Subject: PAE support inside VE
Posted by eastitaly on Fri, 08 Jan 2010 08:56:55 GMT
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I've installed OpenVZ (64 bit kernel - CentOS 5.4) on some servers with 8+ GB of RAM.

I've also set up some VEs with a CentOS 5.4 32 bit template and all worked fine until now.

Now the avaiable memory needed for some VEs is increased (for traffic and load) and I need to allocate more than 4 GB for them.

I was wondering if the VE could use more than 4 GB of RAM, then I tried and got a positive answer.

The problem comes as the maximum memory available inside that container seems to be limited to exactly 4613120 Kb (as per /proc/meminfo), even if I try to set the VE's memory allocation to 5 or even 6 GB.

The kernel I'm using for the HN is 2.6.18-128.2.1.el5.028stab064.8 and I've checked the release notes for the subsequent releases and didn't find anything related to this problem.

Any hint?

Subject: Re: PAE support inside VE
Posted by nuno on Sat, 09 Jan 2010 09:24:42 GMT
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I just made a test in one host (amd64, 8GB ram) and set everything to:

9223372036854775807:9223372036854775807

```
root@proxy:~# head /proc/meminfo
MemTotal:      8169084 kB
MemFree:       8154528 kB
Buffers:             0 kB
Cached:              0 kB
SwapCached:          0 kB
Active:              0 kB
Inactive:            0 kB
SwapTotal:           0 kB
SwapFree:            0 kB
Dirty:               0 kB
root@proxy:~#
root@proxy:~# free -m
             total       used       free     shared    buffers     cached
Mem:          7977         14       7963          0          0          0
```

-/+ buffers/cache: 14 7963
Swap: 0 0 0
root@proxy:~#

hmmm...

Subject: Re: PAE support inside VE
Posted by eastitaly on Mon, 11 Jan 2010 08:53:22 GMT
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Please, could you post some more info about your system (HN kernel version, distro and the VE's template used on that server) ?

Subject: Re: PAE support inside VE
Posted by nuno on Mon, 11 Jan 2010 09:38:24 GMT
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2.6.24-26-openvz #1 SMP Tue Dec 1 20:30:40 UTC 2009 x86_64 GNU/Linux

The templates don't matter because that won't influence /proc/meminfo's output.

Are you sure you have a 64bit kernel? uname -a

Subject: Re: PAE support inside VE
Posted by eastitaly on Mon, 11 Jan 2010 10:07:00 GMT
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the HN reports
Linux xxxxxxx 2.6.18-128.2.1.el5.028stab064.8 #1 SMP Fri Nov 6 12:26:59 MSK 2009 x86_64 x86_64 x86_64 GNU/Linux
and the VE reports
Linux yyyyyyy 2.6.18-128.2.1.el5.028stab064.8 #1 SMP Fri Nov 6 12:26:59 MSK 2009 i686 i686 i386 GNU/Linux

Subject: Re: PAE support inside VE
Posted by eastitaly on Thu, 14 Jan 2010 09:04:44 GMT

Update:
Moved that VE on another HN vith a new kernel, same distribution (CentOS 5.4 x86_64) with 24 GB of RAM

uname -a
Linux zzzzzz 2.6.18-164.2.1.el5.028stab066.10 #1 SMP Sat Dec 12 18:52:53 MSK 2009 x86_64 x86_64 x86_64 GNU/Linux
/proc/meminfo
MemTotal: 24624960 kB
MemFree: 288368 kB
Buffers: 1713548 kB
Cached: 20170624 kB
SwapCached: 0 kB
Active: 5424216 kB
Inactive: 17507444 kB
HighTotal: 0 kB
HighFree: 0 kB
LowTotal: 24624960 kB
LowFree: 288368 kB
SwapTotal: 2097144 kB
SwapFree: 2096976 kB
Dirty: 1052500 kB
Writeback: 140 kB
AnonPages: 1048552 kB
Mapped: 174452 kB
Slab: 1310100 kB
PageTables: 27180 kB
NFS_Unstable: 0 kB
Bounce: 0 kB
CommitLimit: 14409624 kB
Committed_AS: 7696144 kB
VmallocTotal: 34359738364 kB
VmallocUsed: 286208 kB
VmallocChunk: 34359451720 kB
HugePages_Total: 0
HugePages_Free: 0
HugePages_Rsvd: 0
Hugepagesize: 2048 kB

VE reports:

/proc/meminfo
MemTotal: 4613120 kB
MemTotal: 4613120 kB
MemFree: 2745300 kB
Buffers: 0 kB
Cached: 0 kB

```
SwapCached:          0 kB
Active:              0 kB
Inactive:            0 kB
HighTotal:           0 kB
HighFree:            0 kB
LowTotal:      4613120 kB
LowFree:       2745300 kB
SwapTotal:           0 kB
SwapFree:            0 kB
Dirty:               0 kB
Writeback:           0 kB
AnonPages:           0 kB
Mapped:              0 kB
Slab:                0 kB
PageTables:          0 kB
NFS_Unstable:        0 kB
Bounce:              0 kB
CommitLimit:         0 kB
Committed_AS:        0 kB
VmallocTotal:        0 kB
VmallocUsed:         0 kB
VmallocChunk:        0 kB
HugePages_Total:     0
HugePages_Free:      0
HugePages_Rsvd:      0
Hugepagesize:     2048 kB

/proc/user_beancounters
resource          held     maxheld     barrier               limit   failcnt
kmemsize      32875448    47104131    95000000            95000000         0
lockedpages          0           7         256                 256         0
privvmpages     540234      824747     1310720             1310720         0
shmpages          2576        2912       21504               21504         0
dummy                0           0           0                   0         0
numproc            186         248         880                 880         0
physspages      148452      256702           0  9223372036854775807         0
vmguarpages          0           0      524288  9223372036854775807         0
oomguarpages     148452      256702       26112  9223372036854775807         0
numtcpsock         149         278        1000                1000         0
numflock             6          30         188                 206         0
numpty               1           1          16                  16         0
numsiginfo           0          49         384                 384         0
tcpsndbuf      1231840     3433336     8800000            11360000         0
tcprcvbuf      1245280     1990232    10000000            12560000         0
othersockbuf    148384      798960     2831155             3752755         0
dgramrcvbuf          0      133424      330000              330000         0
numothersock        87         122         360                 360         0
dcachesize     2986196     3179234     6446000            11520000         0
```

