
Subject: Re: nptl perf bench and profiling with pidns patchsets

Posted by [serue](#) on Mon, 04 Jun 2007 13:56:05 GMT

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Quoting Kirill Korotaev (dev@sw.ru):

> Cedric,

>

> just a small note.

> imho it is not correct to check performance with enabled debug in memory allocator

> since it can influence cache efficiency much.

> In you case looks like you have DEBUG_SLAB enabled.

Hm, good point. Cedric, did you ever run any tests with profiling and debugging turned off?

-serge

> Pavel will recheck as well what influences on this particular test.

> BTW, it is strange... But according to Pavel unixbench results

> were very reproducible. What was the problem in your case?

>

> Kirill

>

> Cedric Le Goater wrote:

> > Pavel and all,

> >

> > I've been profiling the different pidns patchsets to chase the perf

> > bottlenecks in the pidns patchset. As i was not getting accurate

> > profiling results with unixbench, I changed the benchmark to use the

> > nptl perf benchmark ingo used when he introduced the generic pidhash

> > back in 2002.

> >

> > <http://lwn.net/Articles/10368/>

> >

> > Compared to unixbench, this is a micro benchmark measuring thread

> > creation and destruction which I think is quite relevant of our

> > different patchsets. unixbench is fine but profiling is not really

> > accurate. too much noise. Any other suggestions ?

> >

> > On a 2 * Intel(R) Xeon(TM) CPU 2.80GHz with 4 GB of RAM, I ran 8

> > simultaneous, like ingo did :

> >

> > ./perf -s 1000000 -t 1 -r 0 -T --sync-join

> >

> > I did that a few times and also changed the load of the machine

> > to see if values were not too dispersed.

> >

> > kernels used were :

> >
> > * 2.6.22-rc1-mm1
> > * <http://lxc.sourceforge.net/patches/2.6.22/2.6.22-rc1-mm1-openvz-pidns1/>
> > * <http://lxc.sourceforge.net/patches/2.6.22/2.6.22-rc1-mm1-pidns1/>
> >
> > findings are :
> >
> > * definitely better results for suka's patchset. suka's patchset is
> > also getting better results with unixbench on a 2.6.22-rc1-mm1 but
> > the values are really dispersed. can you confirm ?
> > * suka's patchset would benefit from some optimization in init_upid()
> > and dup_struct_pid()
> > * it seems that openvz's patchset has some issue with the struct pid
> > cache. not sure what is the reason. may be you can help pavel.
> >
> > Cheers,
> >
> > C.
> >
> >
> > * results for 2.6.22-rc1-mm1
> >
> > Runtime: 91.635644842 seconds
> > Runtime: 91.639834248 seconds
> > Runtime: 93.615069259 seconds
> > Runtime: 93.664678865 seconds
> > Runtime: 95.724542035 seconds
> > Runtime: 95.763572945 seconds
> > Runtime: 96.444022314 seconds
> > Runtime: 97.028016189 seconds
> >
> > * results for 2.6.22-rc1-mm1-pidns
> >
> > Runtime: 92.054172217 seconds
> > Runtime: 93.606016039 seconds
> > Runtime: 93.624093799 seconds
> > Runtime: 94.992255782 seconds
> > Runtime: 95.914365693 seconds
> > Runtime: 98.080396784 seconds
> > Runtime: 98.674988254 seconds
> > Runtime: 98.832674972 seconds
> >
> > * results for 2.6.22-rc1-mm1-openvz-pidns
> >
> > Runtime: 92.359771573 seconds
> > Runtime: 96.517435638 seconds
> > Runtime: 98.328696048 seconds
> > Runtime: 100.263042244 seconds

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>> Runtime: 101.003111486 seconds
>> Runtime: 101.371180205 seconds
>> Runtime: 102.536653818 seconds
>> Runtime: 102.671519536 seconds
>>
>>
>> * diffprofile 2.6.22-rc1-mm1 and 2.6.22-rc1-mm1-pidns
>>
>> 2708 11.8% check_poison_obj
>> 2461 0.0% init_upid
>> 2445 2.9% total
>> 2283 183.7% kmem_cache_free
>> 383 16.9% kmem_cache_alloc
>> 365 13.6% __memset
>> 280 0.0% dup_struct_pid
>> 279 22.9% __show_regs
>> 278 21.1% cache_alloc_debugcheck_after
>> 261 11.3% get_page_from_freelist
>> 223 0.0% kref_put
>> 203 3.4% copy_process
>> 197 34.4% do_futex
>> 176 5.6% do_exit
>> 86 22.8% cache_alloc_refill
>> 82 28.2% do_fork
>> 69 18.3% sched_balance_self
>> 68 136.0% __free_pages_ok
>> 59 90.8% bad_range
>> 52 4.3% __down_read
>> 51 13.7% account_user_time
>> 50 7.5% copy_thread
>> 43 28.7% put_files_struct
>> 37 264.3% __free_pages
>> 31 18.9% poison_obj
>> 28 82.4% gs_change
>> 26 16.0% plist_check_prev_next
>> 25 192.3% __put_task_struct
>> 23 26.7% __get_free_pages
>> 23 14.6% __put_user_4
>> 23 230.0% alloc_uid
>> 22 9.0% exit_mm
>> 21 12.9% _raw_spin_unlock
>> 21 7.8% mm_release
>> 21 8.6% plist_check_list
>> 20 20.0% drop_futex_key_refs
>> 20 12.0% __up_read
>> 19 48.7% unqueue_me
>> 19 16.4% do_arch_prctl
>> 18 1800.0% dummy_task_free_security

