

# Immanuel Raj.

## Professional Profile

### Associate Director

- Solution Architect
- Developer



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**Experience:** Multi skilled **Technical Cloud Architect** with 19+ years of experience in designing, developing, deploying enterprise, mid-sized, start-ups & open-source applications in cloud, in-house and hybrid environments.

## Technical Overview

- Fully hands-on and extreme trouble shooting skills especially in **Microsoft stack .Net Core & JavaScript**.
- Strong knowledge with various relational databases **SqlServer, Postgres, Oracle**. Also sound understanding and experience in **Mongo, Dynamo DB**.
- Strong knowledge in Front End frameworks **React JS, Angular, d3 js, knockout js, vis timeline js** and various js libraries and framework.
- Strong cloud native solutioning in **AWS, IBM Cloud & Azure**.
- Performance tuning and **query optimization** for various applications.
- E2E setup of managed k8s cluster both on **AWS** using **EKS** and in **IBM Cloud** using **IKS**.
- Streaming data to **IoT** Hub with multi zone **Edge** Server setup using **Node-Red** and OPC/UA from PLC communication with **Kepware** using MODBUS, MQTT protocols.
- Full **Identity** management & **Access** management for the micro services using **oAuth2.0 oidc** setup using **Azure AAD** and **IBM APP ID**.
- **Middleware** setup for micro services using both **RabbitMQ & Kafka** streaming.
- Automated release management, deployment pipeline using various tools like **Jenkins, IBM Cloud Toolchain, AWS code deploy**.
- Knowledge in various analytical and reporting tools like **Tableau, Metabase**.
- Comfortable in **mobile development** for both Android & IOS java and swift.
- Experience in troubleshooting using **sysinternal** tools like ProcMon, ProcExp, ProcDump, Fiddler, WireShark to debug process, thread stacks & network to troubleshoot issues.
- Deployed & managed **micro services** in both Windows, Linux and in docker based containers.
- Created AWS foundation setup (VPC, Subnet, NACL, SGs, Subnets, Routes, NLBs, AMI, EC2) automated provisioning of resources using **Terraform** reusable modules and **Infrastructure As Code (IAC)** best practices.

## Summary:

- Fully capable of translating any problem statement in to an
- Strong **agile** knowledge and clear understanding of process, ceremonies, and its objective.
- Expert in designing **cloud native solution** based on **Micro-services** Architecture design principles and patterns.
- Proven ability to contribute both **individually & technically** manage teams to successfully deliver **high performance, highly available & secure** solution of **highest quality**.
- Created 3 **SAAS** based products with one touch deployment and easily **extensible architecture** with **multi-tenant** support.
- Worked with **startup** firms by successfully designing, executing various project thereby gaining good experience in handling and giving shape to adhoc requests.
- Strong understanding & experience with the traditional **functional, event driven & oop principles** and to the current of **declarative programming** and even working towards next generation **Automata** based programming.
- Part of the **Audit & Compliance** team, to strategize and implement the standard controls in the pipeline to regulate and always be comply with standards like HIPAA and ISO.
- Strong understanding & knowledge on Network, VMs & virtualization enables the clear and comfortable communication with server, security teams and other take holders.
- Strong knowledge in **Identity** and **access** management using **oAuth**, SAML SSO implementation.
- Worked with **data scientist**, orchestrated and implemented the algorithms in various capacities from **automating the schedule** for a factory, to a right deep learning approach and developed program API to **monitor application health** specific audit logs.
- Implemented a continuous delivery pipeline for both green field and legacy projects by **Containerizing** and automate deployment to **Kubernetes**.
- Enormous knowledge in **Micro Front end architecture**.
- Successfully migrated many inhouse & green field applications to **AWS & IBM cloud** platforms.
- Used Step **Functions** and Amazon States Language (ASL) to orchestrate **lambda**-based service invocation and task coordination.
- Secured cloud-based application **AWS WAF, Cognito**, ADFS, Azure AD
- Define & enforce **reference architecture** for web & cloud applications.
- Experience in designing decentralized block chain application using Ethereum.
- Played key role in moving the green field projects and even possible few legacy projects to adapt micro services architecture.

About Me:

- Passionate technologist, Self-motivated and pro-active problem solver.
- Contributed to open source and developed social conscience application help reduce food wastage.
- Quick learner, Team player & Fully Hands on and try to keep up to the current pace.

