

Operating System Project3

WRR Scheduler

Team 1

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wrr_rq Structure

A cursor that points to the currently running task.

- ❖ `struct wrr_rq {`
- ❖ `unsigned long total_weight;`
- ❖ `struct list_head run_queue;`
- ❖ `struct task_struct* curr;`
- ❖ `};`



Total weight of the tasks in the run queue.

sched_wrr_entity Structure

- ❖ struct sched_wrr_entity {
- ❖ struct list_head run_list;
- ❖ unsigned int weight;
- ❖ unsigned int time_slice;
- ❖ };



My timeslice



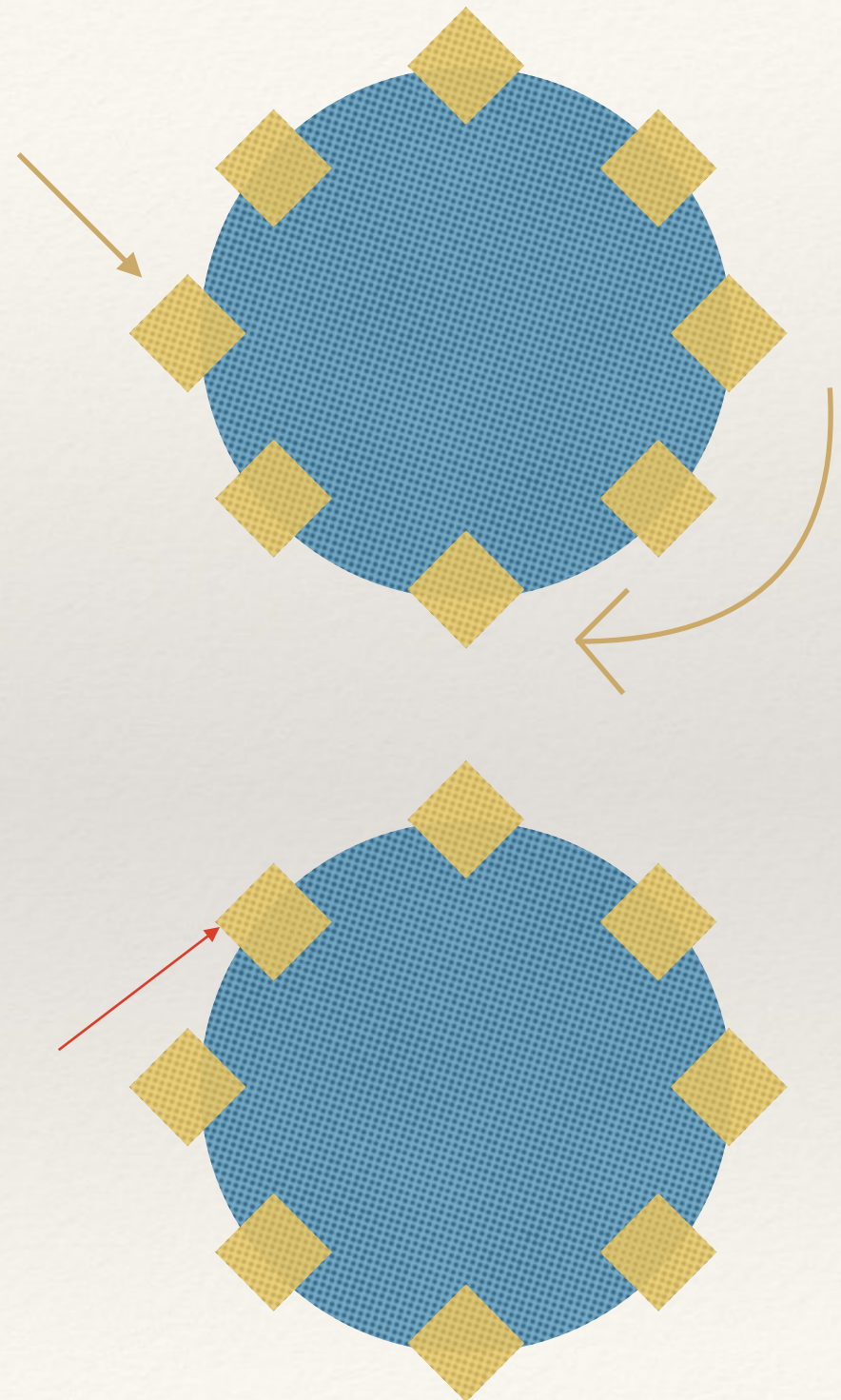
My weight

En/Dequeue and pick next task

- ❖ Enqueue: if no task in the run queue, add the task in to the run queue and set the cursor to the added task. Else add the task right before the cursor.
- ❖ Dequeue: if the task that the cursor is pointing to needs to be deleted, update the cursor to the next task. Else, simply delete the task.
- ❖ Pick next task: return the task that the cursor is pointing to with updated time slice.

