Faraz Vahedi

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OVERVIEW

Senior Software Engineer with deep expertise in operating systems development, compiler tooling, and network programming. Specialising in systems-level C, C++, Rust, and Go development with proven record in performance-critical infrastructure at scale. Active contributor to the FreeBSD Project, delivering improvements to core system components, ports, and documentation. Committed to standards compliance whilst actively following programming language design and implementation across evolving ecosystems.

SKILLS

- **Programming Languages:** C and C++ for systems programming, embedded development, and compiler/toolchain engineering; Rust and Go for high-performance systems and backend services.
- **Operating Systems:** Advanced understanding of UNIX internals with production and development experience across BSD, illumos, and Linux families.
- **Systems Programming:** Socket programming, IPC, event notifications mechanisms, BPF, Netmap, Netgraph, DTrace, concurrency primitives, sandboxing, and low-level debugging and instrumentation.
- **Virtualisation:** Production experience with OS-level (FreeBSD jails, illumos zones, OCI containers) and hardware-level (bhyve, QEMU) virtualisation.
- **Infrastructure:** Infrastructure automation, orchestration, monitoring, observability, alerting, high availability, vulnerability assessment, and OS hardening.
- **Cloud Platforms:** AWS (EC2, ELB, EKS, ECS, S3, RDS, CloudWatch.)

PROJECTS

FreeBSD Project   *open source*
Src and Ports Contributor   *Apr. 2021–Present*

- Contribute to the base system (src) focusing on code correctness, standards compliance, performance optimisation, and security hardening across core components.
- Contribute to system documentation and manual pages to improve technical clarity, accuracy, and developer experience.
- Maintain and improve multiple ports, ensuring compatibility and addressing build system issues.

EMPLOYMENT HISTORY

SkunkWerks   *contract*
Software Engineer   *Nov. 2023–Present*

- Developing a secure, highly customisable CI/CD platform optimised for high-performance workloads and adaptable across diverse OS-level virtualisation environments, enabling scalable and resilient pipeline execution.

OMPFinex   *full-time*
Software Engineer, Site Reliability Engineer   *Nov. 2023–Present*

- Refactored, optimised, and developed a high-performance, scalable, and secure authentication and authorisation system.

- Designed a multi-channel notification platform processing millions of requests daily with deep integration to external platforms.

- Designed and developed an operator-centric CRM software with a focus on integration capability with external platforms, efficiency, and extensibility per se.

- Contributed to the development of high-throughput blockchain transaction monitoring systems processing and analysing real-time data streams on the supported blockchain networks.

- Developed critical system utilities in C, Rust, and Go for operational workflows, monitoring, and low-level system integration.

- Managed multi-zone Kubernetes clusters across multiple cloud providers, ensuring high availability with automated failover and load balancing.

- Mentored Go team developers, conducted technical interviews, and contributed to hiring decisions and onboarding processes.

illuria Security   *full-time*
Software Engineer, Site Reliability Engineer   *Jan. 2022–Jun. 2023*

- Led infrastructure and release engineering teams, architecting deployment systems for customer environments with a focus on reproducibility and zero-trust principles.

- Engineered automated FreeBSD distribution build system with custom package repository and delivery pipelines.

- Developed performance monitoring and system utilities in C and Rust, leveraging DTrace for deep system observability and bottleneck analysis.

- Developed comprehensive CI/CD pipelines with automated end-to-end testing and security scanning, progressive rollout strategies, and fully customisable build, execution, and delivery environments.

- Optimised large-scale FreeBSD jails orchestration, improving update efficiency and deployment speed.

Khallagh Borhan   *full-time*
Software Engineer   *Mar. 2021–May. 2021*

- Developed a high-performance DDoS mitigation system in C++, providing real-time traffic analysis and automated threat response.

- Developed kernel-level network monitoring solution using Berkeley Packet Filter (BPF) and Netmap framework in C, achieving line-rate packet processing.

- Optimised network stack and application performance through profiling and systems-level tuning.

Software Engineer, Site Reliability Engineer   *Jan. 2016–Feb. 2021*

- Architected and delivered a public Platform-as-a-Service (PaaS) solution, enabling both internal teams and customers to rapidly deploy and scale applications.

- Developed custom Kubernetes cluster management and automation tools, streamlining operations and reducing manual intervention.

- Reduced deployment times by 70% through CI/CD pipeline optimisation and intelligent caching strategies, eliminating vendor lock-in and enabling faster and more reliable deployments.

- Improved performance of a public video streaming platform by 80% through complete infrastructure redesign, architectural optimisation, and refactoring of legacy Java code.

- Identified and resolved critical memory leaks in core services, reducing memory footprint by 75% and eliminating cascading failures.

- Utilised OS-level virtualisation techniques with distributed storage backend, improving deployment flexibility and resource utilisation.

- Contributed to the internal Infrastructure-as-a-Service (IaaS) and Content Delivery Network (CDN) solutions, diagnosing and resolving complex system-level issues, improving system availability and reliability.

Emersun   *full-time*
Software Engineer, Site Reliability Engineer   *Dec. 2017–Mar. 2019*

- Architected and built complete production infrastructure from scratch using FreeBSD jails, bhyve, and ZFS, with a focus on security, scalability, and operational sustainability.
- Automated large-scale, declarative infrastructure and service orchestration with Terraform and Nomad, facilitating infrastructure management and service deployment at scale.
- Engineered comprehensive monitoring, alerting, and observability systems with custom tooling, providing real-time visibility into system health, performance metrics, and capacity planning.
- Optimised ZFS storage subsystem with deduplication, compression, and L2ARC/ZIL tiered caching, improving I/O throughput by 40%.
- Contributed to Java application codebase and database design, collaborating with development team on architectural decisions.
- Mentored engineering team members and participated in technical hiring, evaluating candidates and contributing to team growth.

APR   *part-time*
Software Developer   *Jan. 2013–Dec. 2015*

- Contributed to several Ruby, PHP, and Java applications.
- Designed and developed a fitness-first social application in Objective-C.
- Administered and maintained multiple servers and virtual machines.

VOLUNTEER WORK

- Organised *Iran BSD User Group (IRBUG)* (*April 2019–January 2021*)
- Translated *HTTP3-Explained* to Persian