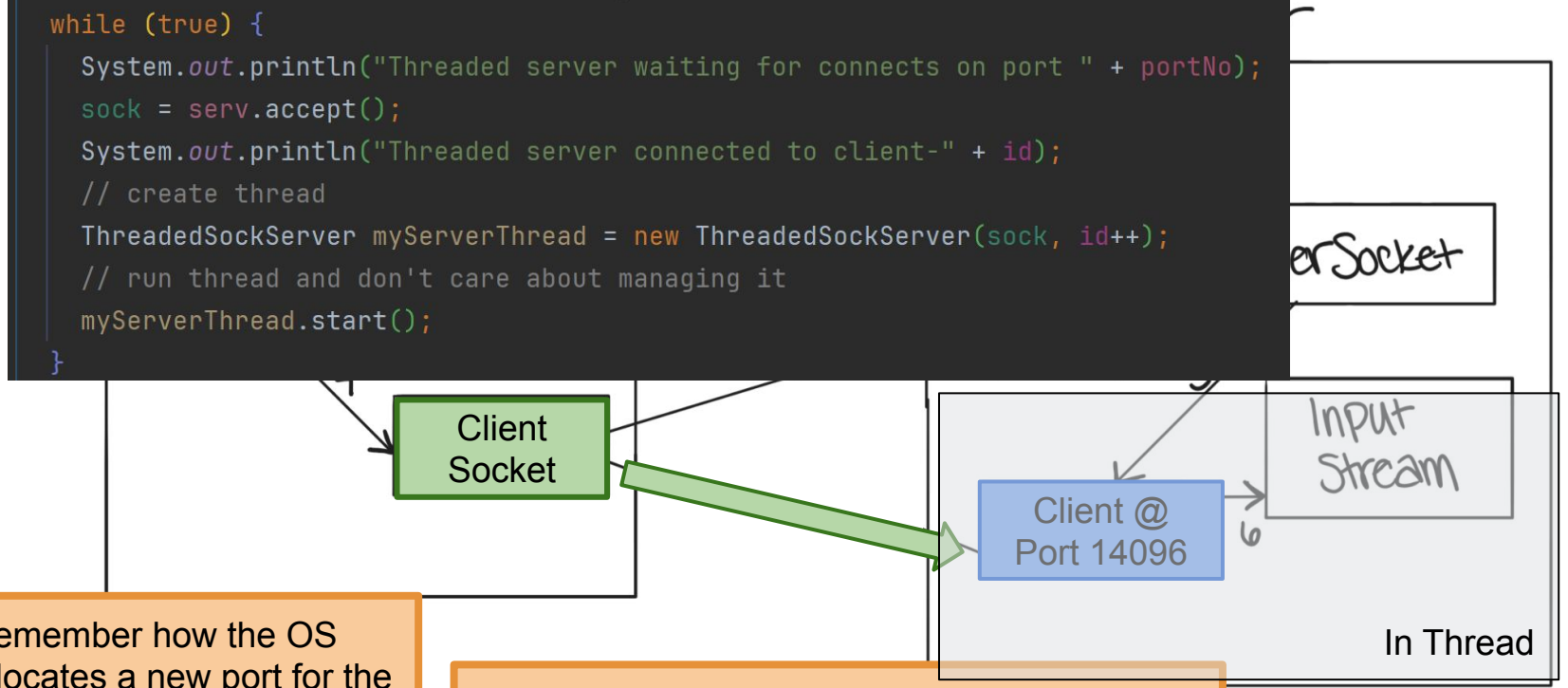
Values of the Client Socket Object after Connection:
Inet Address: /127.0.0.1
Local Address: /127.0.0.1
Local Port: 9099
Allocated Client Socket (Remote Port): 14096
```

```java
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();
}
```



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And how did we handle that in a thread again?

