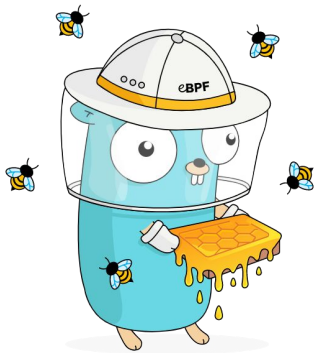
Hacking the Kernel with Go

A Practical Introduction to eBPF



Alexandre Cabral – Mago

About me



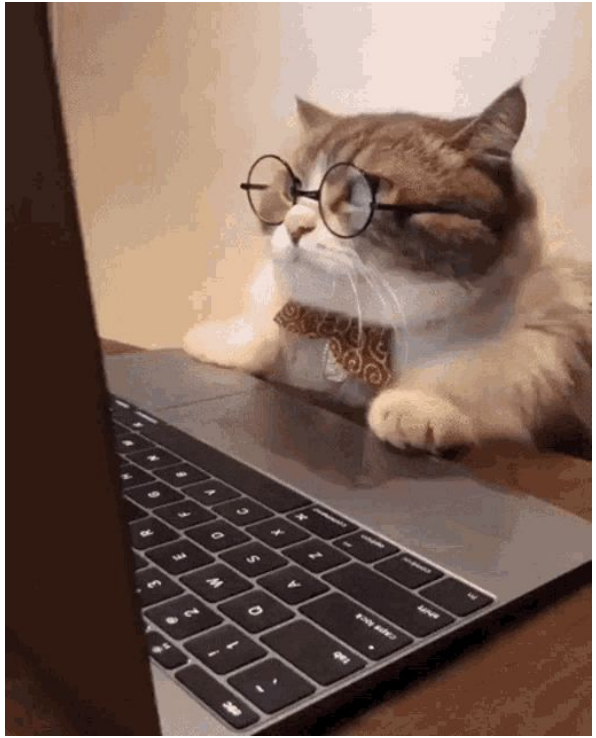
- Go GDE
- Senior Software Engineer @ Alpaca
- Brazilian
- Botafogo
- Cat dad
- Tech Hub JF

Tech Hub
Juiz de Fora

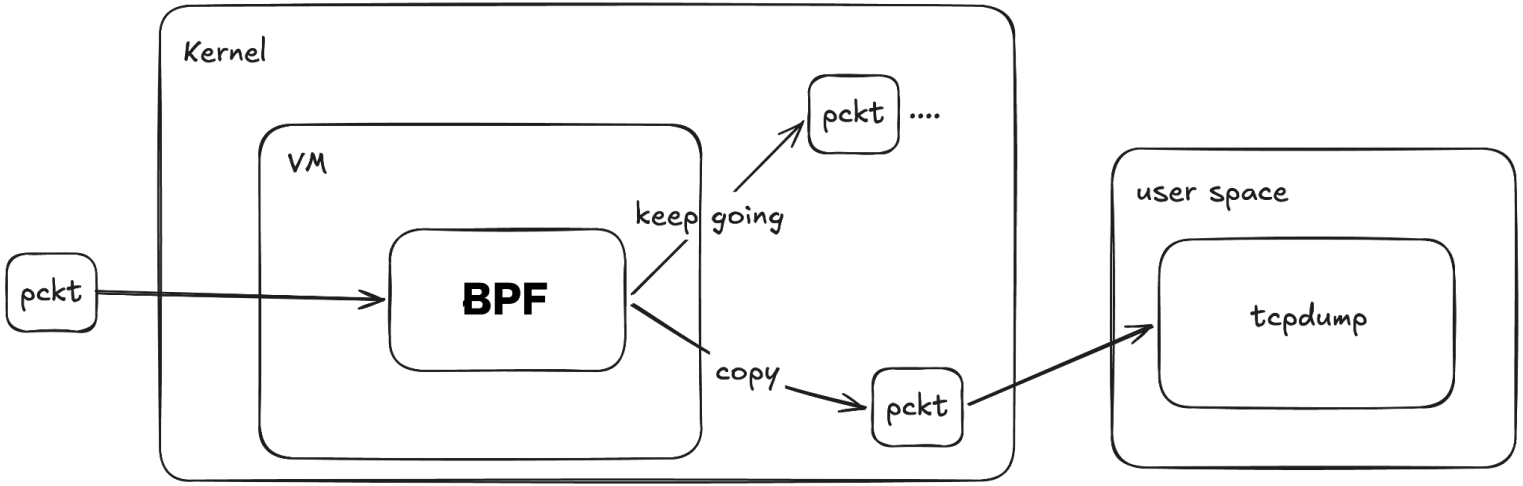
Google Developer Experts
2026 Go

Agenda

- What is eBPF
- eBPF use cases
- eBPF + Go example



eBPF before the “e”



