HCI
HCI Virtual storage heterogeneous requirements 2.0

Version 5.8.6 and above
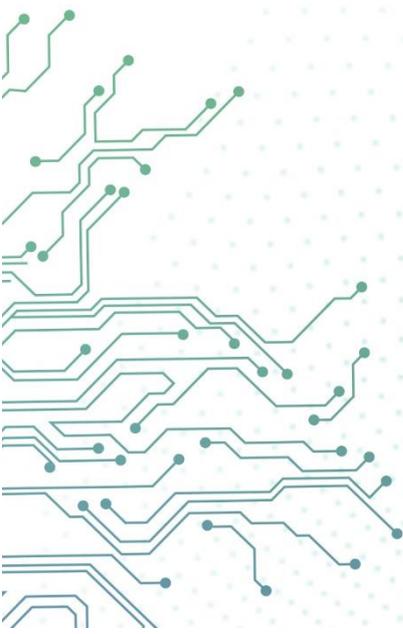
Change Log

Date	Change Description
Dec 3, 2019	Virtual storage heterogeneous requirements

CONTENT

1 Introduction

In a standard scenario, the virtual storage recommends that the disks be as homogeneous as possible so that the virtual storage performance will be better and more balance. In special circumstances where the virtual storage disk unable to fulfill the homogeneous requirement, heterogeneous scenarios can be supported but there is minimum requirement need to be fulfilled.

Since HCI version 5.8.6 and above, the restrictions for the heterogeneous situation has been lowered. However, the following conditions must be met at the same time for the disk to be heterogeneous, to ensure the virtual storage performance and volume usage.

1.1 Hybrid volume (SSD+HDD), the number of hosts ≥ 3 in the same storage volume

Condition 1: The sum of the data disk capacity between each host, the highest capacity cannot exceed **80%** of the sum of all the remaining hosts. Example: host A 5T, host B 5T, host C 5T, host D is not allowed to exceed 12T.

Condition 2: The ratio of the cache disk capacity to the data disk capacity of each host should not less than **4%**. For example, the configuration of host A with 2 480G SSDs and 10 4T HDDs is not allowed.

Condition 3: The ratio of the number of cache disks and data disks of each host should be within **1:7**. For example, host A has 2 cache disks and 15 data disks, which is not allowed.

Condition 4: It is allowed to have data disk with different capacity in single host, but the largest data disk capacity is not allowed to exceed the sum of all remaining data disks. For example, if there is 1 disk with 8T and 2 disks with 2T in host A, this is not allowed.

Other descriptions:

1. The HDD in the host allows SAS disks and SATA disks to be mixed, but it will cause the performance of SAS disks equal to SATA disks (barrel effect)

2. The host is allowed to have an inconsistent in the number of disks between disk groups. For example, if there are 2 SSD 480G + 7 HDDs 2T in the host, when initializing virtual storage, the system will automatically allocate one of the disk groups is 1 SSD+3 HDDs, and the other disk group is 1 SSD+4 HDD. The main impact is that when the storage pool is almost full, the write performance will drop slightly.

1.2 Full flash volume (All SSD), the number of hosts ≥ 3 in the same storage volume

Condition 1: The sum of the data disk capacity between each host, the highest capacity cannot exceed 80% of the sum of all the remaining hosts. Example: host A 5T, host B 5T, host C 5T, host D is not allowed to exceed 12T.

Other descriptions:

1.For full flash volumes, need not to configure cache disks. It is recommended to configure all SSDs as data disks.

2. It is allowed to have data disk with different capacity in single host.

1.3 The number of hosts=2 in the same storage volume

Condition 1: The total capacity of the two hosts must be **equal**.

Condition 2: The ratio of the cache disk capacity to the data disk capacity of each host should not less than **4%**. For example, the configuration of host A with 2 480G SSDs and 10 4T HDDs is not allowed.

Condition 3: The ratio of the number of cache disks to data disks of each host should be within **1:7**. For example, host A has 2 cache disks, and 15 data disks are not allowed.

Condition 4: It is allowed to have data disk with different capacity in single host, but the largest data disk capacity is not allowed to exceed the sum of all remaining data disks. For example, if there is 1 disk with 8T and 2 disks with 2T in host A, this is not allowed.

SANGFOR