Smart Storage Administrator 陆崇 2017-12-31 发表

Gen10系列服务器在SSA中根据用户的需求对已有的阵列进行扩容和迁移的操作。

服务器重启后按F10进入到Intelligent Provisioning中:



选择Smart Storage Administrator选项

Hewlett Enterpris	Padand Ie
	Intelligent Provisioning
	Smart Storage Administrator
	Scripting Toolkit Windows PE 64 Bit Mode
EVE (12) Commit	ake 2011-2017 Massleer Rackool Februaries Paradon mant I B

进入SSA中后先选择阵列卡,然后点击Configure选项开始配置阵列:



首先选择两块硬盘创建一个RAID 1。 Logical Drive1中只能看到两块硬盘



一: 阵列扩容:

1: 将RAID 1扩容2块/4块 (等双数) 硬盘。

点击Manage Date Drives

Configure	S Refresh	Logical Devices	Show All	× 🤐	Array A - 1 Logical Drive(s)
selected Controller		Array A - 1 Logical Dri	ve(s)		0 Mills (0.0%) Free Space
HPE Smart Array P016 Gen10 Embeddfed Sint	HASR	Logical Drive 1	HI, RAD 1	Ac	tions
ontroller Devices		-			lanage Data Drives
Logical Devices Larray, Liegical drive		900 GB SAS HDD Pert 41: Dec 2 : 0 xy 1		Mar Exp rep	age the physical data drives in the array and the array by adding data drives, lace one or more data drives, shrinik the
Physical Devices 0 physical drives		Port 41 . Box 2 . Bay 2		arra	y by removing current data drives.
Unassigned Drives				Add	is or removes spare physical drives to or n an array. When a physical drive fails, the
Tools				8.5.5	igned spare will become active.
Cashe Manager				D	elete Array
C License Manager				Del driv be l one	etes an array All data on the logical es that are a part of the deleted array will ost. Also, if the deleted array is the only on the controller, the controller settings
Encryption Manager				rest	be erased and its default configuration lored.
				c	reate Split Mirror Backup
				Cre by s	ate a PAID 0 backup of the selected array plitting the mirrored array.
					lentify Device
				Tur	n on the device identification LED.

在此界面中首先选择Add Drives - Expand Array,再选择要添加的硬盘。

 In a dual domain configuration When removing physical drive 	n, mixing single and dual ported S/ is from the array, the drives will be	AS drives can lead to a loss of redu in a transient state and will not be a	ndancy. wailable until the operation completes.	Hide
Available Array Action(s) Add Drwe(s) - Expand Array Move Drive(s) - Replace one of Select Physical Drives (w	(What's this?) or more drives in the array with driv hat's this?)	es of the same type		
Sort By Size V All Rems Select All (4) 900 GB 145 sep Port 21: Box 3 : Bay 1	900 GB	900 GB MAX HEDP Port 21: Box 3: Boy 3	900 68 54 500 Port 21: Box 31: Boy 4	

点击OK后会出现一个提示: 被选中的硬盘会添加到阵列中。 点击YES选项。



提示创建成功并显示阵列的信息。点击Finish完成扩容。

The the costs of Price apace	
Operation executed successfully.	
Array Details	
Status	OK
Unused Space	1.6 TIB (50.0%)
Used Space	1676.6 G/B (50.0%)
Total Usable Space	3.2 TIB
Acceleration Mode	Independent: Caching can be enabled or disabled for each individual logical drive
Logical Drives	
Logical Drive 1	838.33 GiB (900.15 GB)
Physical Drives	
900 GB SAS HDD at Port 2I : Box 3 : Bay 2	
900 GB SAS HDD at Port 2I : Box 3 : Bay 1	
900 GB SAS HDD at Port 41 : Box 2 : Bay 1	
900 GB SAS HDD at Port 4I : Box 2 : Bay 2	
Device Path	
HPE Smart Array P816i-a SP Gen10 in Embe	ided Slot
	Finis

点击Finish后完成扩容(此时Logical Drive中出现了4块硬盘, RAID级别为 1+0)。



点击阵列卡能看到转换的过程:



2: 将RAID 5扩容1块/2块硬盘。

点击Manage Date Drives



在此界面中首先选择Add Drives - Expand Array,再选择要添加的硬盘。

In a dual domain configuration, mbin When removing physical drives from	ig single and dual ported SAS drives can lead to a loss of redundancy. The array, the drives will be in a transient state and will not be available until the operation completes.	Hid
ailable Array Action(s) owner		
anabic far ay faction (s)		
Add Drive(s) - Expand Array		
) Move Drive(s) - Replace one or more	i drives in the array with drives of the same type	
lect Physical Drives (what's the	s7)	
Sroup By Enclosure ~		
Internal Drive Cage at Port 21 : Box 3	1	
Select All (1)		
() Select Marth		
900 GB		
SAS HDD Bay 4		
Internal Drive Cage at Port 41: Box 2	,	
Select All (2)		
0.000 50 0.00	10 50	
1 900 GB 1 90	Bw 2	
SAS HDD UNIT SAS HDD	und the second	

