Shiv Prakash

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Backend, Data Engineering, Platforms, Compliances, Governance

Professional Summary Results-oriented Engineering Leader with 14+ years of experience architecting high performance, scaled distributed systems, data platforms, and ML solutions that drive business transformation at scale. Inventor of patented technologies and veteran of 10 successful US retail holiday seasons at Walmart.

Key Achievements

- Leading CTO-driven **inventory optimization** solution **delivered $55M of projected $500M impact, phase 1.**
- Built zero-defect, elastic **communications platform scaling to 500K TPS for Walmart's global markets**
- Built Stores **Data platform** replacing mainframes **across 4,000+ stores, with governance spanning 34** verticals .
- **Re-architected demand forecasting** for **40% cost savings and 500% throughput gains**
- Designed **tier-0 availability and inventory services** with **high TPS and sub-50ms latency**

Leadership/ Management Skills Driving roadmaps and vision planning with cross-geo teams. Drafted concept and whitepapers. Directly managing **9 direct reports and 13 shared including a Manager, Sr. Architect and Staff Engs**. Lead **Cross functional teams**, **Geo-distributed teams in India, US, UK, CA & SA**. **Hiring FTE** and onboarding. Agile Program management, Product management (briefly).

Functional Skills Supply Chain Management, Retail, eCommerce, Stores, Replenishment, Demand Forecasting, Demand Allocation, Inventory Placements, Inbound Inventory, Sourcing, Order Management, Inventory Management, Logistics and Returns systems, Refunds, Grocery, Chatbot, Communications, Activation Platforms, Care

Technical Skills

Backend	APIs, Messaging, SOA, Micro-Services, Reactive Services, Service Mesh
Data Platform	Governance, Schema Governance, Registry, Catalog, Quality, Ingestion, Control Planes, Discovery, Querying, Reports,
Big Data	HDFS, Stream Processing, ETL, Distributed Querying, Query routing, Streaming, Big Data Architecture
MLOps	Pre-training, Model Run & Versioning, Time Series Models, Inference, Monitoring.
Infra & Cloud	Cloud Native Architecture, OneOps, GCP, Azure, AWS, Walmart Pvt Cloud
Data Stores	RDBMS, NoSQL, Cache, Hot, Cold, Index, Data Warehouse, Block, Object, Key Value, Search, Operational, Analytics
Ops	Continuous Integration, Continuous Deployment, Business Continuity, Disaster Recovery, Containers, Orchestrators
Compliance	SOX, CCPA, GDPR, POPIA, Secure Code
APIs & Tools	Conversations APIs, CDNs, WAF
Foundational	Algorithms, Data structures, Data modelling, Optimizers, OOAD, Design & Architecture

Experience

Walmart | Senior Software Engineering Manager II (Aug 2019 – Current)

Inventory placement
Led the **hiring of 5 FTE. Realised $55M of projected $500M impact** in phase 1. It enables next generation pixel-based demand forecasting and scaling next gen automated FCs. Driving roadmap with **cross geography collaboration with business, product, executives and program stakeholders.**

Platform Cost reduction
Realized 31% reduction in operating cost for the existing replenishment lake via continuous monitoring of cost, migration, re-architecture, compression and optimization.

Engineering Excellence
Driving the engineering excellence horizontal for Replenishment. Identified and improved code, agile, incidents and productivity metrics. Improved metrics by **15% overall in code quality & builds. 100% compliance to CVE and zero day exploits management**.

Care and Returns squad and Centralized Comms platform
Lead a team of **5 engineers in backend and 14+ cross functional team members in UX, UI, Mobile, Analytics, Big Data & QA**. Drove the roadmap for the product. Built Central comms platform which is **used in UK, Massmart(SA), CA, MX and India markets. GDPR, POPIA and CCPA compliant.** It **reduced the operations cost by 21.2% and allowed Walmart to use bulk licenses** for multiple comms channels with at least one channel view promise. **This has improved CSAT score by 33.83%**

- Enhanced Integrated chatbot using inhouse conversational APIs **(Reduction in contact rate by 32 %)**
- Maintained & Enhanced Refund and Self-Service experiences for UK Grocery & SA
- Led the **hiring of 10+ FTE in the org.**

US Walmart Stores Data Platform
Led the design, development, and delivery of automated Data Governance policies and systems, **serving 34 domain** verticals across stores. Coded and implemented key parts of the E2E solution. Established both **automated and static Schema Governance**, enabling **self-service schema onboarding, policy verification, and standardization**, **reducing onboarding time from 1.5 weeks to 2 days**.

