Guido Maria **Serra**

Principal Systems Engineer · Cross-Layer Architecture & Delivery
Embedded · Security · Distributed Infrastructure

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Summary

Hands-on principal systems engineer and technical architect, 30 years across embedded Linux, software development, security and distributed infrastructure. I work from symptom to source: reproduce it, pull and build the source, instrument, debug, test the fix and, when upstream, propose the patch—regardless of language. I own problems crossing technical and organisational boundaries, from architecture through production and handover.

Selected Impact

- Operated PlayStation Now infrastructure: **55,000 hosts across 12 datacenters**, fleet-wide Graphite + SNMP monitoring.
- Re-engineered an over-complex GPU Kubernetes platform into reproducible, modular, air-gapped deployables — single-node to edge devices; OSINT demos for law-enforcement customers (Octostar).
- **100% referral-sourced client base** since 2018, including **16 consecutive renewals** over 4 years at Mobivia.
- Resolved production failures across **300+ Rocket Internet ventures** — incl. a critical PHP data-structure patch; reported to the Global CTO.
- **$300K/year recurring savings** on a $30M+/year vendor spend portfolio (OLX FinOps).

Core Competencies

Systems Across Layers: embedded Linux (ARM, Debian/armhf, C/C++, kernel patching/rebuilds, protocols), low-level networking (TCP/IP, PXE, MTU/DHCP/VPN), bare metal & datacenters
Software Engineering: Python/FastAPI, Node.js/TypeScript, Go, SQL, developer tooling, AI-assisted workflows, open source
Distributed Infrastructure: Kubernetes (GPU), OpenStack, Ceph, MinIO, KVM, Terraform/CDKTF, ArgoCD, ClickHouse
Security & Identity: SIEM, IAM federation, Kerberos/SPNEGO, OIDC/SAML, PKI, DMZ design, HLD/LLD; regulated environments
Edge, CDN & SecOps: Cloudflare, Akamai, Fastly ngWAF, Link11, DataDome, F5 BIG-IP (LTM, iRules), DNS, WAF, DDoS & bot protection
Observability: Prometheus, Grafana, ELK, Datadog, Graylog, OpenTelemetry; app-level event & business telemetry; exporter patching/deployment
Technical Leadership: team hiring & building, coaching, fractional CTO, architecture due diligence, stakeholder management

Open Source & Community

Open Source: FSFE Fellow; Linux packager (Debian, Gentoo, RHEL, SUSE); Traefik contributor; co-founder, university open-source lab (POuL).
Security Community: DEF CON 2025 SOC volunteer (Goon); iCTF World Champion 2004.

Professional Experience

whitehat.berlin — Fractional & Embedded Engagements | Berlin / Remote (2018 – Present)

- **Current partnerships** *(2022 – present)*: DFND Security (EMEA partner); Forward Earth (SOC 2/ISO 27001/Vanta); Contensi (MinIO/Rancher, CDKTF); 3T Software Labs (Kotlin DSL CI/CD, rehired 2026).
- **Stealth FinTech Startup** *(Dubai, UAE, Remote)* – Senior Software Development Engineer, *Feb 2025 – Oct 2025*: tokenized financial infrastructure in Python and Node.js/TypeScript; FastAPI microservices.
- **Octostar** – Head of DevOps / SRE, *May 2024 – Feb 2025 (Bergamo, Hybrid)*:
  - Rebuilt an over-engineered x86/ARM GPU Kubernetes deployment — 9-pod Ceph for an S3 workload, fragile image builds — into reproducible multi-arch builds the whole company adopted; single-node multi-env installs on demand, down to a gaming laptop; ClickHouse/MinIO real-time analytics.
  - Delivered air-gapped OSINT demo environments — Senegal field demo, NVIDIA DGX Spark, conferences — with offline artifact handling and local LLM inference.
- **Max Planck Institute** – Site Reliability and Security Engineer, *Dec 2022 – May 2024 (Berlin, Hybrid)*: hybrid OpenStack/Kubernetes platform with **1.5PB MinIO**; federated IAM (LDAP/SAML/OAuth2); IaC with CDKTF; helped hire an FTE.
- **Prima Assicurazioni** – Staff Site Reliability Engineer (Fractional), *Nov 2022 – Jul 2023 (Milan, Remote)*: coached a 12-engineer SRE team on blameless incident response; coordinated AWS multi-region rearchitecture; infra scaling, cost, governance; guided company-wide DDD restructuring.
- *2023* — technical due-diligence for investors (Bella & Bona); embedded Debian/armhf IoT charging (SkyCharge).
- **ClovrLabs** – Cloud Architect (Fractional), *Sep 2021 – Jul 2023 (Barcelona, Remote)*, blockchain analytics company: source-of-funds risk across the BTC graph (5-node Redis); AWS EKS/Cilium network policy; built 5-person SecOps team; federated IAM (SAML, Google & Cloudflare Access).
- **HelloFresh** – Security / DevOps Engineer, *Apr 2020 – Mar 2021 (Berlin, Hybrid)*: 2-week emergency became multi-year; stabilized SIEM (ELK + S3), cost-controlled retention; moved it to an external vendor against internal-ownership pressure — breach evidence must outlive the compromise; vuln scanning + Jira; security team 1 → 5.
- **Volkswagen WeShare** – DevOps Team Lead, *Mar – Dec 2019 (Berlin)*: brought in one week pre-go-live; led the 5-person SRE team through launch; microservices on GCP/Azure.

