Tiago Barros

◎ Viana do Castelo, Portugal

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⌨ vlanx

🔲 Tiago Barros

Skills

Networking
IPv4, IPv6, Troubleshooting, VLANs, Routing

Linux
Ubuntu, Debian, Bash, Systemd

Orchestration
Kubernetes, Helm, Argo CD, Docker Compose

Virtualization
Proxmox, OpenStack, Snapshots, Backups, Software-Defined Networking

Monitoring & Observability
Prometheus, Grafana, Loki, Telegraf, InfluxDB

Programming
Go, Python, Bash, C/C++, Java

Git & GitHub
Code Review, Pull Requests

Cloud-Native
GitOps, Docker, LXC Containers

Languages

English
Highly Proficient

Portuguese
Native

Experience

University of Aveiro — May, 2024 - Present
Research & Infrastructure Engineer — Aveiro

- Build and maintain **infrastructure** for research and production, focusing on **networking, virtualization, and automation**.
- Deploy and manage **Proxmox** and **OpenStack** environments, IP Networks, and observability stacks (**Telegraf, InfluxDB, Grafana, Prometheus**).
- Support advanced **5G network** projects, integrating slice orchestration, REST APIs, and energy-aware networking.

Institute of Telecommunications — May, 2023 - May, 2024
Research Fellow — Aveiro

- Researched and deployed **multi-edge**, **multi-slice private 5G** networks with the Aether platform.
- Developed a **GitOps**-driven CLI tool for slice deployment and configuration.
- Authored a **peer-reviewed paper** on flexible 5G slice provisioning, integrating open-source RAN solutions.

Education

University of Aveiro — Sep, 2018 - Dec, 2023
Computer Engineering and Telematics — Master's

Thesis Title: "*Dynamizing Private 5G Edge Deployments*"

Projects

Homelab — Oct, 2024 - Present
Platform/SRE & Networking Sandbox

Built and run a Proxmox-based homelab: OpenWRT-routed dual-stack (**IPv4/IPv6**) with VLANs, WireGuard **VPN** for remote access, **Nginx** as a reverse proxy with **TLS (Certbot + Cloudflare DNS)** and fail2ban; observability via **Prometheus + Loki + Grafana**.

Private Multi-Edge 5G Network — Oct, 2022 - May, 2024
(Aether/SD-Core + GitOps + CLI)

Researched and **validated** a standalone private 5G network across multiple edge sites employing different network slices using Aether & SD-Core; built a **CLI** to streamline network operations and developed an **API** for higher-level operations; Deployments supported via GitOps (**Argo CD** + **GitHub**).

Programming Projects — 2020 - Present
Go, Python, C/C++, Java

- ETF Knapsack *(Python)* — Optimizer for ETF portfolio allocations under budget and weight constraints.
- Advent of Code *(Go)* — Solutions to annual programming puzzles, focusing on idiomatic Go.
- Lane Merge Simulator *(Python + Flask)* — ITS-G5-based vehicle merge orchestration simulation with web UI.
- Sokoban Solver *(Python)* — AI pathfinding (A*) to solve arbitrary Sokoban puzzle layouts.