

# Case Study: Leading Non-Profit



## Services Provided

- Data Lake Creation
- BI Visualization
- AWS QuickSight Integration
- Data Quality Processing
- 3rd Party Data Enrichment
- Multi data source integration
- Strategic Business Insights
- Python & R Integration for Predictive Model Building
- Product Modeling
- Customer Modeling
- On Demand Analyst Services
- On Demand Data Technician
- On Demand Solution Architect

“Volunteer New York! has gained valuable knowledge about our volunteers and donors thanks to Cruz Street. Through their work using AWS and QuickSight, we will be able to apply the findings and increase our effectiveness working with volunteers and for our community.”

Alisa Kesten  
Managing Director, VNY!

**Volunteer New York!** also known as **VNY!**

Non-Profit Leader Serving Over 400+ Other Non-Profits in New York State

## Business Challenge

Volunteer New York, a leading non-profit supporting volunteerism, had goals to increase both volunteerism and donations. They had little visibility and comprehensive understanding on how these two populations chose to take action. They wanted to focus on growth and retention but needed a data driven customer profile to help build their strategy. The organization had many disparate data sources where customer data resided with no single customer view, broken lead flow, and lack of insight. The company’s digital marketing team needed a partner who could help with business intelligence and strategy.

## Solution

Volunteer New York hired Cruz Street to build a growth strategy based on business intelligence. Cruz Street also served as advisor and solution architect for a predictive model and data lake solution that would provide Volunteer New York an opportunity to improve insight, lead flow and prioritization, and improve overall marketing efforts.

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### About Cruz Street

Cruz Street aspires to simplify data science and make it actionable for organizations, no matter their size or current journey. We wish to enable businesses to take advantage of business intelligence for making smart, future thinking decisions about the way they transact and engage customers.

### Data Science for All

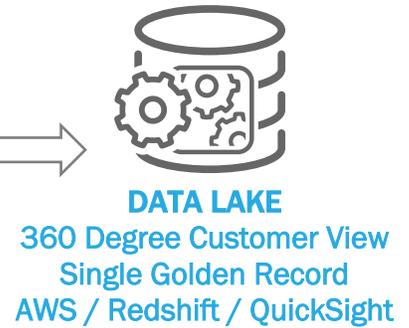
Data science should not be available only to those at the top of industry. Cruz Street wishes to accelerate the business world’s implementation of data science to better understand their customers, solve challenges, and driving better customer experiences through predicting customer preferences.

# Challenge & Solution

## Disparate Customer & Lead Data



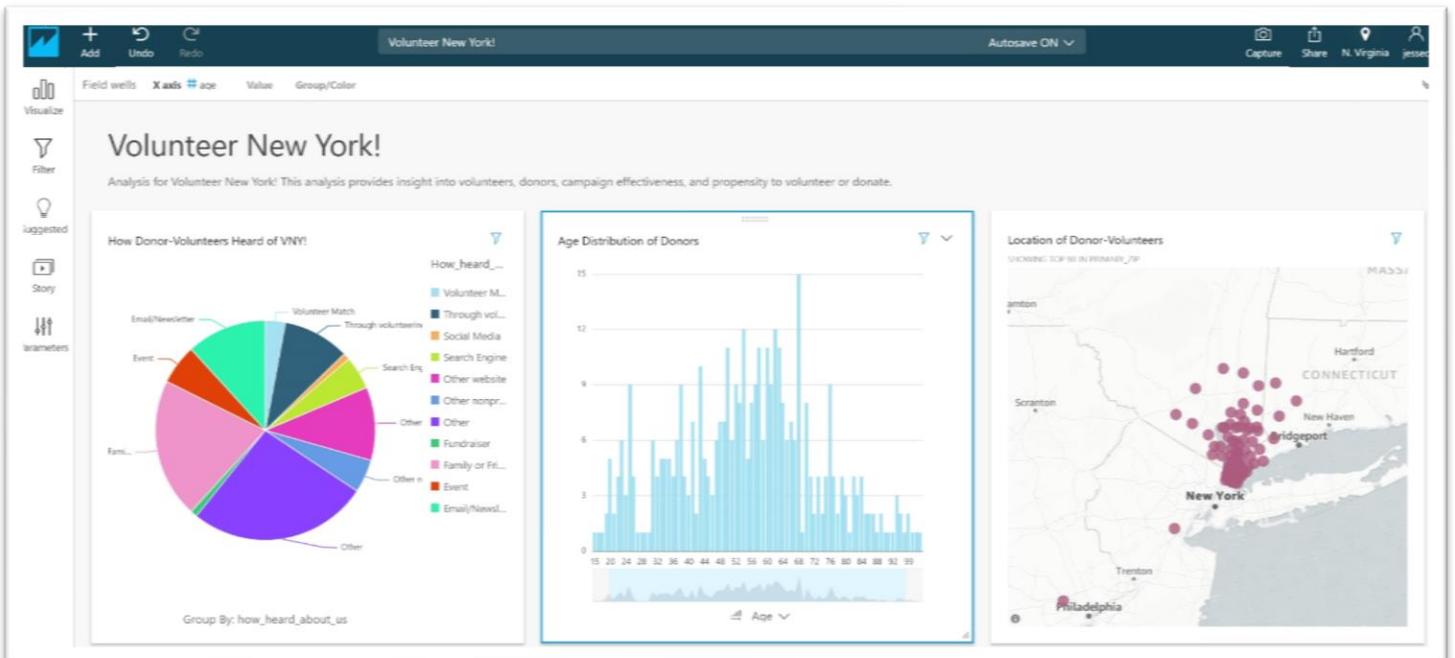
## Solution



## Challenges

- Lead Flow Challenges
- Lack Of Single Customer 360-degree View
- Data Interoperability
- Inability To Target By New Data Sources
- Poor Business Intelligence Capability
- Poor Data Quality