Berkeley Packet Filter

1992

eBPF



2014

eBPF



eBPF

Extended Berkeley Packet Filter

2014

eBPF

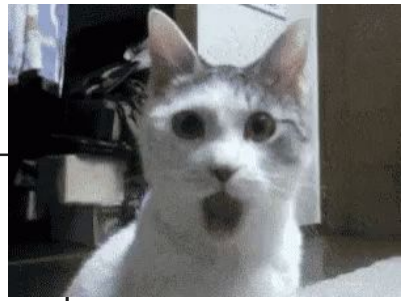


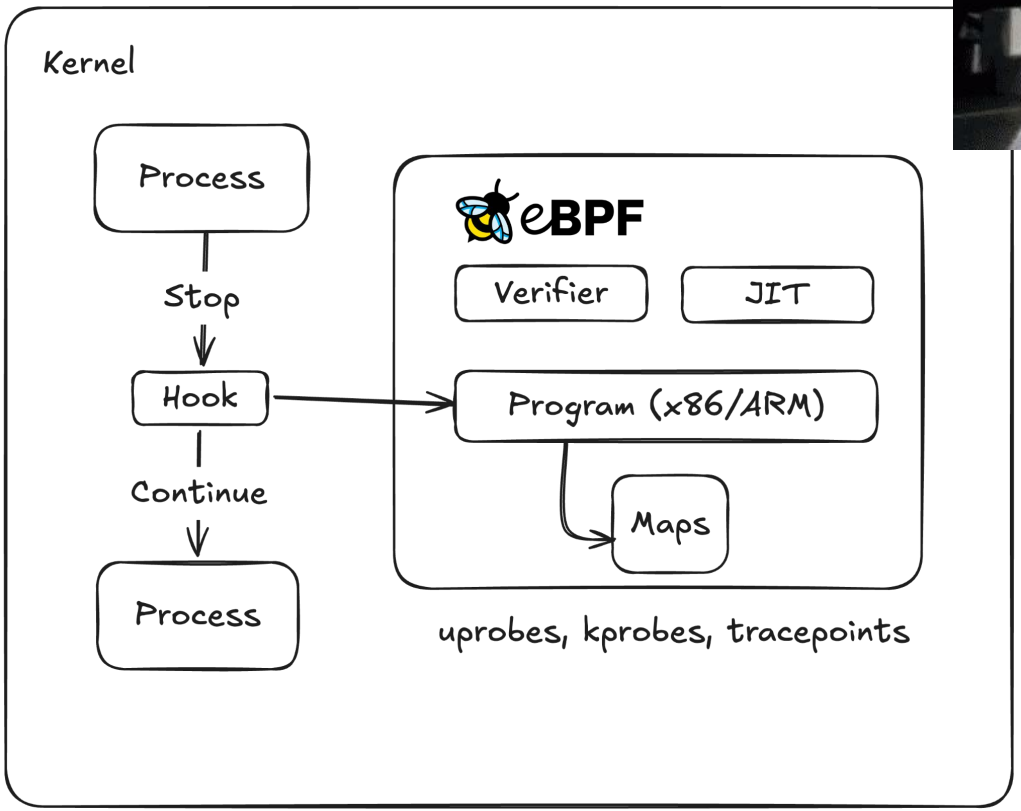
Kernel

Extended ~~Berkeley Packet Filter~~

2014

eBPF




Kernel
Process
Stop
Hook
Continue
Process
eBPF
Verifier
JIT
Program (x86/ARM)
Maps
uprobes, kprobes, tracepoints

