Richard Whitehouse

Principal Software Engineer | London, United Kingdom

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Summary

Experienced software architect, technical leader of large teams (> 100 people) and software engineer with a demonstrated history of working on cloud native applications and platforms that are highly available, highly reliable, that provide industry leading performance and security. End to end expertise, from low level instruction level performance optimization to highly scaled distributed service architectures deployed in the cloud.

Professional Experience

Microsoft

Principal Software Engineer, Microsoft   March 2021 – Present

Lead Architect and Technical Lead for Azure Private 5G Core. Product includes service provisioning layer, which deploys and manages an edge computing workload, consisting of multiple microservices, which provide a high availability, high performance software solution.

- Software Architecture and Engineering, driving key technical work to meet important market milestones:
  - Hands on development, in Rust, C++, Go and Python, to unblock crucial milestones, prototype solutions, resolve critical issues, and deliver important features.
  - Technical review, and lead technical expert, for > 100 person engineering org, mentoring team level technical leads, plus architecture briefing for key PM and business stakeholders, including cross-org review with partner level architects.
  - Defined blueprints for implementing new capabilities and function, including delivering high availability to deliver high reliability function for mission critical deployments.
  - Cross-product work across broader Azure for Operators, and Azure portfolios, including key platform development, architecture review, and project planning.
- Security and Privacy Champion for Azure Private 5G Core, and broader security, compliance and fundamentals leadership across for Azure for Operators. This included interacts with security researchers, and vendors around first and third-party vulnerabilities and penetration testing, performing threat modelling and vulnerability scoring, as well as looking at future threats.
- Customer engagement - provided key field assistance to multiple engagements at some of the largest companies globally, including trials, pre-sales, support, and on-call engagements.

Metaswitch Networks

Senior Lead Software Engineer   December 2018 – March 2021

Worked on Fusion Core, Metaswitch's Cloud Native 5G Core, as a senior technical lead. Major projects included:

- Software architecture of multiple major new features and changes, and development on multiple microservices in Rust, deployed in Docker containers.
- Developed Private MEC offering, which was a key decision point for Metaswitch to be acquired by Microsoft.
- Data plane development, including demonstrating 500 Gb/s of packet processing performance on a single server, validated by Intel.

Senior Software Engineer   June 2016 – December 2018

Worked on Clearwater, a scalable cloud native IMS core, written in C++, in both virtual and containerised environments including its deployment in high scale networks, supporting 20 million concurrent subscribers, with 99.999% reliability. Major projects included:

- Re-architecture of Clearwater to support increased resilience and scale, to support multi-million subscriber deployments.

- Complete rewrite of Clearwater's build system to provide CI, CT and CD capabilities. Build system has substantially improved delivery quality, testability and execution speed of the development team, and increased confidence from the field support organisation.

Software Engineer   July 2014 – June 2016

Client Application Software Developer for Accession, a series of smartphone and desktop applications. Responsibilities included architecture, major feature development, and fixing the most complicated bugs.

- Substantial customer facing project, delivered on site, to fact find and then engineer a VoWiFi solution. Project included multi-million-dollar advertising budget, with product delivering core user facing aspects.

- Managed contractors as they delivered two features in the product - ensured that code was delivered on time, within the product's current architecture, and to the expected level of quality.

- Responsible for substantial performance profiling and enhancements delivered on time, and in order to meet committed ship dates.

L3 Support Engineer   September 2011 – July 2014

Software Engineer providing L3 Support for applications across web, smartphone, desk phone, and desktop. Full stack engineering looking at both the backend and frontend applications.

Patents

- Lock free memory management for high speed, multi-core, graph-based packet processing
  https://patents.google.com/patent/US11659071B2/en

- Encrypted Flow of SIM data between regions and edge networks
  https://patents.google.com/patent/US11991520B2/en

Technology Experience

- Languages: Rust, C/C++, Python, C# .NET, Java, Go, Objective C, JavaScript, HTML, CSS
- Cloud Native: Kubernetes, Docker, Helm, Azure, Redis, Cassandra, REST, OpenAPI, Linux
- Networking: HTTP, TCP, IPv4, IPv6, Ethernet, ICMP, ARP, DNS, UDP, LDAP, XMPP, SIP, SDP, RTP
- Tooling: Compilers, Linkers, Debuggers, Static Analysis, Code Coverage, Git, GitLab, GitHub, JIRA, CI/CT/CD

Education

Homerton College, University of Cambridge   2008-2011

Bachelor of Arts (BA) / Master of Arts (MA) (Cantab) - Computer Science

Landau Forte College. Derby   2001-2008

A Level: Mathematics: A, Further Mathematics: A, Physics: A, Chemistry: A

References

Available on request