Subject: CPU limiting
Posted by Woet on Wed, 15 Dec 2010 09:43:57 GMT
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Using the latest RHEL5, CPU limiting is not working as it should. While it does limit the CPU in the VPS (e.g. causing a load of 20), it also raises the load on the hostnode, basically rendering it useless.
Test case below: check the load, create a VPS, make it spawn a lot of infinite loops, check load again, stop the VPS, check load again.
Expected result: the load on the host node to go up with maximum 1, since I limited the VPS to 100% of one CPU.
Actual result: load on the host node rises way beyond the limits set.

kitten:~# vzctl create 2000 --ostemplate=debian-5.0-x86
Creating container private area (debian-5.0-x86)
Performing postcreate actions
Container private area was created
kitten:~# vzctl set 2000 --cpus 1 --save
Saved parameters for CT 2000
kitten:~# vzctl set 2000 --cpulimit 100 --save
Saved parameters for CT 2000
kitten:~# uptime
 10:37:04 up 30 days, 2:36, 2 users, load average: 4.29, 3.41, 2.71
kitten:~# vzctl start 2000
Starting container ...
Container is mounted
Setting CPU limit: 100
Setting CPU units: 1000
Setting CPUs: 1
Container start in progress...
kitten:~# vzctl enter 2000
entered into CT 2000
kitten:/# uptime
 12:37:12 up 0 min, 0 users, load average: 0.08, 0.02, 0.01
kitten:/# while true; do true; done &
[1] 15736
kitten:/# while true; do true; done &
[2] 15853
kitten:/# while true; do true; done &
[3] 15854
kitten:/# while true; do true; done &
[4] 15855
kitten:/# while true; do true; done &
[5] 15910
kitten:/# while true; do true; done &
[6] 18398
kitten:/# while true; do true; done &
[7] 18417

```
kitten:/# while true; do true; done &
[8] 18418
kitten:/# while true; do true; done &
[9] 18431
kitten:/# while true; do true; done &
[10] 19801
kitten:/# while true; do true; done &
[11] 19804
kitten:/# while true; do true; done &
[12] 19807
kitten:/# while true; do true; done &
[13] 19820
kitten:/# while true; do true; done &
[14] 19862
kitten:/# while true; do true; done &
[15] 19896
kitten:/# while true; do true; done &
[16] 19934
kitten:/# while true; do true; done &
[17] 19935
kitten:/# while true; do true; done &
[18] 20380
kitten:/# while true; do true; done &
[19] 20432
kitten:/# while true; do true; done &
[20] 20433
kitten:/# while true; do true; done &
[21] 20436
kitten:/# while true; do true; done &
[22] 20437
kitten:/# while true; do true; done &
[23] 20440
kitten:/# while true; do true; done &
[24] 20441
kitten:/# while true; do true; done &
[25] 21595
kitten:/# while true; do true; done &
kitten:/# uptime
 12:38:04 up 0 min,  0 users,  load average: 4.67, 1.13, 0.37
kitten:/# uptime
 12:38:19 up 1 min,  0 users,  load average: 9.17, 2.30, 0.77
kitten:/# uptime
 12:38:21 up 1 min,  0 users,  load average: 10.44, 2.67, 0.90
kitten:/# uptime
 12:38:23 up 1 min,  0 users,  load average: 10.44, 2.67, 0.90
kitten:/# exit
logout
exited from CT 2000
```

```
kitten:~# uptime
 10:38:26 up 30 days,  2:37,  1 user,  load average: 13.71, 6.00, 3.64
kitten:~# vzctl stop 2000
Stopping container ...
Container was stopped
Container is unmounted
kitten:~# uptime
 10:39:01 up 30 days,  2:38,  1 user,  load average: 15.25, 7.38, 4.20
kitten:~# uptime
 10:39:26 up 30 days,  2:38,  1 user,  load average: 10.85, 6.98, 4.15
kitten:~# uptime
 10:40:13 up 30 days,  2:39,  1 user,  load average: 6.13, 6.28, 4.04
kitten:~# uptime
 10:40:28 up 30 days,  2:39,  1 user,  load average: 4.90, 6.00, 3.99
```

Subject: Re: CPU limiting
Posted by jakob on Sat, 18 Dec 2010 12:14:55 GMT
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The high load average only shows that you have lots of processes in the run queue, which is obviously correct. This does not necessarily mean that they are allowed to run.

What does top say? Does the VE get more than 100% of one CPU? (Note that those 100% will be distributed across all available CPUs, for example 25% on each CPU for 4 core machine)

Subject: Re: CPU limiting
Posted by Woet on Sat, 18 Dec 2010 12:18:10 GMT
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top/htop and /proc/cpuinfo all show 1 CPU, as you can see in my original post, I've set cpus to 1 and cpulimit to 100

Subject: Re: CPU limiting
Posted by jakob on Sat, 18 Dec 2010 12:26:18 GMT
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I meant when you run it on the host. The machine has more than 1 physical cpu, right?

Subject: Re: CPU limiting
Posted by Woet on Sat, 18 Dec 2010 12:28:01 GMT
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Yes, it has 2 quadcores with hyperthreading (16 cores in total)

Subject: Re: CPU limiting
Posted by Woet on Wed, 29 Dec 2010 14:16:09 GMT
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Any ideas..?

Subject: Re: CPU limiting
Posted by jakob on Wed, 29 Dec 2010 16:01:19 GMT
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Well... have you already checked what top says when run on the host?

Subject: Re: CPU limiting
Posted by Woet on Wed, 29 Dec 2010 17:06:42 GMT
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What should it say? You can see the loads in my first post.

Subject: Re: CPU limiting
Posted by jakob on Thu, 30 Dec 2010 01:08:41 GMT
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Load average and cpu usage are only loosely tied, the load average numbers don't proof that the VE gets more than 100% single-core cpu time. That's why top output on the HN would be interesting - until now, I don't see a bug.

Subject: Re: CPU limiting
Posted by Woet on Thu, 30 Dec 2010 07:51:05 GMT
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Only one core goes up - but the load average should only go up with a maximum of 1 because only one core is stressed.

Subject: Re: CPU limiting
Posted by Woet on Thu, 30 Dec 2010 09:58:16 GMT
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Please refer to this topic too:
ht tp://forum.openvz.org/index.php?t=msg&goto=21013&

Quote:
If a VE has a very low cpulimit, it can have a high load despite low amounts of work being done (high amount of idle cpu %). Due to this, the HN load can be very deceiving.

For example- take a VE, set cpulimit to 2, start it, and run 100 cpuburn processes inside. now look at you HN's load and also the idle/user cpu %. you will see the cpus are doing almost nothing yet the load is around 100.

This should be fixed so the load average is correct at all times.
