Nexus Monitor Memory and CPU using Python Cli

Contents

Introduction

This document describes how to monitor CPU and memory with the use of the inbuilt python cli module and schedule syslog notifications.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Embedded Event Manager
- Nexus Scheduler

Components Used

The information in this document is based on these software and hardware versions:

- Nexus 3000 - 7.0(3)I4(7)
- Nexus 9000 - 7.0(3)I7(1)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Configure

For this example, monitor the process PTP for its CPU and Memory.

Ensure to configure.

```
feature ptp

feature scheduler
```

The python script is used to monitor the CPU and memory for a particular process that runs on the device.

```
import cisco
import sys
from cli import *

def main(process):

mem = ""
cpu = ""

ptp_cpu = cli('sh proc cpu | i '+process)
ptp_mem = cli('sh proc mem | i '+process)

if ptp_cpu:
csplit = ptp_cpu.split()
cpu = csplit[4]
if ptp_mem:
msplit = ptp_mem.split()
mem = msplit[3]

cli('syslog priority notifications msg for '+process+' mem: '+mem +' and cpu ' + cpu)

return

if __name__ == "__main__":
main(sys.argv[1])
```

Save the file as **ptp_alert_mem_cpu.py.**

Verify

Use this section in order to confirm that your configuration works properly.

Run the file from CLI.

Syntax to run the script:

python <script file> <process name>

```
Nexus# python bootflash:ptp_alert_mem_cpu.py ptp
```

```
Nexus# show logg last 5

2018 Dec 13 10:59:30 Nexus %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by admin on
vsh.28744
2018 Dec 13 11:02:30 Nexus %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by admin on
vsh.28867
```

```
2018 Dec 13 11:03:37 Nexus %EEM_ACTION-5-NOTIF: for ptp mem: 649089024 and cpu 0.00%
```

As seen here, this syslog alert is triggered for the PTP process and includes CPU and memory usage.

The same output is seen from Nexus CLI.

```
Nexus# show logg last 5

2018 Dec 13 10:59:30 Nexus %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by admin on
vsh.28744
2018 Dec 13 11:02:30 Nexus %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by admin on
vsh.28867
2018 Dec 13 11:03:37 Nexus %EEM_ACTION-5-NOTIF: for ptp mem: 649089024 and cpu 0.00%
```

Here is another example which demonstrates how the script is used to kill a process as soon as the memory crosses the specified threshold.

The script takes two inputs, process name and mem size after which the process is to be killed.

```
Nexus# show logg last 5

2018 Dec 13 10:59:30 Nexus %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by admin on
vsh.28744
2018 Dec 13 11:02:30 Nexus %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by admin on
vsh.28867
2018 Dec 13 11:03:37 Nexus %EEM_ACTION-5-NOTIF: for ptp mem: 649089024 and cpu 0.00%

Nexus# show logg last 5

2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %EEM_ACTION-5-NOTIF: Killing ptp mem: 691027968
2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %VSHD-5-VSHD_SYSLOG_CMD_EXEC: User:admin
executed the command:run bash
2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %SYSMGR-2-SERVICE_CRASHED: Service "ptp" (PID
29107) hasn't caught signal 6 (core will be saved).
```

Schedule the Script

Using EEM

This EEM script will be triggered every one minute and then the syslog message is generated.

```
Nexus# show logg last 5

2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %EEM_ACTION-5-NOTIF: Killing ptp mem: 691027968
2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %VSHD-5-VSHD_SYSLOG_CMD_EXEC: User:admin
executed the command:run bash
2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %SYSMGR-2-SERVICE_CRASHED: Service "ptp" (PID
29107) hasn't caught signal 6 (core will be saved).



Nexus# show logg last 5

2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %EEM_ACTION-5-NOTIF: Killing ptp mem: 691027968
2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %VSHD-5-VSHD_SYSLOG_CMD_EXEC: User:admin
executed the command:run bash
```

```
2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %SYSMGR-2-SERVICE_CRASHED: Service "ptp" (PID
29107) hasn't caught signal 6 (core will be saved).
```

Using Scheduler

This scheduler job will be triggered every one minute and then the syslog message is generated.

```
Nexus# show logg last 5

2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %EEM_ACTION-5-NOTIF: Killing ptp mem: 691027968
2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %VSHD-5-VSHD_SYSLOG_CMD_EXEC: User:admin
executed the command:run bash
2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %SYSMGR-2-SERVICE_CRASHED: Service "ptp" (PID
29107) hasn't caught signal 6 (core will be saved).

Nexus# show logg last 5

2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %EEM_ACTION-5-NOTIF: Killing ptp mem: 691027968
2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %VSHD-5-VSHD_SYSLOG_CMD_EXEC: User:admin
executed the command:run bash
2018 Dec 20 07:00:09 BGL14.1-G.17-N3K-C31108PC-1 %SYSMGR-2-SERVICE_CRASHED: Service "ptp" (PID
29107) hasn't caught signal 6 (core will be saved).
```

Troubleshoot

There is currently no specific troubleshooting information available for this configuration.