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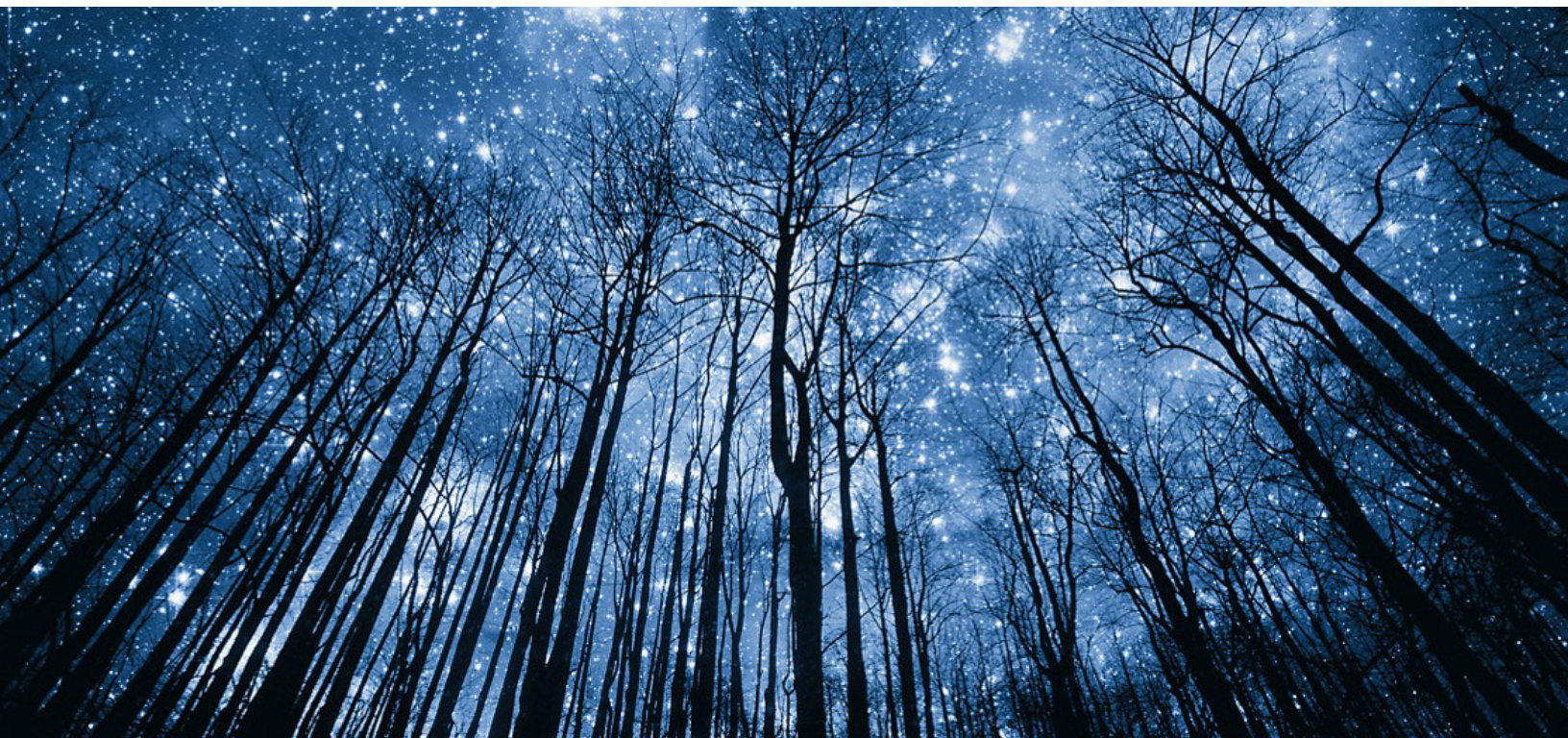# NETWORKER BACKUP OF IP-LESS EXCHANGE DAG

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What is an Exchange IP-less DAG?

A Database Availability Group (DAG) is a cluster of two or more Exchange servers. Exchange versions before Exchange 2013 Service Pack 1 required that the DAG has a so-called administrative access point (AAP), commonly named a "Virtual IP". This IP gets a name and is added to Domain Name Services (DNS) Servers, so that other hosts can address it by that name.

In cases where the server hosting the AAP is put into maintenance mode or has another error, the AAP fails over to another node in the cluster.

From a backup software perspective the AAP is the perfect entry point, because it always resides on an active Exchange server. The AAP can be used to leverage load-balancing, perform backup of the passive database replicas, etc.

