**Lakshman Madhav Kollipara**

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# SUMMARY:

Back End Scala developer with 5+ years of Industrial experience on RESTful services, Ingestion pipelines, Streaming services across IT, Telecom, Pharma and Cyber-Security Domain. Implemented scalable, complex, high-volume ingestions pipelines using distributed frameworks like Akka, Play, Flink etc. Hands-on experience on several AWS services like Lambda, API Gateway, S3, CloudWatch, RedShift etc. Worked under diverse environments with minimal to detailed requirements and distributed team under tight deadlines with Agility.

# SKILLS:

**Programming Languages** : Scala, Java, JavaScript, Python, C#

**Big Data Tools** : Hadoop, Hive, Sqoop, Spark

**Database** : Oracle, PostgreSQL, MongoDB, Teradata, MySQL

**Operating System** : Windows, Linux, UNIX, OS X

**Certifications** : CCNA, RHSA, Intro. to SQL

# EDUCATION:

**M.S. Computer Science**, *Oregon State University* **Dec 2016**

**GPA**: 3.94

**B.S. Computer Science,** *Amrita University, Bangalore, India.* **May 2013**

# WORK EXPERIENCE:

**Software Engineer Oct 2022** **– present  
Verizon****Home-Based**

* Designing Kafka pipelines using Akka streams & Scala to pull video asset details from Kafka and enrich the events with additional metadata and persisting to MongoDB for efficient data processing.
* Developed low-latency REST APIs using Scala and Akka HTTP. Designed API endpoints to aggregate video asset metadata data across multiple microservices and served the results in a paginated JSON response, ensuring optimal performance.
* Containerized Scala and Java services and deployed applications to AWS ECS using CodeBuild. Streamlined the deployment process by leveraging containerization technologies to improve scalability and maintainability.
* Designed and implemented Lambdas, Datadog dashboards, and monitors using Terraform. Integrated CloudWatch Logs and metrics with Datadog for effective monitoring and alerting, enabling proactive identification and resolution of issues.
* Developed a Python library to parse application logs and categorize error logs and exceptions. Integrated the library with runbooks to facilitate efficient on-call support and improve incident response and resolution times.
* Implemented comprehensive Scala and Akka test suites using Akka test kit. Integrated testing with CI/CD pipelines to ensure code quality and achieve a code coverage of over 80%, ensuring robustness and reliability.
* Managed Kafka Avro schema evolution, handling additions and removals of attributes in Kafka JSON messages. Ensured compatibility and seamless evolution of schemas to maintain data integrity.
* Designed API schemas on Mulesoft API Exchange and monitored response times and 5XX errors using Mulesoft Log Manager. Ensured adherence to API design best practices and identified areas for optimization and improvement.
* Integrated Vault secrets with Scala applications, enabling secure retrieval of application secrets during runtime. Implemented robust security measures to protect sensitive data and ensure secure application operation.
* Collaborated in creating deployment documents in Velocity, subjecting them to review by product managers and technical managers. Contributed to documentation efforts to ensure accurate and comprehensive deployment processes.
* Regularly participated in on-call rotations, resolving high-priority incidents within minimal SLAs. Effectively mitigated issues and actively participated in post-incident meetings to identify root causes and implement preventive measures.

**Software Engineer Dec 2021** **– Oct 2022  
NetApp Inc.****Home-Based**

* Designing RESTful Web Services/APIs for SolidFire ActiveIQ Agents to monitor and report Volume, CPU and IOPS for NetApp ONTAP hardware nodes.
* Developing high-scale ingestion streams using Akka and Flume to parse, persist and report the hardware metrics reported by the element APIs.
* Designing and developing SQL scripts in Athena for Aggregated reports on multi-level partitioned data with complex Array aggregations and JSON transformations.
* Developed Thrift APIs for cross-application communication which enforces strict contract between Request and response models.
* Worked on fine-tuning AWS RDS instances to handle high-volume upserts to a MySQL database using InnoDB engine purger.
* Worked on Slick and Doobie ORMs to interact with MySQL and implemented custom mappers to handle JSON data types
* Worked on Multi-AZ RabbitMQ instances with AZ-aware connections and minimizing cross-AZ transfer costs and implementing TLS.
* Worked on configuring Prometheus metrics, Alerts and Grafana dashboards for Application monitoring and latency metrics.
* Worked on Datastax Cassandra Java driver to persist time-series data and perform trigger-based roll-ups and aggregations for charting graphs on UI.
* Worked on Circe & Spary JSON parsing libraries to handle auto and semi-auto serializations of Scala case classes to JSON.
* Participated in weekly on-call role to monitor and support production environment and ad-hoc customer requests.

