

A decorative graphic of a green pipe network with various fittings, valves, and elbows, framing the central text.

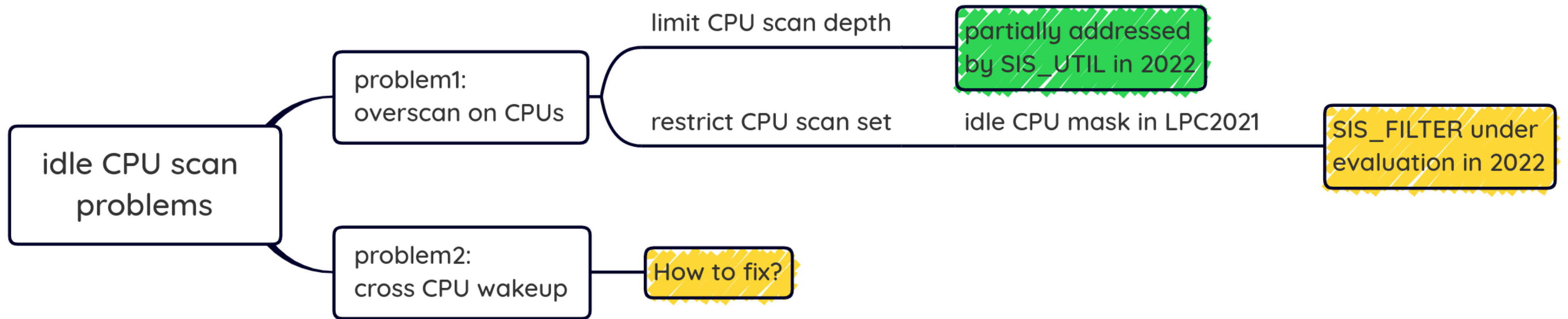
# Optimize idle CPU scan during task wake up

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# problems during idle CPU scan



# cross runqueue lock causes high idle percentage

will-it-scale context\_switch test, system is overloaded

```
8.94% raw_spin_rq_lock_nested.constprop.0
  try_to_wake_up;default_wake_function
  autoremove_wake_function
  __wake_up_common
  __wake_up_common_lock
  __wake_up_sync_key
  pipe_write
  new_sync_write
  vfs_write
  ksys_write
  write
```

```
5.41% raw_spin_rq_lock_nested.constprop.0
  __sched_text_start
  schedule_idle
  do_idle
```

high idle percentage ('top' command)

↓

%Cpu0 : 2.7 us, 66.7 sy, 0.0 ni, **30.7 id**, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st



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wakelist mitigates lock contention, but still long idle

6.97% update\_cfs\_group  
dequeue\_entity  
dequeue\_task\_fair  
\_\_sched\_text\_start  
schedule;pipe\_read  
vfs\_read  
ksys\_read  
read

6.32% update\_cfs\_group  
enqueue\_entity  
enqueue\_task\_fair  
ttwu\_do\_activate  
**sched\_ttwu\_pending**  
\_\_flush\_smp\_call\_function\_queue  
flush\_smp\_call\_function\_queue  
do\_idle

high idle percentage ('top' command)

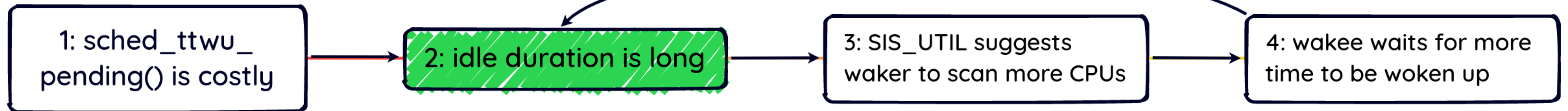
%Cpu0 : 5.3 us, 60.7 sy, 0.0 ni, **34.0 id**, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st



