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

Hmm... "PID namespaces are a relatively new Linux kernel feature"
sounds more normal. Though I'm not sure which is more "correct"

> > 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.

Looks good to me.

>
>
> > 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
> > be used for resource management, network security and in
> > high-performance computing.

> >
> > Making several instances of the Linux network stack, based on the
> > namespace concept, is a big challenge, but it is required to build a
> > full featured container. We will show how to configure and use a new
> > instance of the network stack, how the feature is architected and
> > implemented, and what is the current state of the art.

> >
> > In collaboration with Daniel Lezcano, IBM, Benjamin Thery, Bull, and
> > Pavel Emelyanov, OpenVZ.

> >>
>
> > 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.

> >
>
> > 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.

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
a paper talk than a bof. A Bof will basically get people particularly
interested in either using or developing the feature.

>
> > 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

> >
>

> 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.

I figure at least a third of the mini-summit will be c/r. Separate papers may actually be the way to go, so long as each paper presents a 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.

>
> > 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"?
> >
>
> 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?

I was figuring that each of those cgroups wouldn't have enough material 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 could be completely off base. The 'ns/cgroup unification'/administration topic is the one that interests me the most 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.

Containers mailing list

Containers@lists.linux-foundation.org

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

File Attachments

1) [minisummit.proposal](#), downloaded 349 times