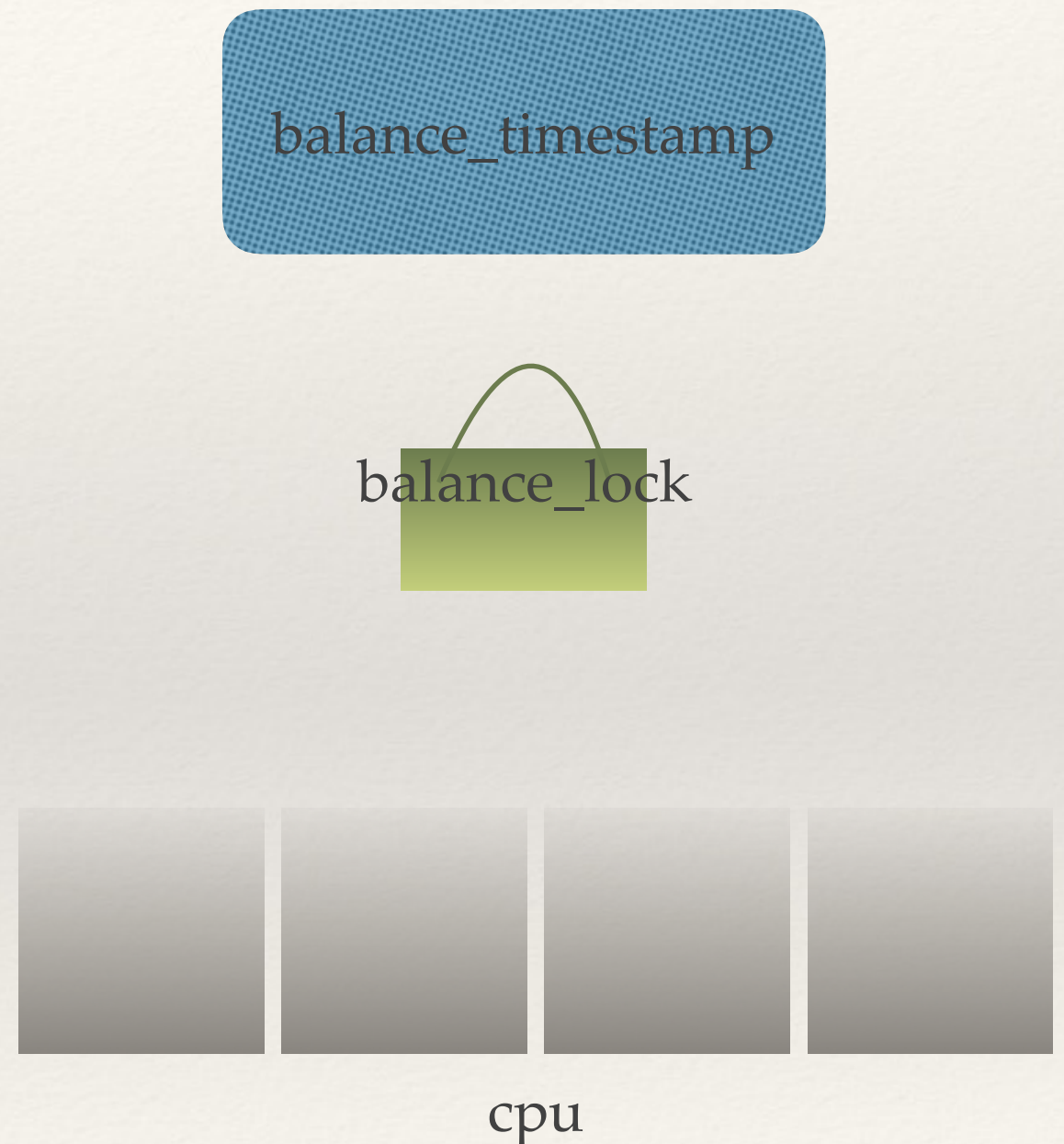
Task tick!

