

Lift and Shift migration

ZConverter

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1. Overview

There are several strategies you can consider when adopting or transitioning to the cloud.

The strategies include: Rehosting that only changes the hosting without changing the application, Replatforming that maintains most of the architecture but modifies some to get the benefits of the cloud environment, Refactoring that maintains the application structure but reconfigures it to an architecture suitable for the cloud environment, Rebuilding that redesigns the existing application and is newly built with cloud native structure, and Replacing, which discards existing applications and replaces them with SaaS.

Among these five transition methods, commonly called as the 5R strategy, the most used method is Rehosting, or Lift and Shift, due to its speedy and simple process despite the least migration effect.

In this document, the features and migration tools of the Lift and Shift migration method will be introduced, as well as guidelines on how to migrate to SDS Cloud using the solution.

2. Features of Lift and Shift migration

The biggest advantage of the Lift and Shift strategy is its high efficiency. Migration is a method of moving an on-premises physical server or virtual machine to the cloud as it is and operating it in the same way.

If the minimum environment, including network, security, and shared storage, is met, the existing applications and services can be used without major changes, minimizing development costs as well as time, manpower, and operation costs.

However, the architecture optimized for the existing legacy environment is maintained, and therefore it is difficult to obtain other advantages of the cloud, such as operational stability, cost efficiency from flexible resource scaling, development competitiveness by linking with various cloud PaaS/SaaS products, and operational efficiency by leveraging advanced management functions.

To this end, it is also important to implement post-transition strategy. For instance, Lift and Shift can be selected initially for fast migration but Rebuilding or Refactoring strategies can be adopted later in accordance with the lifecycle to obtain the benefits of both strategies.

We have to consider the following for Lift and Shift migrations.

- Cutover strategy for allowed downtime
- Selection of appropriate migration tool for cutover strategy
- Data migration strategy tailored to the size and nature of the data
- VPC design considering on-premises network configuration
- Definition of security rules considering interworking between applications and existing firewall rules
- Network connectivity with on-premises during/after migration
- Operating systems such as logging, monitoring, and notifications

3. Migration procedure using ZConverter

Since SDS Cloud service opened, various customer services have been transitioning to SDS Cloud. Among them, many services have adopted the strategy of Rebuilding/Refactoring according to the lifecycle after a rapid migration with Lift and Shift first.

Lift and Shift is the simplest migration strategy but the complexity tends to increase dramatically as the scale of the transition increases. In addition, if migration of some of the services has to be done manually, the strategy may become less effective than others.

In this regard, an automated migration tool can be considered for a large-scale migration. Here, we will look at the features of ISA Tec's ZConverter and the migration procedure.

The technical features of ZConverter are as follows:

- Lift and Shift migration solution
- P2V, V2V migration through backup-based technology
- Support for migration between heterogeneous cloud platforms, heterogeneous hypervisors, and heterogeneous disk formats
- Convenience functions for migration management, monitoring, and transition through the portal

ZConverter provides SaaS-based migration, meaning that setting, monitoring, and transition are performed via the cloud migration portal provided by the company. If there are security or other issues, building a dedicated inside portal is possible, but it is impossible to conduct migration without a portal.

The migration procedure using ZConverter is as follows:

