Azure Brings Smiles to Smile Design Dentistry

The Smile Design family is all smiles after migrating their Dentrix dental practice management system to Microsoft Azure. The patient and doctor experience is improved, new dental practices can be quickly onboarded and operational costs are more predictable.

Smile Design Dentistry is a growing family dental practice with locations throughout central Florida. They have grown to twenty-six offices and foresee continued growth through acquisition. When a dental practice is brought into the Smile Design framework, efficiencies are gained that allow the practice to become more price competitive. The digital capabilities provided by the Dentrix solution are a big part of those efficiencies and meeting new patient demands.

Problem

The Dentrix solution was hosted at a private cloud provider whose capabilities were lacking. Network bandwidth was limited and adding processor or disk capacity was difficult and slow. Operations and support was poor and Smile Design became dependent upon the private cloud provider for running their business. These issues were slowing practice growth and limiting business opportunities.

Solution

Smile Design reached out to Microsoft for guidance, and Microsoft engaged a top gold cloud partner, Cloud 9 InfoSystems Inc. The Cloud 9 and the Smile Design teams worked closely together to design, build, and migrate Dentrix to a secure public cloud platform.

Design

Dentrix is a two-tier application that leverages a database for patient records and file services to store images. The Dentrix client application and other productivity software is virtualized and published from Microsoft Remote Desktop Services (RDS) running on virtual machines.

The design leverages Azure Infrastructure as a Service (IaaS) services deployed at two regions for redundancy. Virtual Networks at each region were deployed and connected via a gateway. Virtual machines were provisioned to run the solution software (Windows Server, SQL Server, Dentrix). Network Security groups were setup to provide firewall protection and point-to-site VPN was configured for securely managing the solution.

Key aspects of the design:
· All data is encrypted in transit and at rest
· All TCP/IP communication is restricted to Smile Design offices
· All virtual machines are scanned for missing patches and vulnerabilities
· All virtual machines are replicated to another region

Build

Cloud 9 built the environment leveraging customized JSON templates and PowerShell scripts. This automated approach reduced deployment time and provided a set of tools to maintain the solution going forward. Tools to automate SQL backups, Network Security Group rule management, Point-to-Site VPN

client configuration and disk encryption developed. The environment was tested and verified for functionality and performance using test data.

Migrate

A big challenge for the migration was moving the large amount of image files (multiple terabytes) into Azure. A network transfer of such a large amount of data was not feasible given the private cloud providers limited internet bandwidth. The transfer was achieved leveraging the Azure Import/Export service. This service facilitates the physically transfer disk drives to Microsoft for upload to Azure Storage.

The rest of the migration involved finding a time window to complete the transfer of the database and the copy of any new image files. To avoid interrupting dental services, the migration was planned to take place over a weekend. Smile Design IT executed the migration and leveraged Cloud 9 for to resolve issues that arose during testing and verification.

Why all the Smiles?

Patients, dentists and the whole smile Design family are realizing benefits from this transition to Microsoft Azure. Improvement has been realized in the following areas.

PERFORMANCE - The system is more responsive due to the network and computing capacity provided by Azure. Dentists and assistants can more quickly complete tasks and patients can more quickly schedule appointments or view results.

RELIABILITY – The system has remained available since its deployment. The storage redundancy and virtual machine replication give Smile Design comfort that no data will be lost in the event of an outage.

SCALABILITY – Smile Design can increase the computing power as needed to onboard new dental practices to grow their business.

SECURITY – Microsoft Azure provides the physical data center security, which provides all the necessary certifications required for compliant health care services. A secure design that is monitored through the Azure Security Center ensure that the solution remains secure.

OPERATIONS – Automation tasks have been created for managing SQL backups and starting and stopping virtual machines on a schedule. The tasks ensure that resources are being utilized efficiently and costs are controlled. The Smile Design IT can monitor their environment using Azure portal dashboards and Cloud 9 has provided the tools to quickly complete operational tasks.