SANGFOR

aCloud

SAP B1 Migration Best Practice

Version 5.8.6

Change Log

Date	Change Description
April 2, 2019	Version 1.0 document release.

CONTENT

Chapter 1 Background

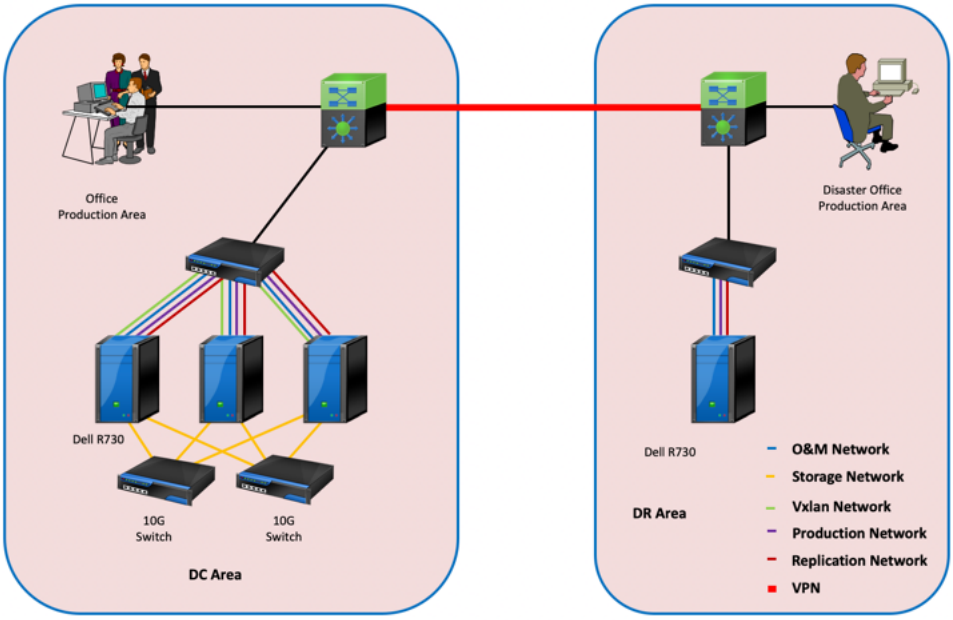
1 Challenge

The customer used SAP business 1 system in a VMware environment and the feedback data query and report generation were very slow. They want to try to migrate to aCloud to see if there is any improvement.

2 Current Environment

2.1 Topology

Currently, aCloud in DC using three-node deployment, the storage network using the 10G network. Compared with the existing VMware environment, it provides higher performance with aSAN feature.



2.1 Introduction of aSAN

aSAN is a new generation of product in the hyper-converged solutions, specially designed for the cloud computing environment and facing to the integrated market application. Such storage technologies as converged distributed cache, SSD cache acceleration, global server load balance, and multi-factor data protection can meet the demands of mission-critical service to guarantee the efficient and stable operation of the customers' services.

Cache - Read Cache

The read cache, located in the VS client, can provide higher performance. The read cache will cache the data often read to the SSD in blocks of 4 KB~64 KB. It will be read directly from the SSD in the next time. During the read operation, if the data to be read is cached on the SSD, it is called as hit. If not, it will be read from the HDD on the bottom layer. It is called as no-hit. The proportion of hit IO and all IOs is the hit ratio. The hit radio greatly affects the performance of reading the IOPS. The higher the hit radio is, the higher the IOPS performance is.

