High CPU Percentage for kproc Process 514/516

Special Notices

Information in this document is correct to the best of our knowledge at the time of this writing. Please send feedback by fax to "AIXServ Information" at (512) 823-4009.

Please use this information with care. IBM will not be responsible for damages of any kind resulting from its use. The use of this information is the sole responsibility of the customer and depends on the customer's ability to evaluate and integrate this information into the customer's operational environment.

About this Document

This document explains why the CPU percentage reported for kproc process 514 (on AIX 3.2) and kproc process 516 (on AIX 4.1) may have increased. Please note that the high percentage for this process is normal. Since this process just indicates the idle time of the system, the high percentage does not indicate a problem and no action is required.

This document applies to AIX 3.2 and 4.1.

Explanation of High CPU Percentage

Note: If you are running AIX 4.1, substitute process 514 with process 516 in the documentation below.

You may have seen the CPU% greatly increase for process 514, the wait kernel process, which is executed only when no other process is runnable. Here is an explanation:

The change in CPU% occurred when the start times were fixed for a few of the processes (514, 771, and 1028). This fix was in APAR IX33330. Prior to the fix, the start time for these processes was 0 (which translated to Dec 31, 1969) rather than the true start time. Since the startTime(pid) was an extremely small number (0) and the currentTime is always an extremely large number (> 700,000,000), the CPU% for the 514 process was kept artificially low.

The formula for computing the CPU% is:

CPU% = CPUTime(pid) / (currentTime - startTime(pid)) * 100.0

Now that the start time has been corrected, the above equation will give the true percentage of CPU that the process has consumed over its lifetime. On

unburdened systems, process 514 will use 50% or more of CPU. Since this computation is based on lifetime statistics, it will be slow to rise and slow to fall.

Additionally, you should see that adding the numbers in %CPU column will not yield 100%. For example, process A may have been using 80% of the CPU for its first hour. Then process B is started at a higher priority and consumes 80%. Process A still runs, but now only gets 5% of the CPU slices. The %CPU as shown by "ps ug" will gradually decline for process A, starting from 80% and eventually leveling off near 5%. For a while, both process A and B will show %CPU of 80%.

To determine if you have the start time fix in place, enter the following command:

```
ps -fu root | grep 514
```

If the 5th field is "Dec 31", you do NOT have the fix.

Reader's Comments

Please fax this form to (512) 823-4009, attention "AIXServ Information". You may also e-mail comments to: elizabet@austin.ibm.com. These comments should include the same customer information requested below.

Use this form to tell us what you think about this document. If you have found errors in it, or if you want to express your opinion about it (such as organization, subject matter, appearance) or make suggestions for improvement, this is the form to use.

If you need technical assistance, contact your local branch office, point of sale, or 1-800-CALL-AIX (for information about support offerings). These services may be billable. Faxes on a variety of subjects may be ordered free of charge from 1-800-IBM-4FAX. Outside the U.S. call 415-855-4329 using a fax machine phone.

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

Note: If you have a problem report or item number, supplying that number may help us determine why a procedure did or did not work in your specific situation.

Problem Report or Item #: Branch Office or Customer #:

Be sure to print your name and fax number below if you would like a reply:

Name: Fax Number:

END OF DOCUMENT (kproc.high.cpu.lxp, 4FAX# 2703)