



Girish Veeraraghavan

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16 years of experience leading design and development of enterprise-wide applications.

- Provided leadership and oversight of enterprise solution architecture activities in the areas of digital, architecture governance, architectural standards, risk management and roadmaps.
- Provide guidance to help application or technology area meets both the functional and non-functional requirements.
- Architect and oversee software development, infrastructure design, quality control, provide cadence in operational excellence and cost utilization.
- Create flexible and resilient solution architectures that address customer business problems.
- Addresses solution approaches for performance improvement. Resolves performance bottlenecks as required.
- Experience architecting network topology, network access, zero trust networks, threat modelling for cloud-based applications.
- Architected Data pipeline, supporting migration of on-premises workload to cloud.
- Responsible for the end-to-end delivery and maintenance of application and supporting infrastructure.
- Facilitated Modernization of API end points and helped setup API governance life cycle management.
- Develop and manage consistent and coherent DevOps processes and practices to support software development, testing, builds and deployment.
- Designed structured streaming layer consuming Kafka topics using spark streaming, designed de duplication strategy and windowed aggregation.
- Architecting and developing complex Single-Page responsive web applications.
- Research and analyze trends, design patterns and best practices and apply those wherever appropriate.
- Established scalable, efficient, and automated processes for large scale ML model deployments.
- Provide high level estimates with the leaderships of the development teams for the purposes of establishing business cases, product release cadence as well as development schedules.
- Conducting developer workshop providing best practices for developing and deployment of application in cloud native framework.
- Solid foundation in software design patterns including OO and functional design.
- Extensive experience integrating "EhR" systems.

Highlights:

- Leads, develops, and deploys the Architecture governance process to identify business, information, solutions.
- Providing cadence on build vs buy
- Establish key KPI to measure successful development of infrastructure, application and products.
- Establish design principles, architecture standards and best practices in alignment with IT strategy.
- Created policies and process supporting Governance, Risk and Compliance across the enterprise.
- Initiated designing secure solutions targeting SOC level2, GDPR and HIPAA compliance.
- Working with customers to capture, understand, and address current and emerging requirements, establish policies, and share best practices.
- Experience evaluation, selection and implementation of technology solutions including providing detailed analysis of pros and cons and build vs buy options.
- Define and establish the detailed process and resources for architecture governance.
- Identify business capabilities. objectives and measurable goals.
- Involved in design and building CI/CD for HIPAA workload leveraging aws landing zone\control tower.

- Created RACI matrix evaluating vendor capability building platform highly efficient and scalable infrastructure.
- Creating architecture vision of the capabilities and business value.
- Identify and set KPI, Plans and budgets.
- Creating maturity model assessments and capability assessments.
- Conduct risk assessments and creating risk registry logs.
- Conduct well architected reviews evaluating existing capability and processes and advising how to reach maturity model.
- Driving quality and conducting audits to evaluate system resiliency and fault tolerance.
- Facilitated and participated in ISO27001, GDPR compliance reviews across the enterprise.
- Architected Data pipeline, supporting migration of on-premises workload [data and application] to cloud.
- Established scalable, efficient, and automated processes for developing healthcare application using Kubernetes and service mesh.
- Designed and build cloud native CI/CD systems for development and deployment of HIPAA workloads both application and infrastructure.
- Established scalable, efficient, and automated processes for large scale ML model deployments.
- Developed systems, tools & processes to monitor ML models in production, monitoring drift.
- Experienced designing system for MLops, Devops, Dataops

Technical Expertise:

- AWS /Azure/GCP Solution Architecture
- API management: Apigee, Swagger Hub, Stoplight
- Kubernetes +Observability: EKS, Istio, Appmesh, Prometheus, Grafana, Dynatrace, opsgenie
- UI: React, bootstrap, Bulma, webpack.
- Programing language: Java, spring boot, python.
- Distributed Systems: Kafka, Message Queues, AWS Kinesis/Firehose, Spark structured Streaming
- SSO: Auth0, Okta
- Databases: PostgreSQL, Cassandra, AWS DynamoDB, blob stores [S3]
- Data OPS/ML Ops; Apache Airflow, Talend Data bricks.
- Data visualization tools: matplotlib, seaborn, T-SNE, plotty
- ML Tec stack: Pytorch, TensorFlow, Keras, Scikit-learn, Linux.

