

WAAS - NFS AO故障排除

章節：排除NFS AO故障

本文描述如何對NFS AO進行故障排除。

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NFS加速器故障排除

NFS加速器可最佳化NFSv3流量。其他NFS版本沒有通過NFS AO進行最佳化。

您可以使用**show accelerator**和**show license**命令驗證常規AO配置和狀態，如[應用程式加速故障排除一文中所述](#)。NFS加速器操作需要企業許可證。

接下來，使用**show accelerator nfs**命令驗證NFS AO的特定狀態，如圖1所示。您想看到NFS AO已啟用、正在運行和已註冊，而且顯示了連線限制。如果Config State為Enabled，但Operational State為Shutdown，則表示存在許可問題。

圖1. 檢驗NFS加速器狀態

```

WAE674# sh accelerator nfs

Accelerator      Licensed      Config State  Operational State
-----
Nfs              Yes           Enabled       Running

NFS:
Policy Engine Config Item
-----
State
Default Action
Connection Limit
Effective Limit
Keepalive timeout

Value
-----
Registered
Use Policy
6000
5990
5.0 seconds

```

使用 `show running-config` 命令驗證 NFS 流量策略是否正確配置。您想檢視加速 nfs 檔案系統應用程式分類器 NFS 操作，並且想檢視 NFS 分類器列出的適當匹配條件，如下所示：

```

WAE674# sh run | include NFS
name File-System classifier NFS action optimize full accelerate nfs <-----

WAE674# sh run | begin NFS
...skipping
classifier NFS
match dst port eq 2049 <-----
exit

```

使用 `show statistics connection optimized nfs` 命令檢查 WAAS 裝置是否正在建立最佳化的 NFS 連線。驗證 NFS 連線的「加速」列中是否顯示「N」，這表示已使用 NFS AO。

```

WAE674# sh stat conn opt nfs
D:DRE,L:LZ,T:TCP Optimization,
C:CIFS,E:EPM,G:GENERIC,H:HTTP,M:MAPI,N:NFS,S:SSL,V:VIDEO,

ConnID  Local IP:Port      Remote IP:Port      PeerID              Accelerator
582     10.56.94.101:33606  10.56.94.80:2049   0:1a:64:d3:2f:b8   NTDL              <-----Look
for "N"

```

使用 `show statistics accelerator nfs` 命令驗證以下內容：

- NFS 流量是 NFSv3。請檢視「每個 NFS 版本的 RPC 呼叫總數」欄位。該欄位的輸出是一個由 5 個值組成的陣列，並且您希望看到大多數的 NFSv3 流量，此流量在第 4 個計數器中報告。其他陣列位置中的數字高表示其他 NFS 版本。
- NFS 流量未加密。檢視 Total RPC Calls per Authentication Flavor 欄位。該欄位的輸出是一個由 4 個值組成的陣列，您希望看到大部分未加密的流量，這些流量對應於前 3 個計數器。最後一個計數器中的大數字表示加密的 NFS 流量。另請選中 Total RPC Calls with Unknown Authentication Flavor 欄位，您想在其中看到 0 或較小的數字，因為這些連線未最佳化。
- NFS 連線是非同步的。驗證「本地服務請求百分比」欄位為非零。

```

WAE# sh statistics accelerator nfs

```

```

NFS:
  Global Statistics
  -----
  Time Accelerator was started:          Fri Oct 23
16:40:06 2009
  Time Statistics were Last Reset/Cleared:  Fri Oct 23
16:40:06 2009
  Total Handled Connections:              170
  Total Optimized Connections:            170
  Total Connections Handed-off with Compression Policies Unchanged:  0
  Total Dropped Connections:              0
  Current Active Connections:              0
  Current Pending Connections:            0
  Maximum Active Connections:             13
  Total RPC Calls per Authentication Flavor: 65
298544  0  0                                <----Should see 0
or few in last field
  Total RPC Calls with Unknown Authentication Flavor: 0 <----Should see 0
or few
  Total RPC Calls per NFS Version:        0
0  0  298609  0                                <----Should see 0
or few in first two and last fields
  Total RPC Calls with Unknown NFS Version: 0 <----Should see 0
or few
  Total Requests:                          298609
  Total Local Replies:                      191713
  Percentage of Requests Served Locally:    64 <----Should be
nonzero
  Percentage of Requests Served Remotely:   36
  Average Time to Generate Local READ Reply (ms): 15
  Average Time to Generate Local WRITE Reply (ms): 0
  Average Time to Generate Local GETATTR Reply (ms): 0
  Average Time to Generate Local Reply (ms): 0
  Average Time to Receive Remote Reply (ms): 10
  Meta-Data Cache Access Count:            206017
  Meta-Data Cache Hit Count:               191673
  Remaining Number Of Entries in Meta-Data Cache: 128926
  Meta-Data Cache Hit Ratio:               93

