Customer: Southern Dental Aliance

From website: Southern Dental Alliance operates over 35+ locations across the southeast under five main practice identities. With a vision to be the best dental support organization in the southeast, while also facilitating excellent care for all people. Southern Dental Alliance creates ongoing partnerships that help dental practices grow by leveraging unique resources and extensive experience to optimize daily operations, enabling dentists and dental professionals to focus on providing excellent care to their patients.

The Challenge

Southern Dental Alliance had been experiencing challenges managing its patient support systems and associated data as the practice has grown. Each office was equipped with its own local server and database infrastructure supporting its on-premise applications and an internet connection providing connectivity to centralized Cloud based SaaS solutions. With data residing in multiple physical locations and spread across various systems and formats, data centralization, security, systems integration and centralized reporting became an ever-increasing challenge.

Southern Dental Alliance contracted eCloud Managed Solutions to identify a go-forward Cloud strategy to allow them to centralize their platforms and data repositories, create API integrations between key systems and provide increased uptime and availability while controlling costs and ensuring adherence to security and compliance requirements within the healthcare industry.

Project scope:

☐   Identify and contract with the most cost efficient and secure public cloud provider for Southern Dental's specific needs and requirements

- Migrate all data into a common centralized repository and format

- Develop and maintain a cost-effective and secure data warehouse environment

- Develop and maintain a HIPAA compliant systems environment and operational framework

- Provide regional offices the ability to query data and pull\ publish scheduled and adhoc reports in a HIPAA compliant manner

- Provide environment scalability and elasticity within a HIPAA compliant framework to support Southern Dentals consistently growing office footprint

- Provide data protection and recoverability capabilities within a HIPAA compliant framework

- Integrate Microsoft applications, such as Active Directory, SQL Server, DNS, Dentrix, EagleSoft and Certificate Services into the cloud-based environment

- Provide SSL VPN integration capabilities between Southern Dentals 35+ offices and the next generation cloud solution

The eCloud Solution

eCloud began with a detailed analysis of Southern Dental's goals and requirements and helped guide them through the vendor and cloud partner assessment and selection process. In this case AWS was the best choice to meet Southern Dental's scalability, security and cost requirements. From there, eCloud developed the architectural design, automation framework and real-time data migration\ replication strategy.

During the vendor selection process, Dyiotta was selected for ETL (extract, transform, load) tooling, due to its ease of use, plethora of built-in integration connectors, cost modeling and the speed and simplicity of building new connectors. Snowflake was chosen for the data warehouse environment due to its serverless consumption model, scalability and functionality.

Within AWS many partner and core services were leveraged. CloudFormation, Amazon Machine Image's (AMI's), CloudWatch,

CloudTrail, GuardDuty, AWS Config, Identity & Access Management (IAM), Virtual Private Cloud (VPC), Simple Storage Service (S3), Elastic Compute Cloud (EC2), Multi-AZ MySQL RDS, VPN Gateway, AWS Key Management Service (KMS), AWS Shield, Directory Service, Route53 and AWS Certificate Manager.

Single-sign-on (SSO) federation between AWS and Active Directory was then implemented and the new environment connected to each of the independent offices, utilizing redundant, highly available, secure and encrypted connections via an OpenVPN SSL solution.

A key requirement of the new architecture was to provide improved scaling for future growth, along with the necessary redundancy to ensure uptime and highly available operations. Amazon RDS for MySQL was incorporated to help ensure that the underlying database could scale to the demands of the application. eCloud implemented Amazon RDS to automatically maintain synchronous copies of the database in each of the AZ's in use.

AWS Deployment Diagram:
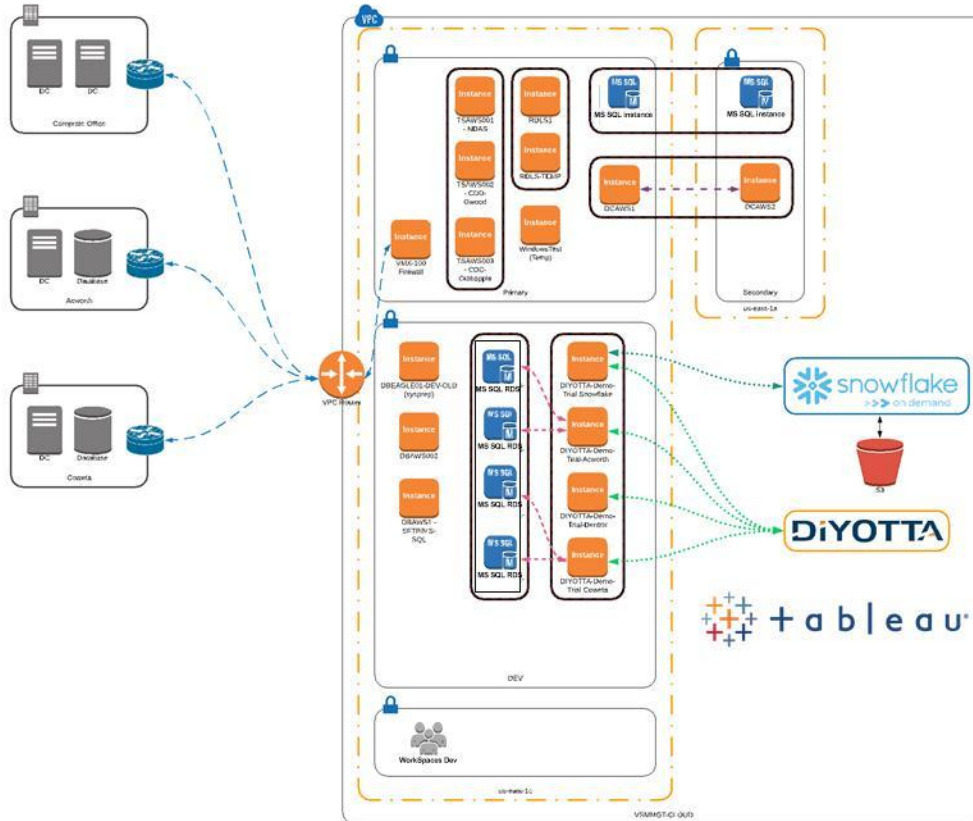
Outcome:

Southern Dental Alliance was able to mature their infrastructure capabilities, reduced IT management overhead and implement a controlled/ automated method for consolidating data from its many data sources. This allowed for reporting across the multiple practices, to help them identify similarities in business, cross-sell/ up-sell opportunities to allow for increased profitability, reduction in claims processing overhead and streamlining of operations related to running each dental practice. All single points of failure were replaced with highly available systems or risk mitigated with automatic failover configurations. The new environment is elastic, cost effective, highly scalable and the new infrastructure automation drives the quality, automation and uniformity of reporting across all practices.

Post Implementation Details

Migration completion date	10/2018
Root account owner	Southern Dental Aliance
Business Associate Agreement	A BAA exists between Southern Dental\ AWS