Chapter 2 Migration and Configuration Optimization

1 Migration

1.1 Migration Method

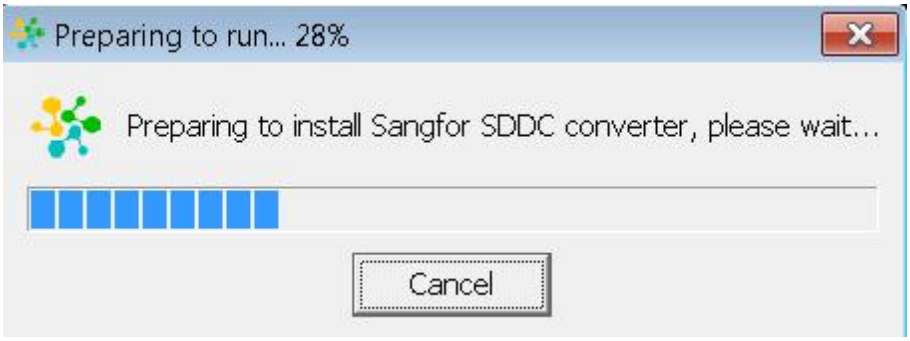
Since the customer are using a windows OS, using SANGFOR convert live migration would not affect the customer's business

1.2 Differences of Cold and Live Migration

Cold Migration	**Live Migration**
Power off before migration and the data of original system will be identical	Original system will be running but the new generated data will not be synchronized
Faster speed of migration compared to Live Migration	Do not use Live Migration in high disk write environment

1.3 Migration Process

1.3.1 Run **SANGROR Converter.exe** under the Windows operating system to start the **Virtualization Conversion Tool**. Check the agreement **Software License Agreement**, then select **Migrate Physical Host** and click I**nstall Now**.



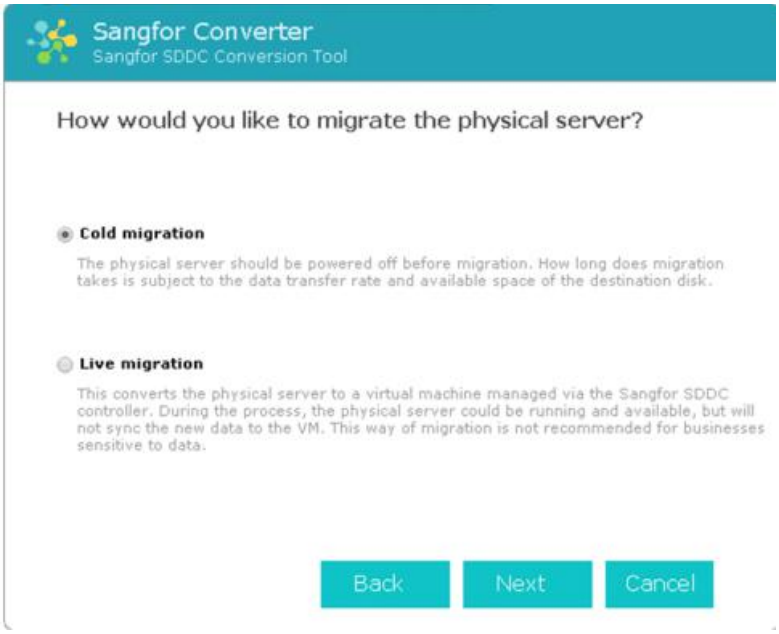
1.3.2 Before installation, the tool will obtain information about the current host and check whether the installation environment meets the necessary conditions. If the conditions are not met, a red warning message will be displayed, and will require correction and then rerun the software.

1.3.3 If the current operating system has been running for a long time, the restart may cause a self-test, resulting in a failed migration. It is recommended that you restart it before proceeding with the migration.

