Subject: OLS paper topics

Posted by serue on Wed, 23 Jan 2008 19:57:36 GMT

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Hi,

here is a list of topics which I believe people are interested in
writing papers on. I'm listing names of those who I think are
interested in writing them. Sorry if I leave anyone off of a topic
they're interested in. However it seems to me it would be best if we
can agree on one person or two people to drive each topic, so everyone
doesn't sit around expecting someone else to submit the abstract.

Am I missing any?

mini-summit:
 I will submit for a 1-day mini-summit. Some interesting
 remaining topics for the mini-summit would include device
 namespaces, ttys and syslog, and lots of checkpoint/restart.

 Does anyone think we don't need one of these at ols? Or that
 we do?

 Is anyone interested in organizing the summit - coming out
 with an agenda, sending out announcements, etc - either
 alone or with my help?

pidns: (Pavel and Suka)
 I've heard it called a tutorial, though I think some of the
 technical details are interesting in and of themselves. Its
 also an important area to make sure other developers - i.e
 people working with flocks or kthreads - understand.
 netns: denis driving, daniel, benjamin

namespaces status: Pavel and Cedric
 There was no ns status update last year it may be of
 interest. Instead of a separate pidns paper, pidns could
 also be mentioned here.

namespace entering: Cedric and serge?
 This *probably* isn't enough for a full paper. So it could
 go under namespace status paper. But there is quite a bit
 to say just by listing the existing proposed solutions (at
 least 4 I can think of offhand) and their shortcomings.

memory c/r: Dave Hansen, serge interested
 I suspect many people on this list have their own ideas on
 how to go about the checkpoint and restart. I suppose they

could each write their own paper, or work together on a single
combined paper laying out the possibilities

user namespace approaches: serge

cgroups and containers: Paul Menage driving?, Balbir?
 A cgroups update could either be its own paper or joined
 with the namespaces status paper.

 Paul were you considering a separate paper to discuss
 the cgroups and namespace management as laid out in
 your Sep 03 2007 email "Thoughts on Namespace / Subsystem
 unification"?

thanks,
-serge

_____

Subject: Re: OLS paper topics
Posted by kir on Thu, 24 Jan 2008 22:05:31 GMT
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Serge E. Hallyn wrote:
> Hi,
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> writing papers on. I'm listing names of those who I think are
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That's right, obviously the title of the mini-summit would be something
like "Linux Kernel Containers".

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> we do?
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> Is anyone interested in organizing the summit - coming out
> with an agenda, sending out announcements, etc - either
> alone or with my help?
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Guess I can help a bit with organizing this. To that effort, I have put
up a wiki page:
http://wiki.openvz.org/Containers/Mini-summit_2008

We also need to have some kind of a list of attendees. So far I came
with 12 names listed on that page, please feel free to edit/add more.
> pidns: (Pavel and Suka)
> I've heard it called a tutorial, though I think some of the
> technical details are interesting in and of themselves. Its
> also an important area to make sure other developers - i.e
> people working with flocks or kthreads - understand.
>
This is the proposal Pavel filed today, it is editable so we can improve
it, please send your suggestion/fixes.

> PID namespaces in the Linux kernel
>
> PID namespaces is a relatively new Linux kernel feature merged in
> 2.6.24 kernel. It is a "view" of a particular set of tasks on the
> system. PID namespaces work in a similar way to filesystem namespaces:
> a process can be accessed in multiple namespaces, but it may have a
> different name in each. It is one of the building blocks for
> containers virtualization, and a prerequisite for
> checkpointing/restart and live migration.
>
> The paper outlines some implementation details, explains user space
> constraints that may seem odd, and discusses the impact of the feature
> on the kernel APIs.
>
> In collaboration with Sukadev Bhattiprolu, IBM.

> netns: denis driving, daniel, benjamin
>

Right, Den Lunev, Daniel Lezcano, Pavel Emelyanov and Benjamin Thery.
Den already filed a proposal for a paper/talk, here is how it looks
like. Again, it is editable, so send your improvements.