Designed and developed a comprehensive **Data Catalog and Data Quality framework** to manage **data lineage, classification, discovery, and quality scoring for ingestion and data lakes**. This system reduced data discovery time maintained a clean and healthy data lake and facilitated effective data management and product development. **Daily ingestion of > 10TB**.

Lead **SOX and CCPA compliance certification**, architecting and coding necessary changes across the entire store systems data platform. Additionally, developed and implemented a **Confluent-compliant Schema Registry**, ensuring faster, schema-compliant ingestion into the data lake, with a **99.99% uptime metric**. Contributed to a **Hot Store, Cold Store, ingestions router, control plane and Query routing layer. Lead cross-geo, cross function teams in India and US and drove the Roadmap.**

Demand Forecasting Solution - AIMS & Data Platform

Built Automated Inventory Management System (**AIMS**), the **next gen demand forecasting platform**. Laid foundation for Functional and technical analytics platform. Made data modular and sharable. **On-boarded 2 more customers for our data in Walmart and improved processes**. Built a **sharable library for ML and Cloud transfers for companywide teams. Consolidated 5 systems into 1 platform, code bases from 35 repos to 3**. Improved **developer productivity by 300%. Release time by 500%**. It brought in **cost savings of 40% increasing throughput by 500%. This was one of the key wins and called out at the India Leadership and Global CTO level. Lead cross-geo team in India and US and drove the Roadmap with cross functional teams.**

- AIMS Audit - Audit datastore for timelining, windowing, tier 2 timeseries data in forecasting management
- AIMS Learning – Forecasting overrides learning pipeline, **reduced overrides application by > 20%**
- **AIMS Analytics and Index Datastore** - Analytics and user search, query and aggregation for Forecasting, **Managing a 1 TB ES cluster**
- **Data Engineering & ETL** - **Processing TB and Billion records**, Ingestion, Aggregation and cleaning of Data needed for replenishment and forecasting. Read from Stream and Data lakes. **Refreshing > 10TB of delta loads over week and 100GB daily**.
- **New Item Forecasting** – Forecasting for newly launched items, improved **forecasting by 35%**
- Forecasting Backend Apps – **Collection of > 12 microservices. Mix of Low latency, high TPS, Data access, batch and file uploads**.
- Forecasting Monitoring, Alerting & Worker Bot
- CI/CD Pipeline for Forecasting Core, ETL & App

Walmart | Senior Engineer (October 2012 - August 2019)

- **Data Engineering & ETL** – Replenishment, Catalog and Allocation
- CI/CD Pipeline for Replenishment Core, ETL & Apps
- **Workflow App** – Order Lifecycle App for Purchase orders - **Optimized** the performance for the **excel parsers by 500%.**
- **Fulfilment Centre Capacity service** Implemented for multi-tenant supported DC and RDC**. Latency 50ms, 120 TPS**
- **Inventory Ingestion Orchestrator** Market place inventory ingestion for Walmart Outbound IMS. **22Mn Items, 20000 Sellers, 4 Million updates/ hr**
- Virtual Inventory Prediction and Availability Engine – Improved availability and ordering
- IMS Data Analytics Framework App Metrics and functional Analytics - 10000 Events/mins
- IMS - Monitor, Alerting & Worker Bot
- **Audit App 10000 Events/mins**
- Global Reservation Latency **50ms, 120 TPS**
- **Global Level Inventory** – Used to display availability watermarks on Walmart.com. **Latency 2ms , 24 TPS**
- **Node Level Inventory** – Availability at node level to MCSE **Latency 3ms, 13k TPS**
- **Real Time availability Engine** – Availability calculation for ATS , Onhand and other inventory. **Latency 400ms 300 TPS**
- **Multi-Channel Souring Engine Latency 400ms 300 TPS**
- Reporting Reports of End-End availability ratios, Item-Distributor Mappings
- Sterling upgrade from 9.2.1 and 9.4.1.15
- IMS Mosaic Layer **Orchestration layer for microservices, created a framework and library**
- **IMS Node setup, Item feed -** Data Engineering, Stream processing and backend processing.
- **IMS Create Reservation -** Capturing outbound demand and orders in IMS. **100 TPS, 110 ms**
- **IMS Production CI & CD -** Largest project delivered independently and complete ownership. Initializing up **3 Node RAC cluster Oracle, 750 GB L2 cache, 35 clusters of App and Batch services with DR and HA. Adopting newly built DC on OpenStack and OneOps.** VM and **server foot print of 1200+ VMs in record time of 2 months**

