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Subject: [PATCH] Compact sk\_stream\_mem\_schedule() code  
Posted by Pavel Emelianov on Mon, 19 Nov 2007 12:13:44 GMT  
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This function references sk->sk\_prot->xxx for many times.  
It turned out, that there's so many code in it, that gcc  
cannot always optimize access to sk->sk\_prot's fields.

After saving the sk->sk\_prot on the stack and comparing  
disassembled code, it turned out that the function became  
~10 bytes shorter and made less dereferences (on i386 and  
x86\_64). Stack consumption didn't grow.

Besides, this patch drives most of this function into the  
80 columns limit.

Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

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```
diff --git a/net/core/stream.c b/net/core/stream.c
index 755bacb..b2fb846 100644
--- a/net/core/stream.c
+++ b/net/core/stream.c
@@ -210,35 +210,36 @@ EXPORT_SYMBOL(__sk_stream_mem_reclaim);
int sk_stream_mem_schedule(struct sock *sk, int size, int kind)
{
    int amt = sk_stream_pages(size);
+   struct proto *prot = sk->sk_prot;

    sk->sk_forward_alloc += amt * SK_STREAM_MEM_QUANTUM;
-   atomic_add(amt, sk->sk_prot->memory_allocated);
+   atomic_add(amt, prot->memory_allocated);

    /* Under limit. */
-   if (atomic_read(sk->sk_prot->memory_allocated) < sk->sk_prot->sysctl_mem[0]) {
-       if (*sk->sk_prot->memory_pressure)
-           *sk->sk_prot->memory_pressure = 0;
+   if (atomic_read(prot->memory_allocated) < prot->sysctl_mem[0]) {
+       if (*prot->memory_pressure)
+           *prot->memory_pressure = 0;
       return 1;
   }

    /* Over hard limit. */
-   if (atomic_read(sk->sk_prot->memory_allocated) > sk->sk_prot->sysctl_mem[2]) {
-       sk->sk_prot->enter_memory_pressure();
+   if (atomic_read(prot->memory_allocated) > prot->sysctl_mem[2]) {
```

```

+ prot->enter_memory_pressure();
  goto suppress_allocation;
}

/* Under pressure.*/
- if (atomic_read(sk->sk_prot->memory_allocated) > sk->sk_prot->sysctl_mem[1])
- sk->sk_prot->enter_memory_pressure();
+ if (atomic_read(prot->memory_allocated) > prot->sysctl_mem[1])
+ prot->enter_memory_pressure();

  if (kind) {
- if (atomic_read(&sk->sk_rmem_alloc) < sk->sk_prot->sysctl_rmem[0])
+ if (atomic_read(&sk->sk_rmem_alloc) < prot->sysctl_rmem[0])
    return 1;
- } else if (sk->sk_wmem_queued < sk->sk_prot->sysctl_wmem[0])
+ } else if (sk->sk_wmem_queued < prot->sysctl_wmem[0])
    return 1;

- if (!*sk->sk_prot->memory_pressure ||
-     sk->sk_prot->sysctl_mem[2] > atomic_read(sk->sk_prot->sockets_allocated) *)
+ if (!*prot->memory_pressure ||
+     prot->sysctl_mem[2] > atomic_read(prot->sockets_allocated) *
      sk_stream_pages(sk->sk_wmem_queued +
                      atomic_read(&sk->sk_rmem_alloc) +
                      sk->sk_forward_alloc))
@@ -258,7 +259,7 @@ suppress_allocation:

/* Alas. Undo changes.*/
sk->sk_forward_alloc -= amt * SK_STREAM_MEM_QUANTUM;
- atomic_sub(amt, sk->sk_prot->memory_allocated);
+ atomic_sub(amt, prot->memory_allocated);
  return 0;
}

```

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Subject: Re: [PATCH] Compact sk\_stream\_mem\_schedule() code  
 Posted by [Arnaldo Carvalho de M\[1\]](#) on Mon, 19 Nov 2007 19:30:59 GMT  
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Em Mon, Nov 19, 2007 at 03:13:44PM +0300, Pavel Emelyanov escreveu:  
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> Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

I wonder if making it 'const struct proto \*prot = sk->sk\_prot;'  
would make any difference.

Acked-by: Arnaldo Carvalho de Melo <acme@redhat.com>

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Subject: Re: [PATCH] Compact sk\_stream\_mem\_schedule() code  
Posted by [davem](#) on Tue, 20 Nov 2007 07:22:45 GMT

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From: Arnaldo Carvalho de Melo <acme@ghostprotocols.net>  
Date: Mon, 19 Nov 2007 17:30:59 -0200

> Em Mon, Nov 19, 2007 at 03:13:44PM +0300, Pavel Emelyanov escreveu:  
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> > Signed-off-by: Pavel Emelyanov <xemul@openvz.org>  
>  
> I wonder if making it 'const struct proto \*prot = sk->sk\_prot;'  
>  
> would make any difference.

Such experiments are always useful, but I doubt there will  
be substantial gains in this case.

> Acked-by: Arnaldo Carvalho de Melo <acme@redhat.com>

I've applied the patch, thanks Pavel.

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