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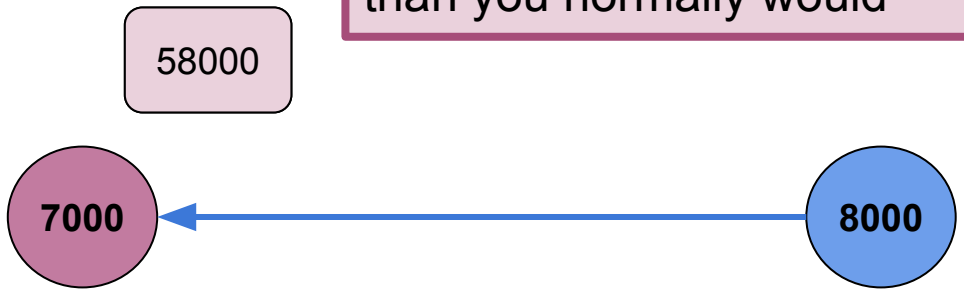
Quick Aside for Peer to Peer

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



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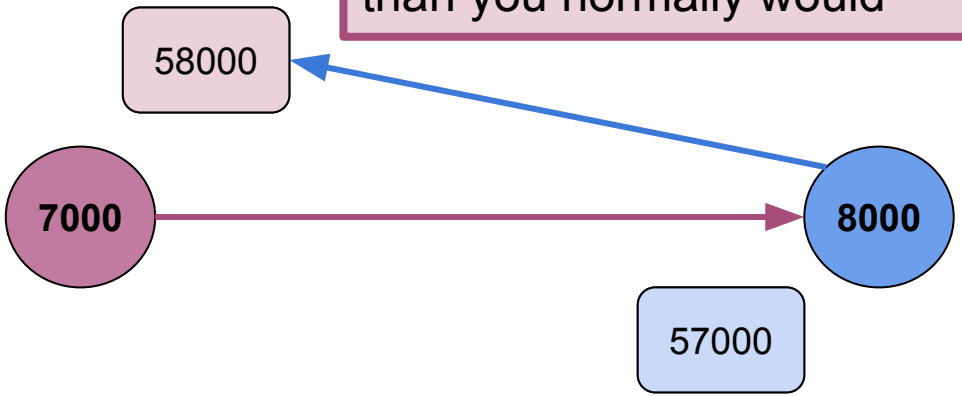

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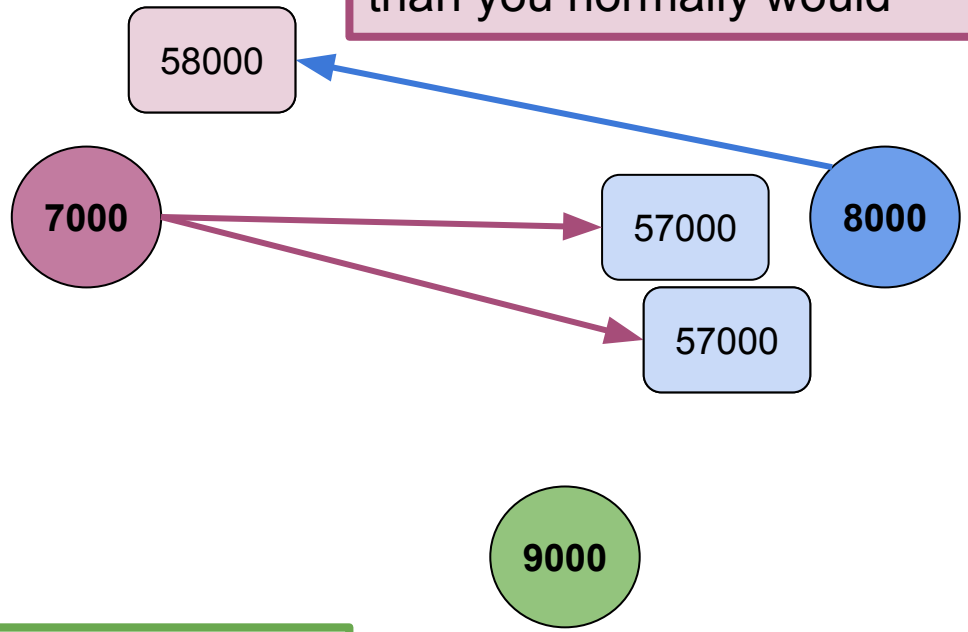

What happens for this third peer?

Check out the recording for the discussion!