The Kernel evolution

Open Source

- Slow

Kernel Modules

- Dangerous



All of lore.kernel.org

search help / color / mirror / Atom feed

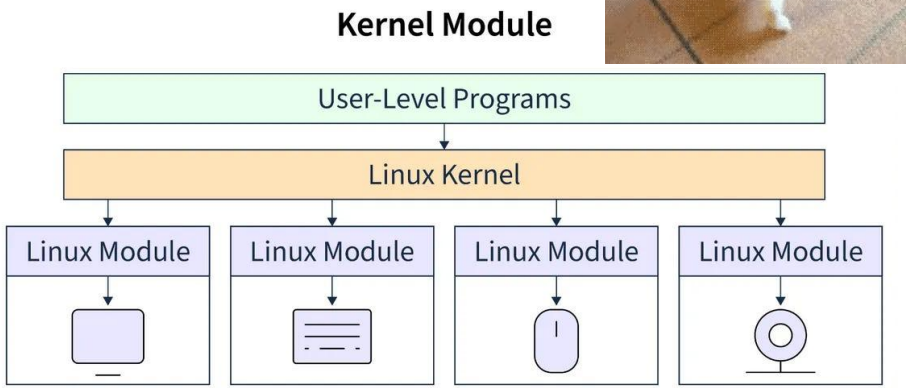
[PATCH v2] dma-buf: fix some kernel-doc warnings
2026-08-31 3:19 UTC

[PATCH v3 00/12] arm64: Add HOTPLUG_PARALLEL support for secondary CPUs
2026-08-31 3:18 UTC (5+ messages)

usbio: Synaptics SVP7500 (06cb:0701) drops off the USB bus on the 12th acknowledged I2C transaction
2026-08-31 3:17 UTC (2+ messages)

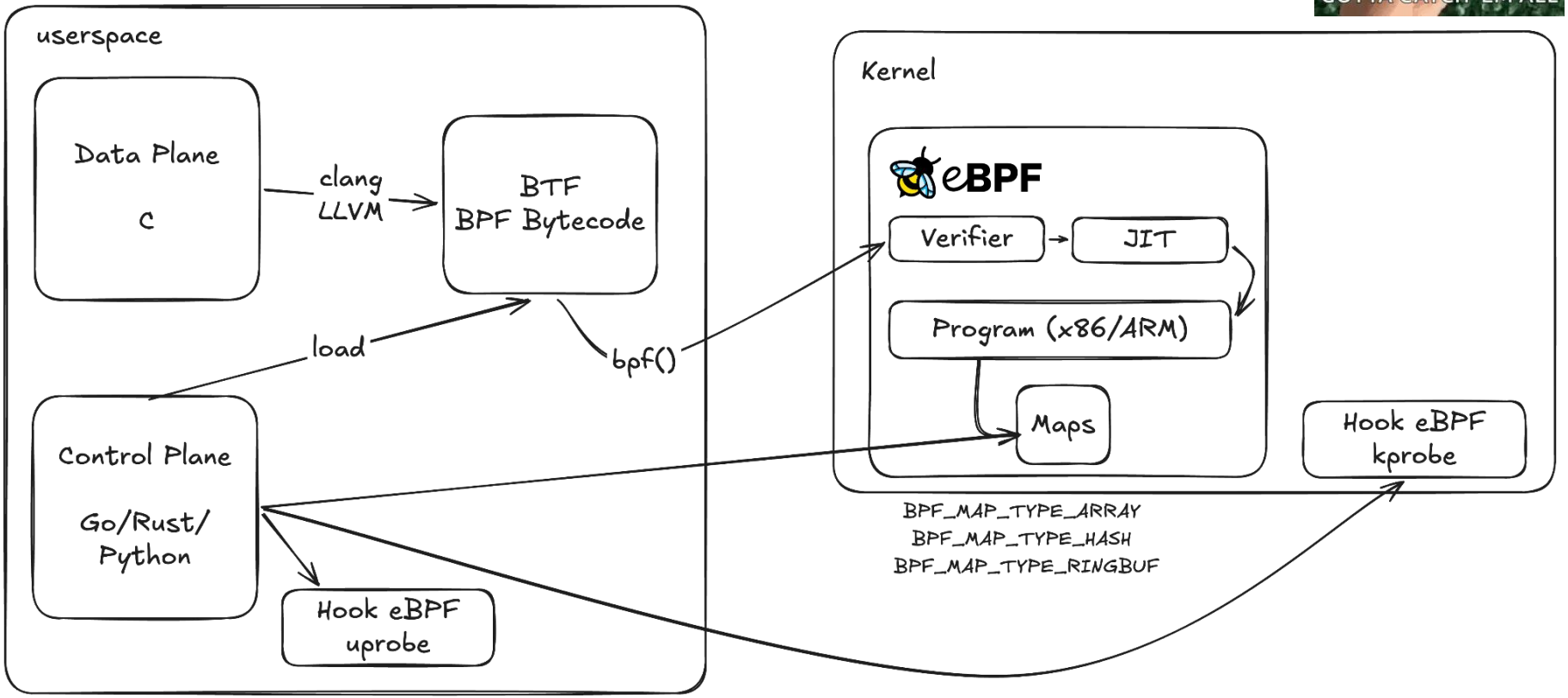
[PATCH v7 0/8] Improve Qualcomm EUD driver and platform support
2026-08-31 3:17 UTC (16+ messages)
` [PATCH v7 1/8] dt-bindings: soc: qcom: eud: Add per-path child nodes for UTMI routing
` [PATCH v7 2/8] usb: misc: qcom_eud: add sysfs attribute for port selection
` [PATCH v7 3/8] usb: misc: qcom_eud: add per-path High-Speed PHY control
` [PATCH v7 4/8] usb: misc: qcom_eud: add per-path role switch support
` [PATCH v7 5/8] usb: misc: qcom_eud: improve enable_store API
` [PATCH v7 6/8] usb: misc: qcom_eud: add role-based EUD control
` [PATCH v7 7/8] usb: misc: qcom_eud: fix virtual attach/detach event handling
` [PATCH v7 8/8] arm64: dts: qcom: kodiak: Desribe EUD UTMI routing and connector mapping

