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Tamilselvan Tamilmani - Tamil

Summary

Over 17 years experienced engineering professional in Software Architecture, Solution Delivery and Support in the area of Big Data, Risk, Payments, Compliance and POS. Accountable in managing deliveries and leading responsibilities. Built teams from scratch and mentored members. Strong proficiency in Python, Java and Scala

Professional Experience

Workday, Pleasanton, CA

March 2020 – Present

As a ML Architect on Data Science team, working with technology leaders on different domains like Sales, Marketing, Customer Success and Support teams to build a federated ML Platform. The ML platform is solving problems like Churn Prediction, lead prediction, Propensity To Buy, Account Scoring, Customer Health including sentiment, Market Fit Models

Western Union Digital, San Francisco, CA

April 2014 – March 2020

Working as Sr. Big data Architect on Digital initiatives in the Big Data Team helping both the data scientists and the risk fraud teams. Below are the projects that I was responsible for delivery.

Streaming Platform

- To migrate the legacy mainframe transactional system to cloud, I Architected and Implemented the Streaming platform for OLTP and Analytical use case which addresses schema evolution and transactional aspects using Kafka and Schema registry
- Implemented Streaming SDK for publishers which supports automatic Kafka failover and physical model to domain model serialization, which is used in all micro-services to event out the data.

SMART(Scoring Models At Real Time)

- To solve the deployment of increasing variety of models being brought by Data science team, I have architected and Implemented a orchestrator based micro services model serving platform for SAS, H2O, Python and R based predictive models on Kubernetes cluster with prometheus monitoring which brought down the deployment time from weeks to hours.
- This is a multi language project with wrappers written in R and Python to expose them as a REST service and a custom ANTLR converter for SAS Models
- This has an inbuilt A/B testing capabilities which was a star feature that data science team loved, this literally eliminated 100's of models to be deployed in prod just for testing.

Big Features

- To scale out the on demand second order feature computation that's being done in SQL server, we built a lambda architecture based second order feature calculation system, where the slow layer pre computes the features using spark sql and bulk load the data to HBase, where as a speed layer based on spark streaming computes the recent event data from Kafka.
- This is being ported over to EMR as part of cloud migration from our in house Cloudera cluster.

Customer API

- I have designed and implemented a multi tenant customer API based on domain driven architecture using spring-boot, CouchBase and Kubernetes.
- Implemented offline customer matching using spark batch.

Risk Data API's

- We Implemented a consolidated reference lookup of risk and payments data by key on HBase for several Near Real Time use cases
- This was fully automated through our custom metadata api layer where business can define their own metadata

LinkAnalysis Tool

- To speed up the manual review of transactions ,we delivered a Transaction Manual Review tool based on Neo4j Graph DB with 500+ Million nodes which brought down the review time from minutes to seconds. The ingestion layer is built with spark streaming and GraphQL plugin for Neo4j.

Retail Customer Match API

- Architected and Implemented a Name Matching system based on Solr, which has a billion plus records from over a decade and we created custom re ranking algorithm to effectively match the retail customers across languages.
- This enormous history combined with well optimized system increased the conversion from retail to digital channel in double digits.

MRT(Monitoring And Review Tool)

- Architected and Implemented Transaction Fraud Alert System based on Solr, HBase and Kafka Streams
- It's an interesting unsupervised ml solution with human in the loop to reduce the high number of false positives.

Reporting Framework and Warehouse

- Architected a framework for Realtime Analytics Pipeline based on Spark Streaming and Spark SQL
- Implemented Reporting and Warehouse for Risk,Payment, Product and Marketing based on Impala, SparkSQL, and Kudu for fast changing data.
- Migrated SQL Server based reporting warehouse to Hadoop with thousands of legacy jobs to Hive and Spark SQL on Parquet.
- Migrated retail warehouse from Netezza to Snowflake through spark.

DataOps

- Designed and Implemented the Hadoop CDH / EMR Clusters and Kubernetes cluster for realtime workloads using Ansible.
- Setup retraining pipeline for models using Jenkins
- Setup model performance monitoring using Prometheus and Kibana
- Setup Jupiter notebooks and SAS/Angoss servers for data science team
- Setup Tableau and Arcadia Servers for business users.

Western Union, Montvale, NJ

October 2010 – March 2014

- Worked as a Web Engineer on core money transfer team and compliance team
- Worked on Real Time Risk and Compliance platform with Drools (CEP), Hibernate on JBoss Application Server and DB2, IBM GNR, which manages thousands of Compliance rules for 200+ countries
- Worked on Web based Point of Sale system written in Spring MVC Oracle and MongoDB Backend and JBoss Data Grid as Caching layer on Jetty
- Worked on south west border compliance case management system for the law enforcement team.
- Delivered a A/B testing framework based on Drools engine to target the agents and transactions.

Western Union, Montvale, NJ

April 2007 – September 2010

- Worked as a Java Consultant for the Customer Care Team building, CSC Tools based on EJB, JAX-RS, Struts, Java Multiplexer for Tandem based on Apache MINA

Education

June 2001 – April 2005

Bachelor of Engineering in Electronics and Communication – **First Class with Distinction** from Anna University, Chennai, India.

Project Work, ISRO, Bangalore

- Implemented a weather forecast system on JSP, tomcat with predictive model built in MATLAB

References

Murali Rathnam, Vice President, IT Infrastructure, Workday - 415 720 0128
Pravin Darbare, Director, Big Data Engineering, Yapstone - 415 713 6336