> Network namespace for Linux
>

> The paper outlines the effort to implement a network virtualization in
> the Linux kernel. This is a part of on-going effort to bring the
> containers functionality into Linux. A container is an isolated
> user-space partition, which performs like a stand-alone server, with
> multiple containers co-existing on a single Linux box. Containers can
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What if we organise a BoF, outlining the current status and future
directions. Something like "Linux Kernel Containers development status"
or some better title. I'd say "Containers" here instead of "Namespaces"
(or use "Containers/Namespaces") because containers is easier term from
my PoV.

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> This *probably* isn't enough for a full paper. So it could
> go under namespace status paper. But there is quite a bit
> to say just by listing the existing proposed solutions (at
> least 4 I can think of offhand) and their shortcomings.
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> I suspect many people on this list have their own ideas on
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> could each write their own paper, or work together on a single
> combined paper laying out the possibilities
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Actually we already followed that way -- Andrey Mirkin has filed a
paper/talk proposal today, titled "Containers checkpointing and live
migration". Guess Dave (and/or Oren Laadan, and/or Cedric, maybe
somebody else as well) could come with their own talks/papers as well.

Still can't make up my mind if we need a BoF on the subject or not.

> user namespace approaches: serge
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> cgroups and containers: Paul Menage driving?, Balbir?
> A cgroups update could either be its own paper or joined
> with the namespaces status paper.
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> Paul were you considering a separate paper to discuss
> the cgroups and namespace management as laid out in
> your Sep 03 2007 email "Thoughts on Namespace / Subsystem
> unification"?
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Not too much stuff about resource management, i.e. user memory
controller, kernel memory controller, other per-namespace limits etc. Or
is it all covered by cgroups? Or it's not what we are currently targeting?

Regards, Kir.

_____

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

---

Subject: Re: OLS paper topics
Posted by serue on Thu, 24 Jan 2008 22:50:02 GMT
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Quoting Kir Kolyshkin (kir@openvz.org):
>
>
> Serge E. Hallyn wrote:
> > Hi,
> >
> > here is a list of topics which I believe people are interested in
> > writing papers on. I'm listing names of those who I think are
> > interested in writing them. Sorry if I leave anyone off of a topic
> > they're interested in. However it seems to me it would be best if we
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> > I will submit for a 1-day mini-summit. Some interesting
> > remaining topics for the mini-summit would include device
> > namespaces, ttys and syslog, and lots of checkpoint/restart.

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>
> That's right, obviously the title of the mini-summit would be something
> like "Linux Kernel Containers".

Attached is what I currently had for a proposal to send to the OLS
committee. (Please feel free to edit and add to the wiki)

I just took guesses at moderator names because the OLS CFP asks for
them. If someone else (Kir? Cedric?) wants to moderate the namespaces
part that's fine with me.

> > Does anyone think we don't need one of these at ols? Or that
> > we do?
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> > Is anyone interested in organizing the summit - coming out
> > with an agenda, sending out announcements, etc - either
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> Guess I can help a bit with organizing this. To that effort, I have put
> up a wiki page:
> http://wiki.openvz.org/Containers/Mini-summit_2008

Cool, thanks.

> We also need to have some kind of a list of attendees. So far I came
> with 12 names listed on that page, please feel free to edit/add more.
> > pidns: (Pavel and Suka)
> > I've heard it called a tutorial, though I think some of the
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> > PID namespaces is a relatively new Linux kernel feature merged in

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sounds more normal. Though I'm not sure which is more "correct"

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> directions. Something like "Linux Kernel Containers development status"

> or some better title. I'd say "Containers" here instead of "Namespaces"
> (or use "Containers/Namespaces") because containers is easier term from
> my PoV.

That has a different effect. A BoF would also be good, but if there are
parts about the direction with namespaces about which we want some
guidance from the community (which I think there are - sysfs, namespace
entering, checkpoint/restart in general) then we may get more people at
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I figure at least a third of the mini-summit will be c/r. Separate
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different approach. OLS could put them all together in one block. Then
at a BoF or a beer bof, after all have been presented and everyone has
heard all the arguments, we can discuss the way to go forward.