Best Buy (Accenture BBTG) | Senior Programmer (Aug 2010 – October 2012)

BBY Mobile & Retail Enhancements –
- Developed **Mobile Order Alerts & Management Framework**
- Optimized Direct to Customer **Inventory Availability**
- Built Mobile **Carrier Activation Platform** for BBY Mobiles
- Built Pre-**Sales Order & In-Store Pickup Pipelines**
- Enhanced **Retail Point of Sale** Screens (SSFS COM)
- Upgraded Sterling Selling & Fulfillment Suite - 7.11 to 9.1

Patents
- Chain of Fallback Customer Communications using Composite and Concurrent State Machines - US11973637B1 · Issued Apr 30, 2024
- Database System for Distribution Center Fulfillment Capacity Availability Tracking and Method - US20170091683 · Issued Mar 30, 2017

Technologies
- Languages - Java, Python, JavaScript, Scala, Shell
- Frameworks - Spring, Spring Boot, Spring Reactive, JPA, SOA, REST, CXF, Jersey, JTA, JAX-RS, Apache Commons, Camel, Dozer, MapStruct , Lombok, Scikit learn, TensorFlow, PyTorch, NetworkX, Matplotlib
- Products -
    - Oracle RDBMS, MySQL, Postgres, Couchbase, Cosmos DB, Cassandra, Elasticsearch, Kibana, Solr, Hazelcast,
    - Kafka, JMS, Rabbit MQ, Active MQ, MQTT, Docker, Kubernetes, MLFlow, KubeFlow

- Spark, HDFS, Hive, Hadoop, Airflow, Celery, Hamake, Apache Atlas, Superset, Presto, Trino
- Slack API, IBM Sterling SSFS, IBM MQ, Jboss, Tomcat, HTTP
- SOAP, XML, XSLT, XSD, XSL, BPM, Eclipse RCP
- Grafana, Prometheus, Dynatrace, Splunk
- **Public Cloud** - Azure, Google Cloud Project (GCP)
- **Pvt Cloud** - Config Service, IaaS, Trace & Alerts, Liquibase, Batch Service, Swift Object Store, Jenkins Based CI - CD, GitOps, ChatOps based K8s Framework

Internship
- **HCL CDC** - Defect Tracking System, Built on C#, ASP.NET, MS SQL Server, IIS Server
- **Indian Railways** - Settlement information Systems Management - UI, Print templates & data connectors, Built on C++ , COBOL
- **YCCE** - Internal Learning management and students portal. Based on Drupal & LAMP

Education
- Masters in Science - Machine Learning (Online/Part Time), Georgia Institute of Technology, Atlanta, USA 2027 (*In Progress*)
- Bachelors in Engineering - Computer Technology, Yeshwantrao Chavan College of Engineering, Nagpur, INDIA
- High School - Science, Computer - Delhi Public School, Vasant Kunj, New Delhi, INDIA

I hereby declare all the above information is true to the best of my Knowledge.

Shiv Prakash, Bangalore, KA, IN