

Raj Sundarigari

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CTO, entrepreneur, architect, mentor and educator who loves to get involved hands on design, development. Passionate about advising businesses use latest technologies to fine-tune and redesign their business processes. Enjoy helping them envision and develop cost effective, highly available, scalable, fault tolerant and secure systems by moving inhouse/legacy systems to the cloud and micro services. 20+ years' experience in software development and management. US citizen.

MS Computer Science Marquette University, Milwaukee WI, USA and BTech in ECE, JNTU College of Engineering, Kukatpally, Hyderabad, India

Excellent management, communication, public speaking and teaching skills along with technical and programming skills. Managed teams of software developers of various sizes. Worked and managed seamlessly, in house developers, employees, resources from various staffing providers, online freelancers such as Odesk, Upwork spanning many countries, languages and time zones.

Amazon Web Services (AWS)



- *AWS Certified Solutions Architect* (CSAA Feb 2018 release exp. April 2020, [link](#)). Working in AWS since 2016 as a consultant at various clients.
- Designed, developed and migrated applications, databases and systems using *Well Architected Framework* principles onto AWS cloud. Architected and developed highly available and scalable systems.
- Using infrastructure as code and cloud orchestration tools such as CloudFormation, Terraform, Spinnaker, automated deployments of VPC, EC2, Elastic Load Balancers, Auto Scaling, Elastic Containers (Docker) and Elastic Beanstalk.
- Designed and developed databases using DynamoDB, RDS, ElastiCache and S3.
- Used fault tolerant design principles with de-coupled components using SQS. Designed and developed serverless micro services using Lambda and REST API Gateway.
- Used cloud VPC DNS thru Route 53, secured applications and resources via IAM, Roles, Policies, Instance Profiles, MFA, Pub/Private keys, Web Identity Federation using Tokens.

Google Cloud, GKE, Kubernetes and Docker



- Certified Kubernetes Application Developer (CKAD by Udemy, [link](#))
- On GKE, designed, developed and hosted java based microservices in docker containers into a kubernetes cluster. Tuned for horizontal and vertical autoscaling.
- Used stackdriver to capture logs, sink them into Google cloud storage buckets, bigquery datasets. Created uptime checks, alerting polices, dashboards and monitored using stackdriver monitoring.
- Used GCE compute engine to develop, host, manage WordPress based websites with MySQL backend.
- Developed a serverless function as service (FaaS) framework using Kubernetes, Docker in GO (golang) and Node. Developed in Minikube and ported to GKE. Currently supports Node.js and GO languages. Porting the same to be cloud agnostic to run in AWS EKS. Open sourced on GitHub.
- Used configMaps and secrets to store configuration information. Used service accounts to assign roles (RBAC). Created persistent volumes and volume claims. Exposed the deployments thru services.
- Implemented docker image security best practices by using minimal base images (Alpine), layers, least privilege users, passing sensitive data thru environment variables, secrets etc.
- Used Jenkins CI/CD pipelines for continuous integration and deployment.

Technologies, Languages, Platforms and Frameworks

Frontend: Windows, HTML/CSS, ASP.NET, JSP, Razor, JavaScript, jQuery, AngularJS, AJAX, Bootstrap, EJS, React.

Application/Middle tier: SQS, IIS/MVC/ASP.NET, Java, Spring framework, J2EE, Servlets, Tomcat, nginx, PHP, Node.js, express, Python, GO (Golang)

Databases: AWS RDS, NoSQL DynamoDB, Snowflake cloud data warehouse Oracle, Redis, MS Entity Framework ORM, OLAP, Dimensional Modeling, SQL/LINQ, SQL Server, Oracle, MySQL, Mongo db.

Messaging: AWS SQS, SNS, RabbitMQ, Apache Pulsar, Kafka, REST API

Serverless, Micro services and FaaS: Lambda, Google Cloud Functions

Containers: Kubernetes, Docker

Software Engineering and Design Patterns: AWS Well Architected Framework, MVC, Reusable agile software development, DRY principles, use cases.

SEO/SEM: Google Web Master Tools, AdWords, Affiliate marketing, AdSense.