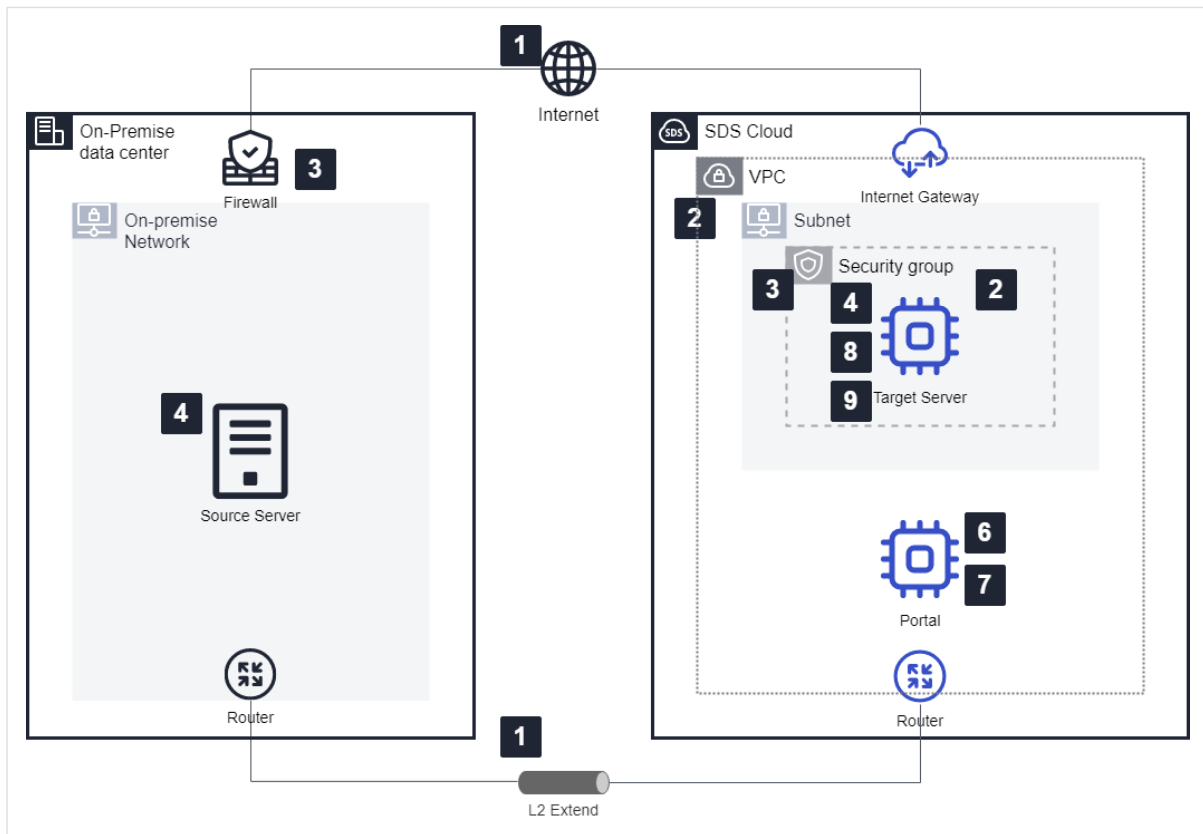


Figure 1. Migration procedure using ZConverter

1. Network connection between on-premises and SDS Cloud: L2 extension or L3 routing
2. Creating a VPC and a target virtual server for migration
3. Opening Security Group and firewalls between the source and target servers, as well as between relevant servers and the migration portal
4. Agent Installation on the source and target servers
5. Connecting the source and target servers using the wizard on the cloud migration portal
6. Source server backup via portal: Additional incremental backups available until conversion
7. Migration via portal: Switch the target server to recovery mode and migrate the source server data to the target server
8. Manual post-processing on the target server
9. Monitoring on the target server booting procedures and application

The communication ports used for migration using ZConverter are as follows:

| | Source | Destination | Port/Service | Note |
|---|---------------|-------------|-------------------|--|
| 1 | User | Portal | TCP: 80, 443 | ZConverter portal access |
| 2 | Source Server | Portal | TCP: 50000, 50001 | Server information transfers to portal |
| 3 | Target Server | Portal | TCP: 50000, 50001 | Server information transfers to portal |
| 4 | Source Server | Storage | TCP: 139, 445 | Storage access from source server |
| 5 | Target Server | Storage | TCP: 139, 445 | Storage access from target server |

In short, we have looked at the features of Lift and Shift migration and the migration procedure using ZConverter.