Achievements:

- Runner Up in "The Move Health Data Forward Challenge" a competition held by American MOH to develop an Api that utilizes the new UMA (User Managed Access) the implementation specifications created by the HEART Workgroup (Heart WG) with oAuth2, oidc extensions and won the cash reward.
- Released a paper explaining the html5 feature and the flexibility with hybrid approach in mobile development and readiness as a company when working with CSC.
- Automated the tenant onboarding system with versioning and stage & deploy infra, which radically reduced the deployment duration from 1 week to 6 hours.
- Received Star Performer & VP Award during my developer time in DELL.
- Reduced the licensing cost for Identity Management by enabling oAuth security for API through Cognito by federating the enterprise identity management through Cognito.

Education:

- MS.IT from Manonmaniam Sundarnar University, Tirunelveli.
- B.Sc. (Maths) from Manonmaniam Sundarnar University, Tirunelveli.

Work Experience:

Organization	Period	Designation
NTT Data Business Solutions Pvt Ltd / Chennai	Jun’ 2020 – Till Now	Associate Director
WinIT Information Technology Pvt Ltd / Hyderabad	Aug’2019 – May’2020	Head Engineering
Streamlined Medical Solutions / Hyderabad	Jul'2013 – Aug’ 2019	Principal Architect
Computer Science Corporation (CSC) / Chennai	Sep'2012 – Aug' 2013	Principal Application Architect
Hewlett Packard / Chennai	Aug'2010 – Sep'2012	Technical Architect
Accenture India Ltd / Chennai	Dec'2009 – Aug’ 2010	Team Lead
Dell International Services / Hyderabad	Oct'2006 – Nov’ 2009	Senior Software Engineer
Diadem Technologies / Chennai	Jul'2005 – Oct'2006	IT Manager
HMS L.L.C / DUBAI	Aug'2003 – Jun’2005	Manager
Ram Knowledge Systems	Jan'2003 - Aug'2003	Software Programmer

Projects

**Smart Factory** is for **Avient Corporation**, a chemical company which is a **world’s largest** producer of plastic coloring pigments master batches. The purpose of the project is to completely digitalize and automate the entire manufacturing floor with the larger objective of deploying the same setup to more than 100 factory floors with different process flows as a **SAAS** offering with Cloud hosting. This is a greenfield project designed with **12-factor** app as the basis for the entire services. When the orders are ready to be manufactured in ERP, then the scope of this project begins. Planning & Scheduling is the first service which receives the order. And then Extrusion s the next Service responsible for manufacturing. Nexus in charge of all external communication. QC is responsible for the quality of production. With many moving parts the Event Sourcing is managed with **Rabbit-MQ** middleware. IoT data streaming is managed with **Node-Red & IBM IoT Hub**. Deployment automation managed with IBM Toolchain a pipeline tool provided by IBM Cloud. Security managed using **oAuth oidc** for identity and access management. **Tableau** for reporting & analytics. Datawarehouse is managed using **Cloudant Couchdb** service. ETL to this data warehouse managed using node-red listening to various events & update data warehouse as required. Health monitoring managed using **IBM Log Analysis**.

**DCM (Demand Capacity Management)** is for a **Envision Healthcare USA**, major health provider with more than 25k physician. The objective is all about taking the historical data analyze & forecast the patient arrivals & schedule the shifts for Doctors based on the specialty. Being **Cloud Automation Architect** for this project, responsible for building ground up AWS env and recommending the appropriate AWS services. For Infrastructure VPC, Subnets, NACL, SGs, AZs, VPC LINK, NLB, IGW, NAT. Security using Cognito federated with enterprise Identity management OKTA and API Gateway secured using Cognito Authorizers. Route 53, Dynamo DB, R, AWS Sage Maker for data analysis. ML & Shift scheduling system is hosted using AWS AKS K8s clusters. The entire Infrastructure is built & deployed using terraform script. KMS, Cloud Trail, Cloud Watch & AWS WAF & Shield & sentinel agent setup for HIPAA compliance. Also VPC Peering, Transit Gateway for integrating External Systems in AWS.

