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Subject: Re: [PATCH 1/5] Define and use task\_active\_pid\_ns() wrapper

Posted by [serue](#) on Mon, 16 Jul 2007 20:38:42 GMT

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Quoting [sukadev@us.ibm.com](mailto:sukadev@us.ibm.com) ([sukadev@us.ibm.com](mailto:sukadev@us.ibm.com)):

>  
> Subject: [PATCH 1/5] Define and use task\_active\_pid\_ns() wrapper  
>  
> From: Sukadev Bhattiprolu <[sukadev@us.ibm.com](mailto:sukadev@us.ibm.com)>  
>  
> With multiple pid namespaces, a process is known by some pid\_t in  
> every ancestor pid namespace. Every time the process forks, the  
> child process also gets a pid\_t in every ancestor pid namespace.  
>  
> While a process is visible in >=1 pid namespaces, it can see pid\_t's  
> in only one pid namespace. We call this pid namespace it's "active  
> pid namespace", and it is always the youngest pid namespace in which  
> the process is known.  
>  
> This patch defines and uses a wrapper to find the active pid namespace  
> of a process. The implementation of the wrapper will be changed in  
> when support for multiple pid namespaces are added.  
>  
> Changelog:  
> 2.6.22-rc4-mm2-pidns1:  
> - [Pavel Emelianov, Alexey Dobriyan] Back out the change to use  
> task\_active\_pid\_ns() in child\_reaper() since task->nsproxy  
> can be NULL during task exit (so child\_reaper() continues to  
> use init\_pid\_ns).  
>  
> to implement child\_reaper() since init\_pid\_ns.child\_reaper to  
> implement child\_reaper() since task->nsproxy can be NULL during exit.  
>  
> 2.6.21-rc6-mm1:  
> - Rename task\_pid\_ns() to task\_active\_pid\_ns() to reflect that a  
> process can have multiple pid namespaces.  
>  
> Signed-off-by: Sukadev Bhattiprolu <[sukadev@us.ibm.com](mailto:sukadev@us.ibm.com)>  
> Acked-by: Pavel Emelianov <[xemul@openvz.org](mailto:xemul@openvz.org)>  
>  
> Cc: Eric W. Biederman <[ebiederm@xmission.com](mailto:ebiederm@xmission.com)>  
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> Cc: Herbert Poetzel <[herbert@13thfloor.at](mailto:herbert@13thfloor.at)>  
> ---  
> fs/exec.c | 2 +-  
> fs/proc/proc\_misc.c | 3 ++

```

> include/linux/pid_namespace.h | 7 ++++++-
> kernel/exit.c | 5 +++--
> kernel/nsproxy.c | 2 +-
> kernel/pid.c | 4 +++-
> 6 files changed, 15 insertions(+), 8 deletions(-)
>
> Index: lx26-22-rc6-mm1/include/linux/pid_namespace.h
> =====
> --- lx26-22-rc6-mm1.orig/include/linux/pid_namespace.h 2007-07-13 13:07:01.000000000 -0700
> +++ lx26-22-rc6-mm1/include/linux/pid_namespace.h 2007-07-13 18:22:49.000000000 -0700
> @@ -20,7 +20,7 @@ struct pid_namespace {
> struct pidmap pidmap[PIDMAP_ENTRIES];
> int last_pid;
> struct task_struct *child_reaper;
> - struct kmem_cache_t *pid_cachep;
> + struct kmem_cache *pid_cachep;

```

This change is, of course, unrelated to the description.

```

> };
>
> extern struct pid_namespace init_pid_ns;
> @@ -39,6 +39,11 @@ static inline void put_pid_ns(struct pid
> kref_put(&ns->kref, free_pid_ns);
> }
>
> +static inline struct pid_namespace *task_active_pid_ns(struct task_struct *tsk)
> +{
> + return tsk->nsproxy->pid_ns;
> +}
> +

```

I trust you've tested this for the NFS oops?