```

可以使用 `show statistics connection optimized nfs detail` 命令檢視 NFS 連線統計資訊，如下所示：

```

WAE674# show stat conn opt nfs detail
Connection Id:          1916
  Peer Id:              00:14:5e:84:24:5f
  Connection Type:     EXTERNAL CLIENT
  Start Time:          Thu Jun 25 07:09:09 2009
  Source IP Address:   10.10.10.20
  Source Port Number:  928
  Destination IP Address: 10.10.100.102
  Destination Port Number: 2049
  Application Name:    File-System                                <-----Should see File-
System
  Classifier Name:     NFS                                        <-----Should see NFS
  Map Name:            basic
  Directed Mode:      FALSE
  Preposition Flow:   FALSE
  Policy Details:
    Configured:        TCP_OPTIMIZE + DRE + LZ
    Derived:           TCP_OPTIMIZE + DRE + LZ
    Peer:              TCP_OPTIMIZE + DRE + LZ

```

```

Negotiated:      TCP_OPTIMIZE + DRE + LZ
Applied:         TCP_OPTIMIZE + DRE + LZ
Accelerator Details:
  Configured:    NFS                                <-----Should see NFS
configured
  Derived:       NFS
  Applied:       NFS                                <-----Should see NFS
applied

```

```
Hist:  None
```

	Original	Optimized
Bytes Read:	5120	4639
Bytes Written:	28136	1407

. . .

NFS : 1916

Time Statistics were Last Reset/Cleared: Thu Jun 25

07:09:09 2009

Total Bytes Read: 5120
28136

Total Bytes Written: 28136
5120

Bit Flags for I/O state: 19

Histogram of Buffers Read From Local Endpoint: 31

1 0 0 0

Total NFS Requests: 32

Total Replies Served Locally: 4

Percentage of Requests Served Locally: 12

Percentage of Requests Served Remotely: 88

Average Time to Generate Local READ Reply (ms): 0

Average Time to Generate Local WRITE Reply (ms): 0

Average Time to Generate Local GETATTR Reply (ms): 0

Average Time to Generate Local Reply (ms): 0

Average Time to Receive Remote Reply (ms): 103

Total RPC Procedure Calls: 0

9 0 10 7 0 4 1 0

0 0 0 0 0 0 0 0

1 0 0 0 0 0 0 0

. . .

Total Unknown RPC Procedure Calls: 0

Total Write RPCs Using Stable-how Enumerated Values: 0

0 1

Total WRITE RPCs with Invalid Stable-how Value: 0

Bytes Buffered for READ Purpose: 0

Start Time of Session: Thu Jun 25

07:09:09 2009

Meta-Data Cache Access Count: 9

Meta-Data Cache Hit Count: 4

Remaining Number Of Entries in Meta-Data Cache: 1000

Meta-Data Cache Hit Ratio: 44

Current number of entries in Meta-Data Cache: 0

. . .

NFS AO日誌記錄

以下日誌檔案可用於排除NFS AO問題：

- 事務日誌檔案：/local1/logs/tfo/working.log(和/local1/logs/tfo/tfo_log_*.txt)

- 調試日誌檔案：/local1/errorlog/nfsao-errorlog.current (和nfsao-errorlog.*)

為了更輕鬆地進行調試，您應該首先設定ACL以限制資料包只訪問一台主機。

```
WAE674(config)# ip access-list extended 150 permit tcp host 10.10.10.10 any
WAE674(config)# ip access-list extended 150 permit tcp any host 10.10.10.10
```

要啟用事務日誌記錄，請使用**transaction-logs configuration**命令，如下所示：

```
wae(config)# transaction-logs flow enable
wae(config)# transaction-logs flow access-list 150
```

您可以使用**type-tail**命令檢視事務日誌檔案的結尾。

要設定和啟用NFS AO的調試日誌記錄，請使用以下命令。

附註：調試日誌記錄是CPU密集型，可以生成大量輸出。在生產環境中慎重而謹慎地使用它。

您可以按如下方式啟用磁碟的詳細日誌記錄：

```
WAE674(config)# logging disk enable
WAE674(config)# logging disk priority detail
```

您可以在ACL中啟用連線的調試日誌記錄，如下所示：

```
WAE674# debug connection access-list 150
```

NFS AO調試選項如下：

```
WAE674# debug accelerator nfs ?
all                enable all accelerator debugs
async-write        enable async write optimization debugs
attributes-cache   enable attributes-cache optimization debugs
nfs-v3             enable NFSv3 layer debugs
read-ahead         enable read ahead optimization debugs
rpc                enable RPC layer debugs
shell              enable shell (infra) debugs
utils              enable utils debugs
```

您可以為NFS連線啟用調試日誌記錄，然後按如下方式顯示調試錯誤日誌的結束：

```
WAE674# debug accelerator nfs all
WAE674# type-tail errorlog/nfsao-errorlog.current follow
```