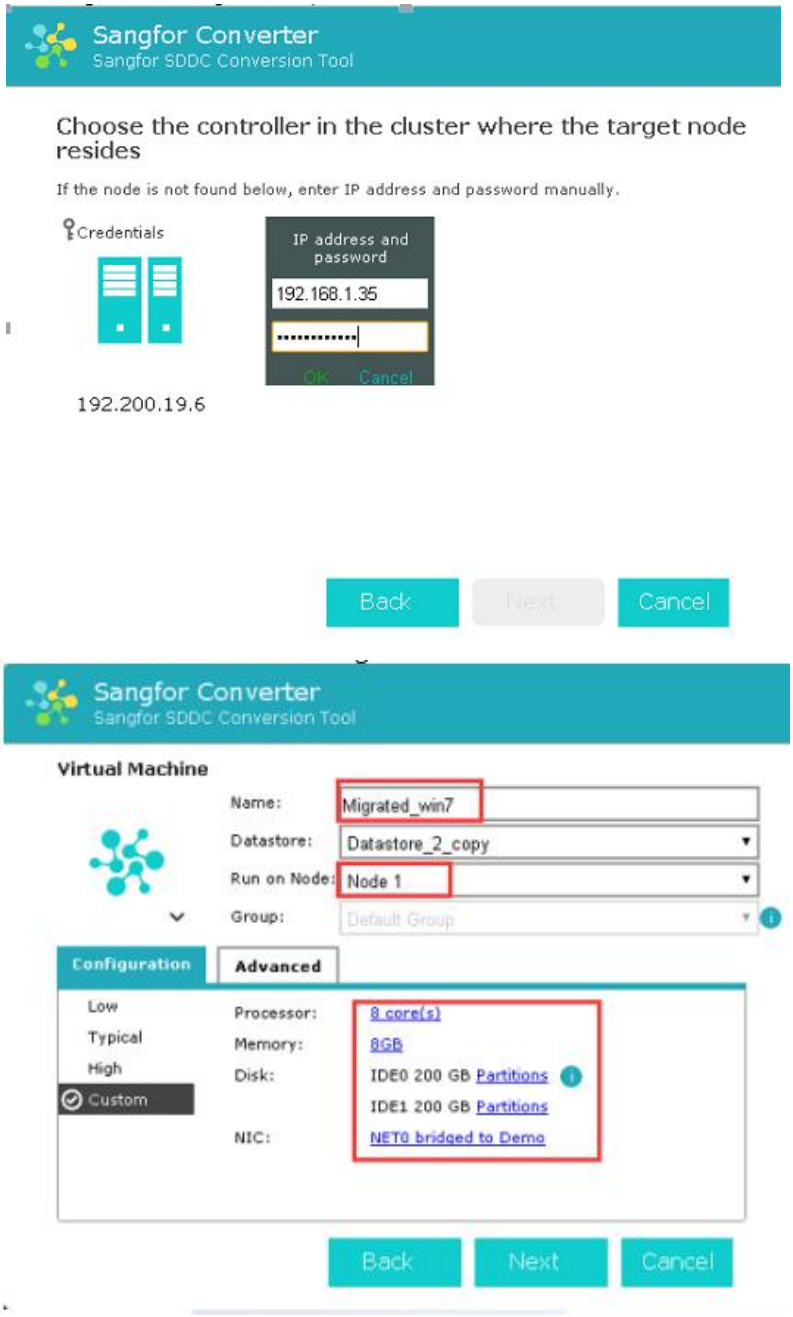
1.3.4 After the installation condition check is passed, you must first configure the connection to the target HCI platform. The tool will automatically discover the HCI platform on the current network segment. You only need to provide the password of the administrator account of the HCI platform to connect successfully. If there is no automatic discovery, you can manually enter its IP to add.

Select **Start Now** to start the migration:

Select **Live Migration** to process:



1.3.5 After the connection is successful, the migration tool will clone the current Windows operating system to the target HCI platform and run as a virtual machine. Therefore, you also need to configure the relevant information of the virtual machine on the HCI platform, including the name of the virtual machine, storage and operating location, and hardware configuration.



1.3.6 After the configuration is complete, the current configuration information will be confirmed. After the configuration is confirmed, the installation can be performed. The installation process will only install the migration tools and drivers on the C drive of the Windows system and will not modify the configuration of the current operating system.

1.3.7 After the installation is complete, you need to restart the Windows operating system to start the migration. At this point you can choose whether to open the original host or virtual machine after the migration is complete.

