Sahib Yar

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Summary

Lead Software Engineer with diverse technical expertise in software engineering, leadership, and mentoring. Skilled in architecting robust, scalable, and maintainable solutions for high-complexity problems. Proficient in identifying, solving, and preventing technical debt to ensure best practices.

Experience

Software Engineer, CentroidSol.com (Remote, Dubai)

Mar 2024 – Present

Tech Stack: Golang, RESTful APIs, WebSockets, Protobuf, Redis, PostgreSQL, MongoDB, FIX, Docker, AWS S3, Linux

- **System Optimization Profiling:** Tuned Golang services using `pprof` to identify and resolve memory leaks, significantly improving performance and stability under high-throughput conditions.
- **Latency Reduction:** Migrated real-time data pipelines from `HTTP` to `WebSockets`, reducing execution and ingestion latency and improving system responsiveness.
- **Distributed Architecture:** Built robust services using `Redis` (as cache and message broker), designed with distributed locks, rate limiting, and retry logic for high availability and fault tolerance.
- **Throttling Abuse Prevention:** Designed a tiered throttling mechanism to detect and penalize abusive IP behavior based on frequency and load, protecting services from misuse.
- **Database Optimization:** Tuned `PostgreSQL` and `MongoDB` queries, optimized indexes, and resolved deadlocks, reducing latency in high-concurrency environments.
- **Security Access Control:** Implemented role-based access control (`RBAC`) for `APIs`, enabling secure privilege escalation (admin-to-trader/broker), and hardened access to sensitive trading operations.
- **Scalable System Design:** Applied distributed system patterns, such as event-driven architecture and background job queues, to ensure scalability and fault isolation.
- **Linux Troubleshooting:** Utilized shell scripting and common Linux tools to debug system-level issues and ensure service uptime.
- **Collaboration:** Worked across global teams, leading backend initiatives for a mission-critical trading platform; reviewed code, mentored juniors, and coordinated releases.

Lead Software Engineer, Securiti.ai (Remote, Pakistan)

Nov 2021 – Dec 2024

Tech Stack: Golang, Java11, Python, JUnit5, Apache Maven, J2EE, RESTful Architecture, JSON, Protobuf, AWS SQS, Redis, Kubernetes, PostgreSQL

- **Microservices and Data Processing:** Developed scalable microservices for personal data identification in structured/unstructured formats, leveraging proprietary and open-source libraries.
- **Access Control and Security:** Implemented fine-grained role-based access control for APIs and sensitive payloads. (Go)
- **Performance Enhancements:** Optimized network latency by replacing HTTP GET with WebSocket communication and Redis Streams. Improved structured data parsing latency by 50%. (Go, Java)
- **AWS Migration and Integration:** Upgraded `AWS SDKs (S3, SQS, EMR)` to `v2.x`, enhancing reliability, and designed `REST APIs` for secure secret management and `S3` CRUD operations. (Java, Go)
- **Cardinality Optimization:** Reimplemented Redis HyperLogLog for efficient terabyte-scale dataset processing. (Go, Java)
- **Testing and Stability:** Implemented over 5,000 unit tests in `Java (JUnit)` and `Golang (testing, Testify)`, improving test coverage for commercial features and enhancing CI/CD pipeline stability. (Go, Java)
- **Code Refactoring and Tech Debt Reduction:** Reduced technical debt by refactoring and removing redundant code. (Go, Java)
- **Library Enhancements:** Contributed to open-source `TableSaw` library by implementing advanced CSV column data type detection. (Java)
- **Document Parsing:** Optimized tools like `Apache Tika` and `PDFBox` for efficient document parsing. (Java)

Key Contributions:

- Designed scalable subsystems to process terabyte-scale datasets.
- Led a team of five engineers, achieving milestone deliverables and mentoring juniors on design patterns and code quality.

– Delivered significant performance gains across network and data processing operations, improving system efficiency.

Senior Software Engineer, Afiniti (Hybrid, Pakistan) Nov 2019 – Nov 2021

Tech Stack: C++17, CentOS, Shell Scripting, Kafka (rd-kafka, cpp-kafka), PostgreSQL, MySQL, RESTful Architecture, TCP/IP, SSL, Protobuf, POSIX Shared Memory, CMake

– **Reporting System Development:** Designed a microservice-based reporting system to monitor contact center activities (e.g., call statistics, agent states) in near real time, ensuring high throughput and concurrent processing across multiple servers.

