PowerBuilder Upgrade and Migration to SQL Server

Client: New Financial Services Client
Business Size: Corporation
Industry: Financial Services
Country: UK
Technology: PowerBuilder 2022R3, SQL Server 2022

Objective: Upgrade of a Suite of PowerBuilder Applications and Migration from Sybase ASE to MS SQL Server

The Brief

OCS Consulting was requested by a new client to support a suite of PowerBuilder applications, upgrade the applications to PowerBuilder 2022R3, and migrate the databases from Sybase ASE to SQL Server.

Background

OCS Consulting was tasked to take over the support of six PowerBuilder applications, and existing Sybase ASE databases.
Then upgrade the applications to PowerBuilder 2022R3, some from PowerBuilder 6.5, and some from PowerBuilder 2019R2, to ensure that all applications were on supported software versions.
Included in the upgrade project was the migration of three databases from Sybase ASE 15.0 to MS SQL Server 2022.

Methodology

The project started with knowledge transfer from the existing support company. At this stage it was decided to upgrade the applications to PowerBuilder 2019R3, as it was not possible to obtain PowerBuilder 6.5. These applications were left on the shelf ready to be utilised if required.
The OCS team then used the Microsoft SQL Server Migration Assistant to migrate the Sybase ASE databases to SQL Server. Once the basic migration was completed the team reviewed all comments made by the migration assistant, resolved any issues and removed the comments where no changes were required.
Once this stage was completed, all the non-SQL Server complaint code was updated in the applications, and the applications upgraded to PowerBuilder 2022R3.

Migration process was fully documented and scripted to ensure that the migration could be executed by the client multiple times.

The OCS team then did integration testing of the applications and resolved any issues found.

The applications were then passed to the clients testing team who performed a full regression test, with the OCS team working collaboratively fixing issues as they were reported by the client, the applications were then passed to the business for User Acceptance Testing.

Go-live was then scheduled for a weekend, and the client executed the migration with support from the OCS team, with the business on-site on the Sunday to ensure transactions could be processed as expected.

The applications and databases were available on the Monday morning as expected, with OCS providing Hypercare, and resolving a few minor issues over the next few days.

Consultant Contribution

The consultants played a vital role first taking over support and then upgrading the applications and databases:

- Documented the applications to provide a Service Establishment document to be used by all consultants.
- Successfully upgraded the client's core applications from PowerBuilder 6.5 and 2019R2 to PowerBuilder 2019R3, resolving some inheritance issues.
- Migrated three databases from Sybase ASE to SQL Server using SQL Server Migration Assistant.
- Resolved any issues not automatically fixed
    - NOHOLDLOCK replaced by (NOLOCK)
    - Non-ANSI join syntax replaced
    - Sybase ASE treating NULL as empty string
    - Sybase specific computed field used in an index
    - Case statements returning NULL as no final else clause
    - Date/time conversions corrected
    - Removed Sybase index hints
- Replaced Sybase database replication with views as it was decided to simplify the deployment onto a single server.
- Migrated Sybase users to SQL server with Random passwords generated.

- Updated applications to ensure all SQL is compliant with SQL Server.
- Upgraded all applications to PowerBuilder 2022R3
  - Resolved issue with SHA-1 data file signature process
- Provided a way to run one of the applications as a windows service as it executed batch processes.
- Tested all applications to ensure they continued to function as expected.
- Supported the QA test, UAT test and the Go-live process.
- Provided Hypercare, and resolved minor issues post Go-live.