

Ashwanth Fernando

Principal Software Engineer

Distributed Systems | Backend Engineering | AWS & GCP | Microservices

Sydney, Australia

Australian Citizen

ashwanthfernando@gmail.com |

0406-766-872 | LinkedIn/ashwanthf

Summary

- Hands-on principal-level engineer/architect with **15+ years** building and scaling **distributed systems** at **Apple, Canva, eBay, Atlassian, and Walmart**. Led teams up to 12; authored **5 patents**; shipped **99.999% availability** load balancers and **10x commerce dialog conversions**.
- **Platform Engineering at scale:** Built core platform systems at **Walmart** (Fortune 1) for config management, auto-generated CRUD APIs, and parallel deployment orchestration for application server fleets, enabling an **8,000-developer ecosystem** to rapidly build and scale ecommerce for Walmart US and Canada. Evangelized adoption through internal tech talks and drove migration from expensive proprietary third-party platform to open-source stack, **saving \$100+M annually**.
- Led development of 5 frontier live/collab products at **Canva** - Talking Presentations, Reactions, Remote Control, Playlist, Canva Live on the **1B+ presentations/year** platform, growing **10+M MAUs in 2 years**. Authored **patents** and evangelized through engineering blog posts.
- Architected active-active load balancer with **ZooKeeper** for **Atlassian's** Elasticsearch cluster, eliminating manual failover during maintenance and reducing downtime by **20+ hours/quarter**. Increased customer **NPS for search by 15%**.
- Scaled **Canva Search from 20M to 80M MAU** (4x growth) by re-architecting ingestion from monolithic to distributed microservices, adding **Redis** L2 caching, and offloading auxiliary data from **Solr** to **MySQL**.
- **Leadership:** Led teams up to 12; built/managed a 6-engineer squad at Canva while remaining hands-on (20%); authored **5 patents**; shipped **99.999% availability** load balancers and **10x commerce dialog conversions**.
- **Deep and broad expertise:** I consistently learn and improve myself across a variety of technologies in the backend + cloud + AI/ML stack.
- **Current focus areas:** **Instruction Fine Tuning for LLMs, RAG, Agentic Workflows, Distributed Systems, Platform Engineering, Cloud-Native Architectures**, Vibe coding cleanup (certain languages only).

Technical Skills

Languages: Java (primary), Go, Python, Kotlin, Scala, Node.js **Cloud:** AWS (EC2, RDS, DynamoDB, SNS/SQS, ElastiCache), GCP (BigQuery, Pub/Sub)

Infrastructure: Kafka, Spark, Redis, ZooKeeper, Solr, Spinnaker, Terraform, Kubernetes, Helm, Docker

Frameworks: Spring, GraphQL, gRPC, Temporal, Protobuf **AI/ML:** LLMs, RAG, LangGraph, agentic workflows

Experience

Principal Software Engineer, Tentacle Software

Jan 2022 - Present

I started a boutique engineering consultancy for high-throughput, low-latency platforms: consistent-hashing topologies, scalability, extensibility, resilience, and automated delivery. I bring my entire gamut of high quality global experience across a range of capabilities to these companies from project management, coding, devops and making hundreds of decisions balancing between tactical and strategic. Typical project duration is between 4 months to 1.5 years.

Responsibilities:

- **o-to-1 builds:** I've led the design and architecture of several greenfield services, and personally implemented the surrounding operational ecosystems, from IaC and CI/CD to SLOs, observability, and runbooks, blending strategic direction with hands-on engineering to drive faster delivery and more reliable systems.
- Led technical roadmaps, architecture reviews, worked cross functionally with PMs, Product Leads, Security Architects, and other stakeholders.
- Drove JVM tuning, microservice performance, and cost optimisation; coached teams on reliability, observability, and CI/CD best practices.

Macquarie Bank

Feb 2025 – Present

- Led cross-functional performance program across 5 teams (20+ microservices), fixing caching, reactive processing, DB schema, and JVM GC issues. **p95 down 14%, p99 down 9%, throughput up 3.5x.** Java, Spring, Reactor, Redis, GraphQL, Spanner, GCP.

WEX

May 2024 – Jun 2024

- Contributed to streaming analytics platform using **Spark Structured Streaming** to process **1.2M+ daily events**, implementing tumbling windows, watermarking, and stateful aggregations for real-time hotel booking metrics across global travel partners.
- Built event-sourced financial reconciliation system with idempotent transaction processing, maintaining **<1s accuracy** for multi-currency merchant accounts and ensuring consistency across distributed ledger replicas.
- Modernized Kafka → Spark → BigQuery pipeline with CDC, schema evolution, and exactly-once delivery guarantees, reducing reconciliation lag **by 65%** and supporting 40+ partner integrations.

Coles

Apr 2023 – May 2024

- Partnered with security, product, and cross-team stakeholders to define requirements for a BFF (Backend-for-Frontend) service, v1 architecture, priority use cases, and a scale-out migration plan for remaining workloads.
- Led the build of the BFF and DevOps ecosystem, cutting **end-to-end latency for Coles online grocery (coles.com.au) by >40%.**
- **Technology Stack:** Java, Kotlin, Spring, Reactor, Azure, Docker, ArgoCD.

