由于用户工作负载的磁盘瓶颈而导致高读取或写入延迟

https://kb-cn.netapp.com/on-prem/ontap/Perf/Perf-KBs/High_Read_or_Write_Latency_due_to_disk_bot…
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适用于

- ONTAP 9

问题

- 位于高利用率（100%）SATA 或 SAS 磁盘聚合上的卷出现读取和写入操作的高延迟。

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- 复制 100MB+ 等大文件失败。
- IOPS 低于预期。
- 如果客户正在使用虚拟环境，虚拟机可能会变得无响应。
- 由于磁盘利用率高，观察到备份速度缓慢。
- 可能面临从容量层到性能层的数据检索速度缓慢。
- 使用 Linux `cp` 命令，可以看到一个集群上的用户复制速度比另一个集群慢。
- 使用 `statit` 来识别包含卷的聚合中是否存在高磁盘利用率或延迟。

  > disk ut% xfers ureads--chain-usecs writes--chain-usecs cpreads-chain-usecs greads--chain-usecs gwrites-chain-usecs /data_aggr1/plex0/rg0: 0a.11.1 10 23.42 0.00 .... . 11.21 61.56 133 12.21 57.15 50 0.00 .... . 0.00 .... . 0a.10.1 11 23.80 0.00 .... . 11.66 59.25 147 12.14 57.37 55 0.00 .... . 0.00 .... . 1a.12.1 100 158.69 120.29 5.43 2299 10.26 34.39 553 28.15 9.93 839 0.00 .... . 0.00 .... . 0a.11.2 100 156.09 118.85 5.39 2253 9.96 34.97 553 27.28 10.05 794 0.00 .... . 0.00 .... . 0a.10.2 100 158. 41 121.44 5.35 2337 9.95 35.11 542 27.01 9.93 835 0.00 .... . 0.00 .... . 0a.12.2 100 153.05 115.90 5.59 2158 9.88 35.00 524 27.27 9.97 803 0.00 .... . 0.00 .... . 0a.11.3 100 162.10 124.59 5.45 2262 10.05 35.10 528 27.45 10.10 809 0.00 .... . 0.00 .... . 0a.10.3 100 158.72 121.88 5.39 2298 9.82 34. 82 573 27.02 10.05 838 0.00 .... . 0.00 .... . 1a.12.3 100 157.60 120.63 5.49 2274 9.85 34.90 571 27. 11 9.82 875 0.00 .... . 0.00 .... . 0a.11.4 100 157.67 120.74 5.39 2328 9.96 35.29 568 26.97 10.10 857 0.00 .... . 0.00 .... . 0a.10.4 100 156.72 119.29 5.64 2180 9.96 34.65 556 27.47 9.79 825 0.00 .... . 0.00 .... .

- 客户端出现性能降级。
- 监控集群的 Active IQ Unified Manager (AIQUM) 会引发更高延迟的警报。
  - **示例：**`Latency value of XX.X ms/op on volname has triggered a WARNING event based on threshold setting of 20.0 ms/op.`
- 读取延迟为 25~40ms。
- 根据 sysstat -x，磁盘利用率很高（为了可读性已删除列）：
  - CPU ... HDD ... util 10% ... 90% 9% ... 100%

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