



Modernizing Your **SQL Server Workload**





Introduction

This document will help you plan, design and implement a process for migrating your SQL Server workloads from any source location to any target location. Migrating and upgrading SQL Server workloads from one environment to another can be difficult, even for the most experienced IT professional. However, OpenText Cybersecurity can help make the process seamless and replicable.

This solution guide is designed to help any size organization meet the challenges faced when moving and upgrading their SQL Server workload to the environment of their choosing. Multiple solution types are discussed to provide you with a comprehensive approach to SQL Server modernization regardless of the use case.

Getting started

When planning your SQL Server migration, it is important to understand your goals. If your SQL Server is entering an End of Service (EOS) phase, then you will need to either move the entire workload to a location that can provide extended support or upgrade to a higher version of SQL Server. If you're keeping everything about SQL Server the same, but shifting to a new target environment or platform, like public cloud IaaS, then you will want to use a lift and shift migration. If you want to combine a migration with an upgrade into a single motion, you have the option to use the SQL Server Modernization migration type.

Types of migrations

Which migration type you choose will depend on your organization's goals for the migration project.

Below is a list of migrations:

- Full server lift and shift
- SQL Server lift and shift
- SQL Server modernization

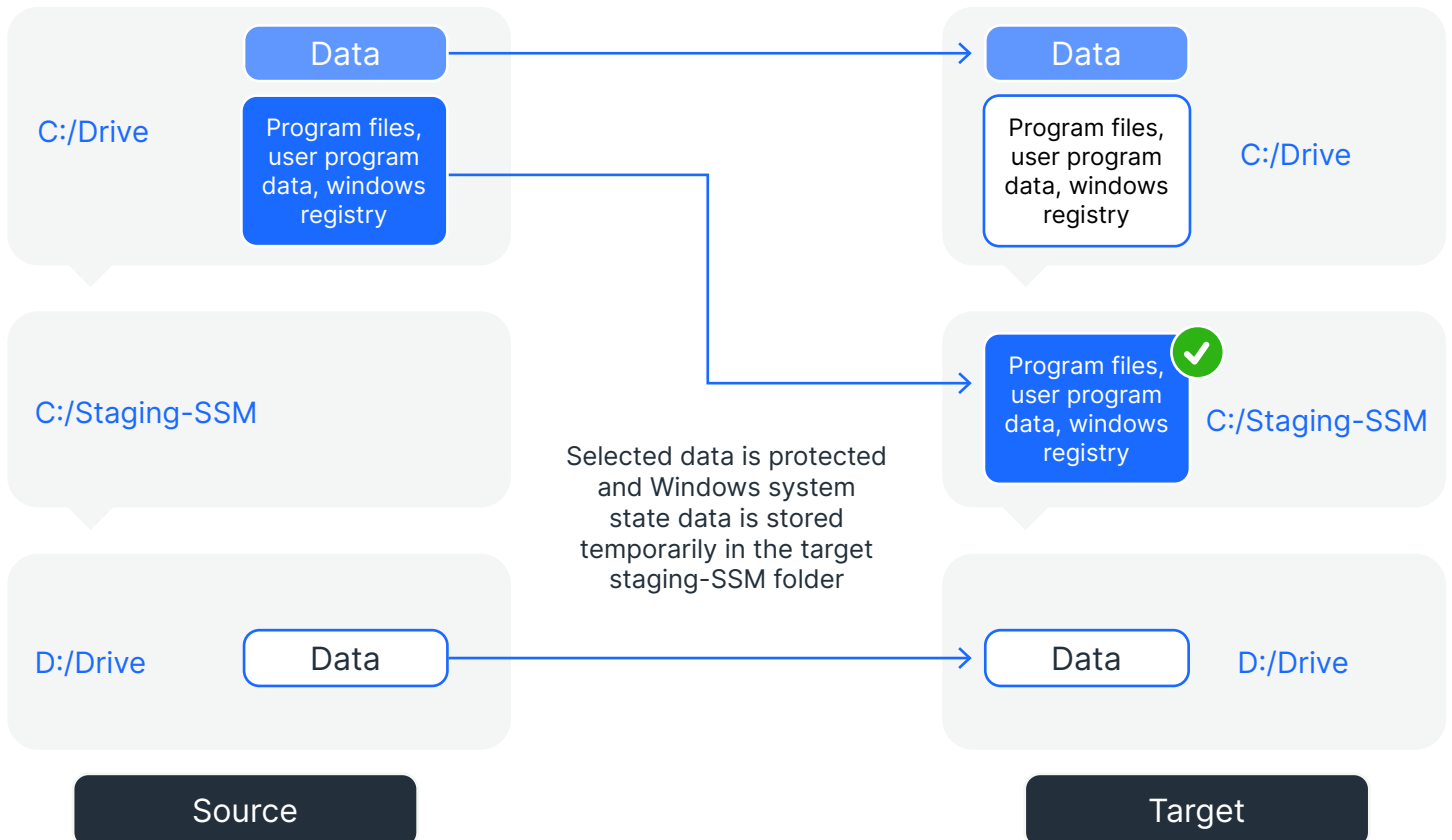
In the following sections, each type of migration is defined with examples of when to use each one.