## Cloud Hosted Multi-User Access



# Case Study Details

## Case Study Overview

VNY suffered from a similar issue that many businesses experience - there is no single source of truth and single customer view. Multiple databases were blended, including marketing, product, eCommerce, and lead data, to create the single golden record within the AWS data lake. A data warehouse to bring all these sources together would have been time consuming and expensive. To make matters worse VNY's IT organization was overburdened and finding resources to build a solution in house would have taken significant time, effort, and committed resources. The organization had licenses of well-known BI tools but when the need to build dashboards organizationally became a priority, the costs of licenses for those tools were prohibitive. QuickSight solved a need for speed, pay as you go competitive pricing, and some of its automations reduced the cost burden on their overall solution.

VNY realized immense benefit from the newly created data lake through insightful visualizations provided through QuickSight. Through a mix of an interactive maps, cross-tabulations with table calculations, bar charts with drill-down capability to illustrate distributions, and tracking results over time, VNY was - for the first time - able to analyze data across the sales cycle. Specifically, the team was able to analyze the demographic breakdown (age, location, education level) of leads and converted sales, geographic hotspots of leads and conversions across time, and determine the highest performing campaigns and URLs leading to sales conversion.

The data driving these insights were managed through 1st party multi-source data ingestion, data quality processing, 3rd party data enrichment, and data manipulation and blending, ultimately leading to QuickSight visualizations. Rapid iteration was possible through on demand analyst services and user access provided to key stakeholders.

User onboarding and training was minimal as the QuickSight visualizations and interface was largely intuitive.

# Case Study Details

## Enterprise BI Dashboards

The client was provisioned access to key stake holders across the organization. For a deployment like this, authors of the dashboards include the client (who is the subject matter expert on the products being sold), the Cruz Street analysts helping with dashboard creation, and the data engineers whose job it is to ensure proper data quality and data transformation for data visualization. Overall 5 Authors and 15 Readers were provisioned with the potential to add dozens more as the tools are more widely accepted and expanded organizationally. This coupled with the ability to share embedded dashboards to specific team members make this a unique solution. This client was provisioned access both through regular QuickSight BI author and reader views as well as an embedded dashboard in the MyCDO data platform.

## Security, User Authentication and Data Ingestion

Cruz Street deployed Cognito for user authentication from the portal as part of its platform access strategy, allowing Authors and Readers secure access to embedded dashboards. Cognito has allowed us to bring together all access points of the platform including Drupal, AWS QuickSight, and more.

From a security standpoint, Amazon S3 provides a critical component for data ingestion and orchestration, while also working seamlessly within our broader data management, security and compliance strategies. Our platform integration solution provides a secure, encrypted (both in transit and at rest) data transport and delivery mechanism that employs a least privileges access model, providing each client exclusive access to the secure cloud storage they need. In addition, S3's pay-as-you-go, scalable architecture allows Cruz Street to effectively manage client workloads while keeping an eye on cost-optimization.

## Advanced Features Deployed

In addition to featuring QuickSight Embedded Dashboards from within the Cruz Street MyCDO portal, our Dashboard also includes a Machine Learning-powered forecasting capability that can project expected new record counts a month in advance. Not only is there rich historical data to draw from, but the client was able to predict new lead records adjusted for seasonality.

# Case Study Details

## Data Services Rendered

In the discovery phase, a Cruz Street data engineer identified various VNY data sources to integrate, including marketing data, revenue data, and contact data from a half dozen data sources. Upon receiving the data from the client, we merged and structured data for compatibility with QuickSight BI.

All datasets are sure to have some outliers, which can skew the results of the analysis. Consequently, the data was cleaned thoroughly for high-quality analysis. Null values were changed, and formatting (dates, etc...) was standardized in order to prepare the data for ingestion.

Along with standardization, we validated the data programmatically for consistency, quality and security to complete the data cleansing process. Next, final inspection of all prepared data is performed before the data is securely copied to S3 managed buckets so that it can be used further down the line within the MyCDO, AWS data lake infrastructure. To prepare the data for analysis, pipe delimited files are bulk loaded into an Aurora schema into respective tables to complete the load into RDS.

Once the data was ingested into the AWS data lake, validation scripts were run to ensure data quality. As part of the creation of the QuickSight Analysis, two data sources were created within QuickSight SPICE, dramatically improving demographic reporting by appending client lead data with 3rd party enrichment data.

## Case Study Summary

Like many growing organizations looking to become data driven, VNY focused their energy on the rapid delivery of insight and leveraging the prebuilt Cruz Street analyst services and technology to build a solution for their ever-increasing data challenges. By breaking down data silos and leveraging a data lake solution to ingest all of their customer data, VNY leveraged the speed to value of Cruz Street's data infrastructure to help them visualize their donors and volunteers. VNY was also able to score their database using a predictive donor and volunteer propensity model to define who was their best donor and volunteer so that they can go out and find more of both. Because of initial success the project is ongoing.