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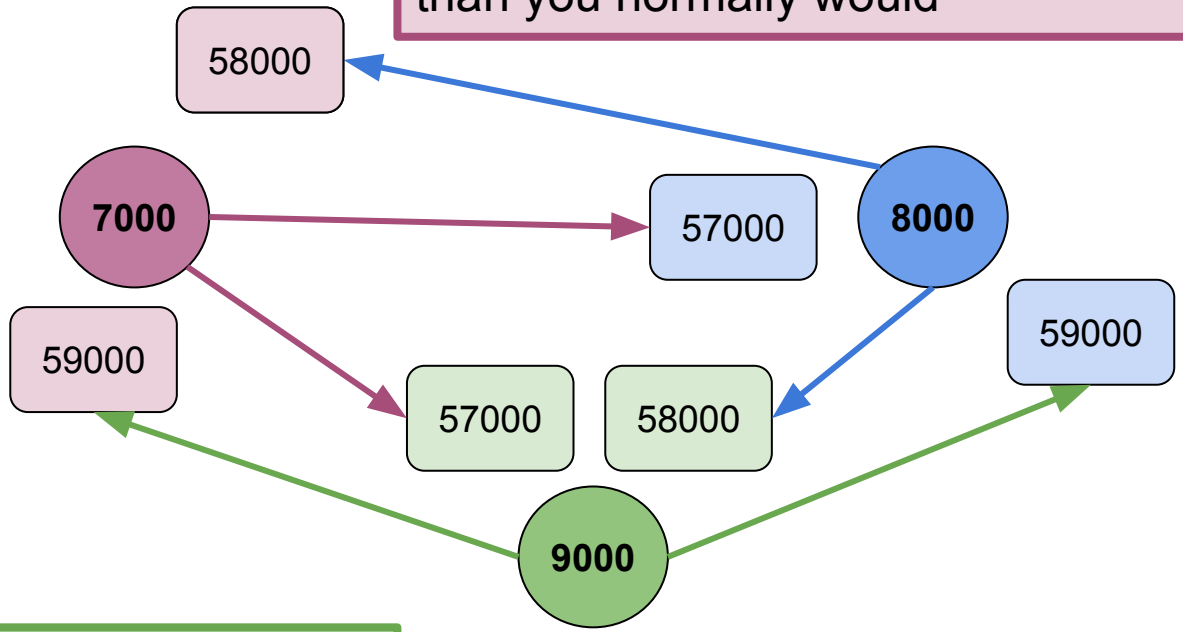

What happens for this third peer?

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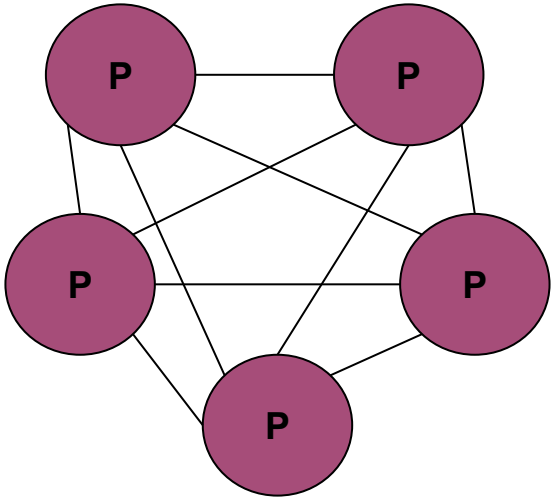
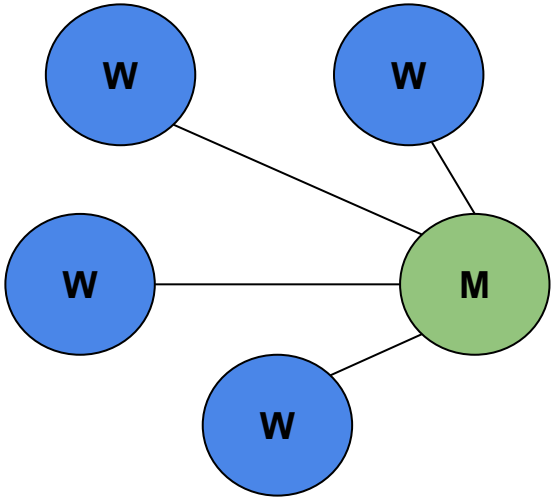
Assignment Structure

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





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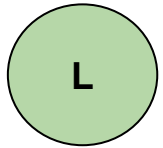
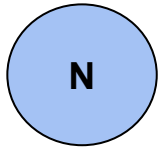
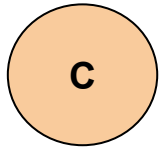
Assignment Structure

We need:

How Many?







Client

Leader

Nodes

Check out the recording for the solution!