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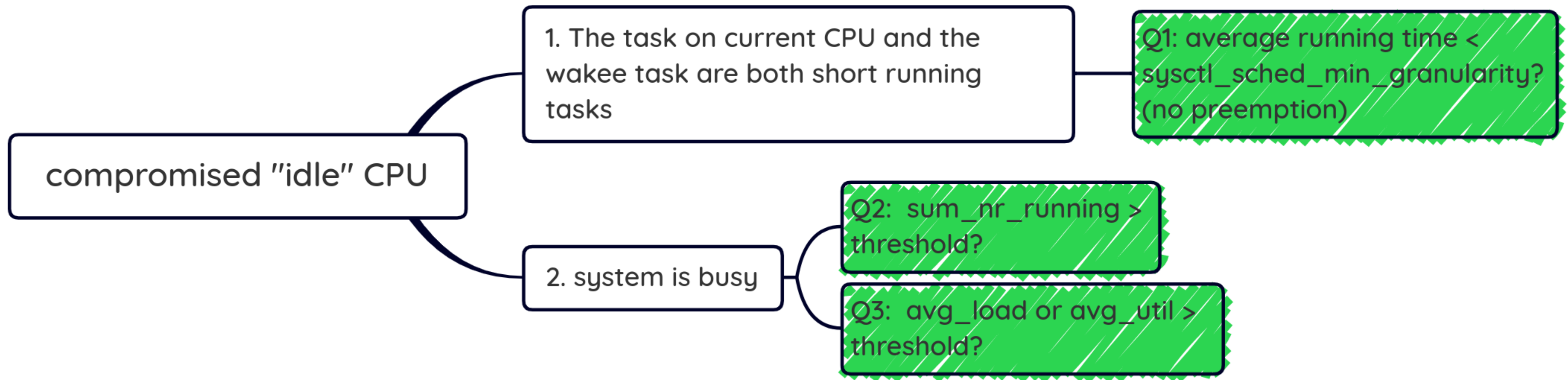
speculated scenario for long idle duration:



