Betriebssysteme

Tutorium 3

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ITEC - Operating Systems Group

Scheduling basics

Scheduling - About

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- Disk-Scheduler: Why have one? Multiplexing but also efficiency!
- Network I/O: When to send packets, which packets to drop, QoL,...

Scheduling - Long- and Short-Term Scheduler

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- STS: Decide which process runs on the *CPU*
- MTS: Temporarily removes processes from main memory (and e.g. writes them out to disk)

⇒ Reduce degree of multiprogramming, make room in memory (and a few other reasons)

Process states

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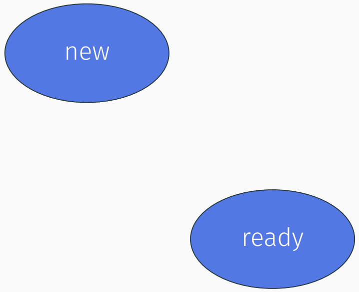

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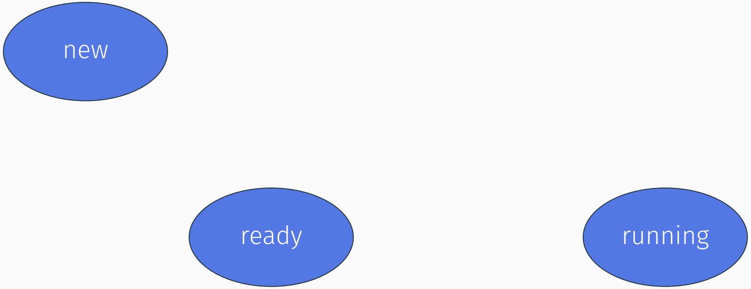

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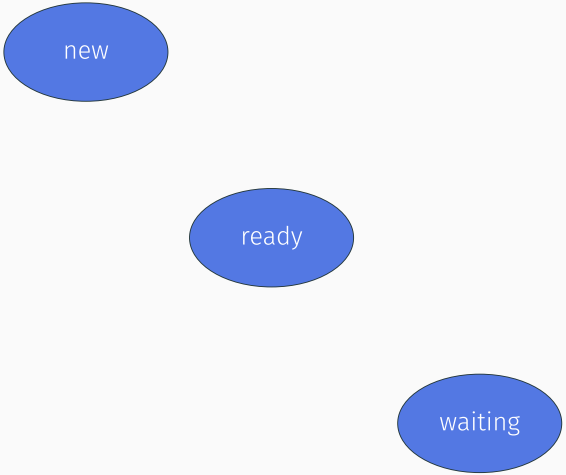

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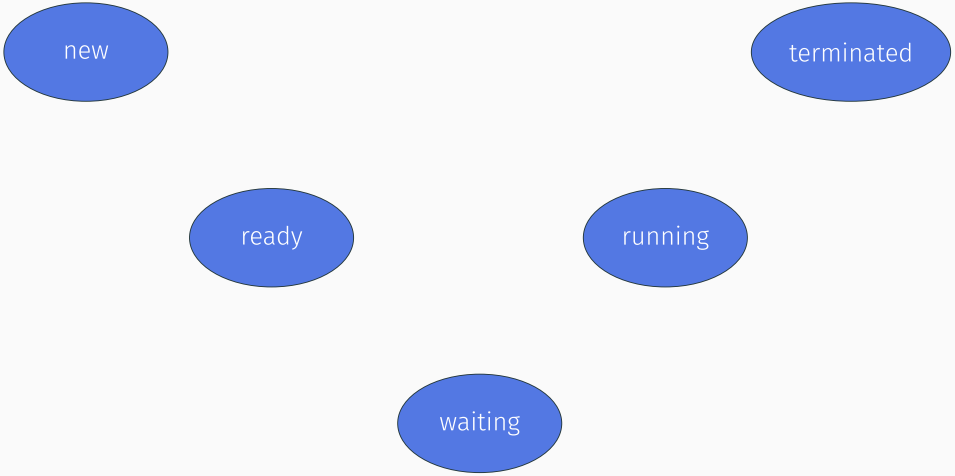

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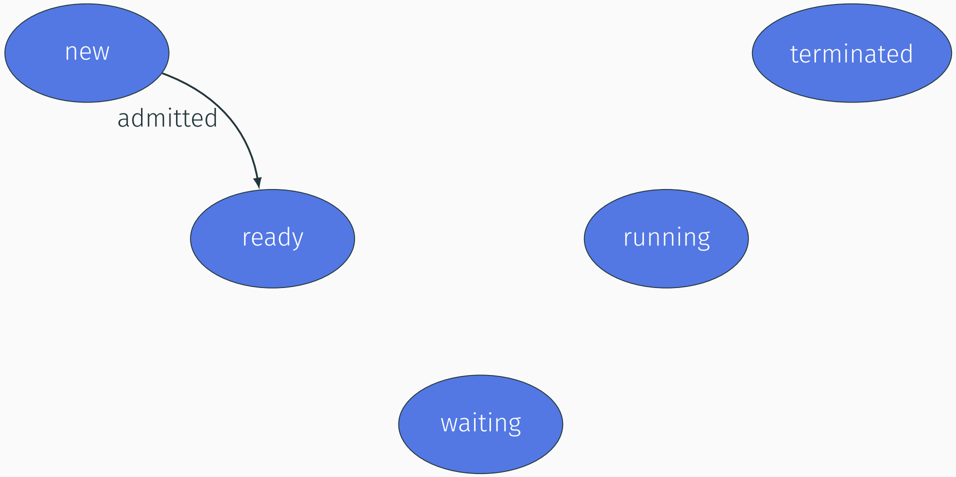

