



# Vignesh Murali Natarajan

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An accomplished IT Architect specializing in a multi-faceted approach to career progression and drive for excellence. A seasoned veteran with proven track records as a – **Cloud Architect, Legacy Modernization Specialist, R2 Expert, Delivery Lead, Developer, Technical Trainer, Perpetual learner** - seeking new challenges and opportunities beyond familiar horizons

## Experience Summary

### Cloud Architect / Enterprise Architect

- Highly accomplished Cloud Architect with extensive experience in conducting Cloud Readiness Assessments, creating cloud service maps, and overseeing security considerations as part of wider Cloud Adoption Framework.
- Proficient knowledge of cloud computing technologies and current computing trends. Accomplished in managing large teams right from requirements through design, implementation & deployment. Excellent analytical, organizational, planning skills with demonstrated abilities in training & mentoring teams towards achieving organizational goals
- A charismatic architect, certified by multiple organizations in various disciplines – Cloud, Enterprise architecture, DevOps, with first-hand experience in assessing, planning, strategizing and executing large scale cloud migrations clubbed with legacy modernization.
- Specialist in designing Cloud based complex high-scale, high-availability enterprise-grade Software systems, Cloud Platforms and DevOps
- Highly experienced in designing Microservices based platforms that demand inter service choreography using message queues and service-mesh based inter service communication
- Was the architect for bulk migration of 25+ applications of the Smart Meter Infrastructure portfolio of Next Era energy. A few noteworthy feats achieved in the projects are
  - Large scale cloud migration with various concurrent migration strategies applied to different sets of application
  - Re-architecting from Monoliths to FaaS using AWS Lambda
  - On-Prem to Cloud integration for data interchange and interoperability
  - Highly Available, Fault Tolerant, Mission critical, real time systems built on AWS Cloud using CaaS (ECS/Fargate) solutions
- Was a key player in laying down the road map for phased cloud adoption at JB Hunt. This included
  - Re-Architecting mission critical applications to the cloud while continuously keeping pace with latest version of the technologies employed, as they evolved – which include Java version, Spring Boot version and Angular version
  - Future proofed the solution by establishing benchmarks in terms of Non-Functional requirements. Performance Optimization around areas like - messaging using clustered ActiveMQ in failover mode, multi-master database, event streaming message exchange for CRUD using Elasticsearch and SQL Server and Caching - were employed to guarantee 10x the anticipated peak load
  - Resiliency and Recovery in light of system unavailability demonstrated using chaos testing
- Master of setting up assembly line mode of delivery pods that perform NFR Finalization, High Level Design(HLD), Low Level Design(LLD), Development, Automation / Performance testing concurrently at different stages
- As an enterprise architect, guided several organizations in legacy modernization from 20+ years' old tech stacks to modern age hybrid stacks



**Trainer / Mentor**

- An established tech-guru with thousands of hours of training and mentoring tens of thousands of associates world-wide.
- Much awarded trainer for enabling associates across a spectrum of technologies that include (but not limited to) AWS Cloud, Java Microservices, Angular, Spring suite of technologies, JPA, Hibernate, jQuery
- Cognizant Certified Technical Trainer for delivering technical trainings and content with the resolve to lock on participants' attention
- Delivered over tens of thousands of hours of training for fresh recruits to experienced workforce across the globe
- Authored several technical courseware for Cognizant Academy around Angular, Microservices, AWS for beginners
- Delivered guest tech lectures on emerging cloud trends to colleges like Shastha University

**Developer**

- Extensive experience in developing Enterprise applications and Microservices using Java/JEE and various Spring technologies including Spring Boot, Spring Cloud Stack, Spring Rest, Spring MVC, Spring Data, RMI, EJB, JSP Custom Tags Libraries, JavaBeans, JDBC, JNI involving optimized usage of Networking, Threads, IO concepts.
- Hands on experience in application development and maintenance activities including requirement analysis, architecture, design, and implementation and testing with emphasis on Object Oriented principles from the scratch
- Experience in developing Cloud agnostic microservices embracing the 12 factor principles and microservices design patterns, that benefit the customer from falling for a vendor lock-in
- Expert in Angular, JavaScript and AJAX frameworks including jQuery, Prototype
- Expertise in applying Kafka, JMS (Java Messaging Service) for reliable information exchange across Java applications
- Experience in creating and consuming Restful and SOA Web Services
- Experience in database programming with SQL and PL/SQL using Oracle 9i/10g, SQL Server 2000/2005/2008, MySQL and proficiency in developing SQL in JDBC as well as client server environments
- Performed unit testing using JUnit, Protractor, Jasmine, Selenium and EJB Testing (custom built Innovative EJB Testing framework)
- Resolved Emphasis on Resiliency and Recovery (R2), performance tuning, code optimization activities with a "do-it-right-the-first-time" mentality
- Flexible and easy adaptation to all kinds of work environment with good team/independent management for best quality end results