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>> 18 58.1% wake_futex
>> 17 47.2% obj_offset
>> 16 16.7% dbg_userword
>> 15 0.0% kref_get
>> 15 150.0% check_irq_off
>> 15 300.0% __rcu_process_callbacks
>> 14 466.7% __switch_to
>> 14 32.6% prepare_to_copy
>> 14 8.2% get_futex_key
>> 14 16.1% __wake_up
>> 13 65.0% rt_mutex_debug_task_free
>> 12 7.1% obj_size
>> 11 19.3% add_wait_queue
>> 11 275.0% put_pid
>> 11 550.0% profile_task_exit
>> 10 9.0% task_nice
>> 9 100.0% __delay
>> 8 57.1% call_rcu
>> 8 7.8% find_extend_vma
>> 8 266.7% ktime_get
>> 8 23.5% sys_clone
>> 8 25.0% delayed_put_task_struct
>> 7 26.9% task_rq_lock
>> 7 18.9% _spin_lock_irqsave
>> 6 0.0% quicklist_trim
>> 6 100.0% __up_write
>> -6 -50.0% module_unload_free
>> -6 -100.0% nr_running
>> -7 -43.8% _raw_spin_trylock
>> -7 -2.8% __alloc_pages
>> -8 -33.3% sysret_check
>> -8 -28.6% sysret_careful
>> -8 -50.0% sysret_signal
>> -8 -1.9% copy_namespaces
>> -9 -16.7% memmove
>> -9 -11.5% __phys_addr
>> -9 -4.5% copy_semundo
>> -10 -28.6% rwlock_bug
>> -10 -27.8% wake_up_new_task
>> -10 -10.4% sched_clock
>> -10 -6.2% copy_user_generic_unrolled
>> -11 -100.0% d_validate
>> -11 -23.9% monotonic_to_bootbased
>> -11 -10.6% dummy_task_create
>> -11 -3.7% futex_wake
>> -12 -3.9% __might_sleep
>> -13 -100.0% vsnprintf
>> -14 -13.0% plist_del

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>> -16 -84.2% sighand_ctor
>> -17 -20.7% debug_rt_mutex_free_waiter
>> -17 -42.5% release_thread
>> -18 -29.5% init_waitqueue_head
>> -19 -100.0% scnprintf
>> -21 -12.7% copy_files
>> -22 -47.8% blocking_notifier_call_chain
>> -23 -11.8% hash_futex
>> -24 -18.8% call_rcu_bh
>> -25 -19.8% mmpu
>> -27 -16.5% down_read
>> -27 -39.7% audit_alloc
>> -27 -19.9% stub_clone
>> -28 -16.3% set_normalized_timespec
>> -32 -74.4% kfree_debugcheck
>> -35 -30.2% sys_exit
>> -40 -63.5% down_read_trylock
>> -43 -8.6% zone_watermark_ok
>> -49 -7.7% schedule
>> -53 -5.4% system_call
>> -54 -47.0% __blocking_notifier_call_chain
>> -64 -24.8% getnstimeofday
>> -66 -7.0% _raw_spin_lock
>> -75 -22.9% ktime_get_ts
>> -86 -100.0% snprintf
>> -86 -12.8% kernel_thread
>> -88 -38.1% plist_add
>> -93 -5.4% __memcpy
>> -100 -59.9% kmem_flagcheck
>> -103 -18.5% acct_collect
>> -113 -38.3% dbg_redzone1
>> -138 -3.9% schedule_tail
>> -162 -12.2% _spin_unlock
>> -243 -7.3% thread_return
>> -268 -83.5% proc_flush_task
>> -289 -100.0% d_lookup
>> -357 -100.0% d_hash_and_lookup
>> -368 -6.1% release_task
>> -642 -99.8% vsnprintf
>> -816 -100.0% __d_lookup
>> -1529 -100.0% number
>> -2431 -100.0% alloc_pid
>>
>> * diffprofile 2.6.22-rc1-mm1 and 2.6.22-rc1-mm1-openvz-pidns
>>
>> 10046 11.8% total
>> 6896 554.8% kmem_cache_free
>> 1580 6.9% check_poison_obj

