

# Jail-based Chaos Monkey system in academia

Lightning Talk, FreeBSD Devsummit

Benedict Reuschling  
bcr@freebsd.org

September 20, 2024

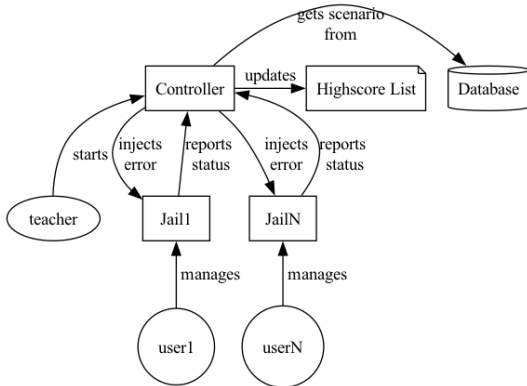
## The problem...

- Education lacks practical experience
- One assignment given to all students
  - One size doesn't fit all
  - Little to no variation
  - Solution gets passed around quickly
  - ChatGPT can solve it fairly well
- Lacks problem solving skills wanted by the industry
- Students do not see solutions by others, limited solution horizon
- Little motivation for students to engage in good solutions

## The solution?

- Jails offer isolated sandbox environments for students to manage
- Students must keep services in jail running (i.e. simple webshop)
- Always possible to open a root shell from the outside
- Let's wreck some havoc: Chaos Monkey Style
  - Teacher injects problems into the jail for educational purposes
  - i.e. shutting down services, deleting files, removing permissions, ...
  - Students must find and fix the problem
- Periodic checks to see if problem is solved, deduces points from availability score
- Hiscore list shows best performing team with highest service availability (gamification)
- Scenario solutions are discussed afterwards, ideas shared
- High level of variation (same problem, multiple causes), ChatGPT-proof?
- Problems could be re-injected to see if students have learned or even developed countermeasures (backups, scripts)

## Current status



- Master thesis implementing a FreeBSD jail-based prototype just started
- Testing planned for last lab of my Unix lecture in January 2025
- Other uses: trainings, conference workshops, CTF-style events, etc.