Full Server Lift and Shift

A full server migration allows you to transfer the entire server workload to the destination of your choice. Target environments for full server include cloud IaaS (e.g., GCP, AWS or Azure, other public or private clouds), hypervisor VMs and physical servers. Migrate, an OpenText Cybersecurity product, combines two powerful technologies to accomplish the full server lift and shift. First, our replication provides real-time continuous byte-level replication between the source and target, ensuring the data is where it needs to be for you to initiate a cutover at any time. Second, our state-of-the-art system processing allows for the bare minimum amount of downtime when transforming the target server into an identical copy of the source as part of the cutover process.

How does the full server job type work?

Synchronization



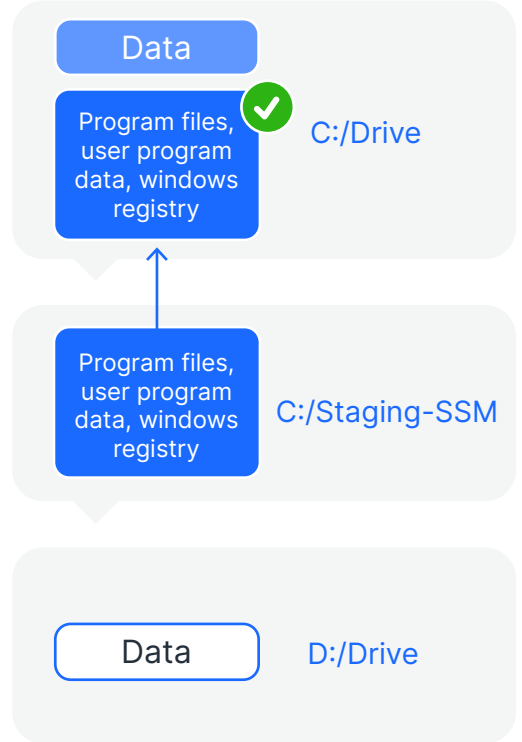
How does the full server job type work?

Cutover

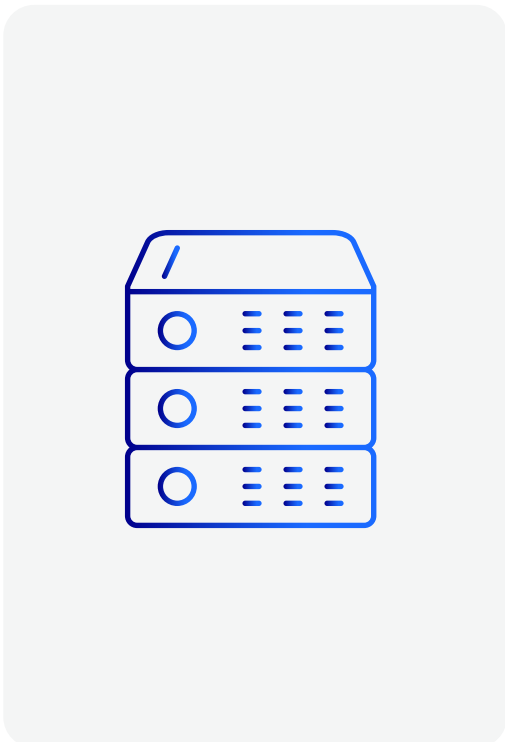


Source

Upon cutover, the source server is shutdown if online and the source's system state data overwrites the targets' except for hardware information

