

Basic performance test of IX100 with Codec transcoding

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Version 0.1

This paper is to give users some basic test information about IX100. The test tools are:

1. Asterisk(asterisk-1.4.21.1) and zaptel (zaptel-1.4.11)
2. OpenVox IX100(Alix 2C2)
3. SIPp (3.1)
4. Voyage-linux (2.6.23-486-voyage).
5. Open Source G729 codec

Here, I came out two scenarios to test the performance of IX100.

The scenario one is Sipp(ulaw)->Asterisk-1(ulaw)->asterisk-2(ulaw). There is no transcoding between the servers. The result shows as bellow:

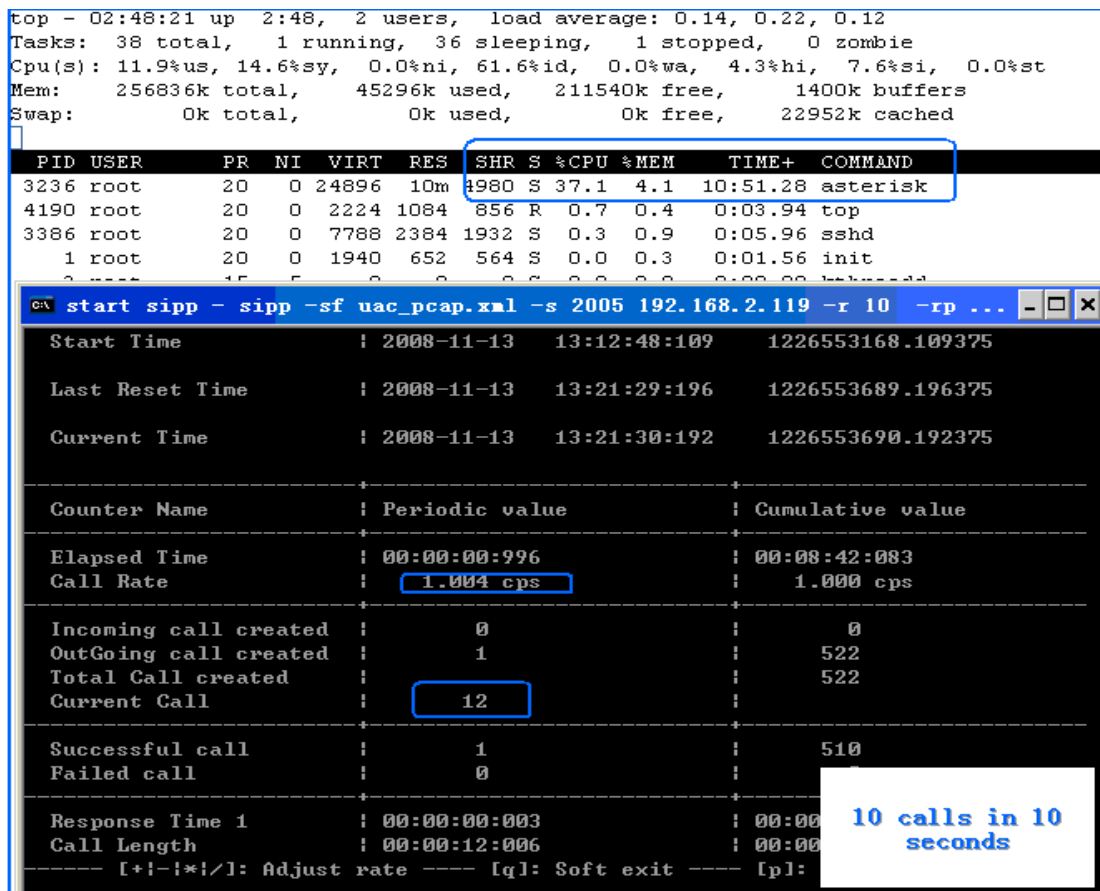


Figure 1

```

CLI> sip show channels
eer      User/ANR      Call ID      Seq (Tx/Rx)  Format          Hold      Last Message
92.168.2.127 1000        2fbc6e023f9 00121/00000 0x0 (nothing)  No       Tx: ACK
92.168.2.127 1000        409ad2d55b7 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        572-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        169d002134a 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        571-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        294359a9557 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        570-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        1595236d7db 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        569-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        52c9a38970f 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        568-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        0338b589251 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        567-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        487784580fb 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        566-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        5e2ca07c199 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        565-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        11361c24686 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        564-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        13404b16092 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        563-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        3abb17665c3 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        562-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
92.168.2.127 1000        05846ee77c9 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        561-3428019 00101/00001 0x8 (alaw)    No       Rx: ACK
5 active SIP channels

