Advent(2)

The System-Call Advent Calender

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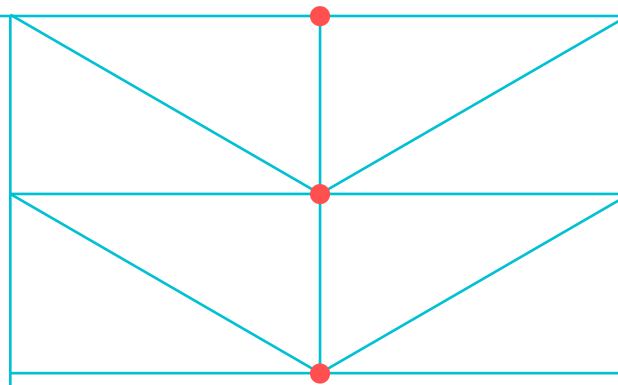
Motivation

- Linux is more than `open/read/write/close`

- POSIX is obsolete. Linux is the new, fast-moving norm.

- Students should get to know recent developments

- Students must learn to not fear `man(1)` and `linux.git`

Idea: Advent(2) – The System Call Adventscalendar

- **Audience:** Adv. Bachelor, Master, PhD Students,…

- 24 advanced exercises, using mostly `man(2)`

- Daily: 1 short article, 1 exercise + 24h-delayed solution

  - Exercises are mostly independent

  - Solution add 50-200 lines of code (2000 total)

  - Solutions are commented in detail
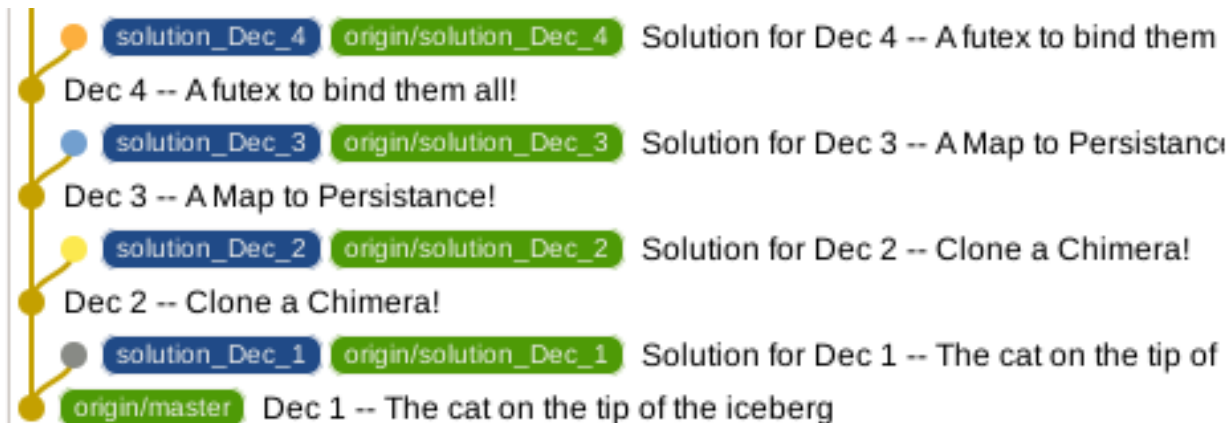
- Public mailinglist for discussion

Idea: Advent(2)

Short Articles

Calendar ✎

On December 1st, we articles will appear on this site. To stay informed, subscribe to the mailinglist (link in the menu)!

- **Dec. 1:** The Cat on the Top of the Iceberg `file` `45 lines` (open(2), pread(2), close(2))
- **Dec. 2:** Clone to Chimera `process` `45 lines` (clone(2), fork(2), getpid(2), gettid(2))
- **Dec. 3:** A Map to Persistence `memory` `65 lines` (mmap(2), ftruncate(2))
- **Dec. 4:** A futex to bind them all! `ipc` `101 lines` (futex(2))
- **Dec. 5:** Wake me up before you clo-close! `file` `70 lines` (inotify_init(2), inotify_add_watch(2), read(2))
- **Dec. 6:** The Self-Healing Road to Perdition `process` `90 lines` (sigaction(2))
- **Dec. 7:** Select a gift! `file` `110 lines` (select(2))

Template + Solution Git

`solution_Dec_4` `origin/solution_Dec_4` Solution for Dec 4 -- A futex to bind them

Dec 4 -- A futex to bind them all!

`solution_Dec_3` `origin/solution_Dec_3` Solution for Dec 3 -- A Map to Persistance

Dec 3 -- A Map to Persistance!

`solution_Dec_2` `origin/solution_Dec_2` Solution for Dec 2 -- Clone a Chimera!

Dec 2 -- Clone a Chimera!

`solution_Dec_1` `origin/solution_Dec_1` Solution for Dec 1 -- The cat on the tip of

`origin/master` Dec 1 -- The cat on the tip of the iceberg

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- Children want to sent Santa a wish list, but every Child speaks differently.
  → Santa's Postbox has many ports!

- Program that listens onmultiple channels with `epoll(2)`
  - FIFO (in FS created with `mknod(2)`)
  - Unix Domain Socket
  - Signals+Payload (`signalfd(2)`)
  - POSIX message queue

24 `strace`-filled adventures

- Spread the word! Join the Fun!
- Subscribe to the Mailinglist

https://osg.tuhh.de/Advent/