Subject: Question about memory resource parameters
Posted by dowdle on Thu, 09 Mar 2006 23:19:28 GMT
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First of all, thanks for the fine User's Guide. I have read significant portions of it, and skimmed over the rest.

I was reading a thread on the Zimbra support formum related to OpenVZ. Someone asked if it was possible to install Zimbra within an OpenVZ VPS. For specifics, see here:

http://www.zimbra.com/forums/showthread.php?t=776

Anyway, on page two of that thread the following was stated:

Quote:Open VZ standard which will run on machines with up to 4Gb RAM has a limit on the virtual machine RAM size of 700 and something Mb.

The enterprise version which will run if you have more than 4Gb RAM will allocate over 3Gb to any virtual server if it is available.

Is that an accurate statement? I've looked at the various pages/documents that discuss the differences between OpenVZ and Virtuozzo and I don't see this mentioned.

Speaking of memory resource allocation, I've been reading over the sections in the User's Guide that refer to resource allocation and given the fact that there are several parameters related to memory... and not too much depth... I don't quite understand how to apply the various options to match a desired outcome. Perhaps there are documents somewhere that go into memory resource allocation with a little more depth? Any guidance would be appreciated.

Subject: Re: Question about memory resource parameters
Posted by dowdle on Sat, 11 Mar 2006 00:42:39 GMT
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I joined the #openvz IRC channel and had the opportunity to discuss this issue. Basically the comment above is wrong... and OpenVZ doesn't really have a memory resource limits other than sane, platform dependent ones.

It was obvious that the various resource parameters, as documented in the OpenVZ User's Guide, can be somewhat confusing... especially with regards to the memory resource parameters.

Hopefully in the not too distant future, additional documentation will appear. The OpenVZ road map document (http://openvz.org/development/roadmap) mentions "provide Resources Administration Guide (UBC)".

It was also made clear that the best way to find out how much RAM / Resources an application will use is to actually use it and watch the /proc/user_beancounters file to see exactly what, if any resource parameters need to be adjusted.

If anyone can provide me with a copy of the Virtuozzo(tm) manual(s), I'm told they do a lovely job of documenting the various resource parameters... and I could use those documents to educate myself enough to help write a "Resources Administration Guide" for OpenVZ. Anyone have some manuals they could let me borrow?

Subject: Re: Question about memory resource parameters
Posted by dev on Mon, 13 Mar 2006 12:00:59 GMT
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dowdle,
This comment is wrong.
what the author tried to say is that SMP kernel supports up to 4Gb of physical memory (and normal zone in kernel will be up to ~700GB), while enterprise kernel supports up to 64GB RAM on i686 (and normal zone will be ~3.6Gb)

This has nothing to do with VPS resource management.

Subject: Re: Question about memory resource parameters
Posted by dowdle on Mon, 13 Mar 2006 15:05:27 GMT
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Dev,

Thanks for correcting me. I didn't get it wrong on purpose and I hope it is understandable since the original post never used the term "SMP" nor "kernel".

So, just what is a "normal zone" and does the difference in "normal zone" RAM availability between an SMP kernel and the Enterprise kernel have anything to do with running a RAM heavy application?

Some other postings from the Zimbra forum were talking about it needing at least 768MB of RAM... or at least that is what LiveCD they released (which is based on Knoppix, runs X, KDE and Firefox) needed as a minimum in order to function. Getting somewhat off topic, I tried the Zimbra LiveCD in VMware and verified that indeed, Zimbra would not start up properly in anything less than 768MB of RAM (in the LiveCD configuration anyway).

So, let's say that Zimbra DOES need 768MB of RAM to startup (even without X, KDE and Firefox)... would the UP or SMP kernel not be able to handle that because of it's ~700MB of "normal zone" RAM?

Thanks in advance for any clarifications you can offer.

Subject: Re: Question about memory resource parameters
Posted by dev on Mon, 13 Mar 2006 15:32:19 GMT
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Normal zone is a chunk of memory which is directly accessiable by kernel. i.e. it is memory which kernel _can_ use for its data structures etc. Its size influences how many tasks you can create, how many files you can open etc. Usually it is unimportant how large Normal Zone is, since 700Mb is large enough actually However, if you run too many VPSs with too many tasks in it, you can run out of kernel memory.
Enteprise kernel uses so-called 4GB user/kernel space split which increases normal zone size from 700Mb to 3.5Gb, but it introduces some CPU overhead.

Applications can use _all_ the memory available on node (if appropriate kernel is used, i.e. with PAE mode if >4GB RAM is installed).

I can't get how Zimbra cares for it. If it simply checks for
LowTotal: 906064 kB
line in /proc/meminfo, then it is poorly designed application :/

Subject: Re: Question about memory resource parameters
Posted by dowdle on Mon, 13 Mar 2006 16:52:25 GMT
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Zimbra is actually a combination of a number of things including Postfix (I think that's the MTA they use), OpenLDAP, MySQL, a Java based application that runs in a JVM (I believe), amavisnew, and spamassassin. It starts up a number of services/processes and with all of that, is very RAM hungry.

It attempts to start everything, one service at a time... and if you don't have enough RAM, it just fails at some point.

I haven't tried it in a VPS yet but I will.

So, if I understand you correctly, there may be advantages to running the "Enterprise" kernel even if you don't have greater than 4GB of RAM or SMP? ...along with some additional processing overhead as a negative consequence.

I do believe my point about Memory Resource parameters is still valid... they are pretty confusing to non-kernel hackers and they aren't well documented in the OpenVZ User's Guide... and additional, more complete documentation is desirable.