2 Configuration Optimization

2.1 VM Resource Allocation

2.1.1 SAP Business One Server

Hardware Configuration Minimum Configuration Recommended Configuration		
Processor (vCpu)	8	16
Memory	32 GB	64 GB
Disk	80 GB	500G
CD-ROM drive	None.	None.
Monitor	None.	None.
Network adapter	1	1

2.1.2 SAP Business One Database

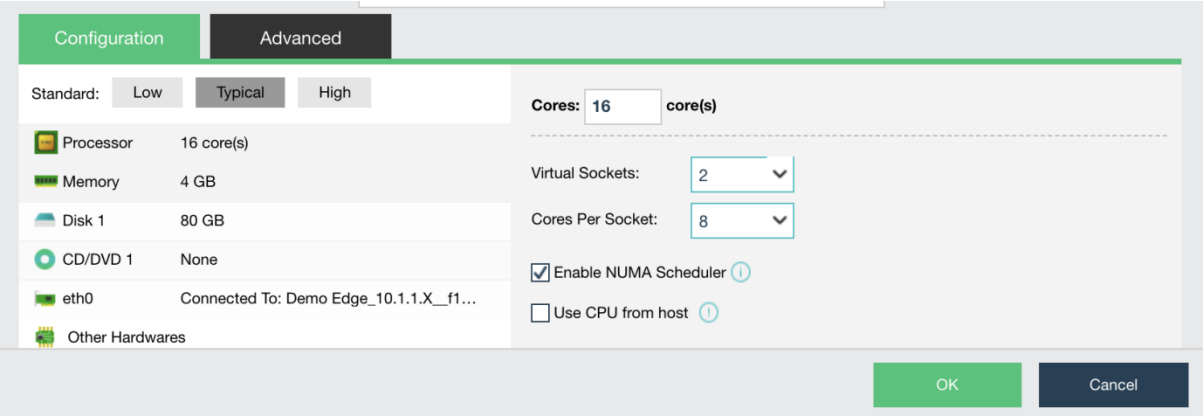
Hardware Configuration Minimum Configuration Recommended Configuration		
Processor (vCpu)	**8**	**16**
Memory	**64 GB**	**128 GB**
Disk	**See 4.1.3.**	**See 4.1.3.**
CD-ROM drive	**None.**	**None.**
Monitor	**None.**	**None.**
Network adapter	**1**	**1**

2.1.3 SAP Business One Client (Generally local PC, without a concern)

Hardware Configuration Minimum Configuration Recommended Configuration		
Processor (vCpu)	**2**	**4**
Memory	**4 GB**	**8 GB**
Disk	**80 GB**	**80 GB**
CD-ROM drive	**None.**	**None.**
Monitor	**None.**	**None.**
Network adapter	**1**	**1**

2.2 VM vCPU Configuration

When a SAP database server is created, the number of vCPU cores is recommended as 16 or 24.

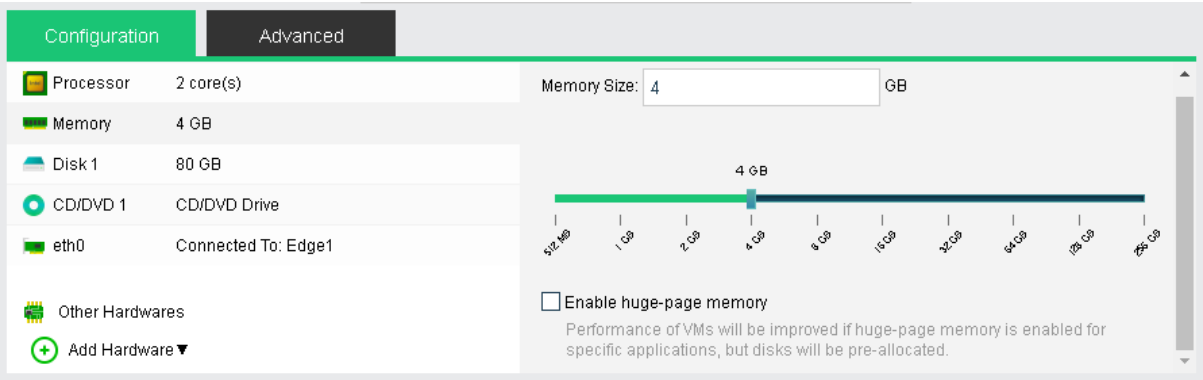


2.3 VM Memory Configuration

It is suggested the VM memory should be greater than 64G, 90% of VM memory should be allocated to SQL Server and 10% be left for the system itself.