- **Mobivia (ATU/Norauto)** – DevOps Engineer, *Oct 2018 – Dec 2022 (Berlin, Remote)*; 4-year engagement, rolling 3-month contracts
  - Unwound organic on-prem Kubernetes; led Link11 → Cloudflare edge migration (DNS rework, DDoS/bot protection, DMZ hardening); HLD/LLD docs, cutover plan; CDN/DNS/network SME.
  - Migrated three script-managed NGINX VMs to Traefik after isolating all traffic flows — live rule dashboard for devs.
  - GitOps (ArgoCD + SealedSecrets) over undocumented Helm installs & Ansible secrets; granular Kubernetes RBAC.
  - Logging & IAM: redesigned **Logstash** rulesets, tuned **ELK** retention; per-booking business telemetry via **Datadog** (application-emitted events); Keycloak (OIDC) + AD (LDAP/Kerberos); SPNEGO via in-cluster NGINX behind Traefik.
  - Diagnosed AD login timeouts at shop-opening peaks: recompiled **wmi_exporter** for open-handle counters + Prometheus/Grafana on Windows file servers — roaming-profile hotspots traced to surname-sharded SAN.
  - Broke a months-long DB-migration deadlock: 'new hardware, 6-month cycle' vs. a **9GB dump** — measured the real workload.
- **SiWeGO** – Fractional CTO, *Nov 2017 – May 2019 (Remote, alongside FTE roles)*: B2B logistics startup — designed the cost-optimized architecture; co-authored a patent application for algorithmic graph indexing.

Full-Time Employment (2010 – 2018)

OLX Group

Senior Performance Engineer *Sep 2016 – Jun 2018*

- Web performance domain expert; load & performance testing across 4 locations (AR, PT, DE, IN); CDN/SSL/DNS vendor selection and coaching.
- FinOps ownership across **NewRelic ($2M)**, **Akamai ($4M)** and **AWS ($24M)** contracts.
- Contributions to the Goad AWS Lambda load-testing tool (Go).

Sony PlayStation (Gaikai → PlayStation Now)

Site Reliability Engineer *Oct 2013 – Jun 2016*

- Operated the global game-streaming fleet for PlayStation Now; on-call across the Atlantic; mentored 5+ engineers.
- Drove org-wide **Grafana** adoption by building a textX DSL on graphite-api — metrics self-service for engineering teams; OS-level performance tuning across the new storage tier.
- Designed NTP infrastructure for low-latency gaming; PKI-based SSH platform; architected Ceph storage (RBD, CephFS, S3/RGW); PXE-booted Tokyo and London DCs; resolved DHCP/VPN MTU issues.

Rocket Internet

Chief Troubleshooter / Senior Data Architect *Oct 2012 – Dec 2013*

- Resolved production issues across the venture portfolio; built a Hadoop/MapR cluster for big-data analytics.
- Author of SqlHBase (pypi.org/project/SqlHBase); patched a major PHP data structure (adjacency tree in SQL stored procedures).
- Solved TCP window scaling on high-latency networks (stunnel + rsyncd).

txtr GmbH (3M-sponsored)

Backend QA Manager *Jul 2011 – Aug 2012*

- Owned site reliability for Europe's largest ebook content aggregator; centralized logging via **Graylog**; JMX metrics; Ruby BDD automation with Cucumber/Selenium test frameworks.

Nokia Maps (HERE) & ProfitBricks (IONOS)

Senior System Engineer / Administrator *2010 – 2011*

- Operations and R&D for OVI Maps; CI environments (Puppet, CentOS); KVM-based IaaS cloud operations.

Contract (2008 – 2010)

Vodafone Group *Düsseldorf, Germany*

QA Architect *Apr 2008 – Sep 2010*

- **10 consecutive contract renewals** over 2.5 years (rolling 3-month contracts) during the Italy → Germany transition.
- Led load & performance testing; identified major architectural flaws in Java enterprise applications; authored internal load-testing toolkit (HTTP-QAT), stress-tested its 360 backends; remote GSM/3G monitoring.

Independent Engineering – Italy (1996 – 2008)

Solution Architect and Systems Engineer | Multiple Clients. From dial-up fixes (1996) through Flash/ActionScript to systems engineering (2001) — scoped, budgeted, delivered, coached handover, before it had a name.

- **UNESCO** (UN agency, two engagements): geospatial DB query-wizard delivered in **5 working days** (prior in-house attempt: 3 months); MIPS-based remote-controlled gate system on embedded Linux.
- **Telco, banking & energy:** security analysis at H3G; Solaris → Linux migration of trading procedures (BPU Banca); HA billing-cluster OS upgrade + userspace backup/cutover in **7 days** (Sorgenia); firewall recovery (IANOMI); **3-day turnaround** (Wind).
- **Delivery with handover:** LDAP SSO/VoIP infra for banks and trainers — budgeted, built, coached client admins (INAS-CISL, Valore Formazione, OmniGATE); p2p VPN video-broadcast for pharma (VideoMAG, led 3 technicians).
- **Embedded & R&D:** Linux embedded R&D with Alessandro Rubini and Marco Cavallini (KOAN); Qt/SQLite on ARM for automotive weighing (LabEL); C++ protocol redesign for Bticino home automation.
- **Software:** Pandora (SMB, heartbeat/DRBD, OpenWRT); Tempus (PHP booking tool replacing Excel + SMS reminders via Nokia 3310/ttyS1); Zucchetti tax software (Solidar Servizi) reverse-engineered into prefilled PDF declarations. C-sockets lecturer, Politecnico di Milano.

Certifications & Languages

Certifications: ISO 27001 / Vanta Auditor, 2025. **Training:** Red Hat Ceph Storage (CEPH125), 2016.
Languages: Italian (Native), English (Fluent), German (Fluent).
Interests: Offshore sailing (Centro Velico Caprera, Les Glénans), skiing, cooking, trekking; Alpine Guide (CAI Bergamo).

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Autorizzo il trattamento dei miei dati personali presenti nel CV ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 e del GDPR (Regolamento UE 2016/679).