**Rap&GO (Rapid Admission Protocol & Gap Order)** is for a **Envision Healthcare USA** is a key system in hospital medicine department in charge of handling all HL7 feed that comes in from hundreds of hospitals. The frequency of data volume at peak hours is almost 100 msgs/sec. the patient help center which was querying this volume of data to provide inputs & support to patient had become very difficult. As a **Cloud Architect**, I

designed an app that all hl7 feed goes through SQS & the Cloud watch Alarm configured for any exception and alerts the support team. Also, the error is captured in Dead letter queue & then appropriate data managed in DynamoDB for support team to review & take a remedy action. The

**Amalga**, as a **Tech Lead** for **Microsoft USA**, this is a SAAS based Healthcare reporting system, I was responsible for a writing a quality code and built an error free system. And automate the deployment using VS Setup & Deployment to continuously build and release the application with right versioning and the client specific details & functionality based on their licenses. Fully automated the custom test cases specific to the client is managed & executed as a nightly build, and priority of assignment is made based on the contract weightage and the release cycle. Also right branching strategy was defined to manage the parallel development happening for multiple client with single codebase.

**PDSS (Property Decision Support System)** As a **Technical Architect** for **7-Eleven, Dallas USA**, worked on automating the Real estate negotiation process. The base calculation decision factors were captured, managed and translated to business rules. Since the 7-Eleven had nearly 40000 Propertied there based on the tenure of contract there will at least be 360 property renewals a day. So the transaction around the data feed & arithmetic behind the transaction was very high, so the performance of the code is carefully crafted. Perfmon and .net perfmon of system resources captured & alerted based on the usage.




**GM3PD (GM Product Portfolio Planning Database)** as a **Technical Architect** for **General Motors, Detroit, USA**, worked on migrating the existing legacy system from VB to SharePoint 2010. Developed a POC with SharePoint 2010 feasibility study and then build a design approach and reference implementation.

**OFS (Order Fulfillment System)** for **Dell, Limerick, Ireland**. Worked on order fulfillment system with the objective of “Order Anywhere Build Anywhere Deliver Anywhere”, when there is a major shift in the business paradigm of moving towards the retail from the traditional build to order platform. This is a complete custom rule engine which identifies the ordered item and the global ordered location and delivered location and maps the appropriate nearest build location. Translating business logic rules in c# code, applying complex xpath in runtime to take respective decision.

**GOAL (Global Outbound Application Layer)** for **Dell, Limerick, Ireland**, is a project designed to extract the outbound Dell process which starts from post factory activities to be segregated and automate. Logistic related information and subsequent flow required for this has been completely, the application was developed using traditional com+, and Web Method an EAI tool and IBM MQ to integrate many external shipping systems. Direct presence in Ireland & Poland for training users on application

**FOOE (Fulfillment Order Orchestration Engine)** for **Dell, Austin, USA**, the purpose of the project is to handle the Retail orders that come through. SOA is the major platform used to achieve the functionality of this project, and this is a complete SOA implementation using Oracle BPEL (Now OSB) and ESB managed by ALSB (Aqua logic Service Bus) also translating complicated enterprise specific business rules and procedures into appropriate business logic components with Blaze Soft. Providing maintenance UI to the business users to configure the rules created. Successful deployment of this Global application

Opensource Packages & Developer Api

	:	<a href="https://www.nuget.org/profiles/jimmanuel.raj">https://www.nuget.org/profiles/jimmanuel.raj</a>
	:	<a href="https://www.npmjs.com/~jimmanuel">https://www.npmjs.com/~jimmanuel</a>
	:	<a href="https://play.google.com/store/apps/developer?id=Immanuel+Raj">https://play.google.com/store/apps/developer?id=Immanuel+Raj</a>
Utility Apps	:	Chat application: <a href="https://bubble.immanuel.co/">https://bubble.immanuel.co/</a> Online Video converter: <a href="https://video-converter.immanuel.co/">https://video-converter.immanuel.co/</a> YouTube downloader: <a href="https://ydl.immanuel.co/">https://ydl.immanuel.co/</a>
Social Cause	:	Food Wastage: <a href="https://xsfood.org/">https://xsfood.org/</a> Online task tracker: <a href="https://stopwatch.immanuel.co/">https://stopwatch.immanuel.co/</a>
Reference Apps	:	Dynamic Form designed using hi5: <a href="http://hi5.immanuel.co/Common/ScriptView">http://hi5.immanuel.co/Common/ScriptView</a> Sticky notes: <a href="https://sticky-notes.immanuel.co/record">https://sticky-notes.immanuel.co/record</a>