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> > unification"?
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> Not too much stuff about resource management, i.e. user memory
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for a paper and yes i figured one cgroup paper would be about the
various cgroups. But I'm pretty far out of touch with that work so
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out of that block :)

thanks,
-serge

Linux Kernel Containers Developer Summit

* Topic:

 Namespaces, containers, cgroups, and container checkpoint restart.

* Description:

 Development for namespaces and cgroups is well underway in the
 upstream kernel. To keep momentum going and keep the loosely
 knit teams of developers well-coordinated, a physical meeting in
 which to discuss future development plans is needed.
 Additionally, we are at a point where crucial decisions about
 the nature of a "container object" and about the checkpoint
 restart design need to be made.

 A final set of topics will be decided upon through mailing lists
 ahead of time, but potential topics include:

  Handling filesystem/namespace synchronization
  Handling of /proc and /sysfs within containers
  Additional needed namespaces (i.e. Device namespace)
  Nature of a 'container' - kernel object or userspace fiction
  Additional cgroups and their design
  How to initiate and synchronize checkpoint/restart

* Moderators:

 (These are just suggestions, please let me know if you do
 or do not want to moderate)

Namespaces/containers: Serge Hallyn
cgroups: Paul Menage
Checkpoint/restart: Dave Hansen

* Expected Time Required:

 One day

* Number of Attendees:

 approx 30

* Technical Requirements:

 * Projector and screen
 * whiteboard
 * network access
 * power for laptops.

_____

File Attachments
1) minisummit.proposal, downloaded 418 times

Subject: Re: OLS paper topics
Posted by kir on Fri, 25 Jan 2008 00:13:35 GMT
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Serge E. Hallyn wrote:
> Quoting Kir Kolyshkin (kir@openvz.org):
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>> like "Linux Kernel Containers".
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> Attached is what I currently had for a proposal to send to the OLS
> committee. (Please feel free to edit and add to the wiki)
>

Looks really good from the first glance.

I put it to wiki as
http://wiki.openvz.org/Containers/Mini-summit_2008/Proposal and hope we
will take a closer look tomorrow (as it's 3am here now:)).

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> part that's fine with me.
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Thanks! Fixed.
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> Looks good to me.
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> entering, checkpoint/restart in general) then we may get more people at
> a paper talk than a bof. A Bof will basically get people particularly
> interested in either using or developing the feature.
>

Makes sense indeed.

My primary concern about talk vs. BoF was/is -- do we have enough
quality material/content to write a "minimum of 6 pages and a maximum of
15 pages (properly formatted)" paper which is required for a talk (but
not for a BoF). Well, a lot has happened since last year, maybe enough
for a paper.

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> heard all the arguments, we can discuss the way to go forward.
>

Sounds like a plan, especially the beer part ;)
>
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>>>
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_____
Containers mailing list
Containers@lists.linux-foundation.org
https://lists.linux-foundation.org/mailman/listinfo/containers

Subject: Re: OLS paper topics
Posted by kir on Wed, 30 Jan 2008 08:50:59 GMT

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Serge E. Hallyn wrote:
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>> Serge E. Hallyn wrote:
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>> That's right, obviously the title of the mini-summit would be something
>> like "Linux Kernel Containers".
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> Attached is what I currently had for a proposal to send to the OLS
> committee. (Please feel free to edit and add to the wiki)
>

Some people have made a few minor changes in the version at wiki. I
guess no more major changes will be done. Here it is:

== Topic ==

Namespaces, containers, cgroups, and container checkpoint/restart.

== Description ==

Development for namespaces and cgroups is well underway in the
mainline kernel. To keep momentum going and keep the loosely
knit teams of developers well-coordinated, a physical meeting in
which to discuss future development plans is needed.
Additionally, we are at a point where crucial decisions about
the nature of a "container object" and about the checkpoint/restart
design need to be made.

A final set of topics will be decided upon through mailing lists
ahead of time, but potential topics include:
* Handling filesystem/namespace synchronization
* Handling of /proc and /sysfs within containers
* Additional needed namespaces (i.e. device namespace)
* Nature of a 'container' — kernel object or userspace fiction
* Additional cgroups and their design
* How to initiate and synchronize checkpoint/restart
* How to enter a 'container' ?

