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Subject: [patch 06/10][NETNS][IP6\_FIB] pass the network namespace parameter to timer callback

Posted by [Daniel Lezcano](#) on Thu, 15 Nov 2007 14:01:49 GMT

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The fib tables are now relative to the namespace. When the garbage collector timer expires, we must have a network namespace in order to retrieve the tables. For now this is the `init_net`, but we should be able to have a timer per namespace and use the timer callback parameter to pass the network namespace from the expired timer.

The timer callback, `fib6_run_gc`, is actually used to be called synchronously by some functions and asynchronously when the timer expires.

When the timer expires, the delay specified for `fib6_run_gc` parameter is always zero. So, I changed `fib6_run_gc` to not be a timer callback but a function called by the timer callback and I added a timer callback where its work is just to retrieve from the data arg of the timer the network namespace and call `fib6_run_gc` with zero expiring time and the network namespace parameters. That makes the code cleaner for the `fib6_run_gc` callers.

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```
include/net/ip6_fib.h | 2 +-
net/ipv6/ip6_fib.c    | 17 ++++++++-----
net/ipv6/ndisc.c      | 5 +++-
net/ipv6/route.c      | 7 +++++-
4 files changed, 21 insertions(+), 10 deletions(-)
```

Index: linux-2.6-netns/net/ipv6/ip6\_fib.c

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--- linux-2.6-netns.orig/net/ipv6/ip6\_fib.c

+++ linux-2.6-netns/net/ipv6/ip6\_fib.c

@@ -93,7 +93,9 @@ static int fib6\_walk\_continue(struct fib

```
static __u32 rt_sernum;
```

```
-static DEFINE_TIMER(ip6_fib_timer, fib6_run_gc, 0, 0);
```

```
+static void fib6_gc_timer_cb(unsigned long arg);
```

```
+
```

```
+static DEFINE_TIMER(ip6_fib_timer, fib6_gc_timer_cb, 0, (unsigned long)&init_net);
```

```
static struct fib6_walker_t fib6_walker_list = {
```

```
    .prev = &fib6_walker_list,
```

```
@@ -1431,11 +1433,11 @@ static int fib6_age(struct rt6_info *rt,
```

```

static DEFINE_SPINLOCK(fib6_gc_lock);

-void fib6_run_gc(unsigned long dummy)
+void fib6_run_gc(unsigned long expires, struct net *net)
{
- if (dummy != ~0UL) {
+ if (expires != ~0UL) {
    spin_lock_bh(&fib6_gc_lock);
- gc_args.timeout = dummy ? (int)dummy : ip6_rt_gc_interval;
+ gc_args.timeout = expires ? (int)expires : ip6_rt_gc_interval;
} else {
    local_bh_disable();
    if (!spin_trylock(&fib6_gc_lock)) {
@@ -1449,7 +1451,7 @@ void fib6_run_gc(unsigned long dummy)

    ndisc_dst_gc(&gc_args.more);

- fib6_clean_all(&init_net, fib6_age, 0, NULL);
+ fib6_clean_all(net, fib6_age, 0, NULL);

    if (gc_args.more)
        mod_timer(&ip6_fib_timer, jiffies + ip6_rt_gc_interval);
@@ -1460,6 +1462,11 @@ void fib6_run_gc(unsigned long dummy)
    spin_unlock_bh(&fib6_gc_lock);
}

+static void fib6_gc_timer_cb(unsigned long arg)
+{
+ fib6_run_gc(0, (struct net *)arg);
+}
+
static int fib6_net_init(struct net *net)
{
    int ret;
Index: linux-2.6-netns/include/net/ip6_fib.h
=====
--- linux-2.6-netns.orig/include/net/ip6_fib.h
+++ linux-2.6-netns/include/net/ip6_fib.h
@@ -221,7 +221,7 @@ extern int fib6_del(struct rt6_info *r
extern void inet6_rt_notify(int event, struct rt6_info *rt,
    struct nl_info *info);

-extern void fib6_run_gc(unsigned long dummy);
+extern void fib6_run_gc(unsigned long expires, struct net *net);

extern void fib6_gc_cleanup(void);

```

Index: linux-2.6-netns/net/ipv6/ndisc.c

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--- linux-2.6-netns.orig/net/ipv6/ndisc.c

+++ linux-2.6-netns/net/ipv6/ndisc.c

@@ -1612,6 +1612,7 @@ int ndisc\_rcv(struct sk\_buff \*skb)

static int ndisc\_netdev\_event(struct notifier\_block \*this, unsigned long event, void \*ptr)

{  
 struct net\_device \*dev = ptr;  
+ struct net \*net = dev->nd\_net;

if (dev->nd\_net != &init\_net)  
 return NOTIFY\_DONE;

@@ -1619,11 +1620,11 @@ static int ndisc\_netdev\_event(struct not

switch (event) {  
 case NETDEV\_CHANGEADDR:  
 neigh\_changeaddr(&nd\_tbl, dev);

- fib6\_run\_gc(~0UL);  
+ fib6\_run\_gc(~0UL, net);

break;  
 case NETDEV\_DOWN:  
 neigh\_ifdown(&nd\_tbl, dev);

- fib6\_run\_gc(~0UL);  
+ fib6\_run\_gc(~0UL, net);

break;  
 default:  
 break;

Index: linux-2.6-netns/net/ipv6/route.c

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--- linux-2.6-netns.orig/net/ipv6/route.c

+++ linux-2.6-netns/net/ipv6/route.c

@@ -991,7 +991,7 @@ static int ip6\_dst\_gc(void)

goto out;

expire++;  
- fib6\_run\_gc(expire);  
+ fib6\_run\_gc(expire, &init\_net);  
 last\_gc = now;  
 if (atomic\_read(&ip6\_dst\_ops.entries) < ip6\_dst\_ops.gc\_thresh)  
 expire = ip6\_rt\_gc\_timeout>>1;

@@ -2360,9 +2360,12 @@ static

int ipv6\_sysctl\_rtcache\_flush(ctl\_table \*ctl, int write, struct file \* filp,  
 void \_\_user \*buffer, size\_t \*lenp, loff\_t \*ppos)

{  
+ unsigned long expires;  
+

if (write) {  
+ expires = flush\_delay <= 0 ? ~0UL : (unsigned long)flush\_delay;  
 proc\_dointvec(ctl, write, filp, buffer, lenp, ppos);

```
- fib6_run_gc(flush_delay <= 0 ? ~0UL : (unsigned long)flush_delay);  
+ fib6_run_gc(expires, &init_net);  
  return 0;  
} else  
  return -EINVAL;
```

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