

Sumit Seth

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Extensive and diverse experience encompassing multiple areas of technology on Linux/Windows platform with complete Software Development Life Cycle (analysis, design, programming, testing/QA, documentation and debugging)

WORK EXPERIENCE

Citadel
Senior Software Engineer • Full-time

08/2013 – Present
Chicago, IL

Recent Project: **Transaction Management System**

1. In this project, I enhance the firmwide transaction management system to communicate with Front Office and other systems. This system feeds into a position management system to keep the records of positions and how those positions are built over time. This system runs on Linux and is based on an event-driven architecture and a distributed system. Primarily, it runs on GCP, but backup is run on premises servers to provide fault tolerance. This is a very modular, scalable and extensible system and can handle millions of executions a day.

2. Past Project: **Position Management System**

In this project, I contributed to migrating the legacy position management system to the NextGeneration system utilizing GRPC and Kafka running on GCP. One of the key components in this system is a lotter that detects which lot to open/close for every transaction flowing into the system. I helped design and reconcile this new lotter system.

3. Past Project: **Accounting and real-time PNL system**

In this project, I designed new features and developed a real-time accounting system that calculates the PNL in near real time and provides an interface through which businesses can request various reports. This system also generates daily front-office PnL results, supplies data for each fund's monthly and year-end financial statements, meets regulatory, and tax reporting needs, and provides support for reconciliation and control. This system runs on Linux and is based on an event-driven architecture and a distributed system.

- Design new features and enhancement as per business requirements.
- Implement complex features and fix bugs in the application written in C++17.
- Use valgrind and insure++ to detect memory leaks and memory profiling.
- Use C# to implement GUI that could be used to generate XML for Form PF and PQR filings.
- Use Kafka to communicate with different systems and sub-components.
- Use monitoring tools such as grafana and datadog for monitoring system health checks and logging.
- Complete end-to-end testing including unit testing, integration test and prod parallel testing of the code.
- Use bazel build tool to compile C++ code.
- Write complex SQL queries and stored procedures to extract data in the most efficient way.
- Use Kubernetes and Docker to containrize the microserices on the GCP cloud
- Use Core Java and Spring framework to enhance part of the system.
- Use python 3.5 to write process that interact with backend systems to post transaction and generate PnL reports.
- Use GCP Managed instance group that offers autoscaling feature. Transaction management system scale based on load balancing serving capacity.

Senior Software Engineer (Trading System)

Project: Cash and Equities Application Overview I was the architecture and principal software developer for a trading application that calculates the commission and help in settlement of stock, convertible bonds and options. This application is completely written using C++ and is a low latency/high volume application.

- Worked with traders and operations team to understand the requirement and implement the same.
- Used FIX protocol to receive messages from upstream systems and send messages to downstream systems.
- Used STL containers and algorithms extensively to store and manage the data.
- Used TCP/IP sockets to establish communication within different components of the system.
- Used MQ to establish communication with different system within a Bank.
- Used multithreading in POSIX environment to make application efficient and asynchronous.
- Good understanding of Options and derivatives contracts such as forwards and futures.

EDUCATION

Bachelors in Electronics & Communication Engineering

Delhi College of Engineering

India

CERTIFICATIONS

CFA Level 2 Candidate

SKILLS

Programming Tools: Algorithms, Boost library, C, C#, C++17, Concurrent programming, Core Java, Data Structure, Design patterns, SQL, Standard template library(STL)

Scripting Languages: Perl, Python, Shell

Operating Systems: Linux, Unix, Windows

Networking: Socket Programming, TCP/IP, UDP protocols

Source Control: Clear case, Clear Quest, CMVC, CVS, GIT, k8s

Memory debugging tool: Insure++, Valgrind

Databases: Oracle 10g, SQL Server, Sybase ASE, Sybase IQ

Other Tools & knowledge: Bazel4, Datadog, Docker, Fix 4.2 Protocol, GCP, GDB, Grafana, Kafka, Kubernetes, Pstack, Quick Fix library