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>> 1222 0.0% alloc_pidmap
>> 883 39.0% kmem_cache_alloc
>> 485 128.6% cache_alloc_refill
>> 263 8.4% do_exit
>> 223 40.0% acct_collect
>> 208 32.3% vsnprintf
>> 196 14.9% cache_alloc_debugcheck_after
>> 162 4.5% schedule_tail
>> 147 25.7% do_futex
>> 138 276.0% __free_pages_ok
>> 107 8.8% __down_read
>> 107 43.7% plist_check_list
>> 105 6.9% number
>> 101 61.6% poison_obj
>> 99 54.4% exit_sem
>> 73 45.6% copy_user_generic_unrolled
>> 72 42.1% get_futex_key
>> 67 24.8% mm_release
>> 60 6.1% system_call
>> 59 35.3% __up_read
>> 55 22.4% exit_mm
>> 54 83.1% bad_range
>> 54 18.3% dbg_redzone1
>> 52 371.4% __free_pages
>> 49 376.9% __put_task_struct
>> 49 15.3% proc_flush_task
>> 48 13.4% d_hash_and_lookup
>> 48 14.0% sys_futex
>> 47 18.6% plist_check_head
>> 45 19.7% find_vma
>> 44 5.4% __d_lookup
>> 43 50.0% __get_free_pages
>> 41 205.0% rt_mutex_debug_task_free
>> 38 7.1% futex_wait
>> 37 3.9% _raw_spin_lock
>> 36 1800.0% pgd_dtor
>> 35 13.6% getnstimeofday
>> 35 109.4% delayed_put_task_struct
>> 34 33.0% find_extend_vma
>> 33 42.3% __phys_addr
>> 32 19.6% plist_check_prev_next
>> 32 320.0% alloc_uid
>> 31 4.9% schedule
>> 30 19.1% __put_user_4
>> 29 580.0% __rcu_process_callbacks
>> 29 39.2% ptregscall_common
>> 28 82.4% gs_change
>> 27 31.4% snprintf

```

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>> 27 75.0% obj_offset
>> 26 173.3% __inc_zone_state
>> 23 191.7% module_unload_free
>> 21 0.6% thread_return
>> 17 10.4% _raw_spin_unlock
>> 16 59.3% rff_action
>> 15 10.0% put_files_struct
>> 15 375.0% debug_rt_mutex_init
>> 15 150.0% check_irq_off
>> 14 350.0% put_pid
>> 14 16.1% __wake_up
>> 13 650.0% profile_task_exit
>> 12 33.3% wake_up_new_task
>> 10 7.4% stub_clone
>> 8 800.0% dummy_task_free_security
>> 8 266.7% tasklet_action
>> 8 6.9% do_arch_prctl
>> 7 41.2% dump_line
>> 7 6.5% plist_del
>> 7 4.2% kmem_flagcheck
>> 7 36.8% up_write
>> 6 3.6% obj_size
>> 6 120.0% bad_page
>> -6 -27.3% exit_thread
>> -6 -66.7% __delay
>> -6 -85.7% futex_requeue
>> -6 -54.5% sys_vfork
>> -6 -11.8% __spin_lock_init
>> -7 -46.7% acct_process
>> -7 -11.5% init_waitqueue_head
>> -8 -20.5% unqueue_me
>> -8 -28.6% sysret_careful
>> -8 -4.8% copy_files
>> -8 -50.0% sysret_signal
>> -11 -31.4% rwlock_bug
>> -11 -64.7% futexfs_get_sb
>> -13 -21.0% debug_rt_mutex_init_waiter
>> -13 -10.2% call_rcu_bh
>> -13 -1.9% kernel_thread
>> -13 -13.5% sched_clock
>> -14 -4.8% d_lookup
>> -14 -73.7% sighand_ctor
>> -15 -30.0% ret_from_sys_call
>> -16 -34.8% blocking_notifier_call_chain
>> -17 -8.7% hash_futex
>> -18 -41.9% prepare_to_copy
>> -18 -17.3% dummy_task_create
>> -22 -5.1% copy_namespaces

```

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> > -23 -6.2% account_user_time
> > -24 -29.3% debug_rt_mutex_free_waiter
> > -25 -27.5% dbg_redzone2
> > -25 -21.6% sys_exit
> > -27 -67.5% sched_fork
> > -28 -44.4% down_read_trylock
> > -29 -30.2% dbg_userword
> > -33 -29.7% task_nice
> > -34 -79.1% kfree_debugcheck
> > -35 -64.8% memmove
> > -43 -26.2% down_read
> > -43 -18.6% plist_add
> > -46 -1.7% __memset
> > -46 -26.7% set_normalized_timespec
> > -48 -3.6% _spin_unlock
> > -57 -11.4% zone_watermark_ok
> > -61 -18.6% ktime_get_ts
> > -80 -4.7% __memcpy
> > -86 -3.7% get_page_from_freelist
> > -87 -23.1% sched_balance_self
> > -152 -22.7% copy_thread
> > -383 -6.3% copy_process
> > -920 -15.2% release_task
> > -1032 -42.5% alloc_pid
> > -1045 -85.7% __show_regs
> >
> > _____
> > Containers mailing list
> > Containers@lists.linux-foundation.org
> > https://lists.linux-foundation.org/mailman/listinfo/containers
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