
Subject: Heavy Disk IO from a single VM can block the other VMs on the same host
Posted by [Hubert Krause](#) on Tue, 29 Nov 2011 16:13:26 GMT

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Hello,

my environment is a Debian squeeze host with a few debian squeeze guests. The private and root filesystems of the guest are located on the same raid device (raid5) in an luksCrypt Container in an LVM container on an ext4 partition with nodalalloc as mountoption. If I run the tool stress:

stress --io 5 --hdd 5 --timeout 60s (which means fork 5 threads doing read/write access and 5 threads doing constantly fsync) the responsiveness of the other VMs is very bad. That means, Isolation for IO operations is not given. I've tried to reduce the impact of the VM with 'vzctl set VID --ioprio=0'. There was only a minor effect, my application on the other VM where still not responsive.

Any Idea how to prevent a single VM to disturb the other VMs regarding diskIO?

Greetings

Hubert

Subject: Re: Heavy Disk IO from a single VM can block the other VMs on the same host

Posted by [Bogdan-Stefan Rotariu](#) on Thu, 01 Dec 2011 15:49:19 GMT

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On Nov 29, 2011, at 18:13, Hubert Krause <hubert.krause@inform-software.com> (by way of HubertKrause <hubert.krause@inform-software.com>) (by way of HubertKrause <hubert.krause@inform-software.com>) wrote:

> Hello,

>

> my environment is a Debian squeeze host with a few debian squeeze
> guests. The private and root filesystems of the guest are located on
> the same raid device (raid5)

maybe offtopic, maybe not, but stop using raid5 for VM deployment, use raid10, raid1, raid0 -- with lvm and snapshots

raid5 will always be slow on io, as it has checksums because "recalculation and redistribution of parity data on a per-write basis"

Subject: Re: Heavy Disk IO from a single VM can block the other VMs on the same host

Posted by [Kirill Korotaev](#) on Thu, 01 Dec 2011 17:27:49 GMT

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That's most likely due to a single file system used for containers - journal becomes a bottleneck. fsync forces journal flushes and other workloads begin to wait for journal... In reality workload looks like this are typical for heavy loaded databases or mail systems only.

How to improve:

- increase journal size
- split file systems, i.e. run each container from it's own file system

Thanks,
Kirill

On Nov 29, 2011, at 20:13 , Hubert Krause wrote:

> Hello,
>
> my environment is a Debian squeeze host with a few debian squeeze
> guests. The private and root filesystems of the guest are located on
> the same raid device (raid5) in an luksCrypt Container in an LVM
> container on an ext4 partition with nodalalloc as mountoption. If I run
> the tool stress:
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> stress --io 5 --hdd 5 --timeout 60s (which means fork 5 threads doing
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> VM with 'vzctl set VID --ioprio=0'. There was only a
> minor effect, my application on the other VM was still not
> responsive.
>
> Any idea how to prevent a single VM to disturb the other VMs regarding
> diskIO?
>
> Greetings
>
> Hubert

Subject: Re: Heavy Disk IO from a single VM can block the other VMs on the same host

Posted by [quantact-tim](#) on Fri, 02 Dec 2011 18:18:18 GMT

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You can use `vzctl --ioprio` to set relative disk I/O priorities:
http://wiki.openvz.org/I/O_priorities_for_VE

-Tim

--

Timothy Doyle
CEO
Quantact Hosting Solutions, Inc.
tim@quantact.com
<http://www.quantact.com>

On 12/01/2011 09:27 AM, Kirill Korotaev wrote:

> That's most likely due to a single file system used for containers - journal becomes a bottleneck.
> `fsync` forces journal flushes and other workloads begin to wait for journal... In reality workload looks like this are typical for
> heavily loaded databases or mail systems only.

>

> How to improve:

> - increase journal size

> - split file systems, i.e. run each container from it's own file system

>

> Thanks,

> Kirill

>

>

> On Nov 29, 2011, at 20:13 , Hubert Krause wrote:

>

>> Hello,

>>

>> my environment is a Debian squeeze host with a few debian squeeze
>> guests. The private and root filesystems of the guest are located on
>> the same raid device (raid5) in an luksCrypt Container in an LVM
>> container on an ext4 partition with `nodev` as mount option. If I run
>> the tool stress:

>>

>> `stress --io 5 --hdd 5 --timeout 60s` (which means fork 5 threads doing
>> read/write access and 5 threads doing constantly `fsync`) the
>> responsiveness of the other VMs is very bad. That means, isolation for
>> IO operations is not given. I've tried to reduce the impact of the
>> VM with `'vzctl set VID --ioprio=0'`. There was only a
>> minor effect, my application on the other VM was still not
>> responsive.

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>> Any idea how to prevent a single VM to disturb the other VMs regarding
>> diskIO?

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>> Greetings
>>
>> Hubert

Subject: Re: Heavy Disk IO from a single VM can block the other VMs on the same host

Posted by [Hubert Krause](#) on Tue, 06 Dec 2011 17:18:08 GMT

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Hello Kirill,

Am Thu, 1 Dec 2011 21:27:49 +0400
schrieb Kirill Korotaev <dev@parallels.com>:

> That's most likely due to a single file system used for containers -
> journal becomes a bottleneck. fsync forces journal flushes and other
> workloads begin to wait for journal... In reality workload looks like
> this are typical for heavy loaded databases or mail systems only.
>
> How to improve:
> - increase journal size
> - split file systems, i.e. run each container from it's own file
> system

I've created another lv with an ext4 filesystem with maximum journal-size and mounted this filesystem under /var/lib/vz/private/<VID>. I will call this vm as VM-sep. All other vhosts where kept inside the volume as before. Than I start stressing the VM-sep and tested the impact to the other VMs. It was exactly the same as if I run all VMs on the same partition.

There was indeed a difference, when I stress the Host itself. If I do filesystem stress in the same Partition (/var/lib/vz) The performance of VM is much worse (similar to stress in a VM, a little better) than if I would stress in a completly different Partition (/var/tmp in my case)

To get some Numbers: (not very sientific, but good for a measure)

Throughput of a Webserver in a VM called VM-web in KB/s:

* without stress	101.9
* stress /var/tmp on host	24.3
* stress /var/lib/vz on Host	10.5
* stress a vm, not VM-web, same fs	8.3
* stress VM-sep	7.6

Maybe the Diskencryption plays a role, maybe there is something in the VM-Isolation layer, I have no clue.

But as you mentioned before this workload is typical for heavily loaded databases or mail systems only. Neither of these applications will run in my VM-environment. So I will ignore this.

Greetings,

Hubert

> On Nov 29, 2011, at 20:13, Hubert Krause wrote:
> > my environment is a Debian squeeze host with a few Debian squeeze
> > guests. The private and root filesystems of the guest are located on
> > the same RAID device (RAID5) in an LUKS container in an LVM
> > container on an ext4 partition with noatime as mount option. If I
> > run the tool stress:
> >
> > stress --io 5 --hdd 5 --timeout 60s (which means fork 5 threads
> > doing read/write access and 5 threads doing constantly fsync) the
> > responsiveness of the other VMs is very bad. That means, isolation
> > for IO operations is not given. I've tried to reduce the impact of
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> > Any idea how to prevent a single VM to disturb the other VMs
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--

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