```

Figure 2

```

CLI> show translation
Translation times between formats (in milliseconds) for one second of data
Source Format (Rows) Destination Format (Columns)

      g723 gsm ulaw alaw g726aal2 adpcm slin lpc10 g729 speex ilbc g726 g722
g723  -  32  11  11    22    11   10   45  149  -  -  22  -
gsm   273  -   7   7    18     7    6   41  145  -  -  18  -
ulaw  268 23  -   1    13     2    1   36  140  -  -  13  -
alaw  268 23  1  -    13     2    1   36  140  -  -  13  -
g726aal2 278 33 12 12  -    12  11   46  150  -  -   1  -
adpcm  268 23  2   2    13     -    1   36  140  -  -  13  -
slin   267 22  1   1    12     1    -   35  139  -  -  12  -
lpc10  288 43  22  22   33    22  21  -  160  -  -  33  -
g729   301 56  35  35   46    35  34   69  -  -  -  46  -
speex  -  -  -  -  -  -  -  -  -  -  -  -  -  -
ilbc   -  -  -  -  -  -  -  -  -  -  -  -  -  -
g726   278 33 12 12   1    12  11   46  150  -  -  -  -
g722  -  -  -  -  -  -  -  -  -  -  -  -  -  -

```

Figure 3

The scenario two is: Sipp(g729)->Asterisk-1(g729-ulaw)->Asterisk-2(ulaw)

Here are the results of the test:

```

CLI> sip show channels
eer      User/ANR      Call ID      Seq (Tx/Rx)  Format          Hold      Last Message
92.168.2.127 1000        0cc82159229 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        14-21360192 00101/00001 0x100 (g729)    No       Rx: ACK
92.168.2.127 1000        31bd4cb54ae 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        13-21360192 00101/00001 0x100 (g729)    No       Rx: ACK
92.168.2.127 (None)      1ff5f851799 00101/00102 0x0 (nothing)   No       Rx: OPTIONS
92.168.2.127 1000        15d7ba1965e 00102/00000 0x80004 (ulaw|h  No       Tx: ACK
92.168.2.111 sipp        12-21360192 00101/00001 0x100 (g729)    No       Rx: ACK
active SIP channels

```

Figure 4

```

top - 03:35:10 up 3:34, 2 users, load average: 1.19, 0.53, 0.51
Tasks: 41 total, 1 running, 36 sleeping, 3 stopped, 1 zombie
Cpu(s): 45.2%us, 4.0%sy, 0.0%ni, 45.9%id, 0.0%wa, 2.0%hi, 3.0%si, 0.0%st
Mem: 256836k total, 45876k used, 210960k free, 1400k buffers
Swap: 0k total, 0k used, 0k free, 22992k cached

```

PID	USER	PR	NI	VRT	RES	SHR	%CPU	%MEM	TIME+	COMMAND
3236	root	20	0	24896	10m	4980	53.6	4.1	24:04.91	asterisk
5241	root	20	0	2224	1084	856	0.7	0.4	0:01.19	top
3107	root	-2	0	1620	1620	1352	0.3	0.6	0:01.26	watchdog
1	root	20	0	1940	652	564	0.0	0.3	0:01.60	init

```

start sipp - sipp -sf uac_pcap.xml -s 2005 192.168.2.119 -r 4 -rp 15000

```

Start Time	Last Reset Time	Current Time
2008-11-13 14:06:05:218	2008-11-13 14:08:19:347	2008-11-13 14:08:20:343

Counter Name	Periodic value	Cumulative value
Elapsed Time	00:00:00.996	00:02:15:125
Call Rate	1.004 cps	0.266 cps
Incoming call created	0	0
OutGoing call created	1	36
Total Call created		36
Current Call	4	
Successful call	0	32
Failed call	0	0
Response Time 1	00:00:00:013	00:00:00:012
Call Length	00:00:00:000	00:00:12:018

```

----- [!-!*|/]: Adjust rate ----- [q]: Soft exit ----- [p]: Pause traffic -----

```

Figure 5

```

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

```

```

Useful Commands:
remount rw - mount disk as read-write
remount ro - mount disk as read-only
remove.docs - remove all docs and manpages
Version: 0.5 (Build Date 20080622)

```

```

voyage:~# cat /proc/cpuinfo
processor       : 0
vendor_id     : AuthenticAMD
cpu family    : 5
model         : 10
model name    : Geode(TM) Integrated Processor by AMD PCS
stepping      : 2
cpu MHz       : 498.048
cache size    : 128 KB
fd div bug    : no
hlt bug       : no
f00f bug     : no
coma bug      : no
fpu           : yes
fpu exception : yes
cpuid level   : 1
wp            : yes
flags         : fpu de pse tsc msr cx8 sep pge cmov clflush mmx mmxext 3dnowext 3dnow
bogomips     : 997.08
clflush size  : 32

```

Figure 6

Figure 1 shows the result in scenario one, the max of current calls are 10-12 with consumption of 37% of CPU. However, figure 5 shows the result in scenario two, the max of current calls are 3-4 calls with consumption of 50% of CPU.

In conclusion, users can see the result from the result above, if with codec transcoding(G729-G711), the current call should be limited less current 4 calls. However, if there is no condec transcoding, IX100 can support 10-13 current calls. If users want to implement IX100 with good and stable performance, users should try to avoid using codec transcoding.