## Expertise Summary

Cloud	<b>AWS</b> – EC2, ECS, Fargate, EBS, Lambda, Elastic Beanstalk, CloudFront, API Gateway, ELB, ElasticSearch, ElasticCache, SNS, SQS, Cloudformation etc
Web Services	Microservices with Spring Boot, Spring REST, JAX-RPC, JAX-WS, Axis, Tools: SOAPUI, Postman
Containerization	Docker
Spring Frameworks	Spring Boot, Spring Cloud, Spring Data, Spring Core, Spring MVC, Spring REST, Spring Web Flow, Spring Web Services, Spring Hibernate, Spring JDBC
Java EE Technologies	Servlets, EJB 2, EJB 3, JPA with Hibernate, JDBC, JMS, JMS Clustering, Clustered Caching
Java Platforms	Java SE, Java EE, Java Web Start, Java ME
Java Frameworks & Tools	Redis Cache, Kafka, Struts 1,2, Hibernate 2,3, DisplayTag, JPA, Tiles, Quartz Scheduler, Clustered Scheduling, EHCACHE, Log4J, SLF4J, Commons Logging, XSLT, Apache POI, Apache FOP
Programming Languages	Java, Typescript, C, C++
IoT / Mobile Technologies	Arduino, Raspberry PI, Android, CLDC, MIDP(Java ME), jQuery Mobile
Web Technologies	HTML, CSS, AJAX, Javascript, Actionscript
Front End Technologies	Angular, jQuery, Prototype
Build Tools	Apache Ant, Apache Maven, Jenkins
Databases	DynamoDB, SQL Server, Oracle, MySQL, PostgreSQL, HSQLDB, Teradata, Sybase
Database Skills	PL / SQL, SQL, SSIS
Unit Testing	Jasmine, Protractor, JUnit, Selenium, EJBUit(Self Built)
Content Management Systems	DotNetNuke, Joomla
Methodologies	Scaled Agile(SAFE), Scrum, Legacy Software Development Methodologies,
IDEs	Eclipse, RAD, Visual Studio Code
Graphics Tools	Adobe Flash, Adobe After Effects, Paint Dot Net, Maya, Cinema4D, DotNetNuke Skinning
Version Control	GitHub, VSS, SVN, CVS
OS	Windows, Linux : Ubuntu, Linux Mint, Fedora



## Extras

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- ❖ Authored 2 **White Papers** on challenging tasks implemented by my team for 3M
  - ❖ [REACH Readiness: Smart Solutions to Challenging Problems](#)
  - ❖ [How to Develop Online Recommendation Systems to Deliver Superior Business Performance](#)
- ❖ As a **Web Designer**, created the look and feel for the [Hindu Mandir of Minnesota website](#). Non profit, charity work
- ❖ As **Web Master**, have maintained internal websites running on Joomla and PHP for more than 3 years. Created monthly Newsletters sent out to the entire account of 500 associates
- ❖ As a creative **Graphics Design and Animation artiste**, developed numerous animations, intro videos, graphic fliers employing tools like Adobe Flash, Adobe After Effects, 3D Studio Max for companies like Cognizant, TCS, and Twiceware technologies.
- ❖ As a **mentor**, have lobbied support for best practice and interest groups in Cognizant. This includes teams like the Leading Practices Council, Java Technology Consortium, Development Core Team etc. Activities included – New Technology assessment, Architecture Review, Code Review and so on
- ❖ For the innovative activities rendered to the 3M account, was proclaimed as an **Innovation Champion** for the entire Cognizant 3M account(with a combined onsite offshore strength of 600 associates)
- ❖ As a **freelancer**, developed free quiz applications in Java/J2EE for the state level technical symposium “Avalanche 2003” organized by M.N.M.Jain Engg. College.