- ❖ Decrease the time slice of the task the cursor is pointing to.
- ❖ If all the time slice is consumed, move the cursor to next and reschedule.
- ❖ If currently running task is the only task in the queue, refill the time slice and return.



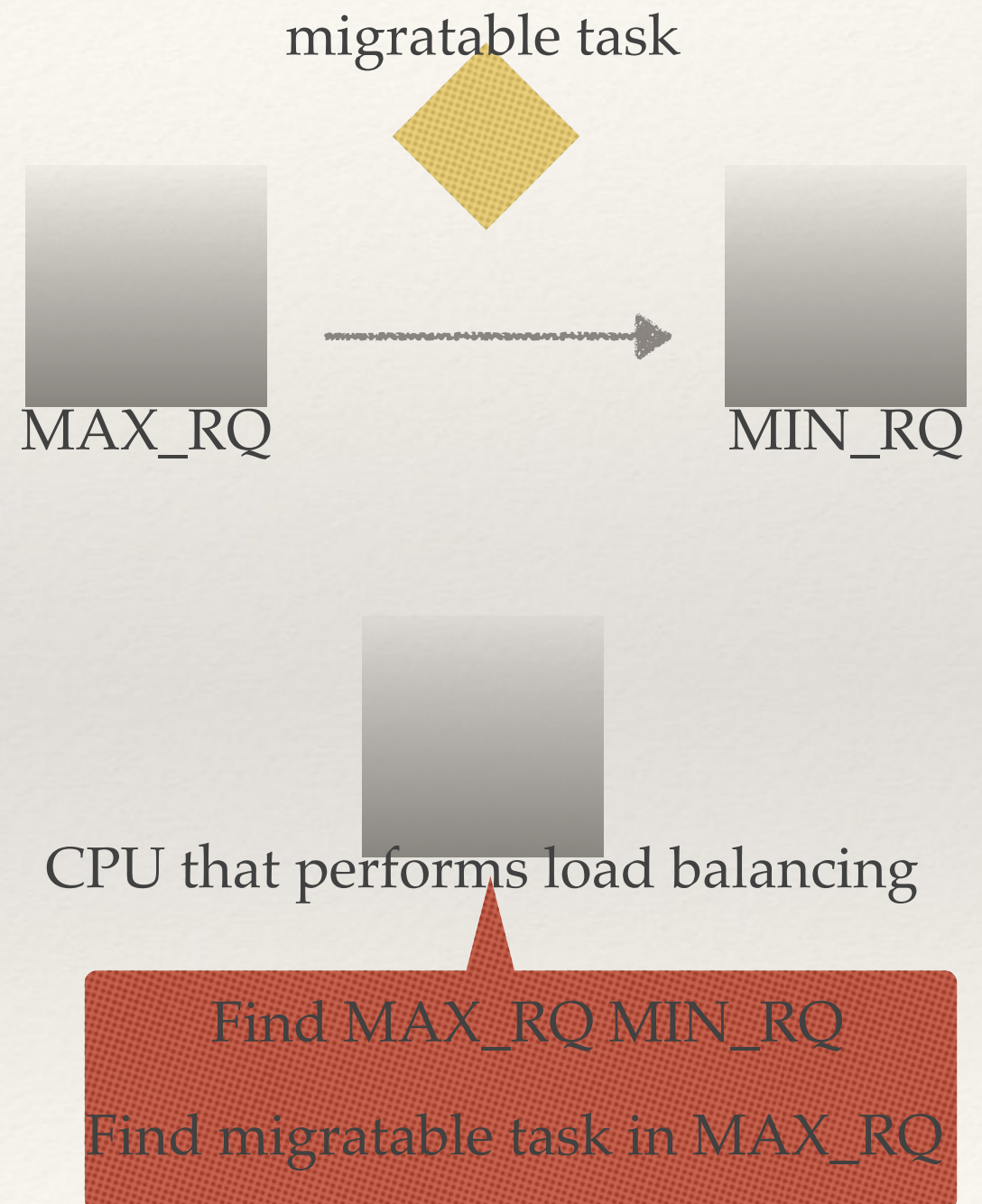
Load Balancing

- ❖ A global variable stores the time of last load balancing.
- ❖ At each tick, cpus that are online try to get the lock, check if it is time to do next load balancing, and update the timestamp to now.

