# 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.

#### Summary

* **Leader**: I empower teams to achieve their potential and do their best work. I lead by encouraging intrinsic motivations and challenge teams and provide opportunities to excel.
* **Problem Solver**: I take a data based approach to analyze and solve problems which has been proven valuable in many occasions. I’m often approached by teams seeking advice on problems and often take a hands-on approach to solve problems quickly.
* **Delivery**: I take an iterative, MVP approach to product delivery, focusing on reducing risk and delivering essential business capability to users. I have delivered key business functionality in many business lines in FannieMae - SingleFamily, MultiFamily, DU, Cloud migrations and others.
* **Learner**: I’m adept at learning new business functionality, process and technologies. I have learned and delivered business functionality using multiple programming languages, platforms and tools over the years.
* **Innovator**: I use my experience and skills to come up with unique solutions to problems, large or small. My team and I have won first place in 3 separate Hackathons in Fannie Mae, competing with over 20 teams.
* **Hands on**: I’m a hands-on lead, passionate about coding and development practices. I keep myself up-to-date on languages and language features and I contribute to the codebase and have a pulse on code produced by teams and always review critical code.
* **Trusted**: I work to earn the trust of my team and peers by being transparent and accountable. I communicate risks and impediments clearly, keeping everyone informed and on the same page.
* **Diverse experience**: I have built products and systems of varying complexity using multiple tools and technologies, maintained, evolved and supported them over the years. In Fannie Mae, I have worked on SingleFamily, Multifamily, Desktop Underwriter, API Developer Portal and various proof-of-concept applications.
* **Developer Advocate**: I listen and understand the needs and thinking of the dev team and work to provide the tools and solutions to do their job efficiently and make it enjoyable.
* **Strategy**: I have worked with leadership on developing roadmaps and long-term solutions and approaches for product development, migrations, development practices, hiring/team building and others.
* **Solution Architecture**: Partnered with Enterprise Architecture and Center of Excellence teams to develop resilient, scaleable and evolutionary architectures, for Cloud native and on-premise.
* **Written and Oral communication** - I have 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

#### 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(LDNG) Platform Cloud Migration** (2021-current):

I lead the [Loan Delivery](https://singlefamily.fanniemae.com/applications-technology/loan-delivery) cloud migration, which is 2+ year, 2 team, multi-release effort. The platform is spread across on-prem, AWS 1.0 and AWS 2.0 with 20+ components and over 30+ upstream and downstream systems. Some key aspects of the migration:

* Designed a migration approach focused on reducing risk and building confidence by dark-launching major components in AWS 2.0 which runs transactions in parallel from a live copy of lender transactions from on-prem.
* Design allows for the flexibility to observe run-time behavior and compare transaction results early and in real-time, which can be tweaked to address any functional and non-functional findings.
* Collaborate and align on design and releases with Portfolio teams to allow for smooth transition when migration nears completion.
* Approach keeps up with high rate of change of the components under migration to be in sync with releases and changes by the Portfolio teams.
* Influenced and collaborated with Shared Services and infrastructure teams to close functional and non-functional gaps that doesn’t meet application requirements and SLA.

Besides the LDNG Cloud migration, I helped develop the migration approach for eBoutique(Servicing) and advice EarlyCheck(Closing) migration and rollout. I stay involved with key decisions and assist the teams with problem solving.

Some of my key responsibilities as Advisor include working with Portfolio Architects and InfoSec Architects on overall architecture and design, presenting to EARB/PARB, decomposing the work to milestone releases, collaboration with portfolio and shared services teams, identifying and removing risks and impediments, keeping leadership informed of technology and staff risks and propose solutions, design and code reviews.

**EarlyCheck Rewrite** (2020–21):

I lead the Cloud native rewrite of the decade old [EarlyCheck](https://singlefamily.fanniemae.com/applications-technology/earlycheck) product. Two teams working for a 1.5 years transformed a large monolithic architecture into 5 modular MicroServices, with isolated responsibilities and datastores, developed on Chassis. The native REST and Event Driven Microservices worked together using Choreography and Orchestration, deployed on containers.

The new product reduced time to deploy a change from several weeks to 1 week. The application was opened up to pilot lenders in 2022 and full-rollout will be completed by Fall 2002.

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

[Desktop Underwriter](https://singlefamily.fanniemae.com/applications-technology/desktop-underwriter-desktop-originator) 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 and troubleshooting experience, we had integrated 90% of core components and ran multiple transactions for weeks without a crash.

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

Fannie Mae’s MultiFamily [DUS Gateway](https://multifamily.fanniemae.com/applications-technology/dus-gateway) 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 Build** (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**:

* Member of the CIO Recruitment Marketing Campaign team that collaborates and provides feedback on marketing concepts and material.
* In collaboration with Accenture, I lead the team that evaluated and executed the Blockchain POC for the Single Family eMortgage using Corda framework.
* 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 (Bharathiar University, 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