## Certifications

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- ❖ **AWS Certified Solutions Architect – Professional. Score 83%**
- ❖ **AWS Certified Migration Ambassador**
- ❖ **AWS Certified Solutions Architect – Associate. Score 87%**
- ❖ **IBM Docker Foundations**
- ❖ **SAFe DevOps Professional. Score 94%**
- ❖ **SAFe Agilist v4. Score 96%**
- ❖ **ORACLE Certified Master, Java EE 6 Enterprise Architect. Score - 88%**
- ❖ **ORACLE Certified Expert, Java EE 6 Web Services Developer – 92%**
- ❖ **Microsoft Specialist, Programming in HTML5 with Javascript and CSS3. Score – 86%**
- ❖ **Professional Scrum Master 1, from Scrum.org Score - 96%**
- ❖ **ORACLE Certified Professional, Java ME 1 Mobile Application Developer. Score - 97%**



- ❖ ORACLE Certified Master, Java EE 5 Enterprise Architect. *Score - 95% in Level 1, other levels don't carry scores*
- ❖ SUN Certified Business Component Developer for Java EE 5 Platform. *Score – 100%*
- ❖ SUN Certified Developer for Java Web Services, J2EE 1.4 Platform *Score – 97%*
- ❖ SUN Certified Business Component Developer for J2EE 1.3 Platform. *Score – 97%*
- ❖ SUN Certified Web Component Developer for J2EE 1.4 Platform. *Score – 92%*
- ❖ SUN Certified Java Programmer for J2SE 1.4. *Score – 95%*
- ❖ ICFAI University certified Software Testing and Quality Assurance Professional. *Grade –A*
- ❖ Cognizant Certified Program Manager
- ❖ Cognizant Certified Technical Trainer
- ❖ Cognizant Certified GenC Jury

## Awards & Honors

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- ❖ Cognizant LifeSavers - 2020
- ❖ Cognizant Knowledge Stalwart – December 2019, March 2020, June 2020
- ❖ Cognizant Innovation Champion 2012
- ❖ Star Performer August 2012
- ❖ Delivery Excellence Q2, 2011
- ❖ Cognizant Trainer Par Excellence Q1 2011, 2018, 2019
- ❖ Cognizant Idea Champion 2010
- ❖ Above & Beyond Q4 2010
- ❖ Star Performer Q4 2010
- ❖ Cognizant Top Trainer Quarter 2, 2010
- ❖ Cognizant Top Trainer Quarter 1, 2010
- ❖ Customer Delight Q4 2009
- ❖ Cognizant Trainer of the Year 2007
- ❖ Cognizant Star Performer 2007
- ❖ Cognizant Rainmaker 2006

## Educational Qualifications

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**2000-2004** Bachelors Degree in Computer Science and Engineering,  
M.N.M.Jain Engineering. College,  
University of Madras, India.  
*Graduated with a score of 82%*



- 1999-2000** 12<sup>th</sup> Grade  
The Madras Christian College School,  
Tamil Nadu Stateboard, India.  
*Graduated with a score of 86%*
- 1997-1998** 10<sup>th</sup> Grade  
Maharishi Vidhya Mandir,  
Central Board of Secondary Education, India.  
*Graduated with a score of 84%*

## Career Timeline

Client	Domain	Work Location	Timeline
Cognizant Energy & Utilities Accounts	Energy & Utilities	Chennai, India	Apr 2021 - Present
JB Hunt	Logistics	Chennai, India	Oct 2018 – Mar 2021
3M	Manufacturing	Saint Paul, USA & Chennai, India	May 2007 – Sep 2018
Case New Holland	Manufacturing	Chennai, India	Mar 2006 – Apr 2007
Yazaki America	Manufacturing	Chennai, India	Oct 2005 – Sept 2006
General Motors	Manufacturing	Chennai, India	Oct 2004 – Oct 2005

Employer	FTE?	Work Location	Timeline
Cognizant	Yes	Chennai, India	Oct 2004 – Till Date

This is a brief version of my resume. An elaborate listing of all the projects that I handled can be found in the detailed resume available at [this](#) location



## Projects

<b>Manufacturing, Logistics, Energy and Utilities – Enterprise Architect</b>	
Clients	JB Hunt, Nolan Transportation Group, Next Era Energy, Pacific Gas and Electric, Duke Energy, NYPower Authority, NRG, Avangrid, Enbridge to name a few
Location	North America
Role	Solutions Architect, Engagement Delivery Lead
Timeline	Jan 2020 – Apr 2021 – Manufacturing & Logistics May 2021 - Till Date – Energy and Utilities