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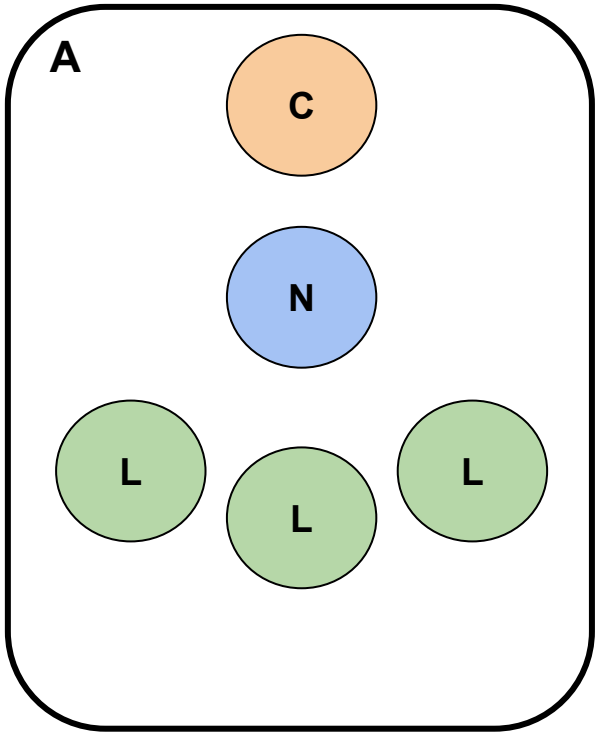
Assignment Structure

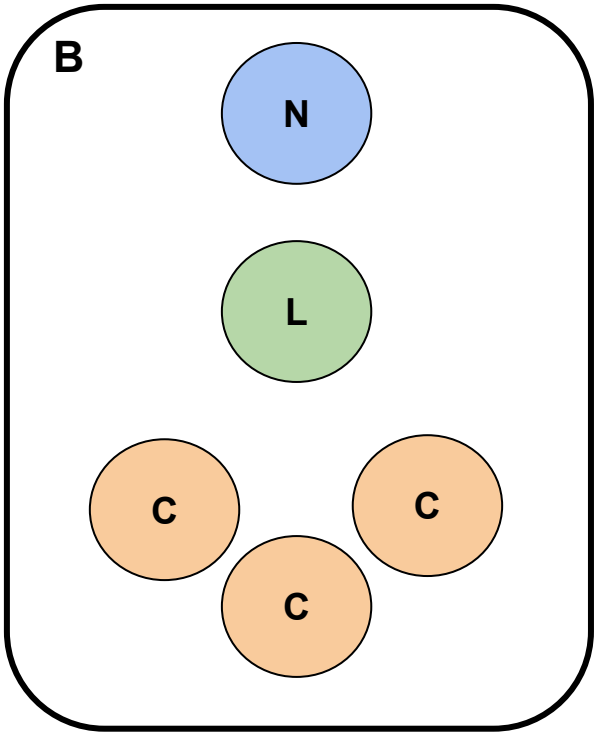
Which of these would work for this implementation?

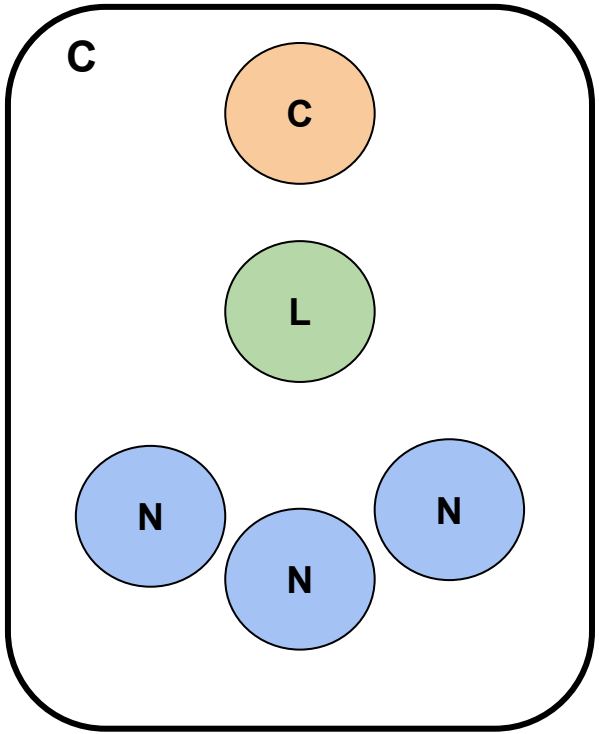
Client

Leader

Node







Check out the recording for the solution!