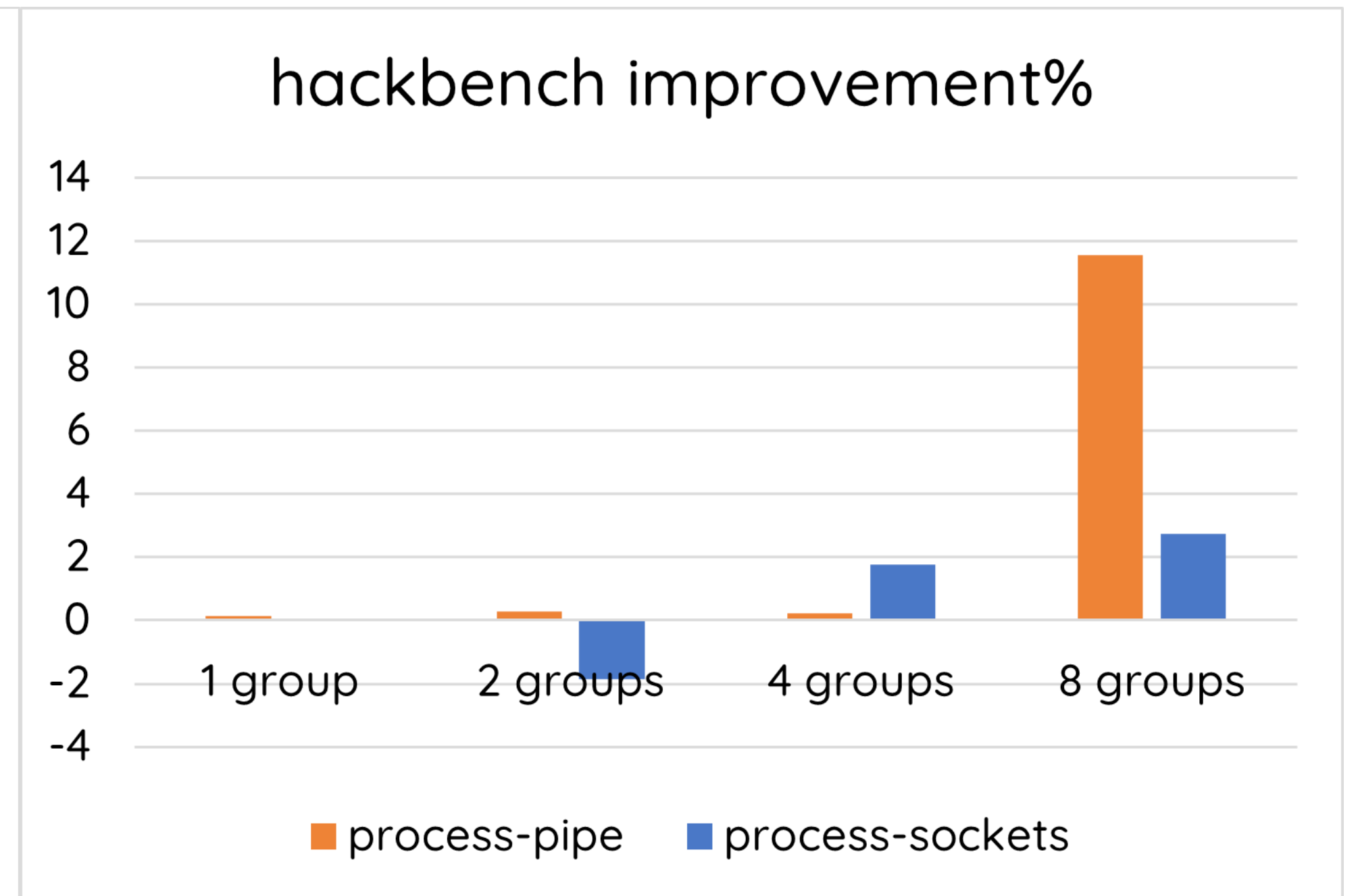
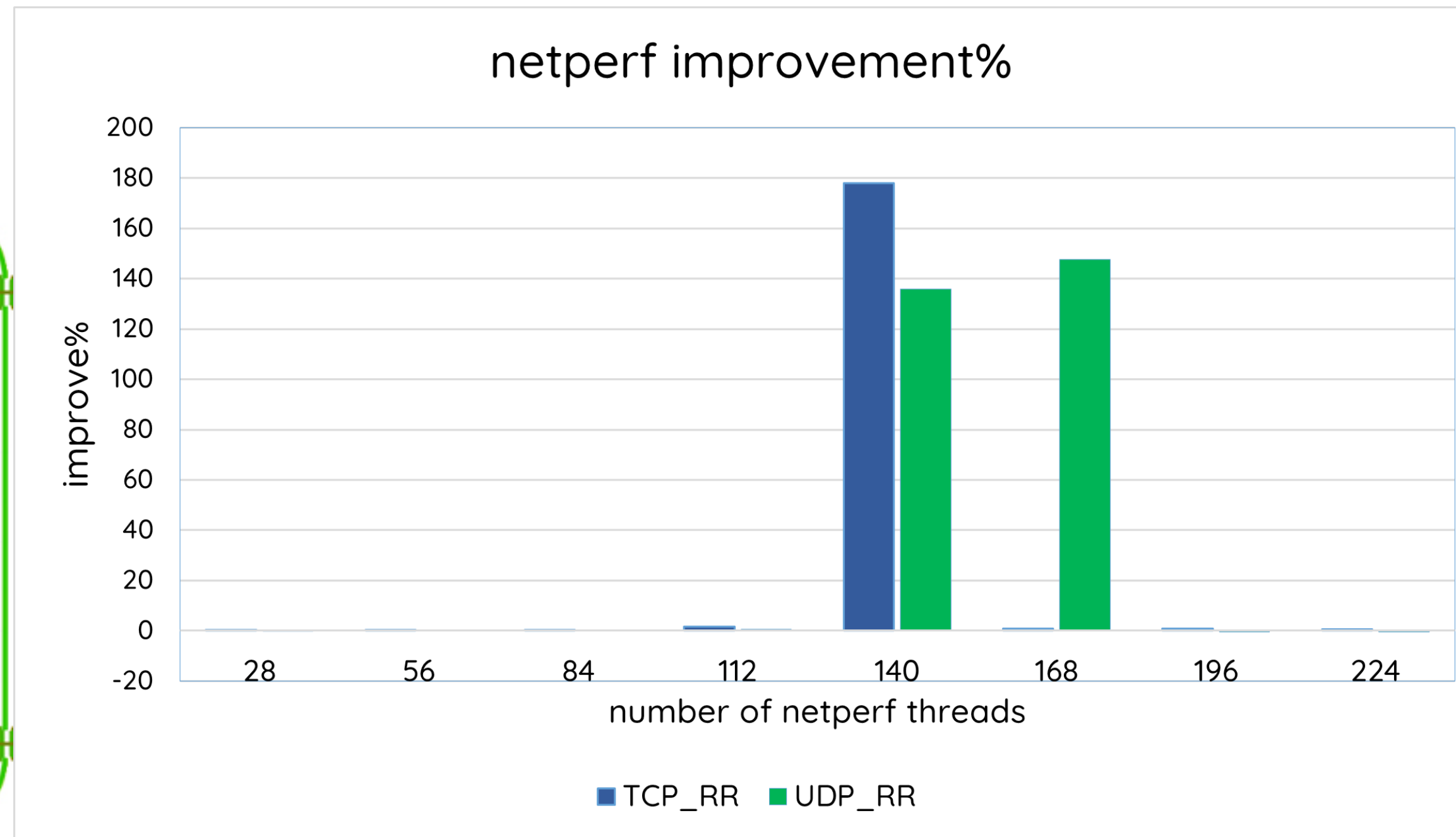
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Lower the bar to find an "idle" CPU, avoid cross CPU wakeup ?



