Obreros del Kernel por 20 minutos

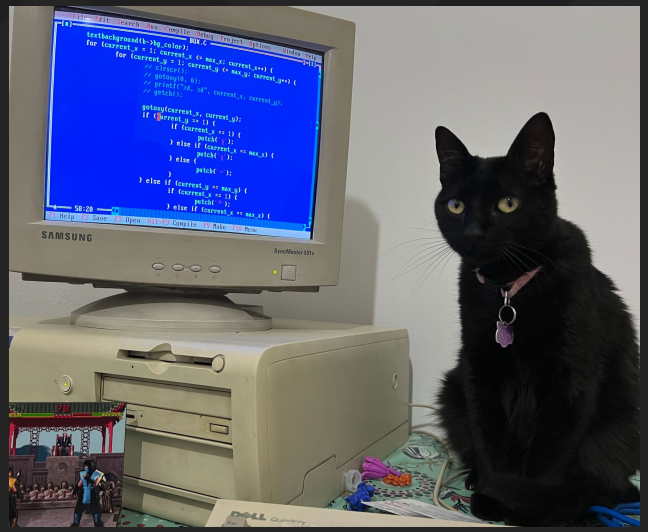
Sebastián Alvarez - github.com/alvarezgarcia

$ whoami

Sebastián Tomás Alvarez

- 36 años, pergaminense y bonarense por adopción, desde el 2018.
- Linuxero desde el 99, en el rubro desde el 2008.
- Actualmente **Tech Lead** @ Fuse Finance.

- NodeJS, React, AWS para comer.
- Linux, Python, C, Go, Perl para divertirse.



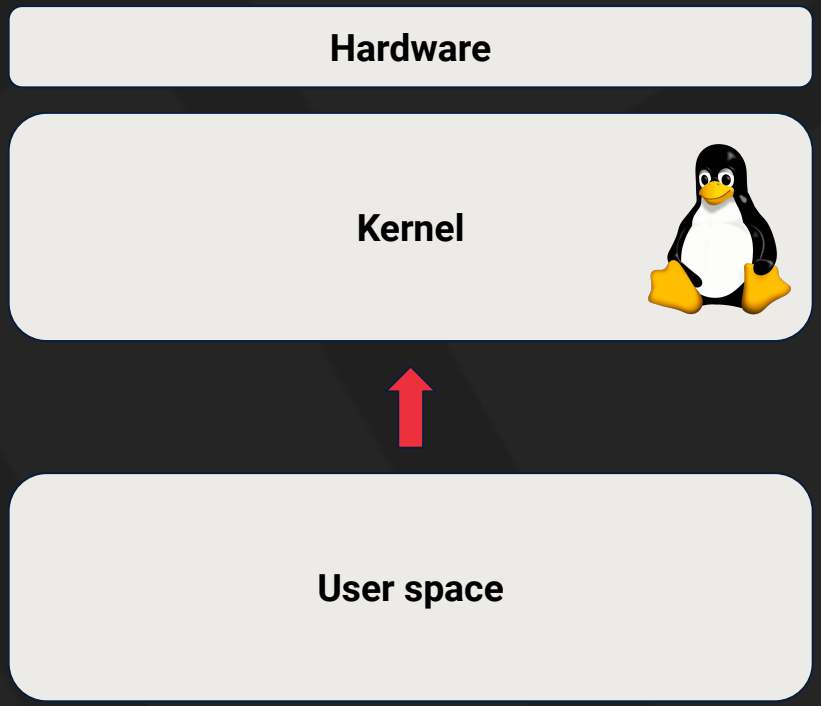
Advertencia

La siguiente presentación contiene escenas de nerdismo frontal explícito, se aconseja la supervisión de un adulto.

Agenda

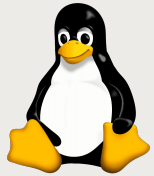
- Kernel
- eBPF
- Kernel + eBPF
- Ejemplos!