[syzbot] [block?] [cgroups?] possible deadlock in blkg_conf_prep
2026-08-31 3:17 UTC



The Kernel evolution with eBPF

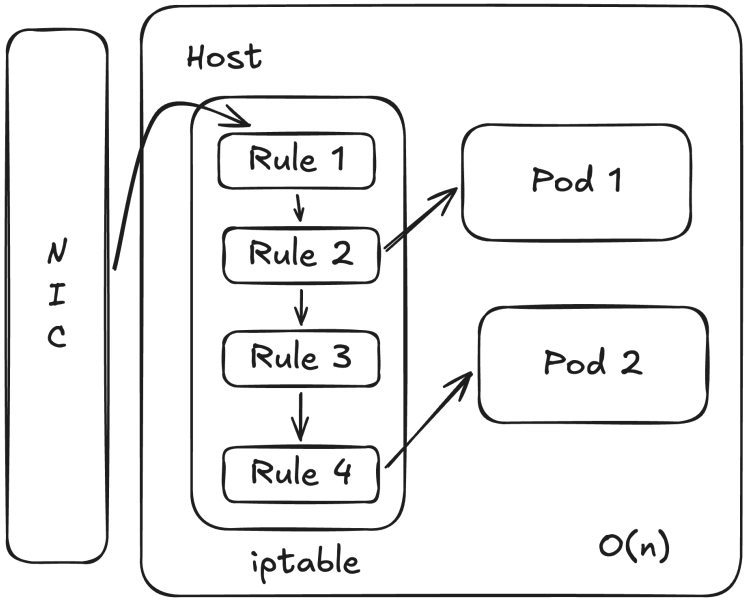


