
Subject: Measuring CPU usage

Posted by [gurtaj](#) on Mon, 09 Feb 2009 16:39:29 GMT

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Hello, all. I've written a couple of Python methods to gather CPU usage statistics of the containers running in a Hardware Node.

I'm working with Centos 5.2, with this OpenVZ kernel: 2.6.18-92.1.13.el5.028stab059.6

If you find it useful, good. If you feel something is wrong, let me know please. =)

```
def gatherCpuStats():
    dict = {}
    stats = file('/proc/vz/vestat')

    # should check if the file exists and the operation was successful

    # read the first line (version number) and the second one (parameter names)
    stats.readline()
    stats.readline()

    # now, for each line create a ContainerStats
    while True:
        line = stats.readline()
        if len(line) == 0:
            break

    # create a ContainerStats for each line and place them inside a dictionary
    elems = line.split()

    # (parameter names) - second line, already read
    # VEID user nice system uptime idle strv uptime used maxlat totlat numsched
    cont = ContainerStats(int(elems[0]))
    cont.setUptime(int(elems[7]))
    cont.setUsedtime(int(elems[8]))

    dict[cont.getVeid()] = cont
    stats.close()
    return dict

def calculateCpuUsage():
    global oldSet
    global newSet

    newSet = gatherCpuStats()
```

```

for veid, newCont in newSet.iteritems():
    if veid in oldSet:
        oldCont = oldSet[veid]
        oldUptime = oldCont.getUptime()
        oldUsedtime = oldCont.getUsedtime()
    else:
        oldUptime = 0
        oldUsedtime = 0

    # CPU_USAGE_% = [(NEW_USED - OLD_USED) / CPU_MHZ] / [(NEW_UPTIME -
    OLD_UPTIME) / CPU_MHZ]
    cpuUsage = (float(newCont.getUsedtime() - oldUsedtime) / cpuCycles) /
    (float(newCont.getUptime() - oldUptime) / cpuCycles)

    # in order to store cpuUsage as a percentage value (xx.xx%)
    # I multiply cpuUsage by 100 and truncate it
    newCont.setCpuUsage(int(cpuUsage * 100))

```

the following is a simple loop to test the previous methods

```

i = 0
while (i < 10):
    print '+++++'
    print 'Start:', time.strftime('%H%M%S')
    print

    calculateCpuUsage()
    oldSet = newSet # the current info becomes the _old_set_ of info

    for veid, cont in oldSet.iteritems():
        print 'VEID:', cont.getVeid(), '- CPU usage:', cont.getCpuUsage()
    print
    i += 1
    time.sleep(10)

```

Subject: Re: Measuring CPU usage
 Posted by [gurtaj](#) on Mon, 09 Mar 2009 15:34:39 GMT
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```

# CPU_USAGE_% = [(NEW_USED - OLD_USED) / CPU_MHZ] / [(NEW_UPTIME -
    OLD_UPTIME) / CPU_MHZ]
cpuUsage = (float(newCont.getUsedtime() - oldUsedtime) / cpuCycles) /

```

`(float(newCont.getUptime() - oldUptime) / cpuCycles)`

The other day I was doing some refactoring of the code and suddenly realized that it was kind of stupid what I did in that formula: dividing both terms by CPU_MHZ.

I believe the rest remained the same.
