Ashwanth Fernando

Principal Engineer

Distributed Systems | Backend Engineering | AWS and GCP

Microservices | Product Focused and Customer First

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Australian Citizen

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Summary

- Hands-on principal-level engineer/architect with **15+ years** building, scaling **distributed systems** and teams at **Apple**, **Canva**, **eBay**, **Atlassian** and **Walmart** driving reliability, performance, and business impact for multi-million-user products.
- **Deep expertise:** Java, Go, Python; AWS (EC2, RDS, DynamoDB, SNS/SQS, ElastiCache), GCP (BigQuery, Dataform, Pub/Sub); Kafka, Redis, Apache Solr; Spring, GraphQL, gRPC, Temporal; Terraform/IaC.
- Specialised in **search, event-driven & microservices architectures**, active-active/consistent-hashing topologies, and low-latency platforms.
- **Highlights:** Scaled **Canva Search from 20M to 80M users**; built 7 new live/collab products in 24 months—Playlist, Canva Live, Talking Presentations, Reactions, Presentation Remote Control, Whiteboards real-time collaboration & timer—delivering caching, database, and scale patterns. Architected a **consistent-hashing load balancer** for active-active Elasticsearch, lifting **Confluence search availability +7% globally**; trimmed **Macquarie Bank cloud spend -7%** via JVM/GC + concurrency tuning/caching.
- **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**.
- **Current focus:** AI/ML infrastructure (LLMs, RAG, agentic workflows), cloud-native platforms.

Work Rights

Australia: Australian Citizen

Technical Skills

Languages: Java (primary), Go, Python, Kotlin, Scala, Node.js
Cloud & Data: AWS (EC2, RDS, DynamoDB, SNS/SQS, ElastiCache), GCP (BigQuery, Dataform, Pub/Sub)
Distributed Systems & Messaging: Kafka, Redis, ZooKeeper, event-driven and microservices architectures, consistent hashing, active-active topologies, load balancing
Frameworks & APIs: Spring, GraphQL, gRPC, Temporal, Protobuf
Search & Storage: Apache Solr (indexing/serving at scale), caching strategies
AI/ML Infra: LLMs, RAG, LangGraph, agentic workflows, Prefect
Testing & Quality: TDD, unit/integration, regression/performance testing (incl. bespoke tooling)
DevOps: GitHub, Bitbucket, Spinnaker, Terraform, Kubernetes, Helm

Experience

Principal Engineer, Tentacle Software   Jan 2022 - Present

I started a boutique engineering consultancy for high-throughput, low-latency platforms: consistent-hashing topologies, multi-tenant resilience, and automated delivery. I bring my entire gamut of high quality experience across a range of capabilities to these companies from project management, coding, devops and making hundreds of decisions mostly tactical due to the nature of the arrangement but some strategic.

Responsibilities:

- **0-to-1 builds:** Bootstrapped greenfield services, created surrounding ecosystems (IaC, CI/CD, SLOs, dashboards), and standardized runbooks/operability.

- Led technical roadmaps, architecture reviews, contributed heavily to development and production readiness across multiple client engagements.
- Drove JVM tuning, microservice performance, and cost optimisation; coached teams on reliability, observability, and CI/CD best practices.

Client: Macquarie Bank

- Led a cross-functional program across 20+ microservices in the Wealth Adviser Platform to remove latency hotspots fixing caching strategy, database-schema flaws, JVM GC settings, and request-processing logic; contributed targeted PRs while delivering runbooks, dashboards, and diagnostic artifacts so teams could self-remediate at pace. **Results: p95 down 14%, p99 down 9%, throughput up 3.5x**.

Client: WEX

- Rebuilt parts of an event-sourced billing ledger with idempotent charging and Kafka pipelines to guarantee ordered, deduped transactions.
- Delivered end-to-end reconciliation and statement generation on BigQuery/Dataform with incremental CDC, schema versioning, and backfills.
- Onboarded GoLang and was contributing code within a week.

Client: Atlassian

- Architected consistent-hashing load balancer for active-active Elasticsearch, increasing **Confluence search availability +7% globally**.
- Built insta-deploy to all regions from main branch, cutting **deploy lead time from 1 week to 10 hours**.

