Philipp Riederer

Bare-Metal Cloud Architect

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Profile

I design and build infrastructure that other people depend on — most recently a bare-metal GPU cloud, from the empty rack to the customer API. I like hard problems, pick up new paradigms quickly, and I am at my best when I turn an architecture into something a team can actually run.
I am a strong believer in ”infrastructure as code” and I always drive in the direction of accountable and knowable infrastructure.

Experience

Senior System Architect @ Epilayer November 2025 – today
Sovereign Cloud — Carve-Out
I set the technical direction of the platform after the Norwegian business was carved out: I write the architecture plans the team builds from (hybrid cloud and digital sovereignty, managed data services, IoT platform, carbon reporting) and steer the implementation across roughly 70 repositories. Hands-on, I extended the IaaS platform (managed Kubernetes, HPC clusters, load balancers, NFS filesystems), migrated all cluster ingress to Traefik without downtime, and built the new customer-facing stack: REST API (FastAPI), SPA (Vue 3/Quasar), Terraform provider, CSI driver and cloud-controller-manager in Go, and usage-based billing.

Senior System Architect @ genesis cloud November 2021 – October 2025
GPU Cloud Provider — Backend
With a team of five I replaced the aging and inefficient OpenStack backend of a fleet of 500 nodes and 4000 GPUs serving hundreds of customers. We settled on KubeVirt for VM hosting with bespoke operators and controllers for networking and storage. We used completely ephemeral hosts based on Flatcar Linux, booted from network in a full GitOps setup — from the empty rack to a running customer VM with GPUs and Infiniband. Among others, we used these technologies: SPDK, Kopf, Flux, KubeVirt, Prometheus, Jaeger, VPP, Ceph, Infiniband, GitHub Actions, BDD

Cloud Consultant @ tecRacer November 2020 – October 2021
Consultant Business — AWS
I helped enable customers to create or migrate their applications to AWS; although tecRacer has no explicit titles to convey seniority, I took a leadership role in all projects I was involved with. My focus was on migrations and data projects. Technologies: AWS Amplify, AWS Managed Airflow, dbt, Terraform, CloudFormation, Snowflake, Oracle SQL, NetApp Storage

Multiple Roles @ fos4X 2011 – 2020
Start Up — Founding until Exit
I grew with the company through the roles below.

Lead Big Data Infrastructure Engineer @ fos4X November 2019 – October 2020
Start Up — Pivoting Business Line
I was leading the four-person team that supported the digital products of fos4X: terabytes of measurement data from real wind turbines, made accessible to our colleagues and customers, and the dashboards our customers used to gain insight into their assets. In this team I implemented a scrum-like workflow with great success.

Head of Unified Software and Infrastructure @ fos4X May 2018 – November 2019
Start Up — Pivoting Business Line
I was leading the six-person team that enabled the data flow from the wind turbine to data analysts and customers: the complete edge-to-cloud infrastructure, from operating systems and processing frameworks on the edge to the frameworks and storage in the cloud.

Head of Data Processing and Analytics @ fos4X December 2017 – May 2018
Start Up
I took over the data processing team of eight — my first experience in ”real” leadership. During this time we decided to pivot a business line for digital products out of fos4X.

Head of Series Integration Projects @ fos4X January 2016 – December 2017
Start Up
I was responsible for the OEM integration projects that brought our hardware into wind turbines, interfacing with sales and our developers on one side and the purchasers and developers of our customers on the other. The project management frameworks I designed were still in use at fos4X in 2020.

Software Developer @ fos4X December 2011 – December 2015
Start Up
After finishing my thesis I kept working at fos4X, responsible for the firmware of our measurement devices: new measurement methods, two field busses (CAN and PROFINET), a webserver and IPv6 communication via the lwIP stack. I worked mostly in C, wrote development and debugging tools in Python and ran our Jenkins CI.

Working Student System Administrator @ Multinet October 2009 – April 2012
Monitoring Solutions
I administered the small company network and supported the development of their monitoring solution with my Linux expertise.

Working Student System Administrator @ TUM January 2008 – June 2011
I managed the chair network: Linux workstations, file-storage servers and the supervision of lab-courses. We controlled the configuration of servers and workstations with `fai` — this is where I discovered my passion for X-as-code.

Civil Service and working student @ Deutsches Herzzentrum München August 2005 – December 2007
Hospital IT
My civil service (German: Zivildienst) in hospital IT reached from exchanging defective monitors and supporting doctors to re-configuring the firewall. As a working student afterwards I mostly did system administration "in the background", such as monitoring for workstations and printers.

Education

Master Computer Science $\varnothing 1,3$ 2009 – 2012
TUM
Focus: Networking and low-level programming

Interdisciplinary Project
TUM / fos4X
Development of the firmware for a fiber optical measurement device

Master Thesis ($\varnothing 1,0$**)**
TUM / fos4X
Bootloader and hardware abstraction for the firmware of a fiber optical measurement device

Bachelor Computer Science 2006 – 2009
TUM

Bachelor Thesis ($\varnothing 1,7$**)**
TUM
Applicability of hardware transactional memory for high performance computing

Abitur 2005

Skills

- **Cluster Architecture** (5/5): Kubernetes since 2017; 500 nodes, 4000 GPUs; Ceph, SPDK, KubeVirt, GitOps; Infiniband + Ethernet
- **Data Center Design** (4/5): Since 2021; Non-Blocking Networks; Cloud-native bare-metal
- **Linux Administration** (5/5): Since 2005
- **Python** (4/5): Since 2004
- **Terraform** (5/5): Since 2018
- **Docker & Ansible** (4/5): Since 2016

Programming: Python, C, bash/grep/sed/awk, C++, SQL, TypeScript/Vue, rust (current study), golang
Certifications: Certified Kubernetes Administrator (2022, expired)
Languages: German (5/5), English (4/5)
Working style: Designing and implementing systems; Bridging the Gap between Managers and Developers; Motivating Teams

Private Projects

Setting up a multi-home Kubernetes cluster since 2021
Cluster consists of a Raspberry Pi, a (KVM)-slice of a dedicated Server and an VPS. Routing is done using BGP. The sites connect to each other using IPsec. Hosts a number of private websites and services like Nextcloud.

Playing with BGP in Docker 2019
https://github.com/toelke/routing-experiments

Own Mail infrastructure since 2006
I host my own mail-servers without significant outage