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Using FlashCopy To perform backups In a CLONE partition

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General description of the product

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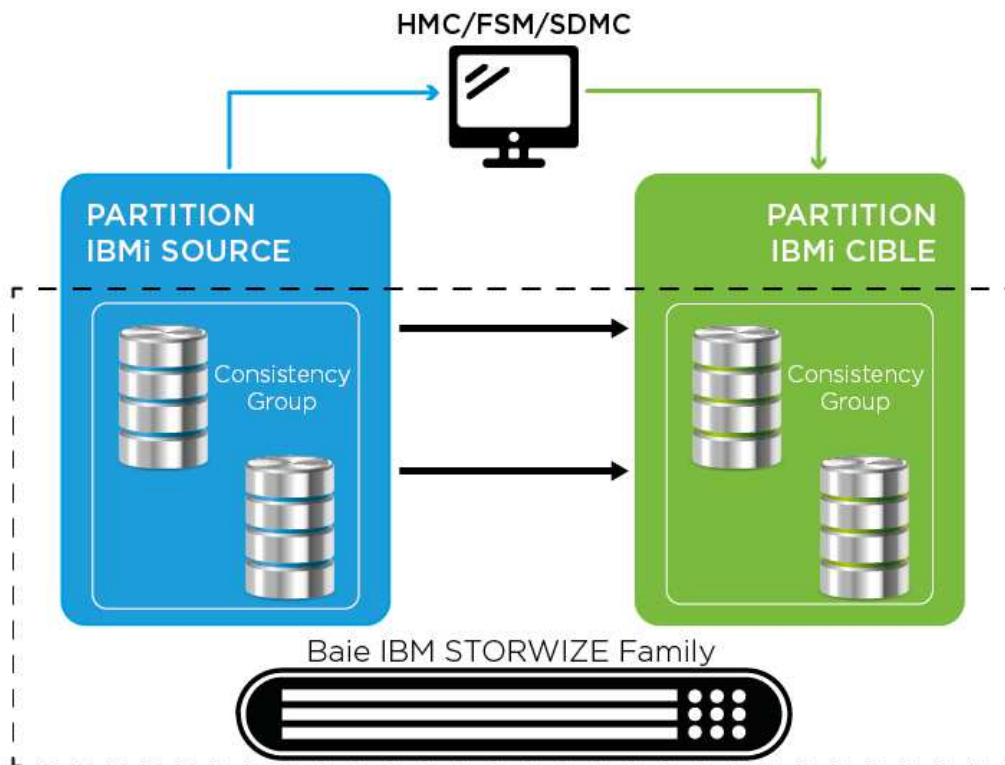
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|-------------------------|---------------------|
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| Reference documentation | V2.06 |
| FLASH4I library version | V02, Build 17/10/28 |

Product description

The purpose of the Flash For i product is to facilitate certain operations by duplicating an IBM i partition to perform operations such as backup, application testing or data extraction without disrupting production. For instance, users can remain active on the production partition while a full save (SAVE21) is being carried out on its clone.

Principles

The Flash For i product manages the various hardware and software components involved in the IBM i production partition cloning process with the aim of making backups with a minimal impact on production, for example.



All operations are managed from the Production partition (also called the "source partition").

The source partition is cloned in 4 steps:

- Stop the clone partition if necessary.
 - The source partition sends the HMC/FSM an instruction to immediately stop the clone partition.
- Quiesce the source partition.
 - Using the CHGASPACT command, the source partition writes all the data contained in the memory to the disk.
- Start or restart the FlashCopy consistency group.
 - The source partition sends an instruction to the Storwize family system.
 - At that point, the volumes presented to the target partition are an exact copy of the source partition volumes.
 - The source and target volumes now can change independently.
- Start the clone partition.
 - The source partition sends the HMC/FSM an instruction to start the clone partition.

When it starts after cloning, the clone partition adjusts several of its configuration parameters:

- Change of system name
- Network/IP configuration
- Start-up program
- All scheduled jobs (WRKJOBSCDE, JS1) are suspended

The clone partition then restarts in order to apply the new settings.

The Flash For i product also maps/unmaps volumes in the VIOS before stopping or after starting FlashCopy in order to avoid numerous error messages in the VIOS(es) (unless NPIV-type configuration has been performed).

Automation and monitoring

All processing is fully automatic and conducted from the production partition.

Several commands can be used to view the status of FlashCopy on the disk bay, the Clone partition and the progress of the requested function.

Several commands can be used to automatically monitor the smooth running of operations. These commands can be integrated into a monitoring tool such as Nagios.

Operations which are possible on the Clone partition

The partition for which the disks are created by FlashCopy is called the "Clone Partition".

The Flash For i product makes it possible to use this partition for several types of operation. The function to perform is specified when defining the environment.