点击OK后会出现一个提示: 被选中的硬盘会添加到阵列中。 点击YES选项。



提示创建成功并显示阵列的信息,点击Finish完成扩容。

Operation executed successfully:		
Array Details		
Status	OK .	
Unused Space	2.0 TIB (50.0%)	
Used Space	2095.8 GIB (50.0%)	
Total Usable Space	4.0 TiB	
Acceleration Mode	Independent: Caching can be enabled or disabled for each individual logical drive	
Logical Drives		
Logical Drive 1	1.64 TiB (1.80 TB)	
Physical Drives		
900 GB SAS HDD at Port 2I : Box 3 : Bay 4		
900 GB SAS HDD at Port 2I : Box 3 : Bay 3		
900 GB SAS HDD at Port 2I : Box 3 . Bay 2		
900 GB SAS HDD at Port 2I : Box 3 : Bay 1		
900 GB SAS HDD at Port 4I : Box 2 : Bay 1		
Device Path		
HPE Smart Array P816I-a SP Gen10 in En	vbedded Slot	

扩容后阵列的信息, Logical Drive的容量增加, RAID级别仍然为RAID5。

Configure	C Refresh	Logical Devices	Show All	~	Array A - 1 Lo	gical Drive(s)
Selected Controller		Array A - 1 Logical Drive(s)			2.0 TIB (50.0%) F	ree Space
HPE Smart Array P816i- Gen10 Excluded Size	ASR 🖪	Logical Drive 1			Actions	
Controller Devices		B Ter Lin (Tho Lin Kyo P			Create Logical Drive	
Logical Devices 1 array: Lingical only Physical Devices		900 GB SAS HDD Per 21: Bet 3 : Bay 3 900 GB SAS HDD Per 21: Bet 3 : Bay 2			Creates a logical drive to on the selected array Var are available for selection tolerance, size of the logi size.	om the free space ious parameters h such as the fault cal drive, and strip
Unassigned Drives		BOD GB SAS HDD			Delete Array	
Tools Cache Manager		900 GB SAS HDD 900 GB SAS HDD 900 GB SAS HDD			Deletes an array Al data drives that are a part of th be lost. Also, if the delete one on the controller, the will be erased and its der restored.	on the logical e deleted array will d array is the only controller settings fault configuration
License Manager		-			Identify Device	
Encryption Manager					Turn on the device identit	Ication LED.
					Array Details	
					Status	OK
					Unused Space	2.0 TIB (50.0%)
					Used Space	2095.8 GiB (50.0%)
					Total Usable Space	4.0 TIB
					Acceleration Mode	Independent Carbing can

二: 阵列迁移

1: 将RAID 1添加一块硬盘迁移到RAID 5。

首先将两块硬盘配置一个RAID 1,然后点击Manage Date Drives选项:



在此界面中首先选择Add Drives - Expand Array,选择要添加的一块硬盘。 点击OK选项。

 In a dual domain configuration, m When removing physical drives from the second drites from the second drives from the second drives f	ang single and dual ported SA m the array, the drives will be in	S drives can lead to a loss of redu n a transient state and will not be a	ndancy. wailable until the operation completes.	Hide
Available Array Action(s) (w	hat's this			
Add Drive(s) - Expand Array Move Drive(s) - Replace one or m	ore drives in the array with drive	is of the same type		
Select Physical Drives (where Sort By Size V	045?I			
All hems				
Select All (4)				
900 GB SAS NDO Port21: Box 3: Boy 1	900 GB SAS HOD Port 21: Box 3: Boy 2	900 GB SAS HOD Port 21: Box 3: Boy 3	900 GB SAS HED Port 21: Box 3: Boy 4	

该界面中会出现阵列迁移提示(RAID级别将从RAID 1迁移到RAID 5),同时选中的硬盘要添加到该Logical Drive中。

Array A - 1 Logical Drive(s) O MiB (0.0%) Free Space	
An even number of physical drives is required for this array because it has one or more logical drives with a fault tolerance of PAID 1(=0). However, you can migrate all PAID 1(=0) logical drives on this array to PAID 5. Clicking Yes will migrate all PAID 1(=0) logical drives to PAID 5. One or more selected drives are connected to mixed mode ports and directly stops are trans COS. These drives will become unavailable to the OS after this operation.	Hide
Are you sure you want to continue?	

