

# Unix-on-Unix Emulation

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For Systems We Love #1, 2021-08-27

`whoami`

- Co-founder & CEO @ illuria Security, Inc.
- HEAD @ EVNCERT
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- Past: CTO, System(s) Engineering, Operations
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Disclaimer: I have no idea wtf I'm talking about

# Agenda

- Why this talk
- FreeBSD
- Linux
- Unix-on-Unix emulation history
- NetBSD innovates, again!
- FreeBSD Linuxulator history and implementation
- Demo
- Linuxulator in the modern age: Linux Containers on FreeBSD!
- Q&A

# FreeBSD

- 4.2BSD-based Operating Systems
  - Roots go back to original Unix
- Oldest democratically run Open Source Project
- A complete Operating System (Kernel + User-land + Tooling)
- Had many advanced features (checkout Netflix and WhatsApp)
- Used in many places
  - Apple, Netflix, WhatsApp, Groupon, Sony, NetApp, Nginx, Microsoft, Mellanox, illuria Security
- By Unix people for Unix people

# Linux

- Kernel
- Mostly uses GNU software
  - Sometimes Busybox and the rest of the family
- Has been around for 30 years old!
- Widespread

# Unix-on-Unix Emulation History

- Bill Joy (a.k.a. The God of Open Source and Modern Computing)
- <https://www.youtube.com/watch?v=k8Pd6xYaHGU>

# NetBSD innovates!

- NetBSD Implements /compat

`compat_linux(8)` - setup procedure for running Linux binaries

`compat_sunos(8)` - setup procedure for m68k and sparc architectures

`compat_ultrix(8)` - setup procedure for Ultrix compatibility on mips and vax

# FreeBSD imports the work

- src: <https://docs.freebsd.org/en/articles/linux-emulation/>
- Let's check the sources!



# Demo

- Compile a binary under Linux, Statically Linked.
- Run it on FreeBSD
- Compile a binary under Linux, Dynamically Linked.
- Run it on FreeBSD; You need a Linux Chroot; Shared Libraries are a thing

# Chroots to Jails

- Understanding Jails
- Running an "empty" Linux as FreeBSD Jail
- Running a complete Linux system in a FreeBSD Jail

That's all folks!

Thank you!

Q&A

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