
Subject: network namespace ipv6 perfs

Posted by [Daniel Lezcano](#) on Mon, 03 Mar 2008 14:20:16 GMT

[View Forum Message](#) <> [Reply to Message](#)

Hi,

Some performance tests was made by Benjamin to watch out the impact of the network namespace. The good news is there is no impact when used with or without namespaces. That has been checked using a real network device inside a network namespace.

These results are consistent with the ones previously made for ipv4.

http://lxc.sourceforge.net/network/bench_ipv6_graph.php

Thanks to Benjamin who did all the performance tests :)

Regards

-- Daniel

Sauf indication contraire ci-dessus:
Compagnie IBM France

Courbevoie
RCS Nanterre 552 118 465
Forme Sociale : S.A.S.
Capital Social : 542.737.118 ?
SIREN/SIRET : 552 118 465 02430

Containers mailing list
Containers@lists.linux-foundation.org
<https://lists.linux-foundation.org/mailman/listinfo/containers>

Subject: Re: network namespace ipv6 perfs
Posted by [Benjamin Thery](#) on Mon, 03 Mar 2008 14:42:03 GMT
[View Forum Message](#) <> [Reply to Message](#)

Daniel Lezcano wrote:

> Hi,
>
> Some performance tests was made by Benjamin to watch out the impact of
> the network namespace. The good news is there is no impact when used

Subject: Re: network namespace ipv6 perfs

Posted by [Benjamin Thery](#) on Mon, 03 Mar 2008 14:48:12 GMT

[View Forum Message](#) <> [Reply to Message](#)

One more thing about these results: the kernel.

The version used to run these tests was 2.6.25-rc1 from Dave Miller's net-2.6 tree.

(and I included results from a vanilla 2.6.23.16 as reference)

Benjamin

Daniel Lezcano wrote:

> Hi,

>

> Some performance tests was made by Benjamin to watch out the impact of
> the network namespace. The good news is there is no impact when used
> with or without namespaces. That has been checked using a real network
> device inside a network namespace.

>

> These results are consistent with the ones previously made for ipv4.

>

> http://lxc.sourceforge.net/network/bench_ipv6_graph.php

>

> Thanks to Benjamin who did all the performance tests :)

>

> Regards

> -- Daniel

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

>

<http://www.bull.com>

Containers mailing list

Containers@lists.linux-foundation.org

<https://lists.linux-foundation.org/mailman/listinfo/containers>

Subject: Re: Re: network namespace ipv6 perfs

Posted by [Pavel Emelianov](#) on Mon, 03 Mar 2008 14:55:11 GMT

[View Forum Message](#) <> [Reply to Message](#)

Benjamin They wrote:

> Daniel Lezcano wrote:

>> Hi,

>>

>> Some performance tests was made by Benjamin to watch out the impact of
>> the network namespace. The good news is there is no impact when used
>> with or without namespaces. That has been checked using a real network
>> device inside a network namespace.

>>

>> These results are consistent with the ones previously made for ipv4.

>>

>> http://lxc.sourceforge.net/network/bench_ipv6_graph.php

>>

>> Thanks to Benjamin who did all the performance tests :)

>

> In these results, may be, there is one thing that should be explained.

> It is the CPU utilization overhead in the 'veth' case.

>

> Compared to physical devices or macvlan, veth interfaces don't benefit
> from hardware offloading mechanisms: i.e. checksums have to be computed
> by the soft. That explains the big overhead in CPU utilization when

You can tune the veth devices not to account checksum when unnecessary.

> using this kind of virtual interface.

>

> Benjamin

>

>> Regards

>> -- Daniel

>>

>>

>>

>>

>>

>>

>>

>>

>> Compagnie IBM France

>> Courbevoie

>> RCS Nanterre 552 118 465

>> Forme Sociale : S.A.S.

>> Capital Social : 542.737.118 ?