### Roles & Responsibilities

In this role, took on the overall delivery responsibility of Energy and Utilities accounts of the Cognizant Integrated Digital Engineering Practice. A portfolio that comprises some of the major US household names for power generation, which churns about \$30M in revenue annually. The IDE practice is responsible for Application Development – Front End/ Back End, Cloud Migration, Mobile Development, User Experience etc. across the organization. Detailed responsibilities follow

- Lead RFP responses for every Energy and Utilities customer, in the capacity of Solutions Architect / Cloud Architect
- Collaborate with customer Directors for Innovation, Requirements Elicitation, NFR finalization
- Participate in the Tech Review Board(TRB) Reviews and Audits of solutions from other accounts, and or other architects.
- Responsible for implementation and oversight of tech PoCs for current projects across the portfolio. Run regular cadence and checkpoints across various projects
- Assess health of troubled projects, proactively address risks and report issues to senior leadership with mitigations
- Responsible for Operational efficiency in term of margins, span, pyramid, On-Off ratio across the portfolio

<b>JBH Order Management</b>	
Client	JB Hunt
Location	Lowell, Arkansas
Role	Solutions Architect and Program Manager/
Technologies	Spring Cloud, Spring Boot, Angular, Azure Cloud, Google Cloud, Kubernetes, Kafka, ActiveMQ
Timeline	Oct 2018 – Mar 2021





**Project Summary:**

JBHunt is one of the largest goods transportation company in the US. The Order Management project was to modernize their decades old Order Capturing system and migrate the solution to cloud(Azure). The application is of huge significance to JBH as this was their nerve center when it comes to revenue generation. Outage of just an hour could constitute hundreds of thousands of dollars in lost revenue for the organization. The program migrated a set of monolithic applications from JSF / J2EE to Angular backed up Spring Boot Microservices, deployed on Azure. Later on, the solution was migrated from Azure to Google Cloud

**Role and Responsibilities**

- Overall Program Manager, responsible for managing a team of over 150 members, onsite offshore combined. The teams were operating in a pod model and the project was run by about 10 pods
- Cloud Architect / Solutions architect responsible for high level architecture and solution, migration strategy, performance and resiliency
- Responsible for the stringent performance requirements in terms of throughput and assurance of performance benchmarks

<b>iSpace Mobile</b>	
Client	Cognizant Innovation Group
Location	Saint Paul, USA
Role	Architect, Team Lead, Developer
Technologies	Java 6, Android Ice Cream Sandwich, Hibernate 4, Spring MVC 3, Spring REST, Simple Framework, JAXB, Maven, Tomcat, HSQLDB, jQuery Mobile
Timeline	Feb 2012 – Oct 2012

**Project Summary:**

iSpace Mobile is a voluntary internal project that I led my team to develop. It is an Android, Mobile Web, condensed version of the Cognizant Corporate iSpace system. The iSpace system is a web application of the Cognizant Innovation Group(CIG) used for the Managed Innovation Process of Cognizant. We offered to build and donate the Mobile app to the CIG who would later develop it to expand the scope of the app to more align with the iSpace web application. iSpace Mobile has 2 components - An Android native app and a Mobile web app targeting mobile browsers

**Role and Responsibilities**

- Team Lead, Architect
- UI Designer
- Developer

<b>PLM Document Viewer (PDMVWR)</b>	
Client	3M Company
Location	Saint Paul, USA
Role	Architect, Developer



Technologies	Java 1.4, J2EE, Apache Axis, Struts 2, JSP, JMS, JQuery, Struts
Timeline	April 2010 – March 2012

**Project Summary:**

PDMVWR was aimed to exposing a web UI for the eMatrix application 3M had deployed. The application is made up of a Web Service and a Web Service client which is a Web application. The Web Service is deployed in the same server as that of eMatrix. The client which is an independent web application will use the web service as the backend to expose a light weight UI. This was done to channel all web usage through a single eMatrix license to expose the entire set of eMatrix documents to web users.