# benchmarks



A decorative graphic of green pipes with various fittings, elbows, and valves, running along the top and left edges of the slide.A decorative graphic of green pipes with various fittings and valves, running along the top right edge of the slide.

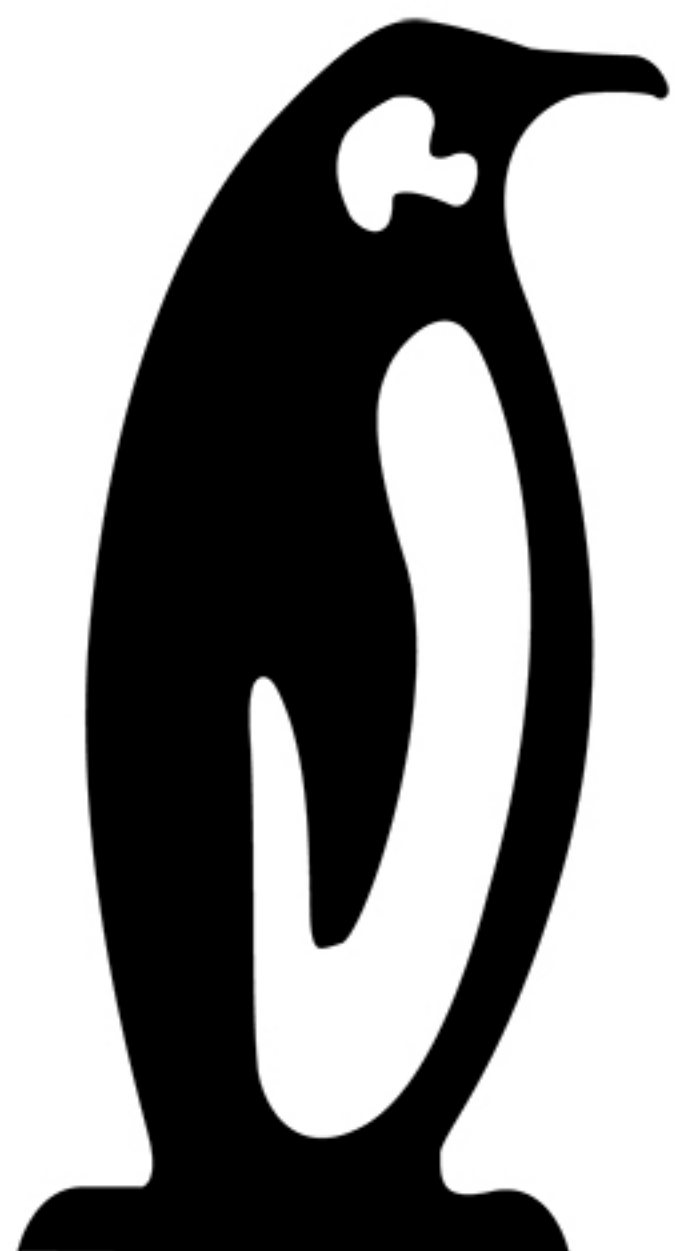
# Thank you!



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