>> SIREN/SIRET : 552 118 465 02430

>>

>>

>

>

Containers mailing list

Containers@lists.linux-foundation.org

<https://lists.linux-foundation.org/mailman/listinfo/containers>

Subject: Re: Re: network namespace ipv6 perfs

Posted by [Benjamin Thery](#) on Mon, 03 Mar 2008 15:04:47 GMT

[View Forum Message](#) <> [Reply to Message](#)

On Mon, Mar 3, 2008 at 3:55 PM, Pavel Emelyanov <xemul@openvz.org> wrote:

> Benjamin Thery wrote:

> > Daniel Lezcano wrote:

> >> Hi,

> >>

> >> Some performance tests was made by Benjamin to watch out the impact of

> >> the network namespace. The good news is there is no impact when used

> >> with or without namespaces. That has been checked using a real network

> >> device inside a network namespace.

> >>

> >> These results are consistent with the ones previously made for ipv4.

> >>

> >> http://lxc.sourceforge.net/network/bench_ipv6_graph.php

> >>

> >> Thanks to Benjamin who did all the performance tests :)

> >

> > In these results, may be, there is one thing that should be explained.

> > It is the CPU utilization overhead in the 'veth' case.

> >

> > Compared to physical devices or macvlan, veth interfaces don't benefit

> > from hardware offloading mechanisms: i.e. checksums have to be computed

> > by the soft. That explains the big overhead in CPU utilization when

> >

> > You can tune the veth devices not to account checksum when unnecessary.

Oh. This is interesting.

You mean with ethtool -K rx/tx?
I will give it a try.

Benjamin

>
>
> > using this kind of virtual interface.
> >
> > Benjamin
> >
> >> Regards
> >> -- Daniel
> >>

>--
> To unsubscribe from this list: send the line "unsubscribe netdev" in
> the body of a message to majordomo@vger.kernel.org
> More majordomo info at <http://vger.kernel.org/majordomo-info.html>
>

Containers mailing list
Containers@lists.linux-foundation.org
<https://lists.linux-foundation.org/mailman/listinfo/containers>

Subject: Re: Re: network namespace ipv6 perms
Posted by [Benjamin Thery](#) on Mon, 03 Mar 2008 17:27:50 GMT
[View Forum Message](#) <> [Reply to Message](#)

Benjamin Thery wrote:
> On Mon, Mar 3, 2008 at 3:55 PM, Pavel Emelyanov <xemul@openvz.org> wrote:
>> Benjamin Thery wrote:
>> > Daniel Lezcano wrote:
>> >> Hi,
>> >>
>> >> Some performance tests was made by Benjamin to watch out the impact of
>> >> the network namespace. The good news is there is no impact when used
>> >> with or without namespaces. That has been checked using a real network
>> >> device inside a network namespace.
>> >>
>> >> These results are consistent with the ones previously made for ipv4.
>> >>
>> >> http://lxc.sourceforge.net/network/bench_ipv6_graph.php
>> >>
>> >> Thanks to Benjamin who did all the performance tests :)
>> >

>> > In these results, may be, there is one thing that should be explained.
>> > It is the CPU utilization overhead in the 'veth' case.
>> >
>> > Compared to physical devices or macvlan, veth interfaces don't benefit
>> > from hardware offloading mechanisms: i.e. checksums have to be computed
>> > by the soft. That explains the big overhead in CPU utilization when
>>
>> You can tune the veth devices not to account checksum when unnecessary.
>
> Oh. This is interesting.
>
> You mean with ethtool -K rx/tx?
> I will give it a try.

Pavel,

I had no luck with "ethtool -K veth0 rx on tx on".
On my testbed, with these options TCP drops packets
(trying to establish a ssh connection between init and child namespace).

Then, I tested "ethtool -K veth0 rx on tx off".
This time TCP (and netperf) work, but I see no difference in
CPU load compared to the case without offloading.

Can I tune veth differently?