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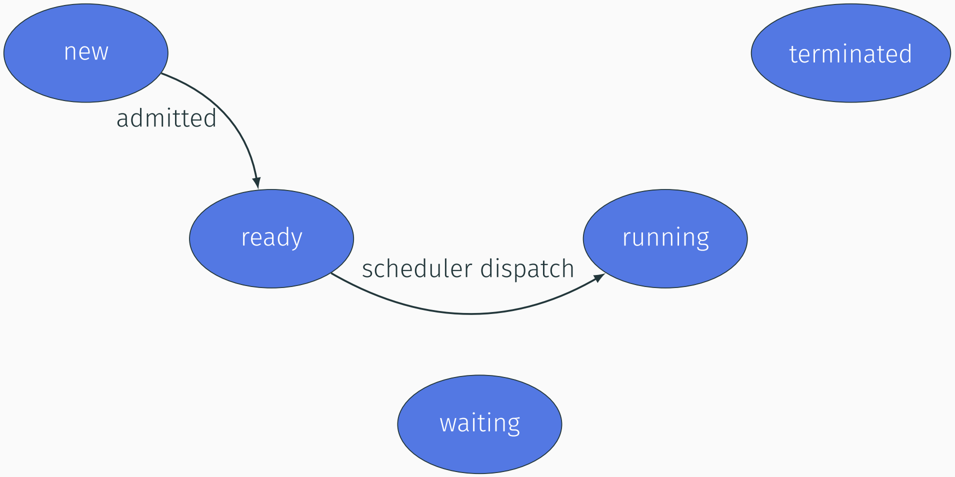

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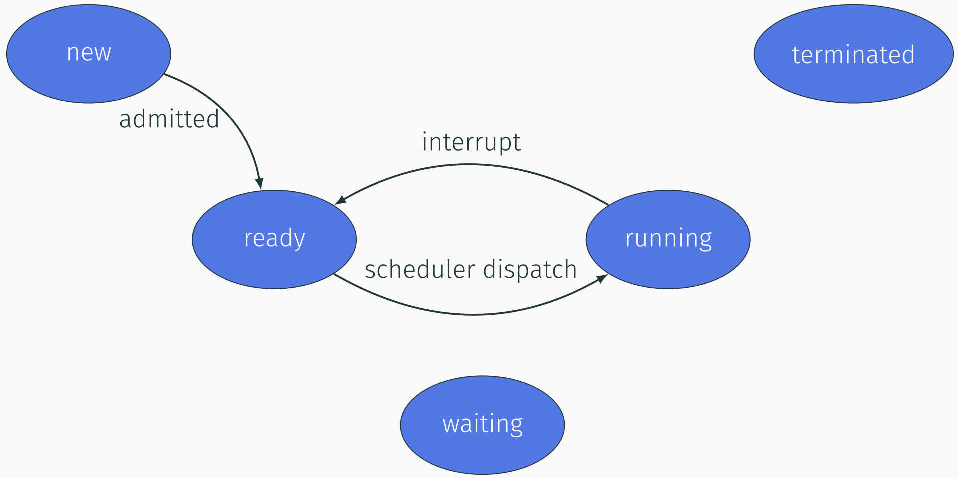

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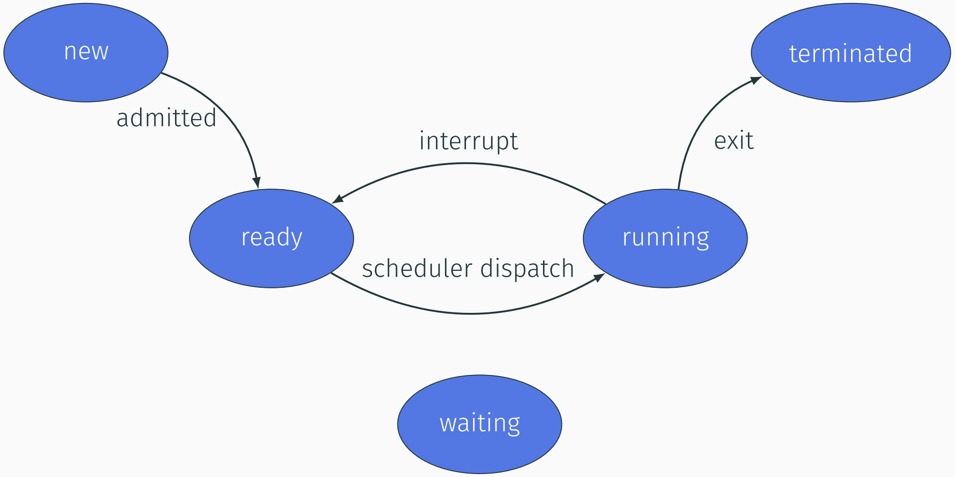