== Moderators ==
{{Out|These are just suggestions, please edit here or let us know if you
do or do not want to moderate.}}

* Namespaces/containers: Serge Hallyn, Cedric Le Goater
* cgroups: Paul Menage
* Checkpoint/restart: Dave Hansen, Cedric Le Goater

== Expected Time Required ==

One day.

== Number of Attendees ==

Approximately 30.

== Technical Requirements ==

* Projector and screen
* Whiteboard
* Network access
* Power for laptops
* doughnuts and croissants for participants

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

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Posted by Balbir Singh on Wed, 30 Jan 2008 08:58:13 GMT
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> * Nature of a 'container' — kernel object or userspace fiction
> * Additional cgroups and their design
> * How to initiate and synchronize checkpoint/restart
> * How to enter a 'container' ?

>

Resource Management for containers?

> == Moderators ==
> {{Out|These are just suggestions, please edit here or let us know if you
> do or do not want to moderate.}}
>
> * Namespaces/containers: Serge Hallyn, Cedric Le Goater
> * cgroups: Paul Menage
> * Checkpoint/restart: Dave Hansen, Cedric Le Goater
>

Resource Management? - I don't mind moderating that if it happens to be
included in the summit or can we merge it with cgroups?

> == Expected Time Required ==
>
> One day.
>
> == Number of Attendees ==
>
> Approximately 30.
>
> == Technical Requirements ==
>
> * Projector and screen
> * Whiteboard
> * Network access
> * Power for laptops
> * doughnuts and croissants for participants
> _____
> Containers mailing list
> Containers@lists.linux-foundation.org
> https://lists.linux-foundation.org/mailman/listinfo/containers

--
 Warm Regards,
 Balbir Singh
 Linux Technology Center
 IBM, ISTL

Subject: Re: OLS paper topics

Posted by Cedric Le Goater on Wed, 30 Jan 2008 09:53:26 GMT

View Forum Message <> Reply to Message

>> == Topic ==
>>
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>>
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>
> Resource Management for containers?

Yes we need that. There are a few possible conflicts in requirements
that need to be discussed. For example, a resource management req
would be to be able to move a process from one group to another and
C/R wouldn't.

>> == Moderators ==
>> {{Out|These are just suggestions, please edit here or let us know if you
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>>
>> * Namespaces/containers: Serge Hallyn, Cedric Le Goater
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>> * Checkpoint/restart: Dave Hansen, Cedric Le Goater

IMO, 2 is a minimum to get the work done (it will require a minimum of
organization) but the moderators don't necessarily have to be from the
same team.

Or, having some one in charge of the logistics would be better ? In that

case, you can remove me from the moderators.

> Resource Management? - I don't mind moderating that if it happens to be
> included in the summit or can we merge it with cgroups?

Good thing.

Cheers,

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

Subject: Re: OLS paper topics
Posted by Balbir Singh on Wed, 30 Jan 2008 09:59:22 GMT
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Cedric Le Goater wrote:
>
>>> == Topic ==
>>>
>>> Namespaces, containers, cgroups, and container checkpoint/restart.
>>>
>>> == Description ==
>>>
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>>
>> Resource Management for containers?

>
> Yes we need that. There are a few possible conflicts in requirements
> that need to be discussed. For example, a resource management req
> would be to be able to move a process from one group to another and C/R
> wouldn't.

Cedric,

Why is that a conflict w.r.t resource management, isn't that more of a cgroup
feature - task migration. We need task migration for resource management, but
task migration is a system administrator/management function. I don't see the
conflict, but may be I am missing something very obvious.

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> case, you can remove me from the moderators.
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>> Resource Management? - I don't mind moderating that if it happens to be
>> included in the summit or can we merge it with cgroups?
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> Good thing.
>
> Cheers,
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> C.