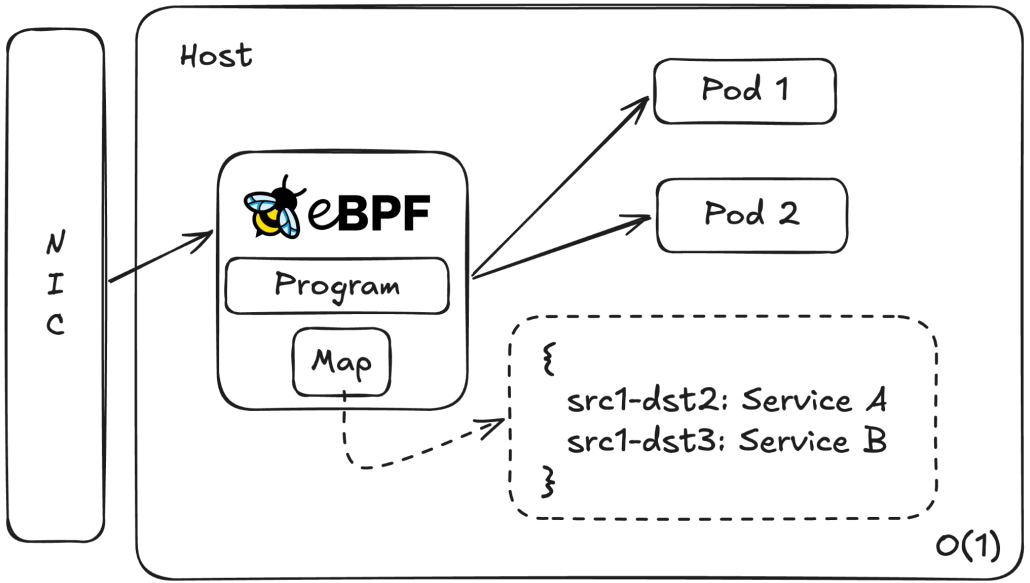


Why Go?

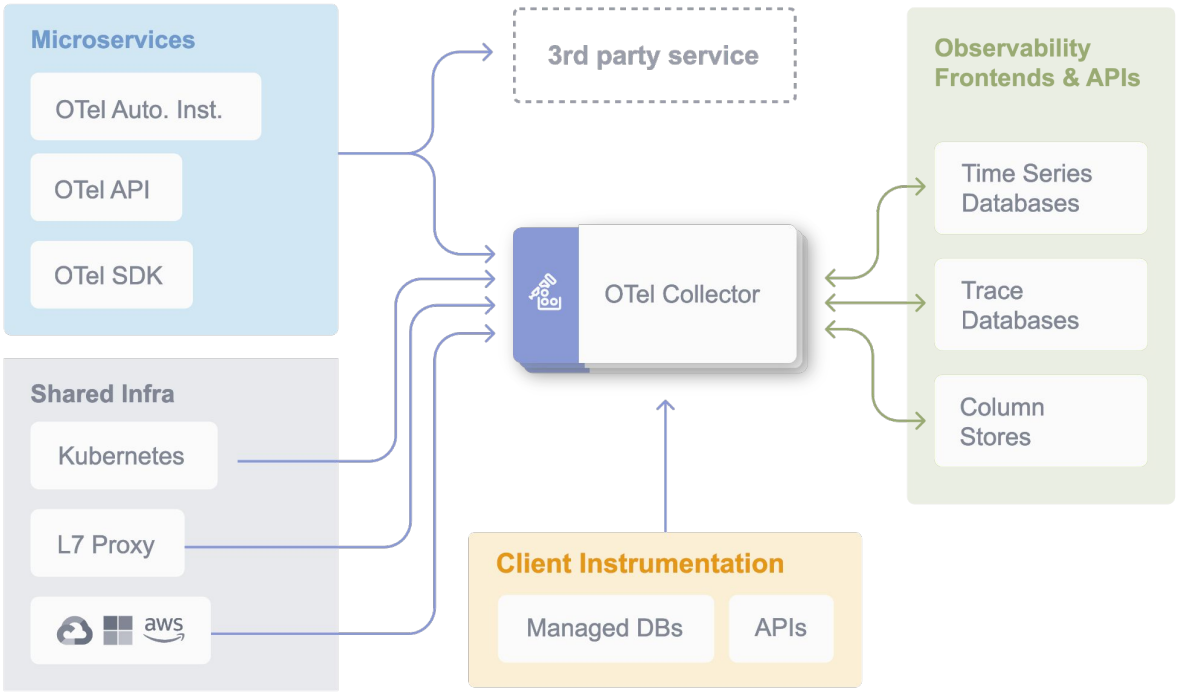


Cilium


Host
NIC
Rule 1
Rule 2
Rule 3
Rule 4
Pod 1
Pod 2
iptable
O(n)