**Role and Responsibilities**

- Laying Down architecture of the Web Service and the client
- Develop and maintain the Web Service and the client
- Work with SMEs for eMatrix integration
- Maintenance

<b>New Products Portal (NPP)</b>	
Client	3M Company
Location	Saint Paul, USA
Role	Project Lead, Architect and Developer
Technologies	Java 1.4, J2EE, EJB, JSP, Servlets, Hibernate, JMS, POI, Jasper Reports, Microsoft SQL 2008, Teradata, WAS 6.0, JQuery, Struts, Quartz, Display Tag, XSLT, Jibx
Timeline	October 2009 – September 2018

**Project Summary:**

New Products portal is a Global database for 3M's new Products project. It provides visibility of Global new product opportunities, serves as official source of new product sales reporting, measure new product growth and tracks other R&D Metrics related to new products.

**Role and Responsibilities**

- Manage a team of 15(3 Onsite and 12 Offshore)
- Laying Down architecture for new modules
- Writing Design Specification for new enhancements.
- Requirement Analysis.
- Coding and Testing and Deployment.
- Review deliverables from of Peers
- Reporting status to the Client and internal management.
- Limited to High level design and reviews, towards the end



<b>Regulatory Volume Tracking System (RVTS)</b>	
Client	3M Company
Location	Saint Paul, USA
Role	Project Lead, Architect and Developer
Technologies	RAD 7, Websphere 6, Struts 2, Hibernate, SQL Server 2005, Teradata, XSLT, POI, AJAX, PL/SQL, Web Services
Timeline	April 2008 – October 2010

**Project Summary:**

- The raison detre of the project is a to provide a medium to make 3M conformant to the European REACH spec. REACH dictates that 3M provide accurate info on the total amounts of all the chemicals shipped by 3M into the European Union
- As a tool RVTS:
  - Extracts & Integrates data from 5 different databases, under a single umbrella
  - This data is then fed into a 'HEMMIS' the application that is the final destination or link between RVTS & REACH

**Roles and Responsibilities:**

- Architected the robust extraction framework of RVTS using Hibernate.
- Took over sole responsibility of the project and developed it from the scratch afresh
- Beefed up the UI with modern Web 2.0 concepts
- Carried the entire onus of the technical side of the project

<b>Global Market Penetration Opportunities (GMPO)</b>	
Client	3M Company
Location	Saint Paul, USA
Role	Developer, Onsite Coordinator
Technologies	RAD 7, Websphere 6, Struts, SQL Server 2005, XSLT, POI, AJAX, PL/SQL
Timeline	July 2007 – March 2009

**Project Summary:**

- An e-Tool designed to assist Technical Service, Sales and Marketing communities to drive 3M growth by improving market penetration
- As a tool it provides:
  - A source of successful application opportunities to all 3M employees, regardless of location, market area, or function
  - A method to share, track, and report on successful market penetration campaigns

**Roles and Responsibilities:**

- Coordinated an offshore team of size 6 from onsite
- Took over sole responsibility of the project and provided production support



- Suggested & Modernized the UI with AJAX which was a hit
- Architected the new enhancements to follow the best strategies
- Made 12 releases of the application

<b>Virtual Cable Assembly Tool (VCAT)</b>	
Client	3M Company
Location	Chennai, India
Role	Developer
Technologies	RAD 7, Websphere Portal Server, Apache FOP
Timeline	May 2007 - July 2007

#### Project Summary:

The project is about building a high end web portal that would enable 3M users and clients to build virtual cables using intensive yet simple UI. The cables could be maintained by the admin and for the users; option of Quoting assemblies should also be supported

#### Roles and Responsibilities:

- Revamped the FOP module for PDF generation to reduce the source code size to less than 50% of the original with incorporated scalability and reusability
- Reconstructed the Image Processor module to incorporate scalability and reusability
- Implemented the Retrieve Assemblies module

<b>Standard Model Extraction (SME)</b>	
Client	3M Company
Location	Saint Paul, USA
Role	Team Lead, Designer
Technologies	PERL, Sybase, UNIX Shell Scripting, SQL Server 2000, BCP, Windows Batch Scripting, ISQL
Timeline	March 2007 – May 2007

#### Project Summary:

The project was aimed at modifying the client proprietary data transfer tool mentioned in the below project (PNDVT) for which no source code was available. The requirement was to modify the application so that it includes data transfer from 2 more tables but with 0 modifications to the applications that depend on the intermediate output of the tool. The intermediate output of the tool is an XML containing the entire database