--
 Warm Regards,
 Balbir Singh
 Linux Technology Center
 IBM, ISTL

_____
Containers mailing list
Containers@lists.linux-foundation.org

Subject: Re: OLS paper topics
Posted by Dhaval Giani on Wed, 30 Jan 2008 10:43:36 GMT

View Forum Message <> Reply to Message

On Wed, Jan 30, 2008 at 02:28:13PM +0530, Balbir Singh wrote:
> Kir Kolyshkin wrote:
> > Serge E. Hallyn wrote:
> >> Quoting Kir Kolyshkin (kir@openvz.org):
> >>
> >>> Serge E. Hallyn wrote:
> >>>
> >>>> mini-summit:
> >>>>   I will submit for a 1-day mini-summit. Some interesting
> >>>>   remaining topics for the mini-summit would include device
> >>>>   namespaces, ttys and syslog, and lots of checkpoint/restart.
> >>>>
> >>> That's right, obviously the title of the mini-summit would be something
> >>> like "Linux Kernel Containers".
> >>>
> >>
> >> Attached is what I currently had for a proposal to send to the OLS
> >> committee. (Please feel free to edit and add to the wiki)
> >>
> >
> > Some people have made a few minor changes in the version at wiki. I
> > guess no more major changes will be done. Here it is:
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> >
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> Resource Management for containers?
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> > == Moderators ==
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> > * Namespaces/containers: Serge Hallyn, Cedric Le Goater
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> > * Checkpoint/restart: Dave Hansen, Cedric Le Goater
> >
>
> Resource Management? - I don't mind moderating that if it happens to be
> included in the summit or can we merge it with cgroups?
>

I don't mind helping out here. Could you add me to the list as well?

Thanks,
--
regards,
Dhaval

_____

Subject: Re: OLS paper topics
Posted by Cedric Le Goater on Wed, 30 Jan 2008 12:57:20 GMT
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> Why is that a conflict w.r.t resource management, isn't that more of a cgroup
> feature - task migration. We need task migration for resource management, but
> task migration is a system administrator/management function. I don't see the
> conflict, but may be I am missing something very obvious.

This is something we may want to dig. from a checkpoint/restart POV, a
'container' acts a whole and you don't want tasks to be migrated from a
container to another. They have to share the same container properties.

it might be possible to solve that issue from user space or by making sure

a set of cgroups are dedicated to a container.

C.

_____

Subject: Re: OLS paper topics
Posted by serue on Wed, 30 Jan 2008 15:40:43 GMT
View Forum Message <> Reply to Message

Quoting Dhaval Giani (dhaval@linux.vnet.ibm.com):
> On Wed, Jan 30, 2008 at 02:28:13PM +0530, Balbir Singh wrote:
> > Kir Kolyshkin wrote:
> > > Serge E. Hallyn wrote:
> > >> Quoting Kir Kolyshkin (kir@openvz.org):
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> > >>> Serge E. Hallyn wrote:
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> > >>> That's right, obviously the title of the mini-summit would be something
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> > >>>
> > >>
> > >> Attached is what I currently had for a proposal to send to the OLS
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> > > * Checkpoint/restart: Dave Hansen, Cedric Le Goater
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> > Resource Management? - I don't mind moderating that if it happens to be
> > included in the summit or can we merge it with cgroups?
> >
>
> I don't mind helping out here. Could you add me to the list as well?

Ok I figured resource mgmt and cgroups would be combined, but I'm fine
splitting them. So can I do:

cgroups: Paul Menage, Balbir
Resource Management: dhaval, someone from openvz (Pavel?)

?

thanks,
-serge
_____
Containers mailing list
Containers@lists.linux-foundation.org
https://lists.linux-foundation.org/mailman/listinfo/containers

Subject: Re: OLS paper topics
Posted by serue on Wed, 30 Jan 2008 15:48:01 GMT
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Quoting Cedric Le Goater (clg@fr.ibm.com):
>
>> Why is that a conflict w.r.t resource management, isn't that more of a
>> cgroup
>> feature - task migration. We need task migration for resource management,
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>
> This is something we may want to dig. from a checkpoint/restart POV, a
> 'container' acts a whole and you don't want tasks to be migrated from a
> container to another. They have to share the same container properties.
> it might be possible to solve that issue from user space or by making sure
> a set of cgroups are dedicated to a container.

This is certainly a good topic for the mini-summit.