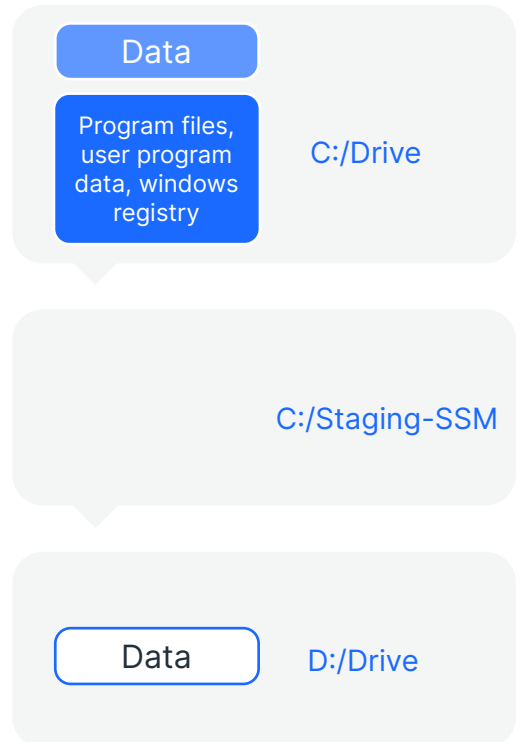


Target



Source

The target server then reboots and replaces the registry while moving any remaining staging files. At this point the target no longer exists and is now the source



Target

SQL Server Lift and Shift

A SQL Server lift and shift migration allows you to transfer the entire SQL Server workload to the destination of your choice. This type of migration allows you to deselect entire instances or individual user databases that are not required for the migration, enabling you to reduce the overall storage footprint for the instance or server. Since the migration is limited to only the SQL Server portion of the overall server workload, it requires the target server to have the same underlying SQL Server configuration in terms of version, installation location and storage location. This methodology supports standalone SQL Servers as well as traditional high availability SQL Server failover clusters. It is also the fastest SQL Server migration offered by OpenText Cybersecurity, enabling complete cutovers within a range of seconds to minutes.

Target environments for SQL Server lift and shift include cloud IaaS (e.g., GCP, AWS or Azure, other public or private clouds), on-premise hypervisor VMs and on-premise physical servers, regardless of where the source and target are located.