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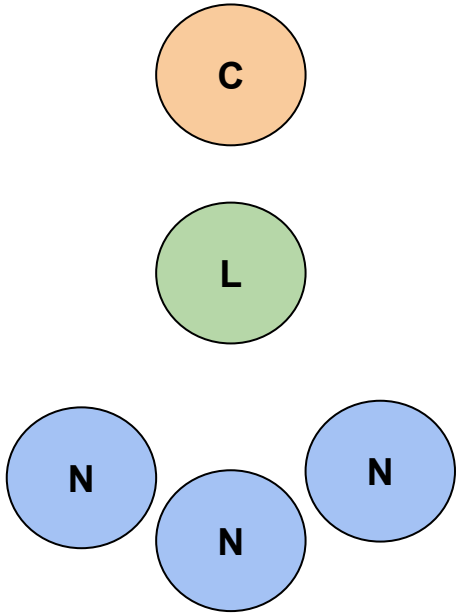
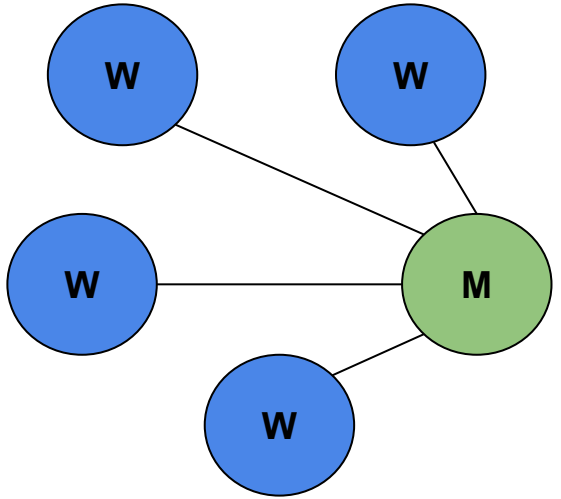
Assignment Structure

Hrm, looks familiar…





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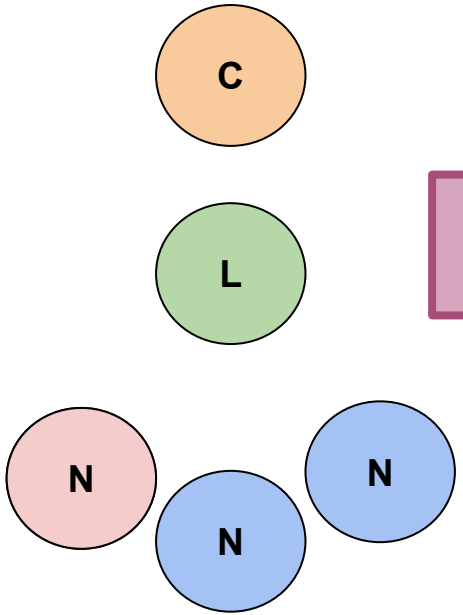
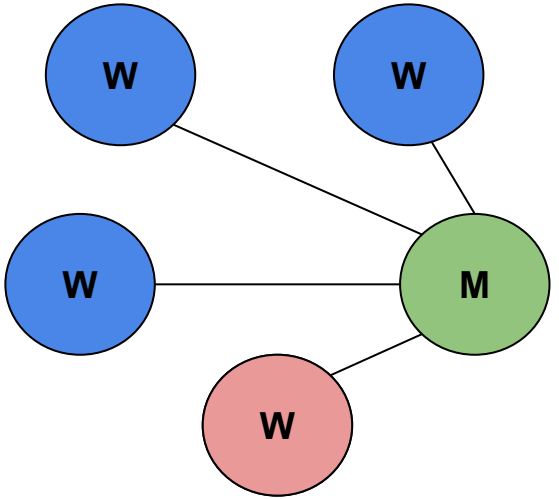
Assignment - Consensus

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



Consensus!



