Jairam Venkitachalam

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Education

New York University, Manhattan, New York, USA   Sep 2019 - May 2021
Master of Science (MS) in Computer Science
Coursework: Distributed Systems, Algorithms, Advanced Database Management Systems, Operating Systems

SASTRA University, Tamil Nadu, India   Jul 2013 - Jul 2017
Bachelor of Technology in Computer Science and Engineering
Coursework: Systems Software, Compiler Design, Cloud Computing

Experience

Cisco Systems
Software Developer   Jul 2017 - Jul 2019
- Reduced API latency by 35% for an existing service by designing a Kafka based event-driven architecture.
- Delivered Configuration Management microservices, facilitating consumption by multiple teams.
- Spearheaded effort to rewrite microservices from Java to Go after testing scalability of Golang.
- Setup ELK logging framework enabling activity tracing for ~20 microservices in a Kubernetes cluster.
- Designed a testing library for Kafka based services, built upon the Serenity BDD framework.
- Formulated backup and recovery strategies for databases in a cloud environment.
- Leveraged Knowledge in Java, Python, Golang, Docker, Kubernetes, Cassandra, Kafka.

Groupon
Software Engineering Intern   May 2016 - Jun 2016
- Devised a solution to migrate data across two inventory services ensuring data accuracy and consistency.
- Assisted 5 dependent teams to refactor code and transition to the new data store.
- Leveraged knowledge in Java, Python and PostgreSQL.

Projects

Fault Tolerant Key-Value Store
- Developed a distributed in-memory data store resilient to failures while providing data consistency.
- Implemented Paxos consensus protocol for achieving consistency in the data store.
- Achieved a mean write time of 9ms for strongly consistent writes across a 5-node system.

Chat Server for Concurrent Communication
- Programmed a communication service using gRPC and Websockets and compared their performance.
- Ensured data security and privacy by encrypting messages using Advanced Encryption Scheme (AES).
- Dockerized the application, hosted it on Google Cloud Platform and executed load testing scenarios.

Load Tester for RESTful JSON APIs
- Architected a command line tool capable of sending 1k concurrent requests per second to a REST API.
- Parallelized the tool by designing a Worker queue model to concurrently send HTTP requests.
- Distributed the workload and reduced CPU consumption by applying round robin scheduling algorithm.

Memory Allocator for Concurrent Applications
- Implemented jemalloc (a concurrent malloc) and observed performance improvements over other allocators.
- Assessed scalability by simulating a load of ~100k concurrent allocations and deallocations.
- Attained average operation times of 0.26ms for single threaded and 0.39ms for multi-threaded loads.

Skills

Languages: Golang, C, C++, Java, Python, SQL, NoSQL
Technologies: Docker, Kubernetes, Kafka, Cassandra, Redis, PostgreSQL, ElasticSearch, MongoDB
Paradigms: API Design, Modular Programming, Agile, TDD, BDD