

# Vishnu Palaniswamy

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## Profile

I am a Lead Engineer and Architect with 20 years of experience working on scalable architectures, distributed computing, cloud native applications, MicroServices, rich Web Applications and cloud infrastructures in various industries and enterprises. I excel at team leadership, architecture/design, development and operations. I'm passionate about building high performance systems and teams. I have led several successful projects and programs working with multiple cross-functional teams, tools and technologies.

## Specialties

- Solution Architecture and System design
- Develop high performing, high availability Microservices and web applications
- Design and development of Progressive Web Applications using modern JavaScript and CSS frameworks
- Service Oriented Architecture and Distributed Systems
- Application development, implementation, support and maintenance
- Rapid uptake of new technologies and tools
- Technology evaluation and recommendation
- Technical leadership, training and mentoring
- Delivered talks and written blogs on: Building resilient systems, Adopting Kotlin for Server-Side applications, Building Single Page Apps using Angular, Trunk based development and Feature Toggles
- Conceive, develop and implement standards, policies and best practices
- Cloud computing on Amazon AWS

## Work Experience Summary

*Advisor, Fannie Mae (2016-Present)*

Successful in leading teams and delivering projects in various Fannie Mae business lines - Single Family Acquisitions and Closing, Multifamily DUS Gateway, Desktop Underwriter, API Dev Portal and Cloud migration.

**Loan Delivery Platform Cloud Migration (2021-current):**

I lead the Loan Delivery cloud migration, which is a multi-year, multi-team, multi-release effort. We are executing on a design which reduces risk by dark-launching major components in AWS which runs transactions in parallel from a live copy of lender transactions from on-prem and run result comparisons to identify differences and address them. We expect to on-board pilot lenders by Q1 2023.

Some of my key responsibilities include working with Portfolio Architects and InfoSec Architects on overall architecture and design, decomposing the work to milestone releases, coordinating with portfolio teams, identifying and removing risks and impediments for teams, keeping leadership informed of technology and personal risks, reviewing design and code.

#### **EarlyCheck Rewrite (2020–21):**

I lead the Cloud native rewrite of the 10 year old EarlyCheck platform. Decomposed the large monolithic application into modular MicroServices developed using Chassis, with isolated responsibilities and data stores. The Native REST and Event Driven Microservices worked together using Choreography and Orchestration (SNS/SQS), deployed on containers. Reduced time to deploy a change from several weeks to 1 week. The application was opened up to pilot lenders and rollout has been successful.

#### **Desktop Underwriter Linux Migration (2020):**

Desktop Underwriter migration from SPARC/Solaris to Linux was in progress and teams were behind on timelines and unable run any transactions through due to crashes and memory issues. Few months after I joined the project, aided by my C++/Unix/debugging experience, we had integrated 90% of core components and ran transactions for weeks without a crash.

#### **Multifamily DUS Gateway APIs (2019):**

Fannie Mae's MultiFamily business needed to launch about 10 APIs in 6 months and on-board and integrate pilot lenders in a short period. FNMA's internally developed API Developer Portal was used by API consumers (Lenders) to generate keys and credentials, which had a lengthy and complex multi-step process. MultiFamily business wanted a simpler and faster experience. I led the collaboration team that bridged the API product team and the business team that improved the Dev Portal experience through this effort with brand new API and lender onboarding flow.

#### **Loan Delivery Platform (2016–18):**

Designed and developed a suite of Lender facing rich Web Applications using Angular, Bootstrap and other frameworks/libraries. The application's 60+ screens are used by different personas, displays large data volumes with a focus on usability. This was the first SPA in FNMA at this scale.

Used HTTP caching, lazy loading, Web Workers, JS modules and other techniques to deliver a fast, low latency experience. Developed a HTML Form framework that reduced the effort for adding new fields from 3 weeks to less than 1 week. I was responsible for collaboration with UX designers to achieve the right balance between user experience, feasibility and agility.

### **Miscellaneous:**

Lead the team that evaluated and executed a POC for Blockchain for the eMortgage business using Corda framework working along with Accenture.

Responsible for initiating and fostering adoption of Single Page Applications using Angular and Kotlin for Server-Side applications in Fannie Mae.

### *Principal Consultant, Capco (2014–2016)*

#### *UI Lead for Angular SPA*

Lead for the team that designed and developed the single page JavaScript UI application for a large government sponsored enterprise. The HTML5 application was developed using Marionette.js/Backbone.js and runs entirely on the browser and interacts via JSON based REST services.

The application was designed to be interactive, fast and always provide the current data to the users. The data-entry forms were designed to be keyboard driven with a focus on saving keystrokes, providing useful inline error prompts and showing HUD type information to assist quick data correction.

Tools and technologies used: Marionette.js, Backbone.js, JQuery, Underscore.js, Modernizr, Grunt, Bower, CSS/Sass, Node.js, REST, JSON, JEE, Spring, WebStorm IDE, Tomcat.