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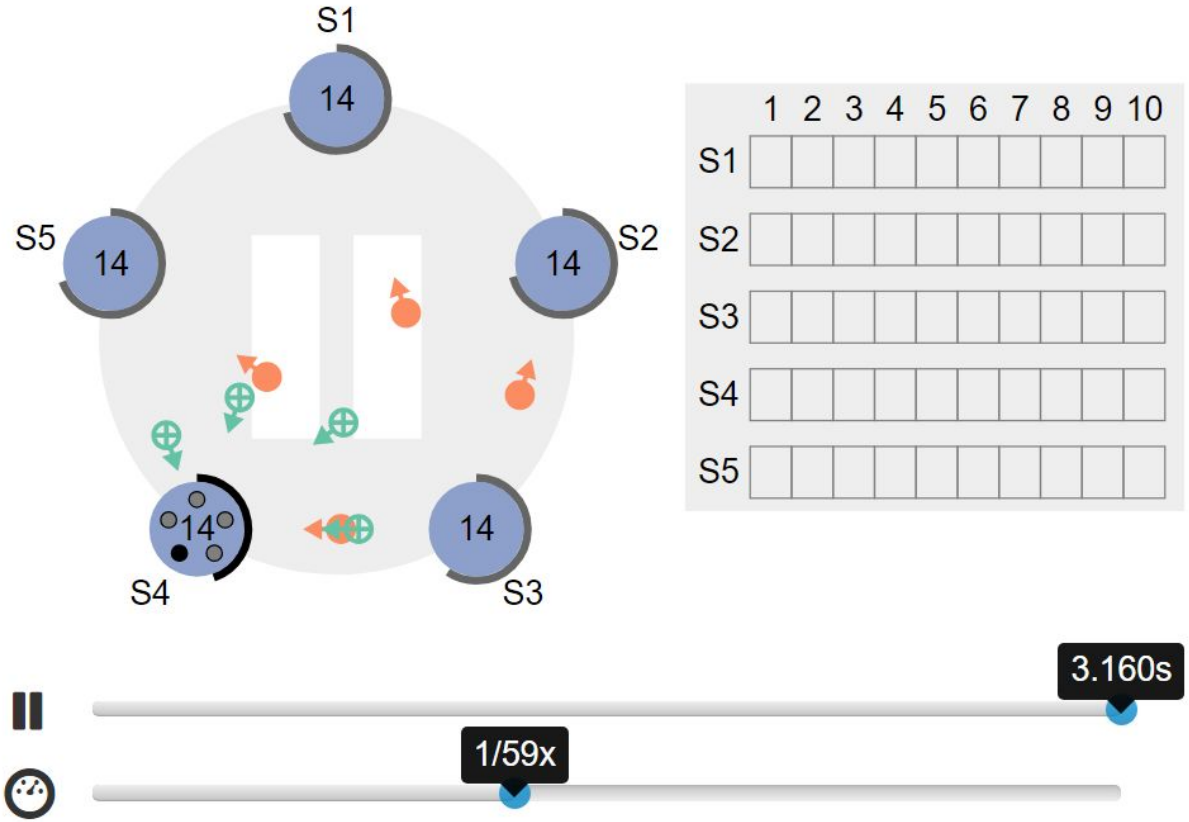
RAFT

RAFT



Questions?

Survey:

https://bit.ly/asn_survey

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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

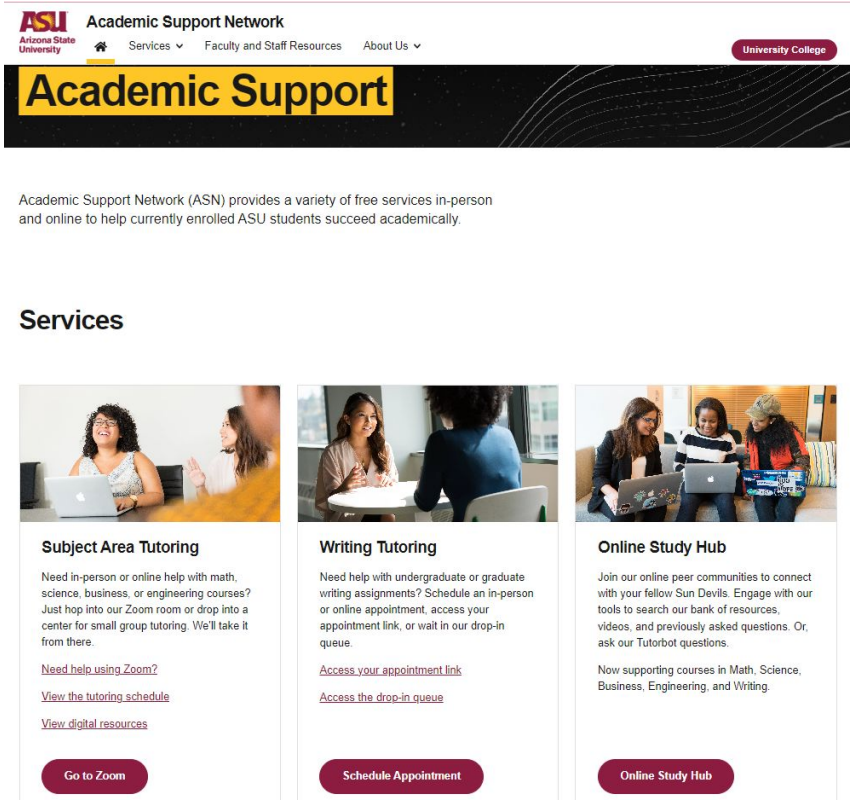
Review Sessions:

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

More Questions?

