cogent infotech

Case Study

Vermont Department of Health (VDH)

The Business Problem

The Vermont Department of Health currently maintains multiple independent data systems. While many of these are integrated to facilitate data sharing and reporting the Department does not currently have a central data warehouse. The scope of this work is limited to design and planning. The primary products to be produced via this effort include a VDH Data Warehouse Strategy Report, technical architecture, data model, data flow, and data architecture models as outlined in the deliverables section of this document.

Solution

We used Azure Databricks and Azure SQL Data Warehouse to establish the Modern Data Warehouse. Azure SQL Data Warehouse is an elastic, globally available, cloud data warehouse that leverages Massively Parallel Processing (MPP) to quickly run complex queries across petabytes of data. Azure SQL Data Warehouse provides a familiar interface for your analysts who know SQL and want to drive action in your business. With the general availability of the Azure Databricks Service comes built-in support for Azure SQL Data Warehouse. This enables any data scientist or data engineer to have a seamless experience connecting their Azure Databricks Cluster and their Azure SQL Data Warehouse when building advanced ETL (extract, transform, and load data) for Modern Data Warehouse Architectures or accessing relational data for Machine Learning and AI.

About Cogent Infotech

Founded in 2003, Cogent Infotech is a trusted, award-winning firm with **21+ years** of experience**, 150+** government contracts, **10,000+** projects, and a 96% employee retention rate. Recognized as an SBA Small Business and MBE-certified, we deliver excellence through diverse talent, AI-driven recruitment, and cooperative contracts like NASPO Value Point and TIPS-USA.

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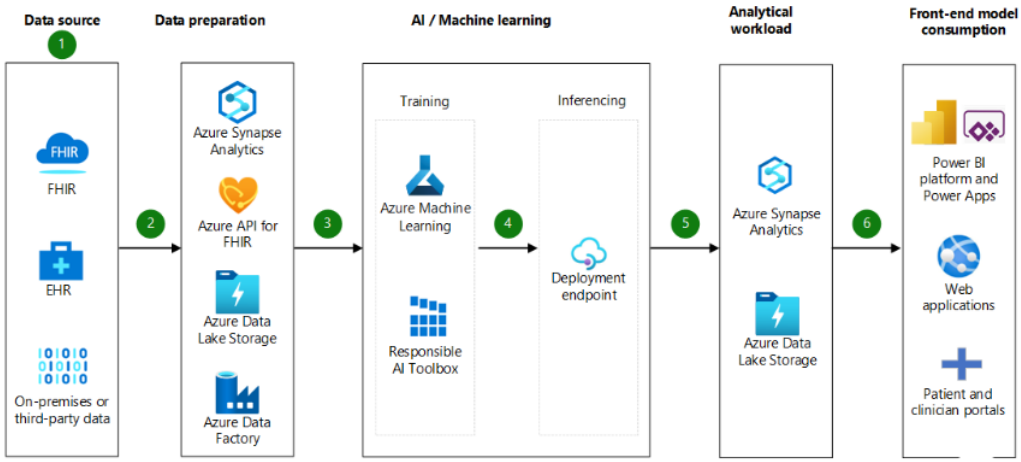
Solution Design



Risk Analysis

- Data Security Risks
- Compliance Risks
- Operational Risks
- Data Integration Risks
- Vendor Lock-in Risks
- Cost Management Risks
- Data Governance Risks
- Disaster Recovery and Business Continuity Risks
- Change Management Risks
- User Training and Adoption Risks

Best Practices

- ✓ Define Clear Objectives
- ✓ Data Collection and Preparation
- ✓ Data Governance and Security
- ✓ Exploratory Data Analysis (EDA)
- ✓ Statistical and Machine Learning Models
- ✓ Data Visualization and Reporting
- ✓ Scalability and Performance
- ✓ Continuous Monitoring and Iteration
- ✓ Collaboration and Knowledge Sharing
- ✓ Ethics and Bias Mitigation

TECHNOLOGIES

- Azure Data Factory (ADF)
- Azure SQL Data Warehouse
- Azure Data Lake Storage
- Azure Analysis Services
- Azure Blob Storage
- Azure Data Explorer
- Azure DevOps
- Azure Monitor
- Azure Resource Manager (ARM) Templates
- Azure PowerShell and Azure CLI

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