

UIS 0708内存利用率过高的问题分析案例

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组网及说明

版本：UIS 0708
现场已经运行了多个windows虚拟机，但是内存利用率都不高。

问题描述

现场反馈主机的内存利用率很高，几乎每台都是接近80%

名称	状态	管理IP地址	虚拟机规格	CPU	内存	CPU利用率	内存利用率	磁盘容量	平台	操作
CVK-Node01	正常	10.168.1.1	12核 32GB	72	314.29GB	11.44%	81.52%	669.91GB	CVK 6.5 (E0708)	✖
CVK-Node02	正常	10.168.1.2	7核 32GB	72	314.29GB	5.89%	80.93%	716.84GB	CVK 6.5 (E0708)	✖
CVK-Node03	正常	10.168.1.3	10核 32GB	72	314.29GB	6.84%	82.07%	716.84GB	CVK 6.5 (E0708)	✖
CVK-Node04	正常	10.168.1.4	10核 32GB	72	314.29GB	3.82%	79.59%	716.84GB	CVK 6.5 (E0708)	✖
CVK-Node05	正常	10.168.1.5	7核 32GB	72	314.29GB	10.01%	82.70%	716.84GB	CVK 6.5 (E0708)	✖
CVK-Node06	正常	10.168.1.6	19核 32GB	72	314.29GB	10.86%	82.98%	716.84GB	CVK 6.5 (E0708)	✖

现场反馈实际虚拟机占用不高

显示名称	主机	状态	CPU	内存	CPU利用率	内存利用率	操作系统	操作
AD-01	CVK-Node06	运行	8	16.00GB	0.00%	9.91%	Windows Server 2012 R2 Datacenter, 64-bit	1
APP-01	CVK-Node06	运行	2	16.00GB	24.00%	19.64%	Windows Server 2012 R2 Datacenter, 64-bit	1
Jiekou-01	CVK-Node06	运行	4	16.00GB	0.00%	27.76%	Windows Server 2012 R2 Datacenter, 64-bit	1
FileServer	CVK-Node06	运行	4	8.00GB	0.00%	10.87%	Windows Server 2012 R2 Datacenter, 64-bit	1
Server01	CVK-Node06	运行	8	16.00GB	0.00%	4.59%	Windows Server 2012 R2 Datacenter, 64-bit	1
Server02	CVK-Node06	运行	8	16.00GB	0.00%	4.61%	Windows Server 2012 R2 Datacenter, 64-bit	1
v100	CVK-Node06	运行	4	16.00GB	52.57%	99.65%	Other Linux(64位)	1
LB1000	CVK-Node06	运行	8	16.00GB	26.89%	21.22%	Other Linux(64位)	1

过程分析

1、使用top命令查看此主机的内存利用率，使用top命令，然后交互式输入大写字母M，使得top命令按照内存利用率排序，从前10的内存占用主要是kvm就可以知道，内存主要是虚拟机占用的。