Check out our other resources!

tutoring.asu.edu

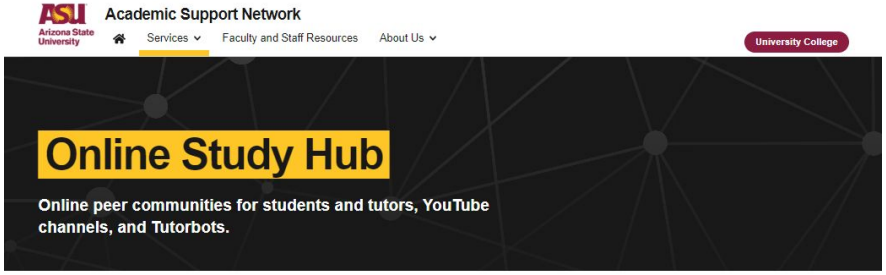


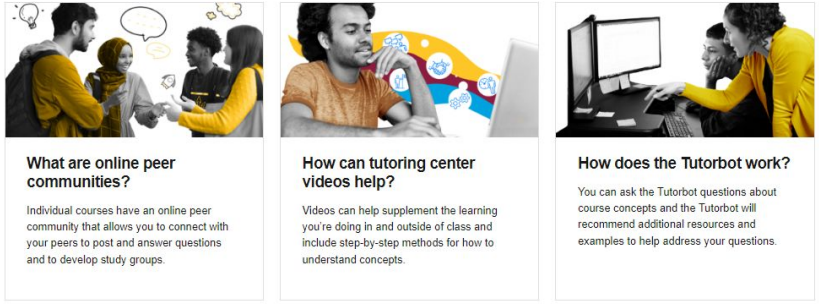
1. **Click on ‘Go to Zoom’ to log onto our Online Tutoring Center.**
2. **Click on ‘View the tutoring schedule’ to see when tutors are available for specific courses.**

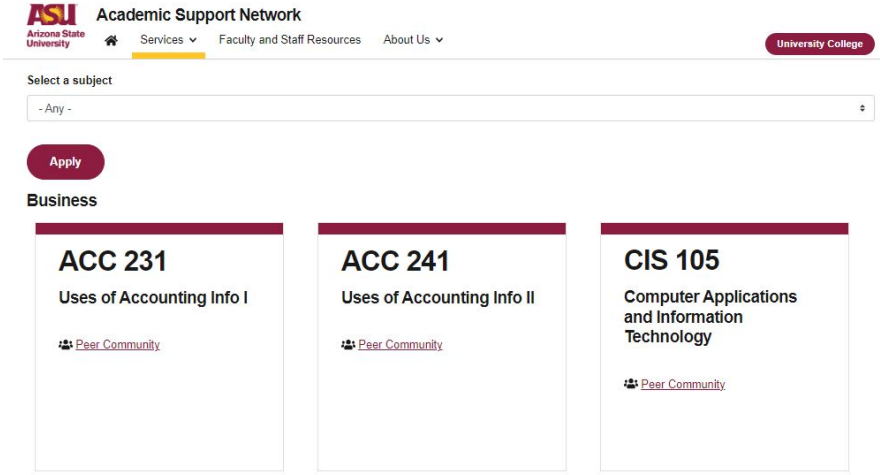
More Questions?

Check out our other resources!

tutoring.asu.edu/online-study-hub







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

Additional Resources

CoureRepo

Dining Philosophers Interactive

Raft Interactive