Taking the pid\_ns out of the nsproxy was the trigger for the original bug, right, to which the solutions were to either take it from struct pid, or, so long as pid namespaces couldn't yet be unshared, use init\_pid\_ns?

thanks,  
-serge

```

> static inline struct task_struct *child_reaper(struct task_struct *tsk)
> {
> return init_pid_ns.child_reaper;
> Index: lx26-22-rc6-mm1/fs/exec.c
> =====
> --- lx26-22-rc6-mm1.orig/fs/exec.c 2007-07-13 13:05:38.000000000 -0700

```

```

> +++ lx26-22-rc6-mm1/fs/exec.c 2007-07-13 18:13:39.000000000 -0700
> @@ -827,7 +827,7 @@ static int de_thread(struct task_struct
>  * so it is safe to do it under read_lock.
>  */
>  if (unlikely(tsk->group_leader == child_reaper(tsk)))
> - tsk->nsproxy->pid_ns->child_reaper = tsk;
> + task_active_pid_ns(tsk)->child_reaper = tsk;
>
>  zap_other_threads(tsk);
>  read_unlock(&tasklist_lock);
> Index: lx26-22-rc6-mm1/fs/proc/proc_misc.c
> =====
> --- lx26-22-rc6-mm1.orig/fs/proc/proc_misc.c 2007-07-13 13:05:38.000000000 -0700
> +++ lx26-22-rc6-mm1/fs/proc/proc_misc.c 2007-07-13 13:07:48.000000000 -0700
> @@ -94,7 +94,8 @@ static int loadavg_read_proc(char *page,
>  LOAD_INT(a), LOAD_FRAC(a),
>  LOAD_INT(b), LOAD_FRAC(b),
>  LOAD_INT(c), LOAD_FRAC(c),
> - nr_running(), nr_threads, current->nsproxy->pid_ns->last_pid);
> + nr_running(), nr_threads,
> + task_active_pid_ns(current)->last_pid);
>  return proc_calc_metrics(page, start, off, count, eof, len);
>  }
>
> Index: lx26-22-rc6-mm1/kernel/exit.c
> =====
> --- lx26-22-rc6-mm1.orig/kernel/exit.c 2007-07-13 13:06:52.000000000 -0700
> +++ lx26-22-rc6-mm1/kernel/exit.c 2007-07-13 18:13:39.000000000 -0700
> @@ -909,8 +909,9 @@ fastcall NORET_TYPE void do_exit(long co
>  if (unlikely(!tsk->pid))
>  panic("Attempted to kill the idle task!");
>  if (unlikely(tsk == child_reaper(tsk))) {
> - if (tsk->nsproxy->pid_ns != &init_pid_ns)
> - tsk->nsproxy->pid_ns->child_reaper = init_pid_ns.child_reaper;
> + if (task_active_pid_ns(tsk) != &init_pid_ns)
> + task_active_pid_ns(tsk)->child_reaper =
> + init_pid_ns.child_reaper;
>  else
>  panic("Attempted to kill init!");
>  }
> Index: lx26-22-rc6-mm1/kernel/pid.c
> =====
> --- lx26-22-rc6-mm1.orig/kernel/pid.c 2007-07-13 13:07:01.000000000 -0700
> +++ lx26-22-rc6-mm1/kernel/pid.c 2007-07-13 18:13:38.000000000 -0700
> @@ -214,7 +214,7 @@ struct pid *alloc_pid(void)
>  int nr = -1;
>  struct pid_namespace *ns;
>

```

```

> - ns = current->nsproxy->pid_ns;
> + ns = task_active_pid_ns(current);
> pid = kmem_cache_alloc(ns->pid_cachep, GFP_KERNEL);
> if (!pid)
> goto out;
> @@ -364,7 +364,7 @@ struct pid *find_ge_pid(int nr)
> pid = find_pid(nr);
> if (pid)
> break;
> - nr = next_pidmap(current->nsproxy->pid_ns, nr);
> + nr = next_pidmap(task_active_pid_ns(current), nr);
> } while (nr > 0);
>
> return pid;
> Index: lx26-22-rc6-mm1/kernel/nsproxy.c
> =====
> --- lx26-22-rc6-mm1.orig/kernel/nsproxy.c 2007-07-13 13:05:38.000000000 -0700
> +++ lx26-22-rc6-mm1/kernel/nsproxy.c 2007-07-13 13:07:48.000000000 -0700
> @@ -86,7 +86,7 @@ static struct nsproxy *create_new_namesp
> goto out_ipc;
> }
>
> - new_nsp->pid_ns = copy_pid_ns(flags, tsk->nsproxy->pid_ns);
> + new_nsp->pid_ns = copy_pid_ns(flags, task_active_pid_ns(tsk));
> if (IS_ERR(new_nsp->pid_ns)) {
> err = PTR_ERR(new_nsp->pid_ns);
> goto out_pid;

```

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Containers@lists.linux-foundation.org  
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