– **SSL Communication System:** Developed an SSL-based communication solution integrated with Avaya Call Manager, supporting CMS protocols (6.x to 9.x) for secure and reliable data exchange.

– **System Optimization:** Replaced Kafka with an asynchronous file-based database mechanism, improving throughput by 1000% and reducing query response times by 1500% through SQL optimization.

– **Concurrent TCP Server:** Implemented a high-performance TCP server to efficiently manage multiple client connections under heavy workloads.

– **Inter-Process Communication:** Used POSIX shared memory for efficient inter-process communication, enhancing data sharing between processes.

– **Maintenance and Refactoring:** Refactored legacy code-bases, resolved defects, and improved system features to improve reliability and maintainability.

– **Scheduled Job System:** Built and maintained a distributed scheduled job system to automate key operations across multiple servers.

Key Contributions:

– Achieved significant performance gains (up to 1500%) through system optimization and bottleneck resolution.

– Successfully developed secure, scalable solutions for contact center monitoring and data exchange.

– Improved team productivity by maintaining and modernizing critical legacy systems.

Implementation Engineer, Avanza Solutions (Oman, Somalia, Pakistan) Nov 2017 – Nov 2019

Tech Stack: Java Spring, .NET, VC++, C, Oracle, MSSQL, MSMQ, ISO-8583 Protocol, EMV, HSM (Thales), RESTful APIs, SOAP

– **Middleware Development:** Designed scalable and secure middleware for payment systems, integrating core banking platforms, ATMs, and third-party services, and enhancing transaction throughput by optimizing legacy systems.

– **ISO-8583 and EMV Integration:** Built ISO-8583-compliant EFT solutions, integrated Thales HSMs for cryptographic operations, and implemented EMV-compliant card transactions to meet international security standards.

– **PA-DSS Compliance:** Upgraded back-end systems for banks like UBank and AB Bank to ensure compliance with Payment Application Data Security Standards (PA-DSS).

– **On-Site Deployments:** Led successful deployments, including:

  – 1Link PayPak integration and Pay2Anyone enhancements for BankIslami, Pakistan.

  – MasterCard issuing certification for Premier Bank, Somalia (EMV and magnetic stripe cards).

  – OmanTel prepaid card integration with Bank Dhofar, Oman ATMs.

– **Testing and Debugging Tools:** Created .NET and C++ utilities to mock ISO-8583 socket communication, streamlining transaction flow testing and debugging.

– **Collaboration and Training:** Worked with cross-functional teams during the development, UAT, and deployment phases, providing technical documentation and training for banking personnel.

Junior Software Engineer, InfoTech Group (Pakistan) Nov 2016 – Nov 2017

Tech Stack: C++, Node.js, Angular 2.0, .NET, MSMQ, FAST Protocol, RESTful APIs, OAuth, ActionScript, Adobe Flash

– **Algorithm Development:** Designed and maintained efficient algorithms for the internal SDK of a low-latency automated trading system, reducing the latency of trade execution by more than 20% and ensuring the seamless execution of high-frequency trades.

– **RESTful APIs:** Developed and consumed RESTful APIs using Node.js and Angular to enable robust client-server communication for trading operations, while also participating in code reviews and ensuring modular, reusable code.

– **Frontend and Legacy Maintenance:** Maintained and improved Adobe Flash-based trading platforms, including the Ghana Stock Exchange system, while contributing to the migration of legacy systems to modern Node.js and Angular-based architectures.

- **Trading System Enhancements:** Contributed to the development of a high-frequency real-time trading application with pretrade risk management, accommodating thousands of concurrent users, and ensuring compliance with secure OAuth authentication.
- **Collaborative Development:** Worked with cross-functional teams to build a Single Page Application (SPA) for trading, leveraging MSMQ for asynchronous communication and the FAST protocol for high-performance data transmission in financial markets.

Education

Bachelor of Science (BS), Computer Science 2012 – 2016
Air University, Multan, Pakistan

Open Source Contributions

- Right now privately developing `MCPGen`, which can auto-generate a multiservice MCP (Message Control Protocol) server from OpenAPI v2 (Swagger), v3 (Arazzo) Spec Files. Turn API definitions and workflow specs into a smart, pluggable server that can coordinate real tasks, locally or in the cloud.
- Contributed to `quic-go`, `go-libp2p`, `jtablesaw`, `ISO8583-go`
- Exploring Web-Transport and HTTP3 protocols.
- Created educational content on YouTube for software development topics.