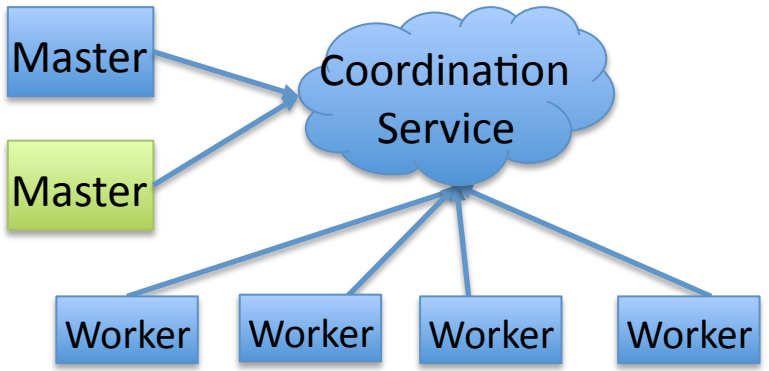
ZooKeeper Tutorial

Part 3

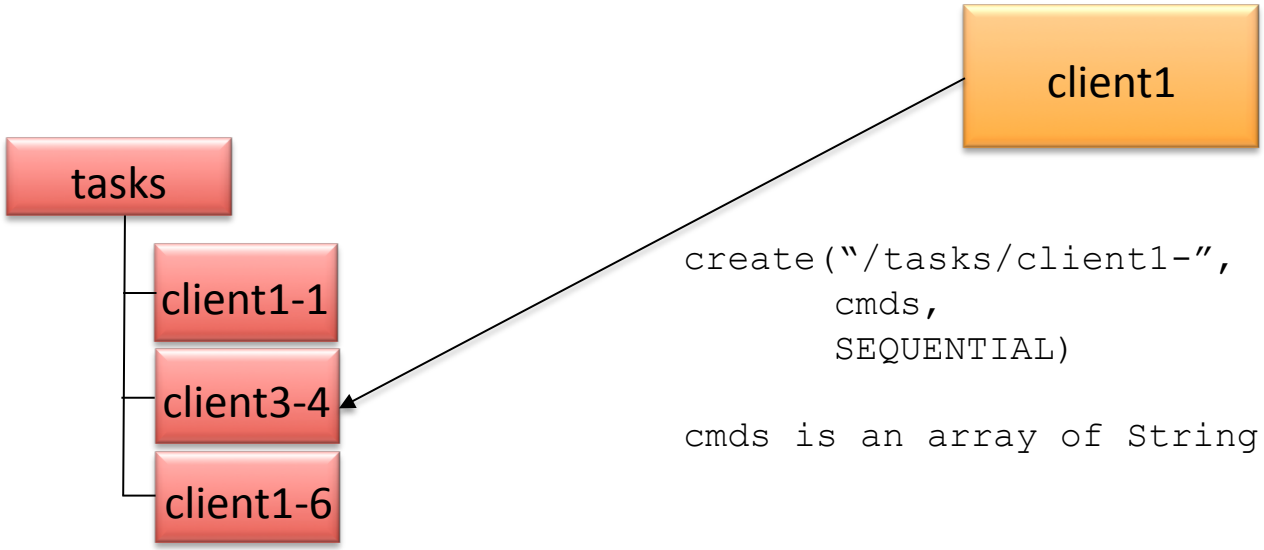
How it really works

Master/Worker System

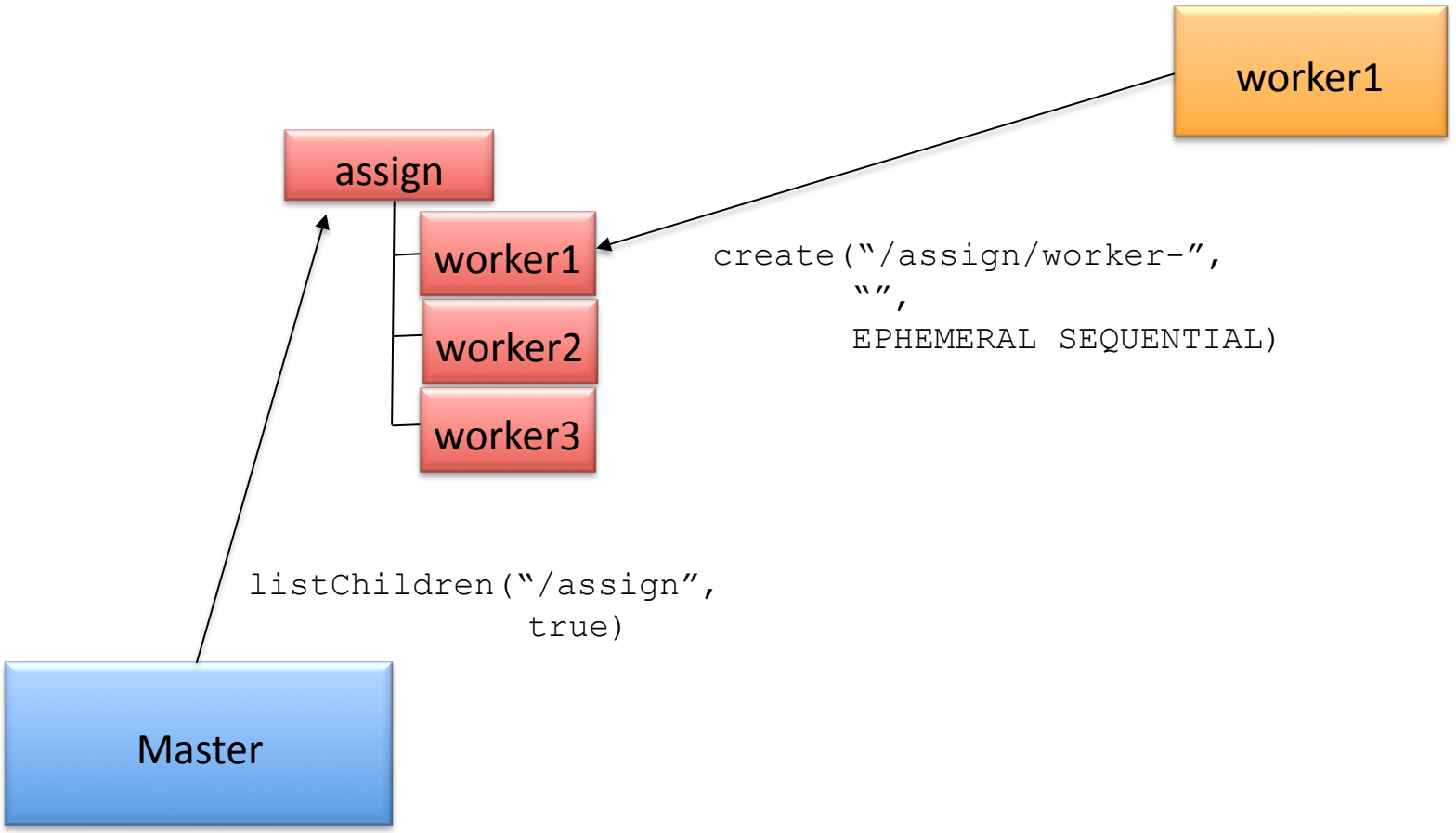
- Clients
  - Queue tasks to be executed
  - Monitor the tasks
- Masters
  - Assign tasks to workers
- Workers
  - Get tasks from the master
  - Execute tasks