MedhealthAssist [Incubation/Startup] Feb 2024 - till now

Leveraging Gen AI to solve entity recognition, drug name mappings, medical document summarization.

Sentry Insurance Madison WI Sep 2022 - Jan 2024
Sr Solution Architect

Responsibilities:

Business process and Strategic leadership:

Advised business and technology leadership on the importance of investing in gen ai solutions supporting claims ops automation. Evaluated historical usage patterns of existing customer channels applied predictive analytics and cohorts identified critical areas clients will focus their business and advised leadership on onboarding new capabilities. Helped reduce agent turn around time by 20%.

Microservices

Improved overall system efficiency by leveraging API gateway pattern and consolidating AuthN/AuthZ at API gateway layer which helped reduce overall build/configuration time by 5%.

Designed and build micro services using spring boot by migrating existing monolithic tomcat-based java applications. Leveraged domain driven approach to identify common patterns and help reduce duplication helping better developer experience.

Designed service layer and aggregator patterns to wrap existing critical services that contained major business logic. Proposed and implemented domain driven design to optimize business boundary's and created CQRS based application to separate read write concerns. Created API endpoints and hosted swagger-ui using aws api gateway. Designed SAGA patterns to support distributed transaction for policy center.

Leveraged AWS Lambdas for asynchronous event processing from SQS queues. Implemented monitoring and logging and integrated Dynatrace for observability.

CI/CD

Improved overall build process by reducing build time by 10%

Designed and build optimized containers for java spring boot, incorporated renovate into existing build setup for auto update of all dependencies. leveraging artifactory caching for common package.

Event Driven:

Improved user experience by reducing latency by incorporating CQRS and leveraging read replicas.

Created Realtime endpoints. Using python-based Kafka consumers, listening for real-time claim number, and looking up reference data from data lake to predict real time scoring for fraudulent motor insurance claims.

MLOPS:

Designed data processing containers supporting analytics scoring model in AWS Sage maker, created Spacy based text mining supporting text mining claim notes.

DataOPS:

Improve data quality, data validation layers to help the BI solutions highlight rich data.

Designed warehouse using data lakes, created ETL jobs for daily and hourly loads, created data fabric layer integrating snowflakes to query warm data.

Created python container for ETL supporting batch and daemon workloads.

Designed data pipelines to build dimensional models in lakehouse.

Leveraged spark jobs in databricks to create data loading pipelines.

AI/ML:

Worked with business owners identifying ML use cases, propose using AWS sage maker studio as IDE for analytics engineers, Designed data flow layer for feature engineering leveraging existing data lake and snowflake, build data processing containers and created data workflows for both sequential and parallel operations, and developed pilot text mining capabilities using spacy to identify comorbidity in claims. Piloted first launch of LLM platform leveraging LAMA models supporting text summarization and content generation.

Leveraged LLMS and vector database to design RAG for claim notes. Created proof of concept creating conversational AI using LLMS

Ebsco Information Servic, Ipswich USA

Jan 2019 - Oct 2021

Principal Architect

Responsibilities:

Business process and Strategic leadership:

Advised business and technology leadership on the importance of investing in healthcare products supporting patient education, evaluated historical usage patterns of existing customer channels applied predictive analytics and cohorts identified critical areas clients will focus their business and advised leadership on onboarding new capabilities.

Infrastructure and Automation:

Leverage cloud automation tools like control tower and terraform to automate build of infrastructure, network topology and services.

Leverage SCP policies to regulate and setup guardrails while vending accounts.

Developed multi account strategy to segregated dev, prod/CI-CD/audit and logging environments.