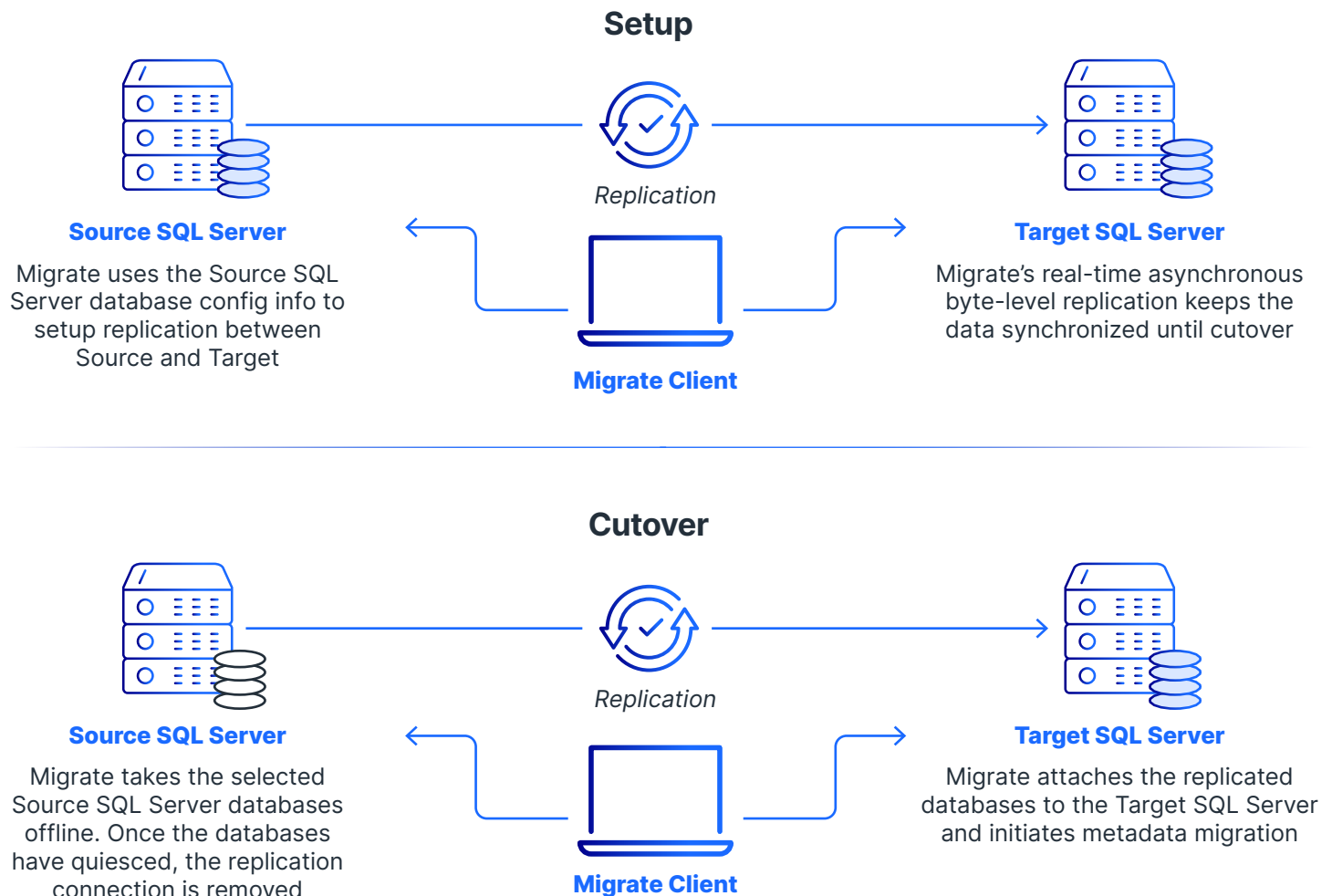
SQL Server Modernization

A SQL Server modernization involves migrating and upgrading your production SQL Server in a single motion. The production

source can be a lower version of SQL Server running on a lower version of Windows Server located anywhere. For instance, SQL Server 2012 running on Windows server 2012 R2 in an on-premise data center. The target can be a higher version of SQL Server running on a higher version of Windows located anywhere. For example, SQL Server 2019 running on Windows Server 2019 in the Azure cloud.

Since this process involves an upgrade, system databases are skipped. User databases in the SQL Server database engine and associated SQL objects and metadata are the only items migrated to the target. Once the production user database data has been synchronized to the target, the cutover process begins. The cutover process involves the attachment of the replicated SQL Server user databases onto the higher version of Microsoft SQL Server on the target, which automatically performs the upgrade to the higher version. Once the user databases have been attached and upgraded, the SQL objects and metadata are brought over, and the process is complete. The final step post-cutover is to seamlessly redirect users and applications to connect to the target server, either by changing the target's name to match the production or source server – once the original is taken offline – or via DNS redirection.

How Migrate works for SQL Modernizations





Migration phases

There can be multiple phases to any migration. Here are four of the more common components of a migration:

- **Assess.** A thorough discovery and assessment of the source environment to identify and inventory the number of servers and configuration information, including:
 - OS version
 - SQL Server version
 - Instances and databases
 - SQL Server dependencies and connections
 - Data location
 - Server and database priority
 - Identification and location of sensitive data
- **Plan.** During the planning phase, you will choose the type of SQL Server migration or modernization you will perform and configure the target server(s) accordingly. Requirements are different for all three types of SQL Server migration discussed here, so it is important to know what type(s) you will be performing

This planning includes:

- SQL Server requirements
- Networking configuration
- Planning for server or data dependencies
- Implementing Configuration Management (CM) policies

- **Deploy.** This is where you will execute and implement a deployment process to move SQL Server workloads to the target environment or platform using your chosen migration type(s).
- **Optimize.** In this phase, you can complete any post-cutover activities, including:
 - Redirecting users to the target via rename or DNS update for SQL modernizations
 - Fine tuning and optimizing a target VM in a hypervisor or cloud configuration
 - Enhancing the SQL Server configuration for the new environment settings and capabilities

Once you've identified the type of migration you'll be performing and how you will integrate SQL Server migration and modernizations within the larger project, you can decide whether you want to complete the project on your own or obtain assistance from a partner or our Professional Services.

Finding help

OpenText Cybersecurity offers various options and resources for you to complete your migration or modernization.

Self-service resources

Use these self-service resources if you don't require dedicated support:

[Documentation Library](#). Provides product documentation online via HTML and PDF format.

[Software Development Kit \(SDK\)](#). Contains information about custom integrations using the Carbonite PowerShell module or the REST API.

[Migrate](#). For more information about any-to-any migrations with our replication products.

Professional Services

Our Professional Services gives you a wide range of options to support complex data migrations, including:

- SQL Server migrations and modernizations
- Migration readiness
- Migration as a Service
- Replication and protection

For more information click here [Professional Services offerings](#).

Training and Certifications

OpenText Cybersecurity also offers [Training and Certification](#) programs online.



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OpenText Cybersecurity provides comprehensive security solutions for companies and partners of all sizes. From prevention, detection and response to recovery, investigation and compliance, our unified end-to-end platform helps customers build cyber resilience via a holistic security portfolio. Powered by actionable insights from our real-time and contextual threat intelligence, OpenText Cybersecurity customers benefit from high efficacy products, a compliant experience and simplified security to help manage business risk.

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