(BTW, I run netperf between a child namespace on host A and netperf
on host B. The stream goes through the following interface:
veth1 on A -> veth0 on A -> eth1 on A -> ("real network") -> eth1 on B)

Benjamin

>
>>
>> > using this kind of virtual interface.
>> >
>> > Benjamin
>> >
>> >> Regards
>> >> -- Daniel
>> >>
>
>> --
>> To unsubscribe from this list: send the line "unsubscribe netdev" in
>> the body of a message to majordomo@vger.kernel.org
>> More majordomo info at <http://vger.kernel.org/majordomo-info.html>
>>

>
>

--
Benjamin Thery - BULL/DT/Open Software R&D

<http://www.bull.com>

Containers mailing list
Containers@lists.linux-foundation.org
<https://lists.linux-foundation.org/mailman/listinfo/containers>

Subject: Re: network namespace ipv6 perms
Posted by [Rick Jones](#) on Mon, 03 Mar 2008 19:38:49 GMT
[View Forum Message](#) <> [Reply to Message](#)

Daniel Lezcano wrote:

> Hi,
>
> Some performance tests was made by Benjamin to watch out the impact of
> the network namespace. The good news is there is no impact when used
> with or without namespaces. That has been checked using a real network
> device inside a network namespace.

The *_RR tests seem to show a drop in througput and corresponding increases in service demand - could that be because things like TSO et al cannot mask much of anything in the way of a path-length increase?

From the annotations, I'm ass-u-me-ing that NS was only used on the netperf side and not both netperf and netserver side?

happy benchmarking,

rick jones

> These results are consistent with the ones previously made for ipv4.
>
> http://lxc.sourceforge.net/network/bench_ipv6_graph.php
>
> Thanks to Benjamin who did all the performance tests :)
>

Containers mailing list
Containers@lists.linux-foundation.org
<https://lists.linux-foundation.org/mailman/listinfo/containers>

Subject: Re: network namespace ipv6 perms
Posted by [Daniel Lezcano](#) on Mon, 03 Mar 2008 20:01:18 GMT
[View Forum Message](#) <> [Reply to Message](#)

Rick Jones wrote:

> Daniel Lezcano wrote:

>> Hi,

>>

>> Some performance tests was made by Benjamin to watch out the impact of
>> the network namespace. The good news is there is no impact when used
>> with or without namespaces. That has been checked using a real network
>> device inside a network namespace.

>

> The *_RR tests seem to show a drop in througput and corresponding
> increases in service demand - could that be because things like TSO et
> al cannot mask much of anything in the way of a path-length increase?

Hmm. In fact Benjamin took the 2.6.23.16 kernel where there were no network namespace code at all. So these differences between 2.6.23.16 and 2.6.25-rc1 does not show a performance degradation especially related to the network namespaces. The important point is the 2.6.25-rc1 without ipv6 netns and 2.6.25-rc1 with ipv6 netns code applied, I mean the second and the third line and we can point that the ipv6 netns code does not degrade performances for either throughput and service demand.

> From the annotations, I'm ass-u-me-ing that NS was only used on the
> netperf side and not both netperf and netserver side?

right :)

> happy benchmarking,

Thanks Rick.

-- Daniel

Containers mailing list
Containers@lists.linux-foundation.org
<https://lists.linux-foundation.org/mailman/listinfo/containers>

Subject: Re: network namespace ipv6 perms
Posted by [Benjamin Thery](#) on Tue, 04 Mar 2008 15:59:56 GMT
[View Forum Message](#) <> [Reply to Message](#)

Daniel Lezcano wrote:

> Rick Jones wrote:

>> Daniel Lezcano wrote:

```
>>> Hi,
>>>
>>> Some performance tests was made by Benjamin to watch out the impact
>>> of the network namespace. The good news is there is no impact when
>>> used with or without namespaces. That has been checked using a real
>>> network device inside a network namespace.
>>
>> The *_RR tests seem to show a drop in througput and corresponding
>> increases in service demand - could that be because things like TSO et
>> al cannot mask much of anything in the way of a path-length increase?
>
> Hmm. In fact Benjamin took the 2.6.23.16 kernel where there were no
> network namespace code at all. So these differences between 2.6.23.16
> and 2.6.25-rc1 does not show a performance degradation especially
> related to the network namespaces. The important point is the 2.6.25-rc1
> without ipv6 netns and 2.6.25-rc1 with ipv6 netns code applied, I mean
> the second and the third line and we can point that the ipv6 netns code
> does not degrade performances for either throughput and service demand.
```

As Daniel stated, we should not compare the first bar with the other ones directly. May be I should have arranged the chart differently and made it more clear that the first bar is "2.6.23 vanilla" and the second one is "2.6.25-rc1 vanilla". Many changes happened in the whole kernel between 2.6.23 and 2.6.24 so we can't compare the first two bars to tell if network namespace degraded performances (and only a small part of netns is in 2.6.24).