Devops/CI-CD:

Reduced platform cost by 50% by intelligent tagging, and reduced build time by 30%

Lead a team of platform architects building dev/qa/prod devops pipelines, initiated capacity planning of existing build environment and sliced and diced workloads across technology, build time, time to fix and developer efforts. Proposed leveraging cloud native build solution.

Identified business and technology goals and defined key measure KPI for development of new devops capability.

Evaluated TCO. For build vs buy, created RACI Matrix detailing key technical systems.

Leveraged aws code build. docker containers and used harness.io as deployment tools. Created shutdown policies to reduce unused or idle systems. Integrated quality gate and dev secops into CI-CD process

Microservices/API:

Improved developer experience and development time by segmenting API into process/experience and system API, developed separate API gateway for UI/Partner API and for SSO.

Improved code efficiency by automating code coverage in build time and leveraging best coding principles.

Leveraged securing coding principles building microservices for HIPPA.

Created audit layer tracking PHI access.

Designed and developed identity and access layer for securing micro services leveraging API gateway and Auth0 workflows to support SMART on FHIR launch.

Designed HIPPA compliant patient journey summarization portal leveraging FHIR and HLF data. Designed micro services leveraging.

Spring-boot and java building experience and process RESTful API.

Integrated SNOMED CT, ICD 10 and RX Norm vocabularies into elastic search to support query expansion for comorbidity terms.

Worked with hospital information systems such as EMR or PDMS.

Experience leading technical teams providing vision/guidance on Cerner's platform comprising of Millennium, Rhapsody, 3M 360, HealtheIntent and Health Information Exchange (HIE)

Worked closely with ehr vendors evaluating all compliance requirements supporting launch of patient safety application in the ehr workspace.

Designed and developed frontend using react for web and mobile applications.

Security/Compliance:

Leveraged HITRUST policies and process building HIPAA compliant infrastructure and application, engaged coalfire for auditing and validating technical and people process.

Designed least privileged, defense in depth, zero trust identify and access modules.

Participated enterprise-wide auditing for ISO27001 certificates and SOX compliances.

Created process and systems for data classifications.

Designed asynchronous event-based reporting model supporting aggregation of data storage and access patterns for GDPR compliance.

Integrated NIST, CIS controls across software development and build process.

Familiarity with Cloud security and governance, CASB/SASE Framework

Leveraged cloud data security principles and practices, especially in cloud-based data storage and processing,

Enabled encryption @ rest and @ transit using customer managed keys.

leveraged AWS Macie for identifying Security exposures.

Implemented robust security measures to safeguard patient data and maintain compliance with healthcare data privacy regulations. Perform regular security audits and vulnerability assessments.

Recommended using SIEM tool to detect and act on security breach and vulnerability exposure.

Data/Streaming:

Designed ETL layer in data lake leveraging Healthcare data models to map rxnorms and ndc codes for identifying drug ingredients for OTC drugs.

Integrated ETL pipelines for feeding textual data into elastic search.

Designed event driven architecture to drive transaction logging for applications to monitor keyword search for popular medical terms for patient safety application.

Leverage Kinesis analytics to build real time pipelines for understand customer preferences for predictive modelling.

AI/ML:

Created technical blueprints for building NLP capabilities in existing search ecosystem. Trained search engineers in using BERT based transformer to augment long form search queries. Fine-tuned UMLS BERT to support search complex drug names.

Created technical roadmap leveraging AWS sage maker and build ML platform supporting enterprise search capabilities.

Teamwork and collaboration:

Lead deep technical engagements, including Briefings, Proof of Concepts, Architectural Design Sessions, and Hackathons

Conduct code reviews and provide constructive feedback to team members.

Conduct system testing and diagnose and resolve technical issues with the development team when necessary.

Developing good working relationships with other employees, such as Marketing Managers, Product Managers, Programmers and Engineers

Direct Supply Milwaukee, WI**Apr 2015 - Dec 2018**

Architect /Database Engineer II

Responsibilities:

Leading data engineering practices on using cloud-based workloads to improve efficiency on modern web development and help reduce cost.