点击YES选项后显示阵列信息。

Array A - 1 Logical Drive(s) 1.2 TiB (50.0%) Free Space	> Manage Data Drives	
Operation executed successfully.		
Array Details		
Status	OK	
Unused Space	1.2 TIB (50.0%)	
Used Space	1257.4 GiB (50.0%)	
Total Usable Space	2.4 TiB	
Acceleration Mode	Independent: Caching can be enabled or disabled for each individual logical drive	
Logical Drives		
Logical Drive 1	838.33 GiB (900.15 GB)	
Physical Drives		
900 GB SAS HDD at Port 2I : Box 3 : Bay 1		
900 GB SAS HDD at Port 4I : Box 2 Bay 1		
900 GB SAS HDD at Port 4I : Box 2 <mark> : Bay 2</mark>		
Device Path		
HPE Smart Array P816i-a SP Gen10 in Embe	dded Slot	
	-	Finish

点击FINISH完成迁移, RAID级别从RAID 1变成了RAID 5。



点击阵列卡会看到迁移的过程。



阵列卡中会有黄色叹号,点击View All Status Messages查看详细信息。



出现这些报错请用户不要惊慌,这些信息显示阵列正在完成迁移的过程中。此时阵列卡的性能会有下降,等阵列迁移完成后性能会自动提升。

2: 将RAID 1添加三块硬盘迁移到RAID 6。

首先将两块硬盘配置一个RAID 1,然后点击Manage Date Drives选项:



在此界面中首先选择Add Drives - Expand Array,选择要添加的一块硬盘。 点击OK选项。

Array A - 1 Logical Drive(s) Manage Data Drives OHIS (0.0%) Free Space	
In a dual domain configuration, mixing single and dual ported SAS drives can lead to a loss of redundancy. When removing physical drives from the array, the drives will be in a transient state and will not be available until the operation completes.	Hide
Available Array Action(s) (What's this?)	
Add Drive(s) - Expland Array Move Drive(s) - Replace one or more drives in the array with drives of the same type	
Select Physical Drives (what's the	
All hems	
Steter AU (4)	
Selected 3 Serie 2.46 TB (2.70 TB) OK	Cancel

该界面中会出现阵列迁移提示(RAID级别将从RAID 1迁移到RAID 6),同时选中的硬盘要添加到该L ogical Drive中。



点击FINISH完成迁移, RAID级别从RAID 1变成了RAID 6。

Configure	Thereas C	Logical Devices	Show All	~	Array A - 1 Lo	gical Drive	(5)
elected Controller		Array A - 1 Logical Drive(s) 2.7 Till (86.7%) Free Space			2.7 Till (6-6.7%) F	ree Space	
Gen10	•	Logical Drive 1	AID & LAD DY		Actions		
ontroller Devices					Create Logical Drive	1.00	
Logical Devices Prez 21 Devices Prez 21 Devices 1 Devices		creates a logical drive fro on the selected array Var are available for selector	m the tree spa ious paramete i such as the fi	rs ault			
Physical Devices		Part 21 - Barc 3 - Bay 2			tolerance, size of the logi	cal drive, and s	hip
Unassigned Drives		Pert 21 Bes 2 : Bay 2			Delete Array		
Tools 900 00 SAS HDD Pan 41 Ber 2 - Bery 1		Deletes an array. All data on the logical drives that are a part of the deleted array will be lost. Also, if the deleted array is the only		y with			
Cache Manager		Part do Bar 2 : Bay 2			one on the controller, the will be erased and its def restored.	controller sette auft configurati	ion
License Manaper					Identify Device		
Encryption Manager					Turm on the device identit	cation LED.	
					Array Details		
					Status	OK	
					Unused Space	2.7 TiB (66.7%)	
					Used Space	1397.2 ((33.3%)	6.8
					Total Usable Space	4.0 TIB	
					Acceleration Mode	Indepen	Ider

1: 在做阵列迁移和扩容之前首先需要确认两个必要条件十分满足:

- (1): 阵列卡需要有该功能。
- (2): 阵列卡需要配置缓存和电池(且电池需要满电)。

2: RAID 1添加双数硬盘时只能完成扩容操作。例如添加2块/4块硬盘时, Logical Drive的容量会增加, 但是不会转换成RAID 5或RAID 6。

- 3: RAID 1添加1块硬盘时, RAID级别会迁移到RAID 5。
- 4: RAID 1添加3块或3块以上的硬盘时, RAID基本会迁移到RAID 6 (ADG)。
- 5: RAID 5/RAID 6在添加硬盘时也只会做扩容。