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PARANALIYANAGE, OSADA LAKMAL

WORK HISTORY

SENIOR LEAD SOLUTIONS ARCHITECT - ENTERPRISE INFRASTRUCTURE TEAM
Dialog Axiata PLC, Colombo, Sri Lanka
Apr 2021 – Present

Architecture Review Board:

I am responsible for running the Architecture Review Board process for the whole of Dialog PLC. The board includes Senior management, relevant CXOs, practice leaders and key technical stakeholders. The review process is aimed at making sure the standards required for enterprise software architecture are enforced throughout the company. I created and oversee the checklists, the review process as well as managing the agendas for the board meetings.

Consumer Facing App:

I am responsible for the full architecture, development efforts and technology leadership in a product that Dialog Axiata PLC is creating that will unify most of it's consumer facing applications. I have been responsible for creating the full architecture along with a team of business stakeholders and other architects. I am also responsible for overseeing the full development effort, creating novel features in the platform that will give our team an edge over the competition. I also work with business in understanding the requirements, prioritizing them, helping convert them to technical requirements and liase with the development teams.

CRM System:

I was responsible for designing and implementing a scheduled jobs system based on Apache Airflow for the CRM System. This was run on AWS on their Managed Workflows for Apache Airflow product. This allowed the system to run jobs reliably, monitor them better, and complete the jobs faster using less resources. We completed the project with AWS after running a joint Migration Acceleration Program (MAP) session.

I was also responsible for designing and architecting a database caching solution based on Change Data Capture (CDC) streams and using Flink as a stream processing engine and using ElasticSearch and Redis to store indexed data.

ASSOCIATE SOFTWARE ARCHITECT
LSEG Technology, Malabe, Sri Lanka
Apr 2019 – Apr 2021

Millenium Risk Product:

I was responsible for all aspects of the Millenium Risk Product based solution we provided to a leading East Asian stock exchange. I led two SCRUM teams in development of new features required for this particular solution on top of the existing product. I guided the sytem on the technical implementation, code quality, architecture approach as well as CI/CD and cloud migration process. I also oversaw the effort to conduct comprehensive testing and complete the UAT for the system.

SENIOR SOFTWARE ENGINEER - SECURITY INFRASTRUCTURE TEAM
Bloomberg LP, united kingdom
Nov 2015 – Mar 2019

Service Identity Token Issuance:
This involved creating a system that would issue identity tokens to any internal service that wished to authenticate to any other server. We used JWT tokens and a domain socket based local server to issue the tokens. Openssl and libsodium was used for cryptographic operations including key generation, signing and verification. The local server and client library was written using C++. The rest of the infrastructure was written using Golang and the integration test suite was written in Python. The token storage was a SQL database developed by Bloomberg (comdb2 – **https://github.com/bloomberg/comdb2**). Docker and Vagrant was used for testing and development. I was responsible for design of the local server, RPC format, client library and implementation of the local server and Golang microservices to support the storage and validation.

MIFID II compliance service:
This service allowed the encryption of personally identifiable data at the point of ingestion in order to comply with the MIFID II regulation. It also contains features to compare data without decryption. The system is written using Golang, C++ with GRPC as the RPC framework. The data is stored in an Oracle database. I was responsible for implementation of the client library and parts of the backend services.

Encryption for Data at Rest:
This project involved creating a system for easy encryption of data at rest for any application in Bloomberg server side. The system encrypted data using symmetric encryption whose keys were then secured using asymmetric encryption. The system comprised of a high performance local client library, a key distribution server and a QC framework for the system. The client library and key distribution server were implemented using C++ and QC framework were written using Python. openssl was used for cryptographic operations. The backing store for keys was a SQL database developed by Bloomberg (comdb2 – **https://github.com/bloomberg/comdb2**). I was responsible for implementation of the client library and the QC framework. I was also responsible for implementing the Java client library.

Application request signing:
This involved signing authorized requests to be made in to Bloomberg's proprietary data distribution system. This would ensure that clients can only issue authorized and validated requests against our data distribution platform. The system used authenticated encryption with associated data (AEAD) to sign the requests and verify them. The cryptographic library used was openssl and main language used was C++. Tests were written using Python. Certificate distribution and caching used redis. I was responsible for designing and

implementing the server-side infrastructure for signing the requests and caching/delivery of signing certificates

Signed application delivery:

This project involved creating a service for signing application binaries using various technologies (authenticode, Jar signing, .NET strong name signing). This was implemented using Python and S3. Docker was used for testing. I was responsible for the design and the initial implementation of the service.

Certificate Issuance System For Backend Authentication:

This system facilitates backend authentication for internal services. This was similar the facebook backend authentication system described [here](). The system was implemented Using C++ and PostgreSQL as the backing data store. The tests were written using Python. I was responsible for the design and implementation of the multithreaded backend server that issued the certificates.