Delivered database as service in private cloud leveraging optimal use of workforce and open-source technology and operationalized pilot project prior to agreed timelines.

Facilitated project planning, resource hiring, and technical requirement gathering and presented high level goals and deliverables to technology leadership.

Initiated capacity planning for existing SQL server workloads identifying existing allocated capacity, usage patterns, future requirements, identified technical road map migrating existing sql server workloads across to open-source PostgreSQL platform.

Developed inhouse tooling supporting translating existing SQL server syntax to PostgreSQL syntax. Designed CI/CD process for development and deployment of database artifacts leveraging more modern open-source tooling like Liquibase.

Designed hybrid layer supporting data migration from on premise to AWS Cloud, segmented data usage patterns into hot, warm, and cold tier and designed hourly data load and nightly data loading into cloud. Leverage data lake capability for transforming raw data into more relation model and loaded into PostgreSQL.

Designed data lake in aws using EMR and provided support for real time ingestion leveraging kinesis streams.

Responsibilities:

- Designed cluster aware asynchronous REST API application using Akka Actor Model as part of POC,
- Designed catalog for Json Feed using Avro .
- Designed and Developed POC on JSON validation using Rhino JavaScript Engine, designed custom rules using parboiled.
- Importing and exporting data into HDFS and Hive using Sqoop.
- Involved in developing Pig scripts to process the data.
- Involved in defining job flows, and developed job flows.
- Experienced in running Hadoop streaming jobs to process terabytes of data in xml format.
- Load and transform large sets of structured, semi structured and unstructured data.
- Responsible to manage data coming from different sources.
- Developed Map Reduce Programs for analyzing weblogs.
- Involved in loading data from UNIX file system to HDFS
- Developed Hive UDFs.
- Involved in creating Hive tables, loading data, and writing hive queries.
- Developed scripts for bulk loading of data into HBase Tables.
- Assist with the addition of Hadoop processing to the IT infrastructure.
- Perform data analysis using Hive and Pig.

Project Description: Part of R & D Team was responsible for identifying login patterns for User Logins to Amex portals. Design consisted of Real time and Batch processes. Part of the design involved designing real time aggregation, that identify the daily, hourly trends of user logins. Real time Module consisted of Google Guava cache builder and Java Executor service, Input data sourced using java socket, from Unix Ram disk using java Native library. Input data is ingested into Concurrent Non-blocking queue. Aggregation Module seeks data from queue and build data counters [Daily and Half-hour] depending upon the mapping of data structure, IP level and Session Level. Sliding window of counters ensures Trending for last 30 minutes. UI feed was sent every minute using Java Web sockets. UI feed consisted of last 30 minutes' trend indicating aggregated counters at Ip and Session Level with page visits for [user Login, Homepage], User IDs. Part of the batch process daily data was moved into HDFS, ETL load was designed to move the data into Hbase. ETL consisted of transforming data at Ip Level and Session Level, Trend analysis consist of running query over User IDs to identify user logins that occurred most times over a day. Second stage consisted of moving files directly to hdfs and running hive query rolling up data to identify page visit against most login to identify user activity. [Whether user was trying a fraudulent login or not]

Causeway Technologies, India**April 2012 – March 2013**

Lead Engineer

Technology: OSGI, FUSE ESB, Apache CXF, spring, Hibernate, Active MQ, GIT, Eclipse, Windows

Responsibility

- Role Involves Designing bundles for Business/DAO/ Messaging Layer, involves Message Routing [EIP] and exposing services as REST end point.
- Provide Architecture Solutions [SIP] Service Integration Platform [ADF +JBPM integration]
- Designed OSGI Bundles for Data Access Layer
- Exposed Connection Pool as a Service in OSGI Layer
- Designed and Implemented Architecture for JPA layer in OSGI,

Capgemini , India**April 2010 – March 2012**

Java Developer

Education:

Master of Computer Science, Bharathiar University Coimbatore, India

Apr 2000 - Apr 2002