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**Back End Scala Developer Jul 2021** **– Dec 2021  
QOMPLX Inc.****Home-Based**

* Designing RESTful Web Services/APIs for Kerberos Agents and Domain controllers to monitor their health, stats and alerts triggered by malicious attempts on the agent.
* Developing well-designed and performant Scala applications and services using scalable technologies like Akka Streams and Akka HTT.
* Designing and developing Kerberos detection pipelines to parse Kerberos messages from Domain Controllers and identify Golden Ticket, Silver Ticker, Skeleton Key using Apache Flink.
* Developed Custom Streaming File Sinks using Apache Flink using custom ParquetWriters to write events into customer-wise buckets using custom bucket policy.
* Developing Scala-based microservices using fs2 streams to consumer Kerberos heartbeats from Kafka, un-marshaling the JSON using Circe and persisting into PostgreSQL database.
* Worked on Doobie and Quill ORMs to interact with PostgreSQL and implemented custom mappers to handle JSON data types
* Exported Kerberos messages in Parquet format to AWS S3 to enable SQL-like querying on S3 for historical data validation.
* Worked on time-series based libraries like Twitter Algebird to calculate and persist aggregated metrics over several time windows.
* Exported service metrics to Prometheus and developed Grafana dashboards using Grafonnet library which enables monitoring, alerts and easy maintenance of dashboards.
* Worked on Circe JSON parsing library to handle auto and semi-auto serializations of Scala case classes to JSON.
* Participated in weekly support role to monitor and support production issues by accessing Kamon, JVM and Docker metrics on Grafana dashboard and log monitoring on
* Participating in peer-review meetings, Daily Standups, Bi-Monthly Scrums, JIRA, Confluence and CICD management via GitLab etc.

**Sr. Software Engineer Aug 2019** **– Jul 2021  
IQVIA Inc.****Durham, NC**

* Designing RESTful Web Services/APIs for Data Analytics and Ingestion of Clinical Trails data.
* Developing Scala based microservices using Play, Slick and PostgreSQL integrated with LDAP.
* Developing Scala & Reactive Mongo based data ingestion frameworks to ingest huge volume of clinical data into MongoDB and serve via REST API.
* Testing the Play applications with Play test, Spec2 and GuiceAppBuilder with an embedded database to test the REST APIs.
* Building and deploying REST APIs using Jenkins and Docker build files into a Kubernetes cluster in production environments.
* Analyzing application logs by creating ELK queries and dashboards for the real-time logs in Production environment.
* Write custom aggregated data validators for incoming data and generate a Validation error hierarchy and return to the user.
* Worked on Play’s JSON and WS libraries integrated with the REST APIs.
* Automatic database migrations using Flyway evolutions plug-in for Play framework.
* Worked on Slick’s Dynamic SQL generator to create on-the-fly queries for Slice & Dice of Analytic Data.
* Leverage Streaming ResultSet API by converting database results into an Akka stream and serve the HTTP Response in chunks.
* Developing Spark batch ingestion applications to ingest the country-wise clinical data, Facilities and providers data into the staging areas and storing into Hive tables and triggering downstream applications.
* Calling REST APIs from Spark batch job to load ingest data to a microservice in batches.
* Setting up a fail-safe PostgreSQL 10 server on Triton server with CQRS enabled to separate Master Writes and Slave Reads.

**Scala Programmer Aug 2017** **– Aug 2019  
Verizon****Lowell, MA**

* Designing the architectural flow for Scala based microservices to support IoT environment
* Developing microservices-based framework in Scala to support IoT platform and devices
* Built and deployed Serverless applications like AWS API Gateway, Lambda, S3, Cloudwatch in Production Environments
* Developed and deployed a full-scale Web application using Serverless AWS components.
* Developed & deployed Streaming applications in Spark to run anomaly detection algorithms on the device events streaming to the platform and storing into Hive tables and triggering Notifications to the users via AWS SES APIs.
* Developed Spark jobs for data migration from various OLTP data sources like Cassandra, Aurora & Neo4J to a Hive warehouse and leverage a Looker reporting on top of Hive partitioned data.
* Building a test framework to test the microservices using Scala TestKit, FunSuite, FlatSpecLike, Mocha etc.
* Using Publish-Subscribe systems like Mosquitto, RabbitMQ and Kafka for Inter-Process communication and device-platform communication
* Using Akka Streams to manage the data flow within the microservices and persisting the state of the system into different data stores like Cassandra, Aurora and Neo4J.
* Worked on geo-fence libraries like JTS for linking IoT devices to appropriate customers based on GPS co-ordinates and Area mapping.
* Composing and Building Docker images for the developed microservices and deploying them on EC2 instances for full-stack deployment and testing.
* Participating in code-review & analysis meetings, Daily Standups, Bi-Monthly Scrums, JIRA, Confluence and CICD management.

**ETL Developer Sept 2013 – Dec 2014  
IBM****Chennai, India**

* Designed ETL process for Mortgage Banking data warehouse.
* Developed and maintained ETL mappings using Informatica Designer to extract the data from multiple source systems that comprise databases like Oracle 10g, SQL Server, flat files to the Staging area, EDW and then to the Data Marts.
* Written SQL Scripts and PL/SQL Scripts to extract data from Database and for Testing.

**INTERNSHIPS**:

**Graduate Research Assistant, Oregon State University Jan 2015** **– Dec 2016**

* Designing high-performance NoCs (Network-on-Chip) for GPGPUs (General Purpose Graphical Processing Units) under Dr. Lizhong Chen.
* Simulating GPU NoCs on GPGPU-Sim (C++ code-based GPU simulator) to design better Memory Controller Placements to reduce network congestion and latency on Virtual Channels between Router cores.

**Web Developer*,* Teach Engineering, OSU Jan 2016** **– Dec 2016**

* Implemented the browse standard functionality of TeachEngineering (NSF funded web-based digital library)
* Migrating the backend from MySQL to RavenDB (Document database)

**Test Engineer Intern*,* Oregon State University Mar 2015 – Jun 2015**

* Testing HP Pro-curve networking devices for PoE (Power-over-Ethernet) reliability.