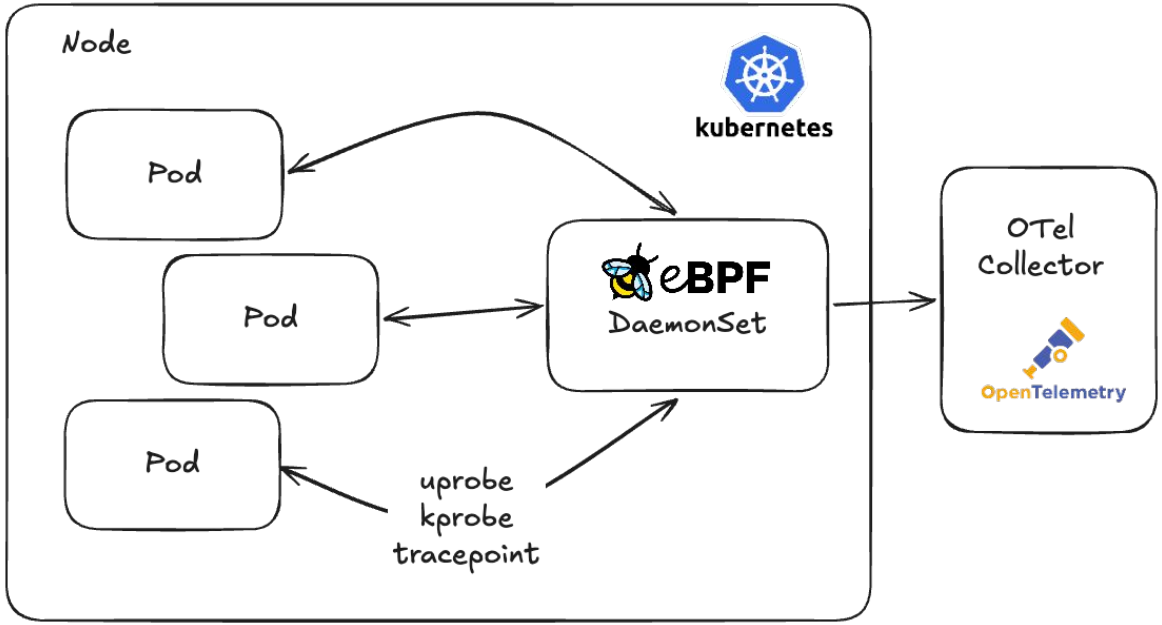

Host
NIC
eBPF
Program
Map
Pod 1
Pod 2
{
src1-dst2: Service A
src1-dst3: Service B
}
O(1)

