



VIVA Provider Search

A Case Study by CCG

Project Overview

The VIVA HEALTH provider search is a critical tool for their Medicare, commercial, and Medicaid plans. It serves both current members looking for in-network care and potential members evaluating plans. Ensuring accuracy of this data is not only important for user convenience but is also a requirement by the Centers for Medicaid Services (CMS), with financial penalties for non-compliance.

CCG partnered with VIVA to engineer a robust solution that process and validates provider data nightly. This system has evolved to become a cornerstone of VIVA's data management, ensuring accuracy, compliance, and a seamless user experience. The core engine has been successfully adapted to handle different data feeds for Medicare, commercial, and Medicaid plans, showing its flexibility and robust design.

The Problem

The core challenge was to ensure that VIVA's provider data was consistently accurate, accessible, and compliant with CMS regulations. Listed below are some of the challenges that were encountered:

- The previous system had become inefficient and difficult to maintain after years of small additions.
- While the old system displayed data, it lacked the mechanism to formally prove its accuracy to meet stricter CMS regulations.
- The nightly data import process on the old system took over two and a half hours to complete, creating a long window where data could be out of sync.
- Key tasks, such as creating and updating the printable provider directories, were highly manual, time consuming, and only done a few times a year.

The Goal

The primary goal was to re-engineer the provider search into a reliable, accurate, and efficient system that eliminated manual bottlenecks and ensured constant availability.

- Develop a system with robust validation checks to guarantee data is correct and meets all CMS requirements.
- Automate the generation of provider directories to ensure they are always up-to-date without human intervention.
- Greatly reduce the nightly data processing time from hours to minutes.
- Design a solution that remains online and accessible to users 24/7, even during nightly data updates, to prevent user frustration.
- Create a flexible, scalable architecture that could be easily expanded to handle new data requirements and business lines without a complete rewrite.

Discovery & Research

The decision to build a new system was driven by a combination of factors identified through a collaborative discovery process.

- New CMS regulations emphasizing the importance of data accuracy served as a primary catalyst for the project.
- The previous system's age, inefficiencies, and outdated technology made it clear that a clean slate was needed to meet future demands.
- CCG worked closely with VIVA to document all requirements in a formal statement of work, ensuring all stakeholders were aligned with the project's objectives and scope.
- A deep dive into the existing data sources revealed opportunities for significant cleanup, standardization, and validation, which became a core part of the new system's design.

Meet the Users

The provider search system serves several key user groups, each with their own needs:

- VIVA Members & Prospects - The primary audience, who use the public facing search tool to find in-network doctors and facilities.
- VIVA Customer Service - Relies on the tool to quickly and accurately answer member questions about provider coverage.
- VIVA Enrollment Teams - Use the system during Medicare Advantage enrollments to help new members confirm their doctors are covered and select a Primary Care Physician.
- VIVA Provider Search Team - Utilizes a custom back-end tool set created by CCG to manage data, review validation reports, and manually override data when necessary.

The Solution

CCG engineered a modern, robust, and scalable software solution built on well-built engineering principles to be both powerful and easy to maintain. The new system is designed for longevity, replacing the old platform with a highly efficient and automated engine.

The solution features an “always-on” architecture, meaning the provider search is never down for maintenance, even as fresh data is loaded nightly. The data import process itself was streamlined, cutting processing time from over two hours to just seven minutes. At its core, the system was designed with object-oriented principles and an expandable database structure, allowing it to seamlessly incorporate new data sources and features without major overhauls.

Advanced Data Validation & Accuracy

A key feature of the solution is its multi-layered approach to ensuring data accuracy, which fosters a true data partnership between CCG and VIVA.

- Every provider address is validated nightly against the official U.S. Postal Service database to catch and flag errors.
- The system automatically generates and sends a report to VIVA stakeholders each night, detailing the import results and highlighting any data that appears invalid or malformed. This allows VIVA's team to quickly correct issues at the source.
- Extensive data cleanup rules were implemented to improve the quality and readability of the data. This includes standardizing entries and applying proper-casing to names, even for complex cases like "O'Reilly" or "MacMaster".

Automated Provider Directory Generation

The new system completely automated the creation of printable PDF provider directories, transforming a manual, rare task into a reliable nightly process.

- Directories that once took significant manual effort to produce a few times a year are now automatically rebuilt every night using the most current provider data.
- CCG built a back-end interface that gives the VIVA team full control over the directories. They can edit cover pages, introductory text, and the logical grouping of providers without any developer assistance.
- This automation ensures that VIVA's printable directories are always up-to-date and available on the website, keeping them in compliance with CMS regulations automatically.

Project Impact & Results

The new VIVA Provider Search system has delivered significant, measurable improvements and positive feedback.

- Nightly data processing time was reduced by **over 95%**, from 2.5 + hours down to around 7 minutes
- The system has run successfully for years without needing constant developer intervention and has been successfully scaled to support VIVA's commercial and Medicaid lines of business.
- The solution has made the job of VIVA's provider services team significantly easier, according to VIVA's team.
- The automation of provider directories has saved countless hours of manual work and ensures VIVA remains compliant with CMS regulations.

Key Learnings

This project reinforced several of CCG's core software development philosophies and set the standard for future work.

- Investing the time to properly engineer a solution upfront drastically reduces long-term maintenance costs and creates a more stable, reliable product.
- Recognizing that up to 85% of software's life is spent in maintenance, not initial development, underscores the importance of building clean, understandable, and expandable code from day one.
- The project's success was built on a close, collaborative partnership with the client, ensuring the final product not only met but exceeded their needs.

Next Steps

The continued successful and autonomous operation of the provider search system is the goal. The principles of robust engineering and deep client collaboration demonstrated in this project will continue to be applied to all future software development initiatives.