Infrastructure as Code: Cloud Formation, Terraform, helm, YAML

Work Experience

Live Smart KK Japan - livesmart.co.jp (01/2019 – current)

- Working at Live Smart as a senior architect, designing IoT cloud platform in AWS, GCP and Kubernetes.
- Developed Java micro service running in a Kubernetes deployment to receive real time status updates from Tuya devices via Pulsar MQ Listener and channel them into LS system thru REST API.
- Used horizontal autoscaling, vertical scaling, load balancing, rolling updates, log harvesting with stackdriver and bigquery sinks
- Used: Mosquitto MQTT, Android/iOS apps, node.js app server, Java microservices, Maven, AWS Lambda, AWS API Gateway, DynamoDB.
- Developed node.js lambda functions to communicate with Tuya cloud (cloud to cloud integration) and integrate Tuya devices into LiveSmart using oauth2.
- Fine-tuned the backend for scalability, maintainability and come up with strategies to move the Mosquitto/node.js/MySQL/MongoDB/Redis/RabbitMQ stack from AWS to GCP Kubernetes. Used CI/CD with Git, Gitlab and Jenkins

SoftForce Services, Hyderabad (06/2018 – 12/2018)

- Worked at SoftForce thru Chalaki Systems as a consultant. In this VOX Populi project, worked on a political poll survey software implementation using lime survey, Android app, Apache tomcat, Java, J2EE, Spring MVC (POJO Models, JSP Views, Servlet Controllers), Maven, Junit, PostgreSQL.
- Used Node.js lambda functions to develop a web-based dashboard for reports. Tuned the backend and strategized scaling up and move apache/tomcat/PostgreSQL stack from CtrlS to AWS cloud. This transition from datacenter to cloud is done using CloudFormation and Terraform templates.

Infineon AG Munich (Previously International Rectifier) (03/2012 – 12/2018)

- Designed and developed product (IGBT/Diode/Die/MOSFET) databases and web-based applications to perform part selection, comparison, analysis, visualization and usage metrics data warehouse.
- MOSFET Selector: Web application in ASP.NET, Entity framework, SQL server on AWS EC2 windows in a VPC public subnet with SQL Server on EC2 in private subnet.
 - o CloudWatch scheduled events to reboot the instances regularly. CloudWatch metrics to constantly monitor CPU/Network utilizations and send SNS notifications with email targets.
 - o Working closely with the IRF/Infineon management and engineers to understand their electronics components data in Excel format, clean the data, map from excel to SQL schema and MS Entity Framework.
 - o Parts usage metrics data warehouse is developed using multi-dimensional analysis techniques. Metrics are gathered along multi dimensions: time, parts, users, application.

- IGBT Selector: This web-based application is developed in C#, Razor, ASP.NET MVC3, EF4.3 framework. Ninject and MOQ are used for dependency injection. MS Unit Testing framework is used for writing unit tests. MS Chart libraries are used to develop web-based charts.
- ITextSharp library is used to produce PDF documents. .NET membership modules are used for user registration/login/profile management. Used resource-based internationalization to support multiple languages including simplified Chinese, Japanese and English. jQuery is elaborately used to develop front-end. Optimized using bundling and minification to get smallest page footprints possible.
- Infineon's penetration tests, vulnerability assessments and compliance requirements are adopted.

Various Clients thru Chalaki Systems (06/2005 – 2017)

6facts.com

Designed and developed 6facts.com, a cloud-based data warehouse and BI tool in ASP.NET MVC, C#, MySQL and jQuery. Hosted in AWS cloud on multiple EC2 windows reserved instances. Amazon AWS SQS messaging is used to receive http messages from clients. Client data contains JSON strings with facts and dimensions about their business processes. 6facts C# batch programs receive these messages, parse them and store into MySQL dB as dimensions/facts in a snowflake schema. Reporting tool is developed and hosted at 6facts.com which uses Web API (REST) to access the data and present reports/charts using HTML5, jQuery, AngularJS and Highcharts.com.

knowledgehills.com

Developed WordPress based IT content site, hosted on Bitnami Linux AMI based EC2 instances with MySQL backend running on Amazon AWS cloud.

Python based projects

- Interface to snowflake data warehouse using Python snowflake connector and Jinja templates
- Used Python twisted libraries to develop a HTTP/REST server that can talk to mongo dB to fetch hierarchical data, process/analyze using NLTK (Natural Language toolkit), and pass it onto a browser/JavaScript based RESTful client over HTTP in JSON format.
- The front end is developed in JS/jQuery/HTML. Middle tier is using Django framework talking to Mongo db. We also ported this application to use Redis database instead of Mongo dB to compare the performance.