The simple answer of course is you create a container for the virtual
server, then create containers within those around the applications you
want to checkpoint. But depending on logistics (i.e. per-container
swapfiles) this could get complicated.

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

Subject: Re: OLS paper topics
Posted by serue on Wed, 30 Jan 2008 15:52:20 GMT
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Quoting Balbir Singh (balbir@linux.vnet.ibm.com):
> Cedric Le Goater wrote:
> >
> >>> == Topic ==
> >>>
> >>> Namespaces, containers, cgroups, and container checkpoint/restart.
> >>>
> >>> == Description ==
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> >>
> >> Resource Management for containers?
> >
> > Yes we need that. There are a few possible conflicts in requirements
> > that need to be discussed. For example, a resource management req
> > would be to be able to move a process from one group to another and C/R
> > wouldn't.
>
> Cedric,
>
> Why is that a conflict w.r.t resource management, isn't that more of a cgroup
> feature - task migration.

Oh, no - I think Cedric was saying that tasks need to be moved from
container2 to container3 on the system for resourcemgmt - that is,
reclassified, not migrated.

But for task migration we have resources tied to containers and
processes are using those resources, so we can't migrate those tasks to
another container in that case.

That's probably solved at the cgroup->container bindings, no? i.e.
ns_cgroup 2854 is my container and it's in a cpuset_cgroup tied to cpus
2 and 3, now i want to open it up to cpus 1-4, so i leave the tasks in
ns_cgroup 2854 but move it to another cpuset...

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> >>> == Moderators ==

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> >
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> >
> > Good thing.
> >
> > Cheers,
> >
> > C.
>
>
> --
> Warm Regards,
> Balbir Singh
> Linux Technology Center
> IBM, ISTL
>
>
> _____
> Containers mailing list
> Containers@lists.linux-foundation.org
> https://lists.linux-foundation.org/mailman/listinfo/containers
_____
Containers mailing list
Containers@lists.linux-foundation.org
https://lists.linux-foundation.org/mailman/listinfo/containers

Subject: Re: OLS paper topics
Posted by Balbir Singh on Wed, 30 Jan 2008 16:54:59 GMT
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Serge E. Hallyn wrote:
> Quoting Balbir Singh (balbir@linux.vnet.ibm.com):
>> Cedric Le Goater wrote:

>>>>> == Topic ==
>>>>>
>>>>> Namespaces, containers, cgroups, and container checkpoint/restart.
>>>>>
>>>>> == Description ==
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>>> would be to be able to move a process from one group to another and C/R
>>> wouldn't.
>> Cedric,
>>
>> Why is that a conflict w.r.t resource management, isn't that more of a cgroup
>> feature - task migration.
>
> Oh, no - I think Cedric was saying that tasks need to be moved from
> container2 to container3 on the system for resourcemgmt - that is,
> reclassified, not migrated.
>

OK, so the concern is with automatic reclassification

> But for task migration we have resources tied to containers and
> processes are using those resources, so we can't migrate those tasks to
> another container in that case.
>
> That's probably solved at the cgroup->container bindings, no? i.e.
> ns_cgroup 2854 is my container and it's in a cpuset_cgroup tied to cpus
> 2 and 3, now i want to open it up to cpus 1-4, so i leave the tasks in

> ns_cgroup 2854 but move it to another cpuset...
>

Yes, I agree

--
 Warm Regards,
 Balbir Singh
 Linux Technology Center
 IBM, ISTL

_____

Subject: Re: OLS paper topics
Posted by Dhaval Giani on Thu, 31 Jan 2008 07:49:16 GMT

View Forum Message <> Reply to Message

On Wed, Jan 30, 2008 at 09:40:43AM -0600, Serge E. Hallyn wrote:
> Quoting Dhaval Giani (dhaval@linux.vnet.ibm.com):
>
> Ok I figured resource mgmt and cgroups would be combined, but I'm fine
> splitting them. So can I do:
>
> cgroups: Paul Menage, Balbir
> Resource Management: dhaval, someone from openvz (Pavel?)
>
> ?

Fine with me.

>
> thanks,
> -serge

--
regards,
Dhaval

_____