OpenTelemetry

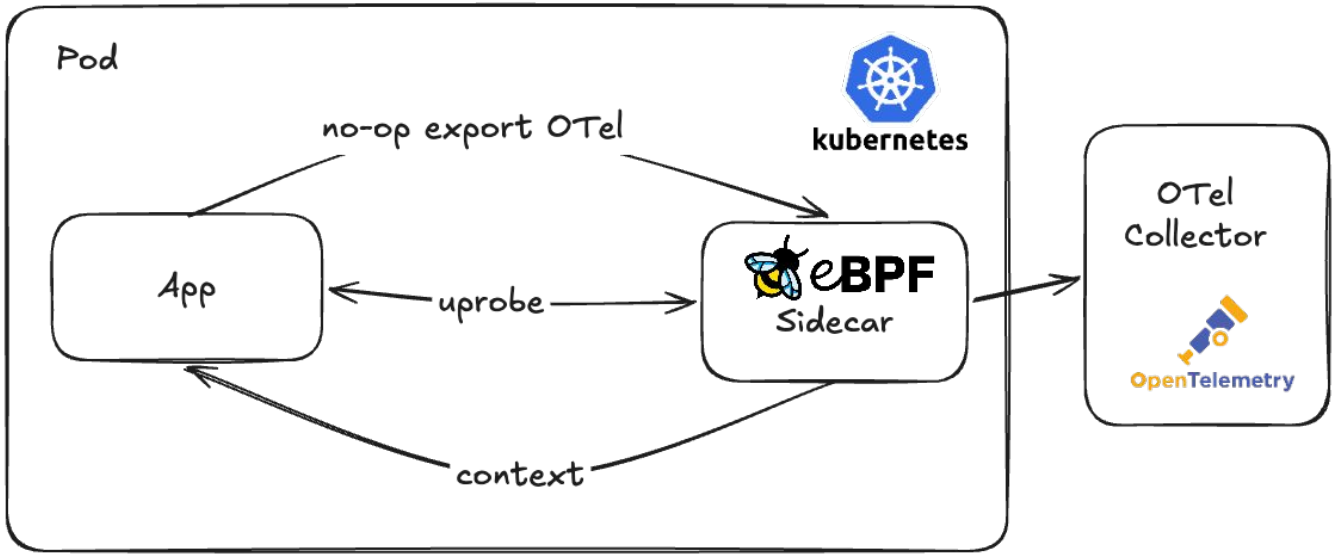


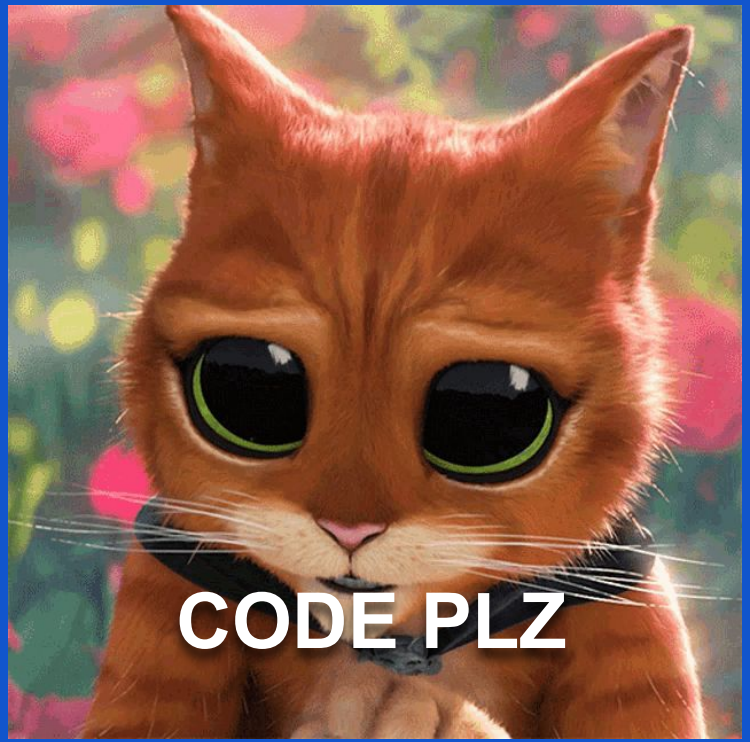


eBPF Auto Instrumentation



Go Auto Instrumentation




CODE PLZ

Why the Bee (eBeePF)



Light and small

Fly between the kernel hives
“pollinating”

Fast and efficient in doing their job

Conclusion

eBPF is a revolution of the OS

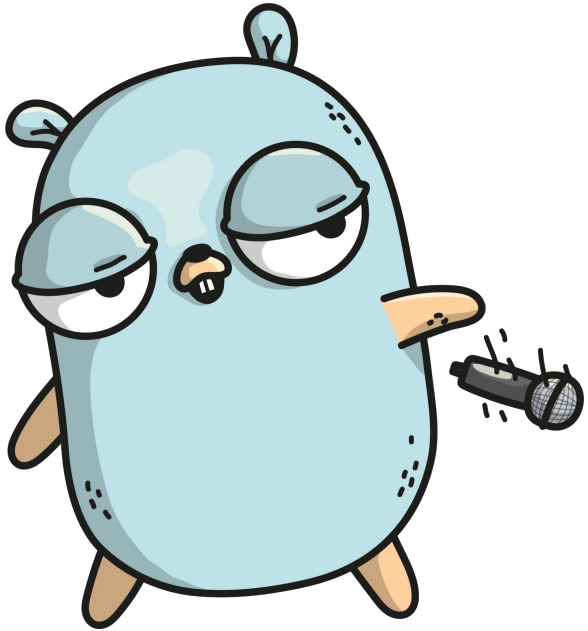
It brought programmability
to where it used to be rigid

Go is the perfect ecosystem to
operate this technology





o-mago.com
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alexandre-cabral-bedeschi



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