Kernel


Hardware
Kernel
User space

Hardware

Kernel



SYSCALLS

User space

Syscalls (algunas)

- open
- read
- write
- unlink
- chmod
- chown

eBPF

Berkeley Packet Filter

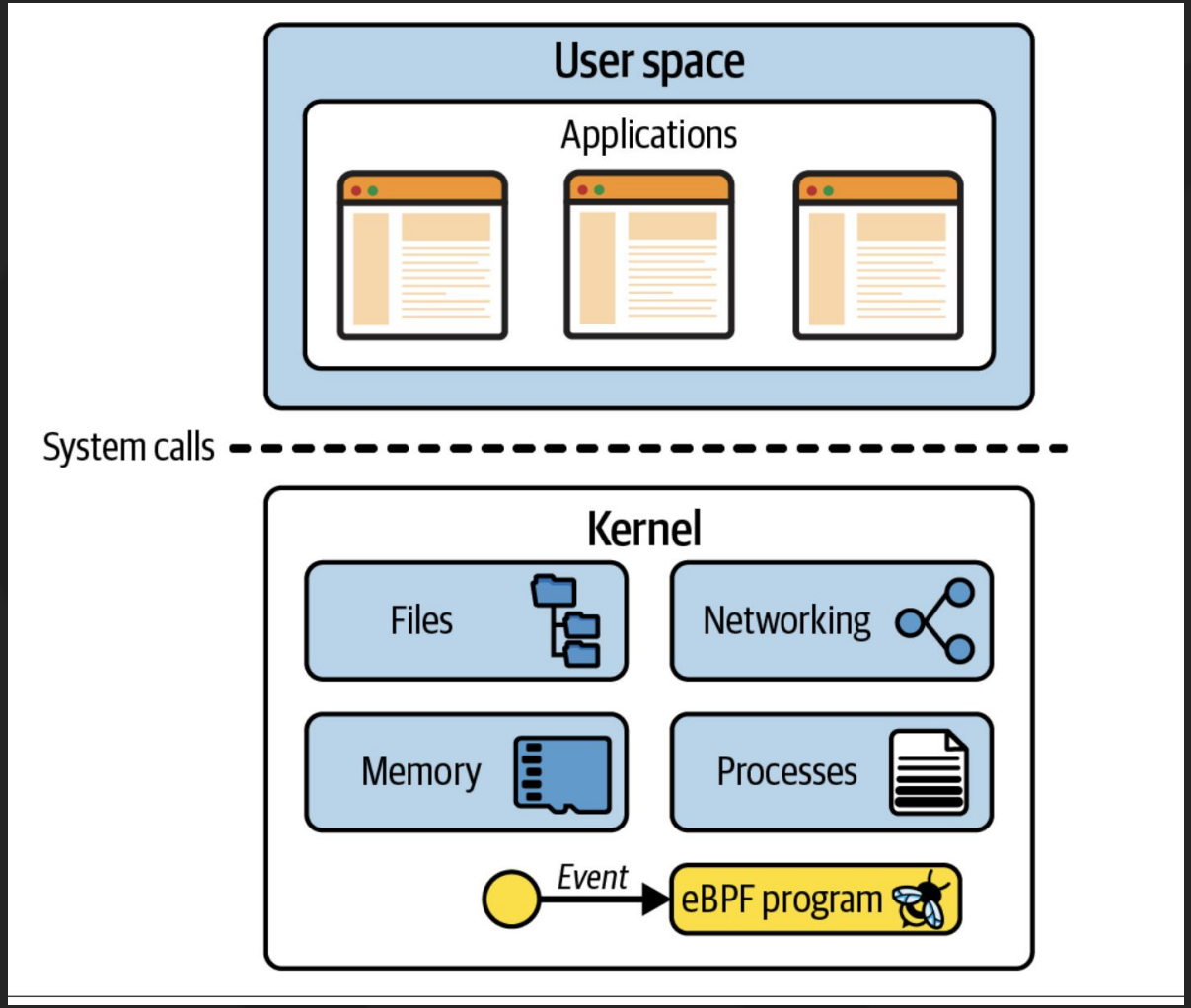
- **1993** - The BSD Packet Filter: A new Architecture for User-level Packet Capture
- **1997** - Kernel 2.17.5 - backend de tcpdump