SEO/SEM

- Certified by Google AdWords as "One million click buyer". Generated close to US\$ one million lifetime AdSense revenues
- KnowledgeHills.com, sixsigmatutorial.com are developed, specializing in IT/Business tutorials, eBooks, Case Studies, Trade Publications, Jobs and other relevant content.
- Generate Search Engine Optimized Content, monetize thru Search Engine Marketing (SEM), Search engine optimization (SEO), online customer acquisition, online lead generation and web site marketing.
- Applied continuously, SEO best practices on these sites. One of my expertise areas was long tail keyword research and targeting to generate traffic for a huge list of less frequently searched keywords (long tail). Seventy thousand unique visitors visit our network of sites every month. We monetize the traffic using Google AdSense, eBooks, Online Training and Affiliate programs. All these sites are developed using Microsoft C#, ASP.NET and SQL Server technologies or WordPress.
- Worked with many clients including Google, Commission Junction and Quinstreet to run online lead generation campaigns promoting various products including CRM Software tools (QuickBooks, ACT), Online MBA and Mortgage Loans.
- SEM services include Google, Yahoo and MSN Bing Keyword Research, Long Tail, Keyword Bidding, Negative Keywords Research, Ad Copy Creation, Landing Page Optimization, Ad Copy Split Testing, Landing Page Split Testing, Ad Scheduling, Geo Targeting, clickthrough's data analysis, optimization and reporting.

- Used many SEM tools including Google AdWords, Google AdSense, Yahoo! Search Marketing, Double Click DART, Google Analytics, Wordtracker, Google Keyword Tools, Google Webmaster Tools, Yahoo/Overture Keyword Research Tools, Weblog Analysis Tools such as Smarter stats.

New Generation Consultants (12/1999 – 06/2005)

- Founder of New Generation Consultants (www.newgenusa.com). As a Managing Partner, involved in business development, recruiting IT/Programming talent to work with clients. New Generation was eventually acquired by OpenText.
- Worked as a consultant for CBOE (Chicago Board of Options Exchange) on cobe.com and cboe.org website design and development.
- Worked as an architect with EquityOffice in Chicago
- Worked as a consultant thru NewGen for Motorola as an internet/e-commerce architect.
 - o I am an *IBM Certified consultant in Planning, Implementing, and supporting the IBM WebSphere Commerce Suit (Previously Net.Commerce)*.
 - o Used IBM's Net.Commerce, Net.Data, Web Sphere, Java Servlets, JSP, Java Beans, JDBC, Perl, Linux, and Oracle 8i packages to develop Motorola's cellular online store. Responsible for all the Data Modeling, converting into Net.Commerce schema, defining the Custom tables that and writing the macros around them to fetch and display the catalog on the web.
 - o Worked on the integration of the Net.Commerce orders, shipping, billing info with 'TCOPS', Motorola's legacy ERP system on IBM main frame. Also working a JavaBean based module to export the catalog data into XML.

Ibbotson Associates (01/1996 – 12/1999) – VP and Chief Software Engineer

- *Time Series Analysis*: Developed the analyzer module for EnCorr in which user can select assets from the Ibbotson database as well as many other major vendors such as CDA, Mobius, Piper and Morningstar. One can build Portfolios with equal/fixed/time varying weights with rebalancing option, Hedge portfolio, currency convert, inflation adjust and compute rolling/independent returns etc.
- Forward Currencies, Currency conversion, hedging in EnCorr: One can create spot, 1-month, 3-month, 6-month, and 12-month forward currencies for 15 countries using JPM fc data. Stats such as skewness, kurtosis, Sharpe ratios, linear and auto regressions and rolling/independent period returns, AM, GM, Medians, Cross/Auto correlations, standard deviations are implemented.
- *Time Series Calculator using Lex and Yacc*: Created in C++, a C like language 'EnCorr Calculator Language' for time series arithmetic.
- Developed file-based time-series database containing around ten thousand assets, mutual funds, portfolios, currencies, GDP, GNP, inflations etc.
- *Financial Graphs/Charts/Controls*: In C++, Windows SDK, OWL and Doc/View architecture, the Ibbotson graphics library, containing 50+ different charts: Bar/Line/Pie/Scatter plots, index graphs, floating bar graphs, efficient frontiers with mouse-based zooming. Developed a class library of Java controls called jcx controls. One of the controls, the Tree Control has been named 'One of the best applets of the Year' by Gamelan and was published on their Applets of the Year CD.

Teaching/Mentoring/Volunteering

- Taught ASP.NET/C#/VB online using web-based conferencing tools such as WebEx.
- Taught Java/C++ in Millennium IT Training, Chicago.
- Taught Calculus to MBA and undergrad students at Marquette University as a teaching assistant.
- Taught Options and Futures to our consultants working at CBOE.
- Got elected and worked as Treasurer for two years at a cooperative society for 336 flat owners.

References are available upon requests.