Senior Software Engineer - Mobile CONNECTIVITY Team

Bloomberg LP, united kingdom

Oct 2012 – Oct 2014

HTTPS based high performance backend connectivity:

This project involved replacing the legacy connectivity system for the mobile application with a HTTPS based system and a schema based RFC framework. We used HAProxy for load blancing and nginx for handling the requests themselves. A lua based plugin was used to validate, authenticate and dispatch requests to the backend infrastructure. Backend will then unpack and perform further validation, logging and dispatch it to specific internal services. Authentication used a RabbitMQ/Memcached based token cache. Terraform was used as a provisioning tool. I was responsible for the design and implementation of the backend of the system. The client libraries were implemented in Objective C for iOS and Java for Android. I was also responsible for implementing the iOS client library.

Backend for alerts for Bloomberg mobile application:

This comprised of creating a backend for ingesting, storing and forwarding as alerts, any real time news alerts that were generated by Bloomberg. This was a high performance multithreaded service implemented in C++ which handled bursts of tens of thousands of requests per second. I was responsible for the design and implementation of the service. The backing store for the project was comdb2 (details found above).

Financial Software Developer – Tradebook fx and futures

Bloomberg LP, United Kingdom

Sep 2009 – Sep 2012

Implementation and maintenance of commissions management system:

I was responsible for re-implementing the CMS system for Tradebook FX. This involved designing and implementing a new front end using server side Javascript. The backend was written using Python and C++. The commissions data was stored on comdb2.

Implementing exchange connectivity for Eurex, TOCOM, TYO, OSX and Bovespa:

These were exchange connectivity projects where we design and implemented application that routed orders, managed order state, trades and quotes. They also supported other ancillary facilities such as strategy creation, custom ticker creation when supported by the exchange. I designed and implemented a unified exchange interface which our central book connected to and exchange specific adopter proxies which translated the exchange protocol to a format understood by the central book. The projects were implemented using C++ and Python. The backing stores were SQL databases comdb2 and DB2.

Tradebook FX order management interface:

I was responsible for maintaining and adding various features for the Tradebook FX ticketing and order management interface. This used Javascript as the programming language

Tradebook FX broker connections:

I maintained and enhanced the broker connection applications for Tradebook FX. These were written using Java.

ELECTRONIC ENGINEER

ZONE24X7, SRI LANKA

Apr 2007 – Apr 2009

Matrix24x7 System:

This system enabled clients to track and monitor their critical network devices including POS systems and signage. I was partially responsible for design and implementation of the front end and backend of the system. It was implemented using C# and ASP. The data storage used was MS SQL Server.

Embedded device programming and porting Linux:

I was responsible for porting Linux on to a new device were building based on Intel PXA270 processor and another device based on Freescale iMX6 processor. This included writing various device drivers and debugging any hardware/software issues. Used C as the primary programming language.

Development of various POS systems and drivers for POS devices:

I was responsible for writing parts of multiple POS systems and device drivers for some of the POS components. The POS applications involved order entry, cash management and auditing components. They were mostly written in C# and Java. The device drivers were written for various components such as bar code readers, smart card readers and cash registers.

ASSOCIATE ELECTRONIC ENGINEER

ZONE24X7, SRI LANKA

Jun 2006 – Apr 2007

Electronic signature system:

I worked on developing an electronic signature system that used pressure as a signal in verifying signatures. I was responsible for design and implementation of parts of the device and the device driver. The technologies used were C, C++, C# and Java.

SKILLS		Proficient in **C, C++, Python** and **Go** Familiarity with **C#, Java and Objective C** Experience with Multithreading, Performance Analysis, Debugging, Program Analysis (vagrind, coverity, linting etc) Proficient in **Shell Scripting, Linux, UNIX(Solaris and AIX)** Extensive use of **RDBMS (Postgres, DB2 and comdb2), SQL, Redis, memcached, Cassandra, RabbitMQ** Familiarity with **Consul** and **Vault** from Hashicorp Familiar with current development methodologies and processes such as **Agile, Scrum, Kanban and TDD** Used **CI** and **CD** tools such as **Jenkins** Familiar with DevOps tools such **Docker, Vagrant , Terraform** and **Ansible** and cloud services such as **AWS, Openstack** and **Digital Ocean** Experience in cryptography and security concepts and implementations **(Openssl, cryptlib, spongycastle, X509, PKCS7, CMS, PKCS12, authenticode etc)** Proficient in **trading systems, markets** and **financial concepts** Experience in **matching engine systems, order and trade books, Risk** and **P&L calculations**. Experience in **Exchange connectivity (Liffe, Eurex TYO), FIX and FAST FIX connectivity**.
EDUCATION AND PROFESSIONAL QUALIFICATIONS		Bachelor Of Science in Electronic And Telecommunication, University Of Moratuwa. 2004-2009 **1st Class Honors Degree** Master Of Science in Computer Science, Georgia Tech University, 2014-Now **Focusing on High Performance Computing and Operating Systems** Passed all three levels of the CFA Program and may be awarded the charter upon completion of the required work experience.
REFERENCES		Available upon request