- **2012** - Kernel 3.5 - seccomp
- **2014** - Kernel 3.18 - extended BPF

Kernel + eBPF

Kernel + eBPF =

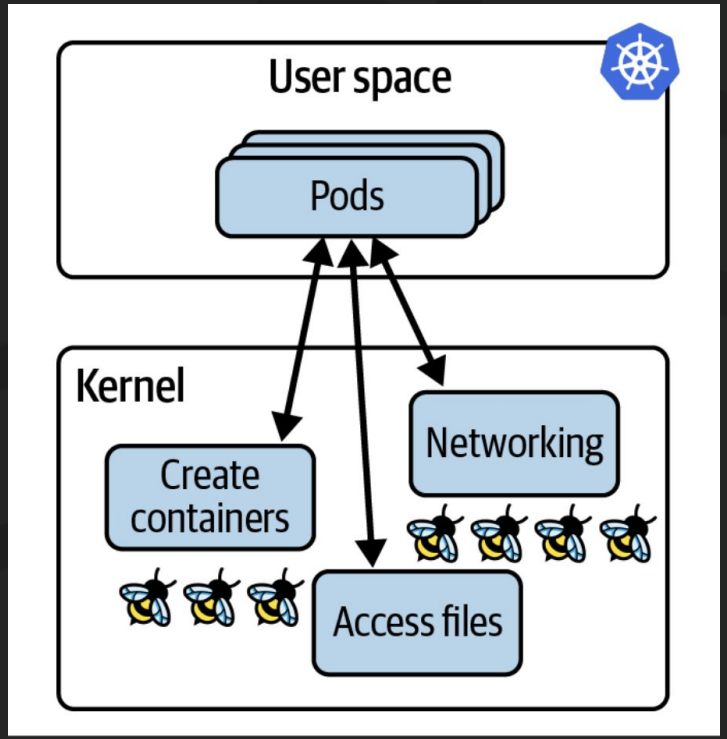
código attacheado a eventos del kernel


User space
Applications
System calls
Kernel
Files
Networking
Memory
Processes
Event
eBPF program

eBPF: Un lugar de privilegio

- Performance
- Visibilidad
- No downtime

eBPF: Un lugar de privilegio
(también para k8s)



Basta de cháchara

Material

Why I'm OBSESSED With eBPF

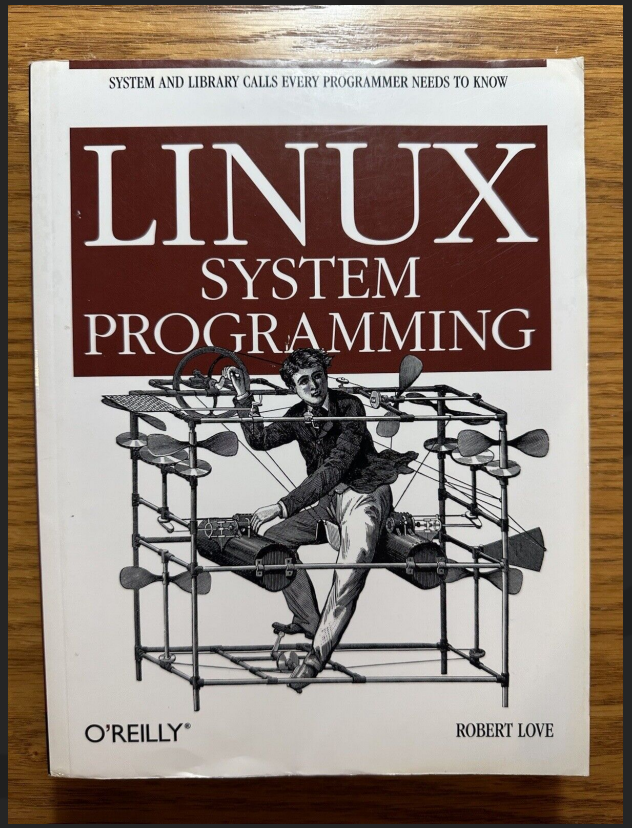
Kernelless Kernel Programming (eBPF) - Computerphile