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
406734	root	20	0	18.1g	16.1g	37628	S	2.6	5.1	1435:59	kvm
2792498	root	20	0	17.5g	16.1g	37520	S	7.9	5.1	2231:46	kvm
2801498	root	20	0	17.5g	16.1g	37656	S	6.2	5.1	2738:02	kvm
2784547	root	20	0	17.5g	16.1g	37652	S	30.3	5.1	3153:01	kvm
2809523	root	20	0	17.8g	16.1g	37616	S	294.4	5.1	8397:57	kvm
2820719	root	20	0	17.5g	16.1g	37900	S	2.0	5.1	832:37.77	kvm
3453891	root	20	0	17.7g	16.1g	29436	S	2.6	5.1	305:03.56	kvm
3471798	root	20	0	17.7g	16.1g	29360	S	3.0	5.1	304:41.05	kvm
3698886	root	20	0	17.5g	15.9g	28880	S	134.5	5.1	54053:05	kvm
3802504	root	20	0	17.3g	13.3g	37756	S	29.6	4.2	1284:47	kvm
3890836	root	20	0	17.5g	9.3g	37552	S	6.6	3.0	464:56.46	kvm
4118387	root	20	0	17.2g	9.0g	28996	S	2.3	2.9	79:11.45	kvm
776954	root	20	0	9929036	8.1g	37700	S	2.0	2.6	513:01.57	kvm
3462160	root	20	0	9915264	8.1g	29604	S	1.6	2.6	234:21.61	kvm
4093639	root	20	0	17.4g	5.6g	37660	S	2.0	1.8	119:15.83	kvm
8570	ceph	20	0	6837916	5.1g	28196	S	6.6	1.6	1609:43	ceph-osd
8385	ceph	20	0	6370980	4.8g	28360	S	19.7	1.5	4789:57	ceph-osd
4142519	root	20	0	9584488	4.4g	28996	S	1.0	1.4	47:55.53	kvm
1866369	root	20	0	17.8g	3.4g	29020	S	214.1	1.1	85366:41	kvm
4094216	root	20	0	9569072	3.1g	29088	S	0.0	1.0	26:49.91	kvm
4092992	root	20	0	9582432	3.1g	29052	S	0.3	1.0	26:51.98	kvm
8205	ceph	20	0	3942024	2.5g	28192	S	9.9	0.8	1373:58	ceph-osd
7603	ceph	20	0	3933832	2.5g	28284	S	11.5	0.8	1399:17	ceph-osd
6229	ceph	20	0	3884680	2.4g	28028	S	10.2	0.8	1423:28	ceph-osd
6837	ceph	20	0	3913352	2.4g	28220	S	12.8	0.8	1596:22	ceph-osd
8011	ceph	20	0	3872388	2.2g	27944	S	8.9	0.7	1293:53	ceph-osd
1246342	root	10	-10	5447060	632784	14744	S	2.6	0.2	880:25.57	ovs-vswhitchd
20162	root	20	0	38.4g	597624	16700	S	0.7	0.2	69:11.53	java
6277	root	20	0	9599368	411316	20432	S	0.0	0.1	27:00.86	java
1246702	root	20	0	2159520	270072	93164	S	1.0	0.1	261:11.03	ds_am
5095	ceph	20	0	794076	242900	20956	S	2.3	0.1	681:12.26	ceph-mon
5269	root	20	0	2085912	182096	17832	S	6.9	0.1	1060:25	tgtd
26591	root	20	0	8411356	140332	17696	S	0.3	0.0	92:43.94	vae
2879	root	20	0	3173728	131576	25812	S	0.7	0.0	1310:35	onestor-peon
2881	root	20	0	1958644	111324	24644	S	0.0	0.0	32:43.15	onestor-nm
2577	root	20	0	741460	110732	21208	S	0.3	0.0	12:31.13	python
6588	root	20	0	1391232	110652	16748	S	0.0	0.0	42:56.66	python

