



HOW TO CREATE A HIGH-AVAILABILITY SETUP WITH SYNOLOGY

By Chrisanthi Christodoulou – System Consultant

Introduction

It is always recommended to create a high-availability cluster with two identical Synology NAS servers. Synology High Availability (SHA) implements two hosts to create a high-availability cluster where one NAS is the active server and the other is the passive server. A high-availability cluster allows the continuous replication of data in the active to the passive server. This means that mirrored copies of any files in your system exist on both hosts, and the passive server takes over all service in case the active server malfunctions or crashes.

However, before creating a high-availability cluster, you need to ensure that both hosts are identical Synology NAS models with the same DSM and package versions. While different Synology NAS can act as active and passive servers, you will experience a [few limitations](#).

Requirements for a high-availability cluster include:

- SHA requires two identical Synology NAS to act as active and passive servers.
- The active and passive servers must be identical models and both support Synology High Availability. The same version of DSM and package must be installed on both hosts.
- Make sure that the NAS devices do not contain SHR format volumes. Go to **Storage Manager > Volume** to make sure no SHR volumes exist.
- Both hosts must be assigned static IP addresses as the cluster connection. Make sure that the IP addresses of both hosts are accessible and belong to the same subnet; otherwise, errors might occur when performing a switchover to the passive server. To change network settings, log in to each host and go to **Control Panel > Network > Network Interface**, select the network interface and click **Edit**.



- Both hosts must have the same number of LAN ports. If the hosts are equipped with additional network interface cards, these network cards will also count as additional LAN ports.
- Synology High Availability does not support the following: Proxy servers, DHCP, DHCP server, IPv6, PPPoE, and Wi-Fi. Please ensure that the above are all switched off before creating a high-availability cluster.

Next steps

The next thing you need to consider is the connection between both hosts. For starters, use a network cable to the hosts directly to each other to create a Heartbeat connection. This connection is vital for communication as well as data replication between the primary and secondary server.

The Heartbeat connection should be connected to the same network interface on both hosts, for instance LAN 1 on primary and secondary. Ensure that you use the fastest network interface, for example if you have 10GbE interface cards on both, use them. Finally, this connection should not pass through routers or switches.

Use the remaining network interfaces to connect the hosts to your network but make sure that the connections are in the same active network. Have different switches for each host in the high-availability cluster connecting them to the network to prevent service interruptions.

With both hosts connected properly, the next steps involve creating the high-availability cluster.

Log into the primary host as the administrator and open the High Availability Manager application. This opens up the Create high-availability cluster wizard with information on how to create the physical connection between servers.

Select network interfaces that you have chosen to use for the Heartbeat connection and high-availability cluster connection. Next, enter administrator credentials of the secondary server. Specify the name of your cluster and IP address that will enable you to access the resources of the cluster. Make sure you select an IP address that is not in use by any other services on your network.

The wizard then checks if the system meets all requirements. If you have any data, LUN, or volume on the primary server, you have the option of keeping it or erasing it. Next, confirm settings you made earlier and apply.



The wizard will then present you with a set of instructions, which you must click yes to continue before the creation of the high-availability cluster. The time it takes to create the cluster varies depending on the environment your devices are running on. When done, the wizard will present you with a screen featuring cluster information such as CPU utilization, load average, disk activity and connection status.

The SHA system may automatically trigger failover services from the primary server to the passive server. The auto failover is initiated whenever:

- Storage space on the primary server crashes, but storage space on the secondary is functioning
- When errors occur on the monitored service
- In case the primary server is rebooted, shut down or both hosts lose power

Conclusion

A server malfunction can be caused by human error, component failure or even system malfunction, leading to service interruption that can increase the cost of running a business. In order to achieve uninterrupted availability of your data, it is critical that you take pro-active steps to reduce administration time and costs. One way of doing this is by implementing Real-Time Remote Replication on NAP and High Availability on Synology devices.



Chrisanthi Christodoulou is working for IBSCY for the last 4 years. She is the head of maintenance and support department which consists of 4 people. Her team is fully responsible for the support calls and requests of our clients internationally. She holds several certifications from Microsoft, HPE, VMWare and other vendors.