The way I presented the chart is a bit misleading. :)

What's interesting to compare in the charts is the 2nd, 3rd and 4th lines. It shows that on the exact same hardware (in the 4th case the physical interface is moved into the child namespace), with or without the patchset, using network namespace or not, performance is about the same.

Benjamin

```
>> From the annotations, I'm ass-u-me-ing that NS was only used on the
>> netperf side and not both netperf and netserver side?
>
> right :)
>
>> happy benchmarking,
>
> Thanks Rick.
>
> -- Daniel
>
>
```

--

Benjamin Thery - BULL/DT/Open Software R&D

<http://www.bull.com>

Containers mailing list

Containers@lists.linux-foundation.org

<https://lists.linux-foundation.org/mailman/listinfo/containers>

Subject: Re: Re: network namespace ipv6 perfs

Posted by [Pavel Emelianov](#) on Wed, 05 Mar 2008 12:39:02 GMT

[View Forum Message](#) <> [Reply to Message](#)

Benjamin Thery wrote:

> Benjamin Thery wrote:

>> On Mon, Mar 3, 2008 at 3:55 PM, Pavel Emelyanov <xemul@openvz.org> wrote:

>>> Benjamin Thery wrote:

>>> > Daniel Lezcano wrote:

>>> >> Hi,

>>> >>

>>> >> Some performance tests was made by Benjamin to watch out the impact of

>>> >> the network namespace. The good news is there is no impact when used

>>> >> with or without namespaces. That has been checked using a real network

>>> >> device inside a network namespace.

>>> >>

>>> >> These results are consistent with the ones previously made for ipv4.

>>> >>

>>> >> http://lxc.sourceforge.net/network/bench_ipv6_graph.php

>>> >>

>>> >> Thanks to Benjamin who did all the performance tests :)

>>> >

>>> > In these results, may be, there is one thing that should be explained.

>>> > It is the CPU utilization overhead in the 'veth' case.

>>> >

>>> > Compared to physical devices or macvlan, veth interfaces don't benefit

>>> > from hardware offloading mechanisms: i.e. checksums have to be computed

>>> > by the soft. That explains the big overhead in CPU utilization when

>>>

>>> You can tune the veth devices not to account checksum when unnecessary.

>> Oh. This is interesting.

>>

>> You mean with `ethtool -K rx/tx`?

>> I will give it a try.

>

> Pavel,

>
> I had no luck with "ethtool -K veth0 rx on tx on".
> On my testbed, with these options TCP drops packets
> (trying to establish a ssh connection between init and child namespace).
>
>
> Then, I tested "ethtool -K veth0 rx on tx off".
> This time TCP (and netperf) work, but I see no difference in
> CPU load compared to the case without offloading.
>
> Can I tune veth differently?

Yup. You may try turn tso and sg on as well.

> (BTW, I run netperf between a child namespace on host A and netserv
> on host B. The stream goes through the following interface:
> veth1 on A -> veth0 on A -> eth1 on A -> ("real network") -> eth1 on B)
>
> Benjamin
>
>>> > using this kind of virtual interface.
>>> >
>>> > Benjamin
>>> >
>>> >> Regards
>>> >> -- Daniel
>>> >>
>>> --
>>> To unsubscribe from this list: send the line "unsubscribe netdev" in
>>> the body of a message to majordomo@vger.kernel.org
>>> More majordomo info at <http://vger.kernel.org/majordomo-info.html>
>>>
>>
>
>

Containers mailing list
Containers@lists.linux-foundation.org
<https://lists.linux-foundation.org/mailman/listinfo/containers>