Client: Coles

- Built core BFF (Backend-for-Frontend) and DevOps ecosystem, cutting **end-to-end latency for Coles online grocery (coles.com.au) by >40%**.
- Partnered with security, product, and cross-team stakeholders to define requirements, v1 architecture, priority use cases, and a scale-out migration plan for remaining workloads.

Software Engineer, Packsmith   Jul 2024 – Nov 2024

- Drove the end-to-end technical strategy for a distributed reverse logistics platform, collaborating closely with PMs on architectural decisions, design standards, and code quality.
- Built a priority/vip tagging system for Shopify feeds, improving shipping times for priority orders by 140%.
- Streamlined workflows in Temporal to optimize shipment flow, ensuring accurate stage progression and significantly reducing operational overhead.

Engineering Manager|Staff Engineer, Canva, Sydney, Australia   Nov 2018 - Jan 2022

- Transitioned from an early-stage individual contributor to leading a team of six engineers, guiding the development of back-end infrastructure for five innovative products—Canva Live, Playlist, Talking Presentations, Reactions, and Presentation Remote Control.
- Balanced product ownership, people management, project oversight, and hands-on coding (20% capacity), ensuring both team effectiveness and technical excellence.
- Authored three patents based on original work in live interaction features and large-scale presentation technology.
- Published technical blogs on Canva's engineering platform and delivered internal talks on auto-correct systems.
- Scaled Canva's search infrastructure from 20M to 80M users, performed a complete rewrite of search infra across all the layers queuing, caching, indexing, serving to support long term scale.

Senior Staff Engineer, eBay, San Jose, California   Nov 2014 - Aug 2018

- Headed the design of a dynamic configuration system and page assembler for search result templates, enabling business teams to adapt search UI/UX without direct engineering involvement, cutting weeks off typical release cycles.
- Built dialog system SDK to quickly ship multi-turn dialogs that include carousels, text, videos, images, questions to production. Has integrations for Facebook and Google Assistant. This dialog system can ship new complex conversations in a matter of minutes and increased Shopbot sales by more than 10x.

- Created an open-source regression-testing framework (Regressr), adopted across multiple departments for real-time performance comparisons between service versions.
- Led multiple project teams of six or more engineers, setting technical vision, coordinating development roadmaps, and facilitating inter-team collaboration.

Principal Engineer (ICT 5), Apple, Cupertino, California   Sep 2013 - Oct 2014

- Principal Engineer for a globally distributed load balancer with 99.999% availability across several API services.
- Oversaw a team of 12 engineers, managing project timelines, code quality, and architectural decisions. Regularly facilitated consensus-building on design proposals and led strategic engineering initiatives.
- Operationalised infrastructure for device activations across US, Canada and Europe.

Staff Software Engineer, Walmart, San Bruno, California   Oct 2010 - Sep 2013

- 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.
- Drove cloud infrastructure modernization efforts across a large-scale fleet, invented two patents and decreased deployment cycles significantly.
- Instituted an enterprise-wide configuration management framework, unifying deployment practices for over 200 microservices.

Consulting Engineer, BestBuy, Walgreens, Pearson VUE   Aug 2005 - Sep 2010

- Coding for web-scale backends, focusing on reliability, resilience, and high-traffic optimizations.
- Led implementation of JSP-based backend services and front-end templates for retail and testing clients.
- Developed offline batch processes for advanced fraud detection, enabling proactive identification of high-risk transactions.

Courses

- Advanced Learning Algorithms - DeepLearning.AI
- Machine Learning Specialisation - DeepLearning.AI
- Supervised Machine Learning: Regression and Classification - DeepLearning.AI
- Generative AI with Large Language Models - Coursera

Patents & Intellectual Property

- **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

Current Areas of Interest and Exploration

Generative AI, Cloud, Mathematics for Machine Learning, Large scale architectures.

Technical Focus Areas

AI/ML Infrastructure, Distributed Systems, Platform Engineering, Cloud-Native Architectures, Engineering Excellence