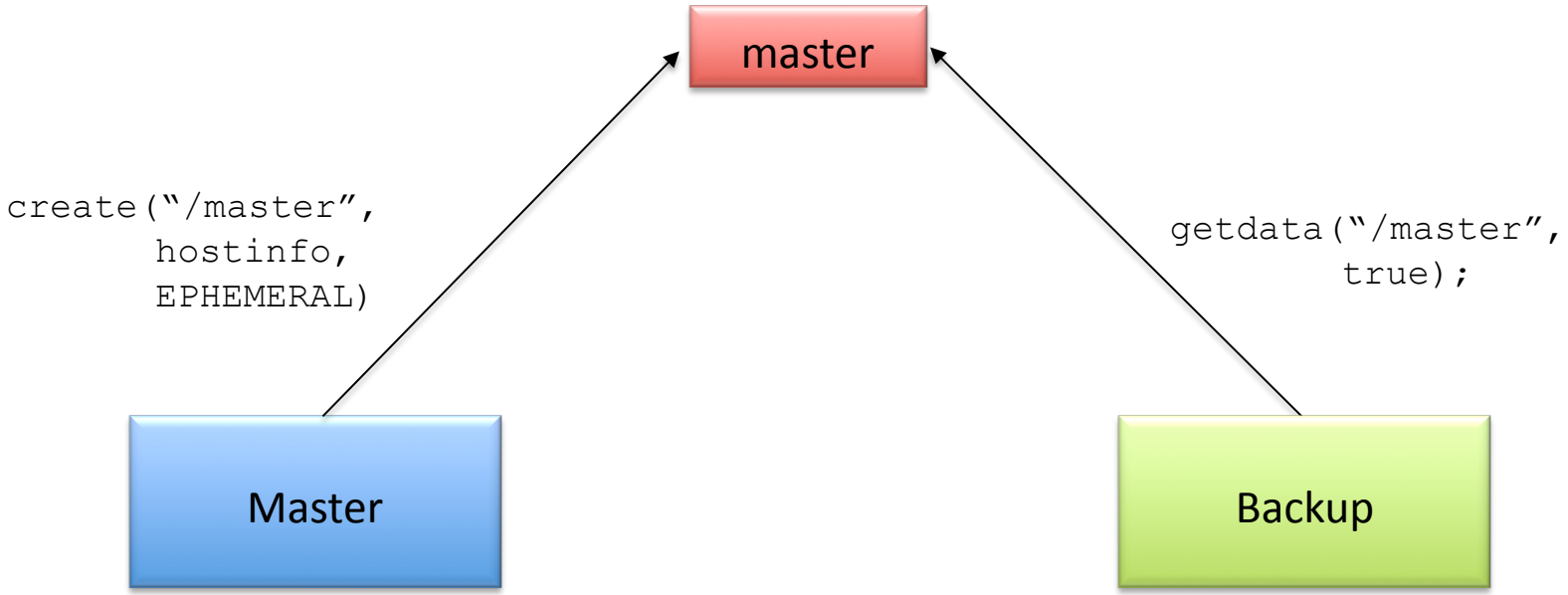
Task Queue


client1
tasks
client1-1
client3-4
client1-6
create("/tasks/client1-",
cmds,
SEQUENTIAL)
cmds is an array of String

