Healthcare Claims Processing
SQL Server, Azure DevOps, and Cohesity

The healthcare industry is criticized for lack of innovation, but one area of progress is claims processing. Claims processing is a competitive marketplace with customer rights to audit. As a result claims processing continues to use private data centers and clouds. HIPAA requires strict security, but leaders in healthcare claims processing are making good progress in modernizing software and service delivery.

Business challenges

A leader in healthcare claims processing needed to modernize development and test with continuous integration. Front-end development was migrating to .NET core and adopting a Linux PaaS platform. The back-end ran on SQL Server 2014 with the full stack of SQL Server services. While internal SQL development is free of end-customer data, the environment involves over two dozen databases occupying approximately 1 TB. The size and complexity of the database environment has hindered adoption of a Continuous Integration process.

Any CI pipeline adopted must also support customer specific development and test. Each customer requires additional development for reporting, BI, and other improvements. Customer facing development will involve customer data, and requires auditability for regulatory compliance. A final requirement is support for a new Cohesity based secondary data storage.

SQL Server containers and secure database clones

The adoption of Pivotal Cloud Foundry for front-end development, combined with Microsoft’s emphasis of Linux containers for SQL Server 2017 and 2019, led to investigation of SQL Server containers for the updated SQL Server back-end development. A Proof of Concept was launched with Windocks installed on a single 4 vCPU core, 32 GB, Windows Server 2016. The POC utilized Windows Virtual Hard Drives (VHDs) for delivery of database environments, and supported 20 simultaneous environments on 2 TB of local disk. Environments are delivered in 30 seconds, and users self-provision environments using a simple web UI. At the same time Git was adopted for branch based source control, along with Azure DevOps pipelines.

A security review approved the solution for security and regulatory compliance, and required support for auditability and reporting. An important aspect of the security was support for existing enterprise infrastructure including Active Directory and Windows authentication. Data environments also include data masking, encryption, and include data tags for audit and reporting.
The system has scaled to multiple servers to support internal development, and has transitioned to use Cohesity storage for database clone management and delivery.

**Simplicity, speed, and scale**

The POC, and subsequent rollout for internal development and test has delivered a more agile system, with TB class environments delivered in seconds, while reducing the number of VMs used by 15:1. Storage usage has also been reduced by 99%. Other highlights include the easy integration with existing and new enterprise infrastructure, including Windows authentication, and new Cohesity based storage, and restful API support for integration with Azure DevOps, and Pivotal Cloud Foundry.

The SQL Server back-end process has also benefited from a Windocks Resiliency Service, which simplifies management of Windows updates, returning the dev/test systems to the state preceding the updates. Other improvements include introduction of SQL Server containers with SSRS support.

Starting with an arguably larger technical challenge, the database development and test organization has surpassed the front-end application team in modernization. In the past year the solution has scaled to support multiple teams and servers, with Continuous Integration that involves Git and Azure DevOps. Database cloning has also transitioned from Windows Virtual Hard Drives to the Cohesity storage array for further performance and management benefits.

**Future ready your SQL Server development**

All signs point toward a future with an increasing role of SQL Server containers for enterprise software development. Windocks is a leader in enabling modernization of SQL Server development and test, with support for all editions of SQL Server 2008 onward, and for any enterprise storage array. You can begin to explore use of SQL Server containers and database cloning today, by downloading the free Windocks Community Edition.

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**About Windocks**

Windocks combines Docker Windows containers with SQL Server database cloning, for a modern, open data delivery solution. Enterprises modernize application development, testing, reporting and BI with existing licenses and infrastructure, at a fraction the cost of alternatives.

For additional information, visit [www.windocks.com](http://www.windocks.com), or contact Windocks at [info@windocks.com](mailto:info@windocks.com)