
Subject: System RAM and OpenVZ Utilization
Posted by [rexxe](#) on Sat, 06 Jan 2007 02:02:30 GMT
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Hello,

I have a server with 8 GB of RAM. I have three VEs, one for Apache, one for PostgreSQL, and one for Tomcat. I have tuned each one and have gotten it to the point when load testing with about 300 users I get no errors in any params in the UBC. However, when I run `vzmemcheck` I have enormous utilization, well over 1.0 in some of the cases. However, when I run `'free'` I still have close to 3 GB of RAM free and all of my swap space free. What's going on? 3 GB of RAM free seems way too much for system daemons (which are minimal) and different caches. Is there something I need to look at to give the VEs a bigger share of the RAM?

Thanks for your help!

Subject: Re: System RAM and OpenVZ Utilization
Posted by [rickb](#) on Sat, 06 Jan 2007 06:09:50 GMT
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Paste us the exact outputs so that we can see the details ourselves. This will make it a lot easier for us to understand the situation rather than basing it on your interpretation.

`vzmemcheck -vA; free -m`

Subject: Re: System RAM and OpenVZ Utilization
Posted by [rexxe](#) on Sat, 06 Jan 2007 09:31:51 GMT
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Here you go.....

`free -m:`

	total	used	free	shared	buffers	cached
Mem:	7887	4922	2964	0	79	931
-/+ buffers/cache:		3912	3975			
Swap:	2000	0	2000			

=====

`vzmemcheck -vA`

Output values in Mbytes

veid	LowMem	LowMem	RAM	MemSwap	MemSwap	Alloc	Alloc	Alloc
	util	commit	util	util	commit	util	commit	limit

101	3.39	21.03	15.80	15.80	45.03	829.23	45.03	2637.00
102	6.66	31.83	190.68	190.68	55.83	528.08	55.83	868.94
103	11.35	44.43	3696.90	3696.90	68.43	4022.65	68.43	12601.07

Summary: 21.40 97.30 3903.39 3903.39 169.30 5379.96 169.30 16107.02
 3154.00 3154.00 7887.00 9887.00 9887.00 9887.00 9887.00 9887.00

=====

vzmemcheck -v

Output values in %

veid	LowMem util	LowMem commit	LowMem util	RAM util	MemSwap commit	MemSwap util	MemSwap commit	MemSwap limit	Alloc	Alloc	Alloc
101	0.11	0.67	0.20	0.16	0.46	8.39	0.46	26.67			
102	0.21	1.01	2.42	1.93	0.56	5.34	0.56	8.79			
103	0.36	1.41	46.87	37.39	0.69	40.68	0.69	127.45			

Summary: 0.68 3.08 49.49 39.48 1.71 54.41 1.71 162.90

As you can see veid 103 has some very high utilization percentages....

Thanks for your help

Subject: Re: System RAM and OpenVZ Utilization
 Posted by [rickb](#) on Sat, 06 Jan 2007 12:25:53 GMT
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Quote:hen I run vzmemcheck I have enormous utilization.. However, when I run 'free' I still have close to 3 GB of RAM free and all of my swap space free. What's going on

The numbers seem to add up. Your box is using 3912MB of ram overall based on /proc/meminfo.

Then, the breakdown for VE utilization is:
 16+191+3696=3903

Quote:

Is there something I need to look at to give the VEs a bigger share of the RAM?

Are you saying that your VEs are attempting to allocate memory but are failing? Or, are you wanting to see all of your memory used? I don't see any apparent problems. The combined applications in your VEs are using 3903MB of ram. I'm guessing your HN is just running sshd and not much else since the difference between 3903 and 3912 is only 9MB of ram.

Hope this points you in the right direction.

Subject: Re: System RAM and OpenVZ Utilization
Posted by [rexxe](#) on Sat, 06 Jan 2007 17:46:08 GMT
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The hardware node has 8 gb of physical RAM. I want to utilize all of it, not just 3912mb. That leaves over 4gb of RAM left to use. I want to see my VEs using all available memory.

Based on the documentation, aren't all the utilizations supposed to be below 1.0 when looking at `vzmemcheck -v`? VEID 103 has utilization much higher than that, so how can I increase the memory given to it without increasing the utilization (based on the formulas on the wiki, increasing the buffers and memory increases the utilization)?

Thanks.

Subject: Re: System RAM and OpenVZ Utilization
Posted by [mperkel](#) on Sat, 06 Jan 2007 17:48:57 GMT
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Are you running a 64 bit kernel?

Subject: Re: System RAM and OpenVZ Utilization
Posted by [rickb](#) on Sat, 06 Jan 2007 18:02:00 GMT
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Quote:I want to see my VEs using all available memory.

This goes back to one of my questions to you. Are you having memory allocation problems? ie, if your applications are allocating X pages of memory in total, why would you expect free to report usage any higher then X? So, if you are not having memory allocation problems, the amount of memory used is the amount of memory your applications are allocating, its that simple. You can't force your memory to be utilized, read below.

Quote:

how can I increase the memory given to it without increasing the utilization

What do you mean "given"? There is an allocation limit (`privvm`) and memory guarantees (`oomguar`, `vmguar`). Adjusting any UBC metrics will not effect the utilization by itself. Instead, applications inside your VE will effect the utilization.

Hope this clears it up for you.

Subject: Re: System RAM and OpenVZ Utilization
Posted by [rexxe](#) on Sat, 06 Jan 2007 21:44:05 GMT

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Ok, I think I understand a little bit better, but maybe helping me through an example would help me more.

VEID 103 has Tomcat. I am running Tomcat with java flags such that the Java Heap space min and max are 3550mb. So obviously, I want to make sure that VEID 103 has at least that much memory available to it. So when I start Tomcat, everything is fine. However, now when I run `vzmemcheck -v`, VEID shows that it's utilization is 40+. So Tomcat is obviously overutilizing which is causing instability in the VE. When I check UBC, I have no failures. So, how do I ensure that Tomcat gets at least the 3550mb and keep the utilization to 1.0 so things don't become unstable?

Subject: Re: System RAM and OpenVZ Utilization
Posted by [rexxe](#) on Sat, 06 Jan 2007 21:45:32 GMT
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Yes

Subject: Re: System RAM and OpenVZ Utilization
Posted by [rexxe](#) on Sun, 07 Jan 2007 02:10:21 GMT
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I think my main problem is understanding how to interpret the results from `vzmemcheck`. The wiki and docs say to keep the numbers under 1.0 (when not megabytes). What does that mean? The default output is %, so should I keep it under 1%? Or by 1, does that mean 100%?
