

知 ONEStor+LSI阵列卡+三星SSD系统下查看使用寿命的方法

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问题描述

固态硬盘（SSD、NVME、M.2）存在固定的擦写次数，在使用过程中寿命会随着擦写次数增加寿命逐渐减少，损耗的频率受多种因素影响，如硬盘类型、容量大小、业务读写模式等。分布式存储由于其实现原理，数据IO相对均衡的落在不同硬盘上，因此集群内硬盘剩余寿命会存在几乎同时耗尽的可能。当多个节点的多块硬盘剩余寿命同时濒临耗尽时，若继续使用会存在性能数据下降和跨节点多块硬盘批量故障的风险，造用户数据丢失。因此在日常运维过程中需要密切关注SSD磨损度。

过程分析

注：阵列卡型号会决定查询使用的指令，硬盘型号会决定查询的字段，因此不同阵列卡下不同类型的SD，查询方法均不相同

- 1、确认节点使用的阵列卡型号和SSD型号，如果是LSI阵列卡且三星SSD可以使用本案例
- 2、使用指令/opt/MegaRAID/storcli/storcli64 /call show|grep -A 30 "PD LIST :"
"查询SSD的DID号

```
[root@node87 ~]# /opt/MegaRAID/storcli/storcli64 /call show|grep -A 30 'PD LIST :'  
PD LIST :  
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```

EID:Sl't	DID	State	DG	Size	Intf	Med	SED	PI	SeSz	Model	Sp	Type
8:0	23	Onln	13	446.625 GB	SATA	SSD	N	N	512B		U	-
8:4	13	Onln	1	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:5	15	Onln	2	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:6	11	Onln	3	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:7	14	Onln	4	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:8	17	Onln	5	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:9	12	Onln	6	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:10	18	Onln	7	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:11	19	Onln	8	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:12	16	Onln	9	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:13	22	Onln	10	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:14	20	Onln	11	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:15	21	Onln	12	7.276 TB	SATA	HDD	N	N	512B	ST8000NM000A-2KE101	U	-
8:26	9	Onln	0	446.625 GB	SATA	SSD	N	N	512B		U	-
8:27	10	Onln	0	446.625 GB	SATA	SSD	N	N	512B		U	-

- 2、使用指令smartctl -a -d megaraid,DID /dev/sdx，查询SSD盘寿命

注：盘符信息可以随便填写，对指令查询情况无影响，DID务必保证填写正确。即本例中可以使用smartctl -a -d megaraid,23 /dev/sdn查询，如果需要查询准确的盘符，可以使用/opt/MegaRAID/storcli/storcli64 /c0/vall show all，根据DID编号查询盘符，如图：

```
PDs for VD 0 :  
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```

EID:Sl't	DID	State	DG	Size	Intf	Med	SED	PI	SeSz	Model	Sp	Type
8:0	9	Onln	0	446.625 GB	SATA	SSD	N	N	512B	SAMSUNG MZ7L3480HCHQ-00B7C	U	-
8:39	10	Onln	0	446.625 GB	SATA	SSD	N	N	512B	SAMSUNG MZ7L3480HCHQ-00B7C	U	-

```
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EID=Enclosure Device ID|Sl't=Slot No.|DID=Device ID|DG=DriveGroup
DHS=Dedicated Hot Spare|UGood=Unconfigured Good|GHS=Global Hotspare
UBad=Unconfigured Bad|Sntze=Sanitize|Onln=Online|Offln=Offline|Intf=Interface
Med=Media Type|SED=Self Encryptive Drive|PI=Protection Info
SeSz=Sector Size|Sp=Spun|U=Up|D=Down|T=Transition|F=Foreign
UGUnsp=UGood **Unsupported**|UGShld=UGood shielded|HSPShld=Hotspare shielded
CFShld=Configured shielded|Cpybck=CopyBack|CBShld=Copyback Shielded
UBUnsp=UBad **Unsupported**|RblD=Rebuild

```
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VD0 Properties :
Strip Size = 256 KB
Number of Blocks = 936640512
VD has Emulated PD = **Yes**
Span Depth = 1
Number of Drives Per Span = 2
Write Cache(initial setting) = **Writeback**
Disk Cache Policy = **Disk's Default**
Encryption = **None**
Data Protection = **Disabled**
Active Operations = **None**
Exposed to OS = **Yes**
OS Drive Name = **/dev/sda**

- 3、三星SSD是从177 查看损耗均衡次数；VALUE显示剩余寿命百分比，获取硬盘的剩余寿命，如图可知此块SSD剩余寿命为83%

```

SMART Attributes Data Structure revision number: 1
Vendor Specific SMART Attributes with Thresholds:
ID# ATTRIBUTE_NAME          FLAG     VALUE WORST THRESH TYPE      UPDATED  WHEN_FAILED RAW_VALUE
  5   Reallocated_Sector_Ct   0x0033   100   100   010   Pre-fail Always         -             0
  9   Power_On_Hours          0x0032   090   090   000   Old_age  Always         -           48890
177  Wear_Leveling_Count       0x0032   099   099   000   Old_age  Always         -             29
179  Used_Rsvd_Blk_Cnt_Tot    0x0013   083   083   005   Pre-fail Always         -           1264
180  Unused_Rsvd_Blk_Cnt_Tot  0x0013   100   100   010   Pre-fail Always         -             813
181  Program_Fail_Cnt_Total   0x0032   100   100   010   Old_age  Always         -             0
182  Erase_Fail_Count_Total   0x0032   100   100   010   Old_age  Always         -             0
183  Runtime_Bad_Block        0x0013   100   100   010   Pre-fail Always         -             0
184  End-to-End_Error         0x0033   100   100   097   Pre-fail Always         -             0
187  Reported_Uncorrect       0x0032   100   100   000   Old_age  Always         -             0
190  Airflow_Temperature_Cel  0x0032   067   055   000   Old_age  Always         -             33
194  Temperature_Celsius      0x0022   067   055   000   Old_age  Always         -             33 (Min/Max 22/45)
195  Hardware_ECC_Recovered   0x001a   200   200   000   Old_age  Always         -             0
197  Current_Pending_Sector   0x0032   100   100   000   Old_age  Always         -             0
199  UDMA_CRC_Error_Count     0x003e   100   100   000   Old_age  Always         -             0
202  Unknown_SSD_Attribute    0x0033   100   100   010   Pre-fail Always         -             0
235  Unknown_Attribute        0x0012   099   099   000   Old_age  Always         -             19
241  Total_LBAs_Written       0x0032   099   099   000   Old_age  Always         -        668907095973
242  Total_LBAs_Read          0x0032   099   099   000   Old_age  Always         -       1488328605
243  Unknown_Attribute        0x0032   100   100   000   Old_age  Always         -             0
244  Unknown_Attribute        0x0032   100   100   000   Old_age  Always         -             0
245  Unknown_Attribute        0x0032   100   100   000   Old_age  Always         -           65535
246  Unknown_Attribute        0x0032   100   100   000   Old_age  Always         -           65535
247  Unknown_Attribute        0x0032   100   100   000   Old_age  Always         -           65535
251  Unknown_Attribute        0x0032   100   100   000   Old_age  Always         -       676175268608

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解决方法

在190常减到100,新硬盘进行硬盘更换的准备工作