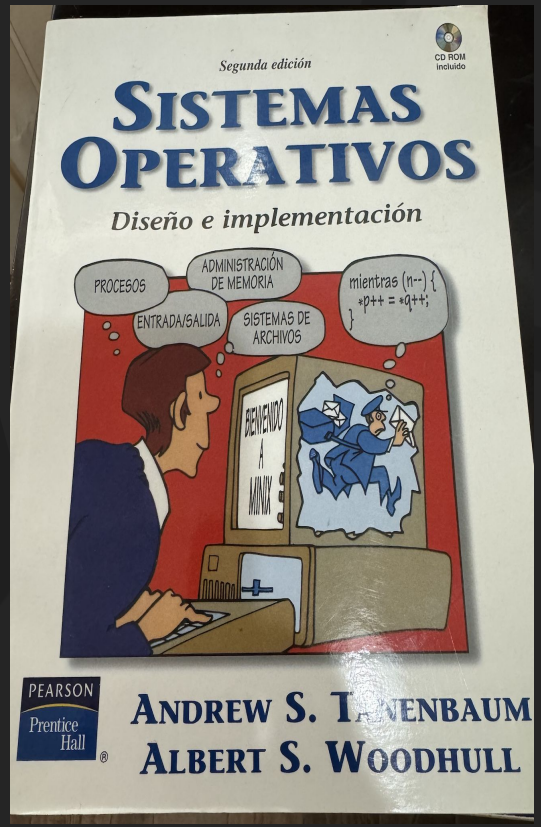
Filip Nikolic – Demystifying eBPF - eBPF Firewall from scratch

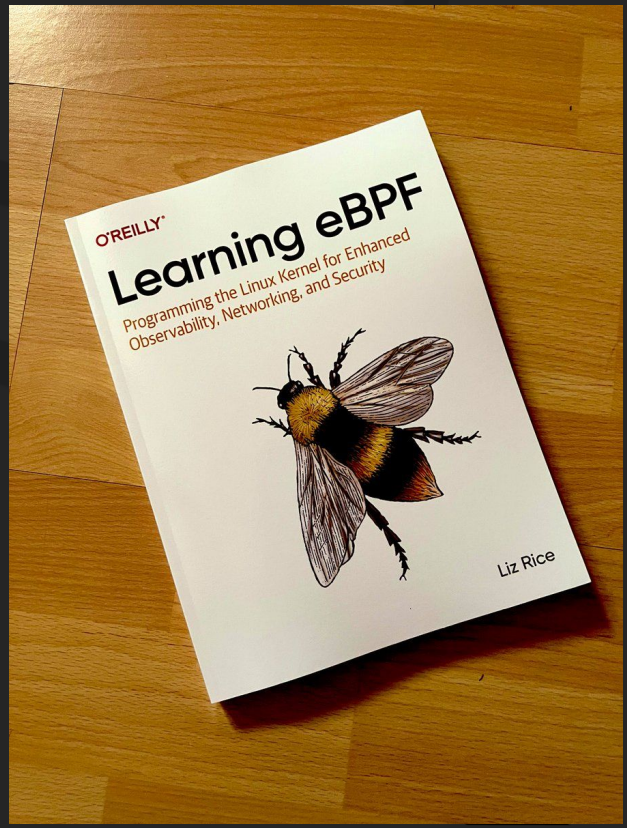
Liz Rice – eBPF for Security

BPF With C

Material


SYSTEM AND LIBRARY CALLS EVERY PROGRAMMER NEEDS TO KNOW
LINUX
SYSTEM
PROGRAMMING
O'REILLY
ROBERT LOVE


Segunda edición
CD ROM incluido
SISTEMAS OPERATIVOS
Diseño e implementación
PROCESOS
ADMINISTRACIÓN DE MEMORIA
ENTRADA/SALIDA
SISTEMAS DE ARCHIVOS
mientras (n--) {
*p++ = *q++;
}
BIENVENIDO A MINIX
PEARSON
Prentice Hall
ANDREW S. TANENBAUM
ALBERT S. WOODHULL


O'REILLY
Learning eBPF
Programming the Linux Kernel for Enhanced Observability, Networking, and Security
Liz Rice

Llevate un recuerdo

Muchas gracias