Atlassian

Feb 2022 – Mar 2023

- Designed consistent-hashing active-active load balancer for Elasticsearch, increasing **Confluence search availability +7% globally.** Java, Spring, ZooKeeper, ElasticSearch, AWS.
- Partnered with deployment engineering teams to architect insta-deploy to all regions from main branch, cutting **deploy lead time from 1 week to 10 hours.**

Founding Engineer , Packsmith	Jul 2024 – Nov 2024
<ul style="list-style-type: none"> Led end-to-end technical strategy for AI-driven last-mile logistics platform. Built priority tagging for Shopify feeds, improving shipping times by 140%. Built Temporal workflows for shipment orchestration. Go, GCP, Temporal, Kubernetes, Terraform, Pub/Sub. 	
Engineering Manager Staff Engineer , Canva, Sydney, Australia	Nov 2018 - Jan 2022
<p><i>Canva is a \$42B USD visual design platform and Australia's most successful tech company, with a mission to make design accessible for everyone. Used by millions globally to create presentations, social media graphics, documents, and more. I worked in the Search and Presentation teams.</i></p> <ul style="list-style-type: none"> Scaled Canva Search from 20M to 80M MAU by decomposing a monolithic ingestion pipeline into a microservices architecture, implementing cache deduplication and invalidation systems, and re-architecting Solr indexes to offload non-queryable fields to MySQL — reducing index footprint and improving query performance. Optimized request processing logic, fine-tuned JVM GC for consistent SLAs, and delivered autocorrection, query suggestions, trending insights, and feedback systems end-to-end while mentoring engineers on search platform design. Published technical blogs on Canva's engineering platform and delivered internal and external talks on auto-correct and Canva Live builds. Scaled team from 0→6 engineers, shipping 7 live collab products in 2 years driving 10+M MAU growth (20% of Canva's users). Owned hiring, performance reviews, and roadmaps while remaining hands-on. 	
Senior Staff Engineer , eBay, San Jose, California	Nov 2014 - Aug 2018
<p><i>eBay is a global e-commerce marketplace connecting 132 million active buyers with sellers worldwide, facilitating over \$73B in gross merchandise volume annually. One of the original internet pioneers, eBay operates in 190+ markets. I worked in the Search and New Product Development teams.</i></p> <ul style="list-style-type: none"> Built dynamic config system + page assembler for eBay's core search, enabling business teams to adapt UI/UX without engineering, cutting months off release cycles. Built dialog SDK (Facebook, Google Assistant integrations), increasing Shopbot sales 10x. Created open-source regression-testing framework (Regressr), adopted across departments. Led teams of 6+ engineers. 	
Principal Engineer (ICT 5) , Apple, Cupertino, California	Sep 2013 - Oct 2014
<p><i>Apple is a global technology company that designs and manufactures smartphones, tablets, computers, and accessories. I worked on the device activations platform, which is a globally distributed load balancer with 99.999% availability across several API services. I worked in the Emerging Technologies team.</i></p> <ul style="list-style-type: none"> Oversaw a team of 12 engineers, managing project timelines, code reviews, and architectural decisions. Regularly facilitated consensus-building on design proposals and led strategic engineering initiatives. Operationalized infrastructure for device activations across US. Built significant parts of the platform such as config management, heartbeat monitoring and deployment orchestration. Technology Stack: Node.js, Zookeeper, OpenTelemetry, Java, Oracle, Akamai GSLB. 	
Staff Software Engineer , Walmart, San Bruno, California	Oct 2010 - Sep 2013
<p><i>Walmart is the world's largest retailer and Fortune #1 company, operating 10,500+ stores across 19 countries with \$648B in annual revenue. With 2.1 million associates and serving 240 million customers weekly, Walmart is a global commerce and technology leader. I worked in the Canada and @Platform teams.</i></p> <ul style="list-style-type: none"> Served as architect and technical lead for Walmart Canada's SEO platform and base-variant management system, reducing bounce rates by 30%. Integrated product reviews into the website with BazaarVoice. Built cloud deployment parallelization for Walmart's 300+ applications saving deployment times by well over 80%. Instituted an enterprise-wide configuration management framework, unifying deployment practices for over 200 microservices. Built automatic CRUD HATEOAS generator to autogenerate CRUD APIs for database tables saving IaaS teams well over 8 months of manual work. Technology Stack: Java, ATG, Groovy, Spring, Zookeeper, JavaEE, Glu. 	
EXTENDED CAREER HISTORY	
Software Engineer , Best Buy	Aug 2005 - Oct 2009
Software Engineer , Pearson VUE	Nov 2009 - Apr 2010
Software Engineer , Walgreens	Apr 2010 - Sep 2010

Patents

- **Systems and methods for interactive presentations** - US 20230205552
- **Systems and methods for storing and replaying presentations w/ video and audio** - US 20230205808
- **Systems and methods for remotely controlling electronic presentations** - US20230076902A1
- **System and method for increasing throughput of a PaaS system** - US 9342369 B2
- **Verification of complex multi-application and multi-node deployments** - US 20140109082

Publications

- Building a Data-Driven Autocorrection System - Canva Engineering Blog
- Introducing Rgressr: An Open Source Regression Testing Tool - eBay Tech Blog

Hobbies & Interests

- **Travelling:** Exploring new places across Australia, discovering hidden gems and scenic landscapes
- **Culinary exploration:** Trying out new dinner spots and experiencing diverse cuisines
- **Continuous learning:** Working on algorithmic problems and building proof-of-concept projects in free time
- **Fitness:** Long walks to stay active and facilitate thinking.