With Exchange 2013 SP1 and Windows 2012 R2 (1) Microsoft introduced a new method of setting up a DAG. This method – called "IP-less DAG" – eliminate the need for an AAP. Today an IP-less DAG is the standard DAG setup.

Backup challenges of IP-less DAG

As mentioned above, AAP is the perfect entry point for backup software to connect to an Exchange cluster because the DAG always resides on an active node in the cluster. However, with the AAP missing, the backup software has no way of connecting to it. Consequently, instead of using the AAP as an entry point, the backup software is now forced to directly connect to the cluster nodes.

The "Dell EMC NetWorker Module for Microsoft for Exchange Server VSS User Guide 19.6 Rev. 01"[2] describes a valid way of setting up backup for an IP-less DAG. Basically, one of the Exchange nodes is used as an entry point. Using this node all features of a DAG (load-balancing, backup of passive database copies, …) can be leveraged. However if this node runs into problems or is down for maintenance, backup for the whole DAG is no longer possible and manual intervention is required. Another node needs to be configured in NetWorker as an entry point to activate backups again. While this setup can be easily configured using the NetWorker Management Console (NMC) New Client Wizard, the downside is that this setup is prone to errors, because there is a single point of entry.

From my personal experience, maintenance work on Exchange servers is usually done on weekends and the Exchange administrators tend to forget informing backup administrators about this.
That means you may have a weekend without any Exchange backups or even worse – if the maintenance work fails and there is data loss – you may not be able to restore the data, because backups did not occur.

Alternative backup method

My alternative suggestion still uses federated backups, but it is more or less a stand-alone approach. Each node in a DAG is looked at separately and only the activate databases are backed up on each node. This means that features like load-balancing and backup of passive copies cannot be used.

In case an Exchange node is down, Exchange automatically activates a passive copy on another node. Even though the backup for the non-functional node will naturally fail, the databases are now automatically backed up on another node without manual intervention. In case a node is working, but doesn't have any active databases, the backup for this node also fails unfortunately, because NetWorker does not find anything to back up.

Setting up backup

Follow the instructions from the NetWorker documentation. I suggest to even use the "New client wizard", because it creates a client resource with the DAG name as an alias and it also creates client resources for all other nodes in the DAG. With this, you have a basic setup that should be good to go for federated backups.

There are a few modifications you have to do now.

First you must decide whether you want to have all nodes backed up at the same time or whether you want to have them backed up separately. If you want to back them all together, put them all into one group. If not, put them into different groups.

It is recommended to perform backup of all nodes at the same time to avoid having a database move from one node to another between backups.

In the NMC right-click the primary client resource (the one with the DAG as alias) and select "Modify Client Properties". Go to the Apps & Modules tab.

Under "Application Information" you can see the details configured by the wizard. It should look similar to this:

NSR_FEDERATED_BACKUP=yes

NSR_EXCH_INCL_SA=TRUE

NSR_EXCH_DAG=DAG-name

NSR_EXCH_BACKUP=preferred

NSR_EXCH_CHECK=no

NSR_FEDERATED_PSOL=node1, node2, nodex

Please note the two rows marked in red. By default, NSR_EXCH_BACKUP is set to preferred. This means that NetWorker tries to perform a backup of a passive copy of the database and if that is not possible, it performs a backup of the active database. The NSR_FEDERATED_PSOL is used to define, in which order the nodes are used for backup.

The two red marked rows need to be changed. NSR_EXCH_BACKUP needs to be changed to active and from the PSOL list all nodes but the one you are currently configuring need to be removed.

Let's assume that your Exchange nodes are named "ex1, ex2 and ex3".
The application information for node ex1 should look like this:

NSR_EXCH_BACKUP=active
NSR_FEDERATED_PSOL=ex1

For ex2:

NSR_EXCH_BACKUP=active
NSR_FEDERATED_PSOL=ex2

For ex3:

NSR_EXCH_BACKUP=active
NSR_FEDERATED_PSOL=ex3

And so on for other nodes in that cluster.

Scheduled backup for all nodes has to be set to enabled and the saveset field has to be filled out correctly (EG APPLICATIONS:\Microsoft Exchange 2019 for an Exchange 2019 DAG). Please make sure that the backup command (also in the Apps & Modules tab) is set to "nsrnmmsv" for all nodes.

With these changes you are good to go!

References

1. https://docs.microsoft.com/en-us/exchange/high-availability/database-availability-groups/database-availability-groups?view=exchserver-2019
2. Can be downloaded at https://www.dell.com/support
For my reference I used Rev. 01 of the guide for NMM 19.6 – but the described setup is the same in prior versions of the documentation.