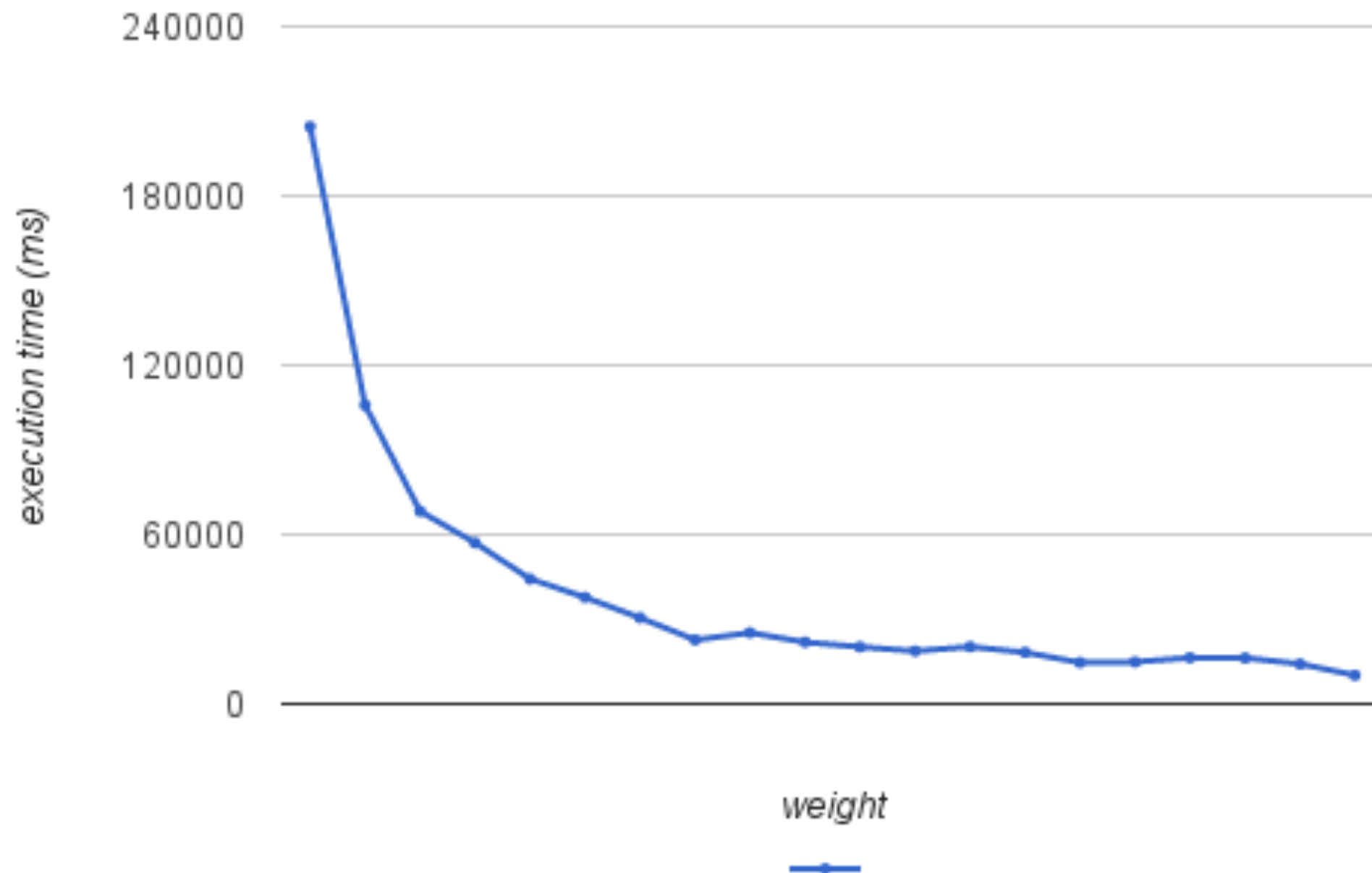


Load Balancing contd.

- ❖ The cpu that succeeded in getting the lock and updating the timestamp then starts load balancing
- ❖ It finds max_rq and min_rq, checks if there is a migratable task; if there is, it acquires lock for the two run queues and migrates the task.
- ❖ Additionally, we have an internal lock in wr_rq and wr_rq gets the lock whenever a task is to be enqueued or dequeued.



Relationship between weight and time



Project 3... behind story

- ❖ Rebooted Tizen for about 1000? times
- ❖ Problematic sdb
- ❖ All gathered in the department room for the whole weekend
- ❖ 이걸 하네...?
- ❖ Nearly committed suicide...



Questions?