numfile	6381	9414	30000		30000	0
dummy	0	0	0	0	0	
dummy	0	0	0	0	0	
dummy	0	0	0	0	0	
numiptent	29	29	128		128	0

1310720 4K-pages equals exactly 5G (or 5242880 kB), instead of the 4613120 kB reported by /proc/meminfo.

Problem NOT solved...

Subject: Re: PAE support inside VE
Posted by dedicados on Fri, 15 Jan 2010 03:05:54 GMT
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VE still being 32bit, why you dont use a 64bit template, maybe that helps

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Subject: Re: PAE support inside VE
Posted by eastitaly on Fri, 15 Jan 2010 09:13:44 GMT
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That VE is in production and can't be changed.
Understanding the origin of this issue will be helpful for avoiding further mistakes in choosing the template for new VEs.

Quote:VE still being 32bit, why you dont use a 64bit template, maybe that helps

VE's template is 32 bit, correct, but currently seems it's supporting something like PAE (4613120 Kb is more than the limit for the 32 bit architecture).
This is, btw, the title of this post.

So the question remains...

Subject: Re: PAE support inside VE
Posted by nuno on Fri, 15 Jan 2010 09:32:18 GMT
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Show us the VE.conf file. I suspect you're setting the MEMINFO option.

Regards,

Subject: [SOLVED] Re: PAE support inside VE
Posted by eastitaly on Fri, 15 Jan 2010 09:48:23 GMT
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```
#  Copyright (C) 2000-2008, Parallels, Inc. All rights reserved.
#
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#  GNU General Public License for more details.
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#  You should have received a copy of the GNU General Public License
#  along with this program; if not, write to the Free Software
#  Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA  02111-1307  USA
#

ONBOOT="yes"

# UBC parameters (in form of barrier:limit)
KMEMSIZE="95000000:95000000"
LOCKEDPAGES="256:256"
PRIVVMPAGES="1310720:1310720"
SHMPAGES="21504:21504"
NUMPROC="880:880"
PHYSPAGES="0:9223372036854775807"
VMGUARPAGES="524288:9223372036854775807"
OOMGUARPAGES="26112:9223372036854775807"
NUMTCPSOCK="1000:1000"
NUMFLOCK="188:206"
NUMPTY="16:16"
NUMSIGINFO="384:384"
TCPSNDBUF="8800000:11360000"
TCPRCVBUF="10000000:12560000"
OTHERSOCKBUF="2831155:3752755"
DGRAMRCVBUF="330000:330000"
NUMOTHERSOCK="360:360"
DCACHESIZE="6446000:11520000"
NUMFILE="30000:30000"
AVNUMPROC="180:180"
NUMIPTENT="128:128"

# Disk quota parameters (in form of softlimit:hardlimit)
DISKSPACE="483183820:483183820"
DISKINODES="120795955:134217728"
```

```
QUOTATIME="0"

# CPU fair sheduler parameter
CPUUNITS="1000"

# Network customization section
CONFIG_CUSTOMIZED="yes"
VETH_IP_ADDRESS="aaa.aaa.aaa.aaa/bb"
VE_DEFAULT_GATEWAY="ccc.ccc.ccc.ccc"
BRIDGEDEV="br0"
NAMESERVER="ddd.ddd.ddd.ddd"
HOSTNAME="name.domain.tld"
NAME=""
DESCRIPTION=""

VE_ROOT="/vz/root/ct$VEID/data"
VE_PRIVATE="/vz/private/ct$VEID/data"
OSTEMPLATE="centos-5-i386-minimal"
ORIGIN_SAMPLE="vps.basic"
NETIF="ifname=eth0,bridge=br0,mac=xx:xx:xx:xx:xx:xx,host_ifname=veth101.0,host_mac=yy:yy:
yy:yy:yy:yy"
QUOTAUGIDLIMIT="15000"
CAPABILITY="SYS_PACCT:on "
MEMINFO="pages:1153280"
NOATIME="yes"
#DEVNODES="loop0:rw "
CPUS="4"
```

Found the MEMINFO option as you suggested, nuno.
I haven't ever set it, was an addition from an installation of HyperVM.

Removed it and all started magically work as expected.
This, btw, confirms that a 32 bit template is PAE-like enabled.

Thank you so much for addressing me to the right direction!

Subject: Re: PAE support inside VE
Posted by nuno on Fri, 15 Jan 2010 10:01:19 GMT
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No problem.

Please note that those values are merelly information. You can define that to 1000 pages, /proc/meminfo will report 4MB of memory, free will report 0% free memory, etc, but your applications will continue to work. The reverse is also true: you can set a huge value and

application will fail after exceeding kmemsize, vmguar* or some other limit.