#### Roles and Responsibilities:

- Lead the team in successfully executing the project to completion
- Provided the solution on how to attack the requirement
- Decided upon the technologies
- Designed the architecture



- Developed more than 50% of the modules

<b>PLMS NGST Data Validation Tool (PNDVT)</b>	
Client	Case New Holland
Location	Chennai, India
Role	Team Lead, Designer
Technologies	Java, Sybase, UNIX Shell Scripting, SQL Server 2000
Timeline	October 2006 – March 2007

#### Project Summary:

The project was aimed at building a tool that would validate the data transfer that was done by a client proprietary tool between the databases PLMS (Sybase) and NGST (SQL Server)

The tool was supposed to be automatically triggered and provide a data discrepancy report on mismatched records. The granularity of the report is supposed to be field and record level

#### Roles and Responsibilities:

- Lead the team in successfully executing the project to completion
- Provided the solution on how to attack the requirement
- Decided upon the technologies
- Designed the architecture
- Developed more than 30% of the modules

<b>Casenet Elimination</b>	
Client	Case New Holland
Location	Chennai, India
Role	Developer
Technologies	J2EE 1.4, RAD 6, Websphere Application Server
Timeline	March 2006 - October 2006

#### Project Summary:

The project was targeted to alter the existing suite of CNH web applications to match the new requirements of the CNH users. The alterations included the style of searching, sending mails, accessing dealer directories etc.

#### Roles and Responsibilities:



- Mended the architecture and framework of the challenging Mass Mail module
- Revamped Search module with many value additions
- Improved the architecture of the Dealer directory sub application which proved to be far better than the existing architecture of the application

<b>Model Verification Tool (MVT)</b>	
Client	Yazaki America
Location	Chennai, India
Role	Designer, Developer, Acting Lead
Technologies	Rational Rose Real Time, SPIN, Microsoft VC++ 6.0, PROMELA
Timeline	October 2005 – September 2006

#### Project Summary:

The project was targeted to build a stand-alone application for checking the consistency of the models developed by the Yazaki Modeling team. These models simulated electronic circuits and architectures which would be implemented in Hardware after successful research. PROcess MEta LAnguage is an open source language developed at the Bell Labs to check inconsistencies in concurrent systems. MVT would convert models built in Rational into an intermediate XMI and then the XMI is translated into PROMELA involving two phases viz, Translation of the State Machine into PROMELA and C code translation into corresponding PROMELA. Simple PROMELA INTERpreter should be run (by MVT) through the thus generated PROMELA and produce a consistency report.

#### Roles and Responsibilities:

- Designed the robust architecture of MVT and the most crucial Translator Module
- Formulated the acceptable design for Real-time model building
- Formulated & Implemented the entire framework of State Traversal and Proctype conversions
- Designed & Implemented the RRRT - PROMELA conversion framework
- Proposed numerous handy solutions to overcome PROMELA demerits over ANSI C
- Coordinated with the team as an acting lead to guide the fellow members

<b>Benchmark and Teardown (BMTD)</b>	
Client	General Motors Corporation
Location	Chennai, India
Role	Designer, Developer
Technologies	J2EE, Struts, Eclipse 3.1, Altova Style Vision, Crystal Reports XI, Toad, Bea, Weblogic 7.0, Oracle 9i
Timeline	October 2004 – October 2005



**Project Summary:**

The project was intended to integrate the WWP Benchmark/Teardown (BM/TD) database applications into a single, IT standard web-based application to enhance the Worldwide Purchasing (WWP) Benchmark/Teardown processes globally.

The objectives/targets to meet the goals were

- Replicate the functionality of the existing applications in a single web-based application
- Provide secured, global access
- Guide the users through the process in user-friendly step-by-step manner
- Provide flexible database management
- Alignment with GM IT Standard

**Roles and Responsibilities:**

- Took up one-third of the UML design work for the “Vendor Tooling” module using Rational Rose. “Vendor Tooling” Module is one - fifth of the entire application
  - Developed more than 10 sub modules out of a total of around 200 sub modules in the entire project.
  - Was the only man in the project representing the “Vendor Tooling” module which had 10 members at peak towards the end
  - Took up development of Input Forms for the “Cost Estimation” module using Altova
  - Took up versatile responsibilities to develop/debug/test in any module of the project towards the last phases of the project
-