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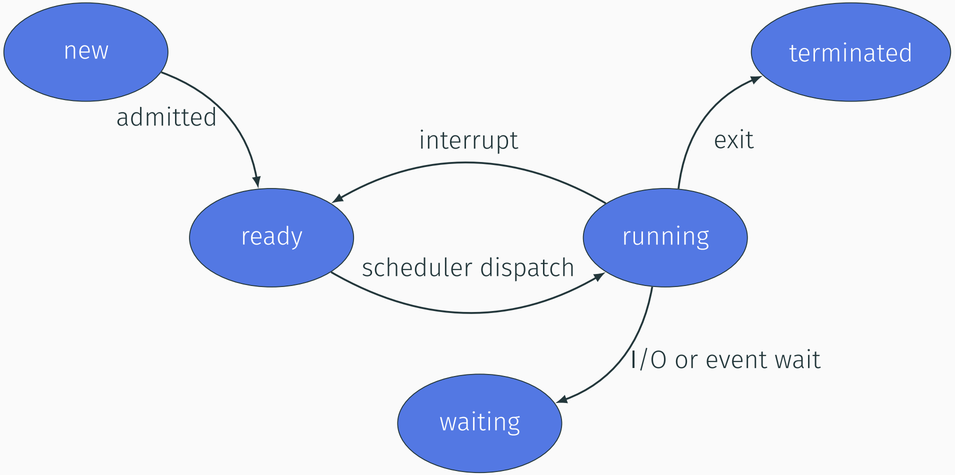

Process States - Waiting

„I/O or event wait“? When does a process move from ready to waiting?

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- Sleepyness

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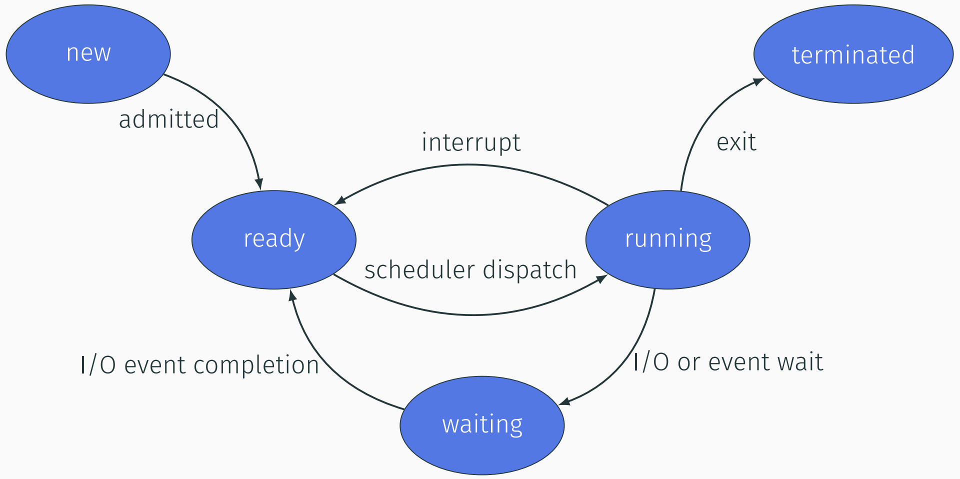

Scheduling - Scheduler Worldcup

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Let’s play scheduler!

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Some metrics

- Processor utilization: Percentage of working time
- Throughput: How many jobs do you finish?
- Turnaround time: Wallclock-time from submission to finish
- Waiting time: How long did it spend in the ready queue
- Response time: Time between submission of a request and first response (e.g. key press to echo on screen)

Scheduling - Preemption the third

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Timer Interrupts! Waiting for a cosmic ray to hit, a network package to arrive, a system call or any other random interrupt gets old fast :)

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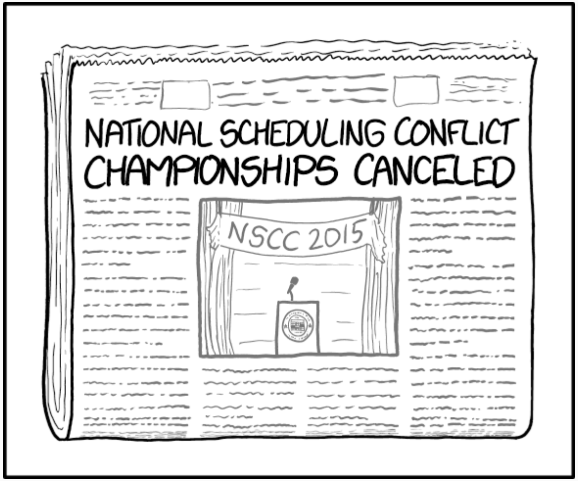
Benefits of shorter/longer timeslices?

- Short: High interactivity, higher overhead
- Long: Lower interactivity, smaller overhead

Ende



XKCD 1542 - Scheduling Conflict

F R A G E N?

Bis nächste Woche :)