### *Principal Engineer, Amtrak IT, Washington DC (2009–2014)*

Responsible for the design, development, implementation, growth/expansion and 24/7/365 maintenance of the Enterprise Service Bus and business integration platform supporting the \$3B annual sales of various distribution channels.

- Designed and implemented a webMethods and IBM DataPower based service bus and integration platform. This platform is the backbone of all shopping and reservation sales for all Amtrak sales channels.
- Implemented a high availability WebSphere MQ based messaging platform with JMS support for guaranteed and asynchronous message processing.

- Designed and implemented 70+ WebServices and interfaces, utilized and re-used (up to 30%) across 30+ clients and partnerships with private, public and government institutions.
- Maintain and support a high availability (99.9%), high performance (>500M annual transactions) and highly secured production systems for enterprise-wide business applications (approx. \$4M/day revenue).
- Leading a team of 10 development and QA engineers. Responsible for communication, guidance and mentorship of the team. Perform regular design and code reviews to ensure quality of deliverables.
- Implemented a successful continuous integration practice where large codebases are built, tested and certified regularly, improving the quality of the deliverables and the time taken to deliver it.
- Authored several white papers, standards and policy documents on Service versioning, WebService security, WSDL and XML Schema development. Hosted several discussions and talks on these topics to build consensus and buy-in on these topics.
- Performance testing services and optimization. Implemented caching, garbage collection tuning, code optimization to improve performance of services and applications.
- Tools and technologies used: webMethods suite, DataPower XG45, Cisco Reactivity XML Gateway, WebSphere App Server, WebSphere MQ, JMS, Tomcat, ehCache, Jenkins, XML/XML Schema/XPATH, f5 Big-IP, WS-Security, REST, JSON, HTTPS/TLS, Java, JEE, Grails, Groovy, SQL, Log4J, RDBMS, JavaScript, jQuery, Spring, JMeter, SOATest, SOAPUI.

*Sr. Systems Developer, Amtrak IT, Washington DC (2004–2009)*

- Involved in defining business, functional and technical requirements for the next generation of Amtrak's ticket vending kiosk – QuikTrak.
- Involved in selection of technology directions for Amtrak. Member of team that selected J2EE Application Server, Enterprise middleware, automated test tools, UML based software design.
- Designed a Web Service for Credit Card Authorization through Amtrak's core reservation system. This service will be used by credit card other payment processing applications enabling integration of payment processing and reporting.
- Developed Reservation Web Services for Amtrak's distribution channels using webMethods software.

*Programmer/Analyst, PROCOM, Washington DC (2002–2004)*

- Designed and developed a web application for managing Amtrak's Mail and Express DropShip business. This application will be used by Amtrak to manage DropShip customers, contracts with customers, billing and an audit module for billing. Used J2EE and MVC based architecture for developing the web application. Used J2EE, Struts, LOG4J, Microsoft SQL Server 2000 and Jakarta Commons libraries.
- Member of OpenTravel Alliance (OTA), representing Amtrak in technical meetings to create Rail XML schema specifications.

- Wrote Whitepapers on commercial messaging systems and designed the messaging system architecture using IBM MQSeries for Mail and Express applications.
- Wrote Whitepapers on XML schemas, Document Type Definitions, DOM and SAX parsers and design and development guidelines for XML based applications.
- Evaluated automated test tools for functional and regression testing web based applications.
- Evaluated J2EE application servers for Amtrak's Internet Booking application and other enterprise applications.
- Developed reusable Java and C++ components for logging and debugging, database access, networking, XML parsing.

*Sr. Software Engineer, Virtusa, Westborough MA (2001–2002)*

- Designed and developed a set of Java adapters that interface with a wide variety of external sources like databases, file systems and other content management systems for importing content, workflow in to Starbase's Java based content management solution – Expressroom.
- Application required development high performance plug-ins that will help enterprises quickly migrate from their existing content management solutions to Expressroom.
- Designed and developed a plug-in architecture that works with a variety of data sources and new data sources can be integrated with minimum development.
- Technologies: Java 2, Borland Jbuilder, XML, Solaris and Windows 2000.

*Software Developer, PSI Data Systems, India (Jan 1997 - Feb 2001)*

- Developed an integrated Gas Station Point of Sale System, Intrusion detection system and Internet Explorer 6.0 plug-in.
- Developed reusable components using COM and DCOM.
- Technologies: Visual C++, MFC, ATL, Delphi

## **Education**

Bachelor of Engineering in Electronics and Instrumentation (Barathiyar University, Coimbatore, India) - 1996

## **Training and Certification**

- Architecting on Amazon AWS
- IBM DataPower Development and Administration
- IBM WebSphere Application Server Development and Administration
- Sun Certified Programmer for Java platform