2、使用ps -aux | grep 406734 (406734是内存占用最高的进程名称) 查看了当前进程的详细信息，发现此进程是一个名叫AD01虚拟机，当前占用内存约5%

```
[root@XNSN-CVK-Node06 ~]# ps -aux | grep 406734
root 406734 4.0 5.1 19020836 16909544 ? S1 Oct20 1436:01 /usr/bin/kvm -name guest=XNSN-AD01,debug-threads=on -S -object secret,1
d=masterKey0,format=raw,file=/var/run/lib/libvirt/qemu/domain-32-XNSN-AD01/master-key.aes -machine pc-1440fx-2.12,accel=kvm,usb=off,system=
windows,dump-guest-core=off -cpu qemu64,hv_time,hv_relaxed,hv_spinlocks=0x2000 -bios /usr/share/qemu-kvm/OVMF_CODE.fd -m size=16777216k,slo
ts=10,maxmem=34359738368k -realtime mlock=off -smp 8,maxcpus=160,sockets=40,cores=4,threads=1 -numa node,nodeid=0,cpus=0-159,mem=16384 -uiol
d Ba1a13c8-87f6-41d6-ae34-c684ba17edf -no-user-config -nodefaults -chardev socket,id=charmonitor,path=/var/run/lib/libvirt/qemu/domain-32-
XNSN-AD01/monitor.sock,server,nowait -mon chardev=charmonitor,id=monitor,mode=control -chardev socket,id=charmonitor_cas,path=/var/run/lib/
libvirt/qemu/domain-32-XNSN-AD01/monitor.sock_cas,server,nowait -mem chardev=charmonitor_cas,id=monitor_cas,mode=control -rtc base=localtim
e,clock=kvm,driifx=slaw -no-hpet -no-shutdown -global PIIX4_PM.disable_s3=1 -global PIIX4_PM.disable_s4=1 -boot strict=on -device piix3-us
b-xhci,id=usb,bus=pci.0,addr=0x1.0x2 -device usb-ehci,id=usb1,bus=pci.0,addr=0x4 -device nec-usb-xhci,id=usb2,bus=pci.0,addr=0x5 -device vi
rtio-scsi-pci,id=scsi1,bus=pci.0,addr=0x6 -device virtio-serial-pci,id=virtio-serial0,bus=pci.0,addr=0x7 -device usb-hub,id=hub0,bus=usb.0,
port=1 -drive file=/vms/ONESN-AD01,format=qcow2,if=none,id=drive-virtio-disk0,cache=directsync,alio=ative -device virtio-blk-p
ci,scsi=off,bus=pci.0,addr=0x8 -pci-hotpluggable=on,drive=drive-virtio-disk0,id=virtio-disk0,bootindex=1 -drive file=/vms/ONESN-Share/ONSN
-AD01_Data,format=qcow2,if=none,id=drive-virtio-disk1,cache=directsync,alio=ative -device virtio-blk-pci,scsi=off,bus=pci.0,addr=0xa,pci_ho
tpluggable=on,drive=drive-virtio-disk1,id=virtio-disk1 -drive if=none,id=drive-fdc0-0-0,readonly=on -global isa-fdc.driveA=drive-fdc0-0-0 -
global isa-fdc.bootindexA=3 -drive if=none,id=drive-ide0-0-0,readonly=on -device ide-cd,bus=ide.0,unit=0,drive=drive-ide0-0-0,id=ide0-0-0,b
ootindex=2 -netdev tap,fds=8,id=hostnet0,vhost=on,vhostfd=59 -device virtio-net-pci,pci-hotpluggable=on,netdev=hostnet0,id=net0,mac=0c:de:d4
1:ide1:a9,bus=pci.0,addr=0x3,bootindex=4 -chardev pty,id=charserial0 -device isa-serial,chardev=charserial0,id=serial0 -chardev socket,id=
charchannel0,path=/var/lib/libvirt/qemu/XNSN-AD01.agent_server,nowait -device virtserialport,bus=virtio-serial0.0,nr=1,chardev=charchannel0
,id=channel0,name=org.qemu.guest_agent.0 -device usb-tablet,id=input0,bus=usb.0,port=2 -vnc 0.0.0.0:3 -device qxl-vga,id=video0,ram_size=67
108864,vram_size=67108864,vram64_size_mb=0,vgaemb=0,vgaemb_mb=16,max_outputs=1,bus=pci.0,addr=0x2 -incoming defer -device virtio-balloon-pci,id=ball
oon0,bus=pci.0,addr=0x9 -msg timestamp=on
root 406741 0.0 0.0 0 0 ? S Oct20 10:24 [vhost-406734]
root 406753 0.0 0.0 0 0 ? S Oct20 9:14 [kvm-pit/406734]
root 3792051 0.0 0.0 112720 2384 rts/19 S 14:59 8:00 arpeg --color=auto 406734
```

3、从此分析可以看出，现场工程师理解的此虚拟机的内存占用应该是分配的16G*9.91%，即为1.59G，然后1.59G/314G（总内存）=0.5%，但是实际上此虚拟机底层占用却是5%，即16G/314G

解决方法

- 1、现场将windows虚拟机的内存分配的过大，实际占用又很低，uis在底层算内存占用率的时候，却是以分配的内存容量计算的
- 2、将现场windows虚拟机的内存分配额减小，内存利用率明显降低