The following functions are possible:

- ***HOLD** No automatic actions on the Clone partition
The purpose of this function is to create a clone of the Production partition for safety reasons. The Clone partition will not be started. It will only be started if there is a major problem on the Production partition and it needs to be rolled back to the situation at the start of cloning. No data is changed on the partition before cloning.
NB: if the clone partition needs to be started, it must be done in "Manual" mode by selecting console start-up only in order to avoid causing conflicts with the production partition (same IP address, etc.)
- ***BRMS** Back up using BRMS
The purpose of this function is to perform a backup using the BRMS product. The control group and all the elements required for the backup are defined in BRMS as though it were going to be performed directly on the Production partition. During FlashCopy, Flash For i changes the Clone partition environment to automatically trigger backup then brings back the backup log to reintegrate it into BRMS at the end of the process.
- ***SAVE21** Perform SAVE21, without BRMS
The purpose of this function is to perform a full save of the clone partition as if it were the Production partition. When the backup is performed, no data is changed on the clone partition in relation to the source partition.
The performed full save is the equivalent of the SAVE21 system function.

At the end of the backup, the backup log is transferred to the production partition so it can still be consulted after stopping the clone.

- ***STRUP** Perform user-defined actions
The purpose of this function is to enable the user to choose the operations he/she wants to perform on the clone partition. The user can, for example, choose to perform a backup without using BRMS, create an application testing partition or perform any other operation for which a production clone is necessary.
In the same way as for the previous 2 functions, the log of what has been performed is sent to the Production partition so it can still be consulted after stopping the clone.

Several environments can be defined, making it possible to perform several different types of action according to the circumstances or requirements. For example, it is possible to perform:

- backup FlashCopy in the morning and at midday without starting the Clone partition
- FlashCopy to make daily backups on weekday evenings
- FlashCopy to perform SAVE21 on Sundays

In the current version of Flash For i, only one environment can be started at a time. It is necessary to wait until the end of operations on the Clone partition before being able to start another environment.

In version 3 of Flash For i, it will be possible to start several environments at the same time.

Logs and historical data available on Production partition

Every backup operation is realized on the clone partition, which disks will be erased next day to start a new backup. It's then important to transfer a maximum of information from the clone partition to the production partition, where they will be accessible for a long time.

The product Flash For i considers this need, and automatically transfers several elements:

- A product internal log allows to know every step realized, with date and time, and logs errors if necessary
- The system Log (DSPLOG command) of the clone partition is retrieved, and sent to the Production partition. A command allows to display those information during several days.
- The JOBLOG of the job that realized the backup is sent to the production partition.
- The FLDSPHST command gives the list of every cloning operation realized, and shows the duration of each operation. Disk space used on the Storwize is also displayed.

Here is an example of FLDSPHST command.

```

FLDSPHST                                     Display Cloning history                                     M81FLASH
                                                                                                     1/02/18  11:38:03
Position to . . . . . 0/00/00

Enter your options, then press Enter
 5=Display  8=Joblog

----- Elapse time for each phase -----
Opt Envir.  Cloning  -- Start FLCLONE --  Nb  Nb  Prepa  IPL  Prepa  Partition  Flashcopy  %
             Number  Date      Time      Msg Err on Prod Clone on Clone  Save      active      active      Disk
- DEMO_BRMS  377  01/02/18  02:00:00  43  0   1:48   3:38   2:22   17:18      23:55:10  23:55:26   5%
- DEMO_BRMS  376  31/01/18  02:00:00  47  0   1:47   3:03   2:22   16:56      23:55:18  23:55:34   5%
- DEMO_BRMS  375  30/01/18  02:00:00  47  0   1:48   2:53   2:28   16:55      23:55:18  23:55:34   5%
- DEMO_BRMS  374  29/01/18  02:00:00  47  0   1:47   2:54   2:23   17:12      23:55:18  23:55:36   5%
- DEMO_BRMS  373  28/01/18  02:00:00  47  1   1:49   3:09   2:23   17:15      23:55:02  23:55:19   5%
- DEMO_BRMS  372  27/01/18  02:00:00  47  0   1:48   3:13   2:26   17:18      23:54:58  23:55:15   5%
- DEMO_BRMS  371  26/01/18  02:00:00  47  0   1:46   3:05   2:20   17:08      23:55:09  23:55:26   5%
- DEMO_BRMS  370  25/01/18  02:00:00  47  0   1:46   3:08   2:22   17:06      23:55:05  23:55:21   5%
- DEMO_BRMS  369  24/01/18  02:00:00  47  0   1:46   3:08   2:22   17:00      23:55:05  23:55:21   5%
- DEMO_BRMS  368  23/01/18  02:00:00  47  0   1:45   3:12   2:25   16:53      23:55:03  23:55:20   5%
- DEMO_BRMS  367  22/01/18  02:00:00  47  0   1:45   3:01   2:19   16:58      23:55:13  23:55:30   5%
- DEMO_BRMS  366  21/01/18  02:00:00  47  0   1:45   3:00   2:29   19:11      23:55:14  23:55:31   5%
- DEMO_BRMS  365  20/01/18  02:00:00  47  0   1:45   3:10   2:22   17:03      23:55:05  23:55:21   5%
- DEMO_BRMS  364  19/01/18  02:00:00  47  0   1:45   3:07   2:24   17:17      23:55:08  23:55:25   5%
- DEMO_BRMS  363  18/01/18  02:00:00  51  0   1:52   3:22   2:20   17:03      23:54:45  23:55:02   5%
                                                                                                     More...

F3=Exit  F5=Refresh  F11=Display time  F12=Cancel
  
```

Some customer references



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