# Chandra Sivaraman

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## SUMMARY

Hands on software architect and backend engineer. Architected and implemented backends for movie ticketing, mortgage banking, and hedge funds. Toolset includes nodeJS, .NET, AWS, SQL Server and Elasticsearch.

Designed and implemented cross-device ticketing purchase funnel, public ticketing APIs, automation jobs and admin tools at Fandango. Implemented sales tax automation workflow and ported batch load jobs to AWS serverless architecture. Architected and implemented realtime data ingestion pipeline using AWS Eventbridge and lambda.

Architected and implemented mortgage best execution models, queueing and task processing middleware, reconciliation and P&L automation at prior jobs.

Enjoy architecture, software design and engineering aspects - patterns, principles, best practices. Like to roll up my sleeves, research tools and technologies, build things and write code. Obsessive about naming and writing test-friendly code. Tool builder and user. Language enthusiast. Enjoy collaboration and mentoring. DIY and problem solving mindset.

## **TECH SKILLS**

- Languages: C#, JavaScript
- Frameworks: nodeJS, .NET Core, ASP.NET MVC, Web API, Express
- Testing: xUnit, Jest
- Databases: SQL Server, ElasticSearch
- Cloud: AWS lambda, step functions, Eventbridge, EC2, SQS, Terraform

## WORK EXPERIENCE

### Jul 2012-current Staff Engineer at Fandango, Beverly Hills, CA

- Architected and implemented data ingestion pipeline using AWS Eventbridge and serverless architecture to process and load realtime events into relational database. The data served discovery and ticketing sites and admin tools. It replaced an external subscription service resulting in \$360K annual cost savings. I nodeJS, SQL Server, AWS lambda, Eventbridge, SQS, Terraform
- Rearchitected on-premises ASP.NET data loaders to serverless architecture for scalability and cost savings. | C#, .NET

#### Core, AWS lambda/step functions, SQS, Terraform

- Designed and implemented seat map admin tool to let exhibitor services mark special seat types and link seats sold as a unit. It enabled improvements in seat map presentation and the ability to sell special seats. I jquery, JavaScript, C#
- Developed code parsing tools to inventory SQL object references across multiple codebases. This was so that application
  specific SQL accounts could be used for auditing and security reasons. The tools targeted C# and SQL code using Microsoft
  code analysis APIs. They automated and made more efficient a tedious and time consuming process and saved many a
  developer brain cell. | C#, Roslyn, TSql parser API
- Designed and implemented batch workflow in AWS to calculate sales tax for ticketing transactions. Setup Terraform
  infrastructure for step functions to orchestrate data ingestion, tax service invocations and SQL database updates. This
  project enabled compliance with tax reporting requirements. | C#, .NET Core, AWS lambda, step functions, Terraform
- Developed public ticketing APIs for third parties (Facebook, Amazon) to integrate with Fandango's platform. Designed infrastructure in Terraform for microservices and API gateway, OpenAPI contract specifications and implemented microservices to query Elastic search and expose ticketing monolith functions. Although this was a pilot project, many of the services developed are now used by the Fandango website and native apps. I nodeJS, C#, .NET, Web API, Elastic Search, SQL Server, AWS, Docker, Terraform
- Redesigned backend for Fandango ticketing platform from ASP.NET Webforms to MVC architecture. This was a) to enable better separation of concerns between presentation and business logic, b) develop a comprehensive unit test suite and c) to consolidate device specific workflows into a single flow for faster turnaround and maintainability. I C#, .NET, ASP.NET MVC, SQL Server, JQuery, xUnit, Moq
- Developed data cleansing automation job for PCI/PII compliance. Designed database schema to enable data-driven approach to customizing target fields and cleansing logic. Designed and wrote C# classes to implement the core logic. I C#, .NET, ASP.NET, SQL Server
- Developed store credit feature to support ticket returns. Designed database schema to store credit/debit transactions using running totals to track current balance. Designed business layer classes using decorator to recalculate store credit applied to the order as users added/removed other payment methods. The store credits feature enabled users to recoup the service fee when returning tickets as opposed to returns to the payment instrument which resulted in forfeiture of the fees. | C#, .NET, ASP.NET, SQL Server
- Developed service to lookup service fees for ticketing transactions. Developed a rudimentary JSON language stored in SQL tables for business rules that could be applied to the lookup. This enabled the rules to be viewed and modified from an admin interface. This feature enabled service fees to be highly customizable to cater to different market segments. | C#, .NET, ASP.NET, SQL Server
- Developed customer service chatbot to provide customers quicker service for common requests. Cost savings were a nice side effect. Microsoft's LUIS language model was used on the backend to handle complex queries. Since LUIS was expensive, used adaptive cards to pre-filter and handle most common queries such as refunds and gift card balance inquiries. I nodeJS, adaptive cards, LUIS

#### Feb 2010-Jul 2012 System Architect at Tennenbaum Capital, Santa Monica, CA

- Designed and developed WinForms reconciliation tool with diff/merge feature to automatically reconcile security instruments across multiple systems. It provided significant improvement in data accuracy while eliminating manual reconciliation effort. I C#, .NET, WinForms, SQL Server, LINQ
- Developed an automation job to generate a real-time P&L report for funds. Implemented a loader to aggregate multiple data feeds into a relational database. Designed a report builder template to format the data for the report. It eliminated manual error and provided uptodate data on demand for faster and more accurate trading. I SQL Server, SSRS, Excel pivot tables

#### Feb 2003-Feb 2010 VP Application Development at Bank of America, Calabasas, CA

- Led team to develop fixed income models for mortgage best execution. The results fed into trading and securitization systems. Developed a variety of fixed and adjustable rate models for agencies and private label securities. Turned Excel models into production-grade code capable of processing half a million loans within a short window in time for market opening. I C++, ATL, C#, .NET, SQL Server
- Conceptualized and implemented a metadata viewer to search for and view transformation rules for loan fields. Many of the rules were in source code, and others were in database mapping tables. The viewer consolidated it all into a single interface. Implemented a backend scraping process to extract and index rules from source code repositories and database tables. Designed a web interface to query and visualize the index, including a control to navigate source code and drill down into function calls to an arbitrary nesting level (with the obvious checks for recursive functions). This tool empowered business analysts and provided relief to developers from frequent inquiries. I C#, ASP.NET, SQL Server, Regular expressions

#### Jul 2001-Jan 2003 Senior Engineer at Ocwen, Carlsbad, CA

 Architected and implemented task processing middleware for RealTrans mortgage platform, featuring plugin architecture for handling a variety of message formats and transmission protocols, multithreading support and automated retry logic. | C++, ATL, VB, COM, SQL Server

#### Jan 2000-Jun 2001 Principal Engineer at NCommand, San Mateo, CA

 Architected parts of message queue middleware for mortgage platform including load balancing, automated retries with backoff, and resiliency improvements. | C++, ATL, VB, COM, SQL Server

## **EDUCATION**

1995 Bachelors, Electronics Engineering, VJTI, University of Mumbai, India