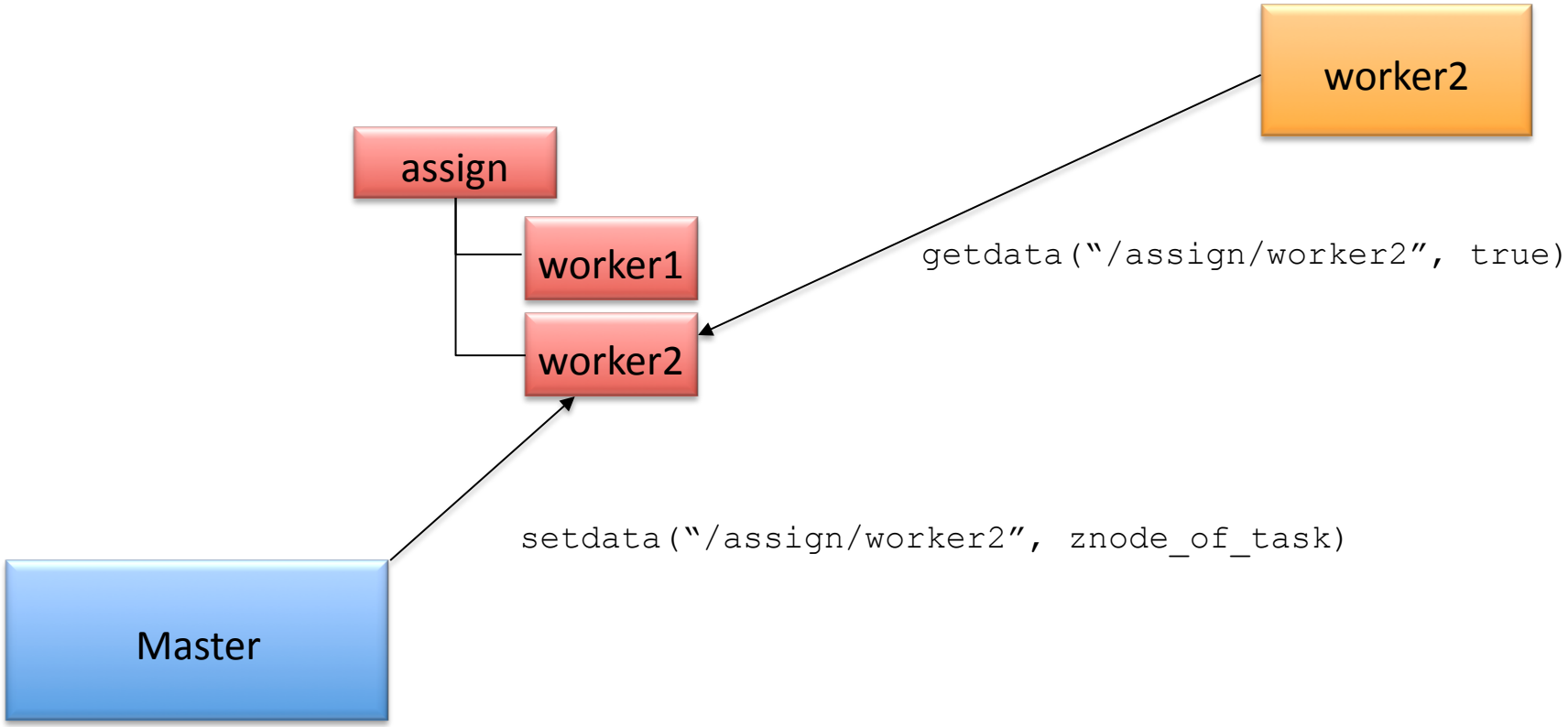
Group Membership



Leader Election



Configuration



Connecting to ZooKeeper

- Everyone has their own ZooKeeper address and auth info.
- Try connecting to ZooKeeper with the CLI.

java -jar zookeeper-3.3.2-fatjar.jar client zkaddr

- Use addAuth command to authenticate
- Try out some commands
  - Create znodes for `/servers`, `/tasks`, `/assign`

Worker Processing

- Create a session
- Create the “worker” ephemeral znode
- Watch for the assign znode
- Deal with the watches
  - Processing the assignment
    - Update status in the task
    - Delete assignment znode when finished
  - What do to with SessionExpired

Code on your own or follow together

Client Processing

- Create a session
- Create a task as a child of the `/tasks` znode
- Watch the status child of the `/tasks` znode

Code on your own or follow together

Master Processing

- Create a session
- Do leader election using master znode
- Watch the worker list
- Watch the task queue
- Watch the assignment queue
- Deal with the watches
  - Deal with workers coming and going
  - Assign new tasks
  - Watch for completions

Code on your own or follow together

Give it a try…

- Start up the master
- Start up a worker
- Try submitting a command
- Queue up a bunch of sleep 100
- Add more workers
- Try killing a worker
- Try killing the master. Did take over work?