Enable the huge-page memory can increase the hit ratio of the TLB. The locked memory page is enabled after the VM is installed. The Windows policy will determine which account can have access to the process to retain the data in the physical memory, preventing the system from paging the data into the virtual memory of the disk. It can improve database usability.

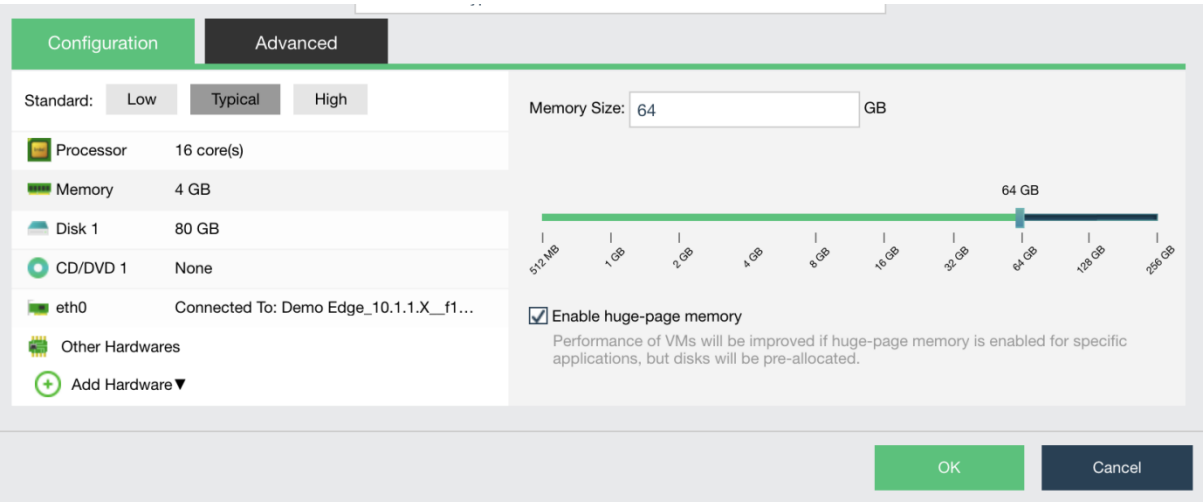
It is very simple to enable huge-page in aCloud. Create or edit the virtual machine and tick "Enable huge-page memory" option (as shown below). Then start the virtual machine.



2.4 VM Disk Configuration

Divide the SQL server installation software, database data file, log and Tempdb in independent disk respectively.

Enable the "Dynamic allocation of disk" of the disk where the database file is located. This function can dynamically allocate the storage space according to the data occupation, improving the storage resource utilization while enhancing the performance.



2.5 Max Degree of Parallelism (MAXDOP) Configuration

The best practices of MAXDOP option configuration can refer to the following items:

- When vCPU of the VM configuration is greater than 8, MAXDOP=8
- When vCPU of the VM configuration is less than or equal to 8, MAXDOP=vCPU quantity
- If the VM enables numa, and is configured by 2*N, then MAXDOP=N, namely, when vCPU has 16 cores, set it as 8; when vCPU has 16 cores, set it as 12
- In principle, MAXDOP configuration size cannot be greater than the CPU quantity of the physical server, even if the server CPU enables the hyper-threading

2.6 SQL Server Always On

As a comprehensive high availability and disaster recovery (HADR) solution of Microsoft new generation database, SQL Server Always On cluster is widely applied in the business database field. SANGFOR aCloud platform optimizes the deployment and performance of SQL Server Always On cluster, supports to deploy SQL Server Always On cluster in a guide type, provides database-level and instance-level HA of the cluster, and supports multi-node load balance and failover features. Meanwhile, it has such virtualization platform features as failure HA to improve the high availability of SQL Server Always On cluster.

Chapter 3 Summary

1 Actual Environment Comparison

The migration and optimization of SAP B1 system based on best practices can improve the access speed of SAP system and reduce data query and report generation time. Below is one actual environment comparison:

REPORT	Before Migration	After Migration
FIX ASSET REPORT	20 Sec	10 Sec
VAT SELECTION	18 Sec	4 Sec

Chapter 4 Contact Us

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