How LPC went virtual

Jonathan Corbet
LWN.net
corbet@lwn.net

This is a discussion session!

Please break in with

- questions
- comments
- complaints
- ...anytime!

Login

LPC 2020 - Overview

August 25-27, Halifax, Nova Scotia, Canada

The Linux Plumbers Conference for 2020 has been set for August 25-27 at the Halifax Marriott Harbourfront Hotel.

Note that Halifax, NS is in the AST time zone (UTC -4). In August, Linux Plumbers Conference will take place in ADT time zone (UTC -3).

Sponsorship opportunities

Linux Plumbers Conference would not be possible without our sponsors. Many thanks to all the great organizations that have supported Linux Plumbers Conference over the years.

New sponsorship opportunities are available for 2020! We hope that your organization will consider joining our amazing growing list of sponsors this year. Find out more here.

Social Media

Please follow us on Twitter for any last minute updates and to stay connected: @LinuxPlumbers

Oh …. s*** ...

Problem 1:
facing the issue

Will people come?

Next problem:
getting out of the existing contracts

Cancel or go online?

How would we do it online?

Proprietary platforms?

...or go for free software?

Video conferencing with Jitsi

By **Jonathan Corbet**
March 24, 2020

Spring is coming to the northern hemisphere, and one's thoughts naturally turn to ... being locked up inside the house and not allowed to go anywhere. That has, in turn, led to an increasing interest in alternative mechanisms for keeping up with family and coworkers, especially video conferencing. There are a number of proprietary video-conferencing services out there; your editor decided to look into what solutions exist in the free-software realm. It turns out that there are a few; the first to be looked at is Jitsi.

Jitsi is, in fact a collection of components, written mostly in Java (and JavaScript) and released under the Apache license. At the core is Jitsi Videobridge, which implements multi-participant video conferences, and Jitsi Meet, which implements the client side. Various other components live under the hood and are likely to only come to one's attention if something goes wrong with them. There is also a Jitsi Desktop application, but that has been superseded by the browser interface and is considered "legacy" at this point.

Getting it going

Brave folks can certainly install the whole thing from source; for the rest of us, pre-built packages are limited to the Debian and Ubuntu distributions. Your editor installed that version on a Debian 10 machine sitting out there in the cloud somewhere.

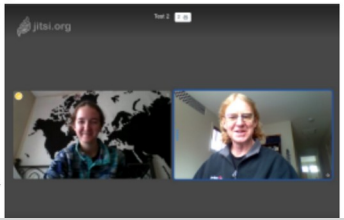
That installation did not go as easily as one might have liked. The (sparse) documentation suggests that the packages will perform the needed web-server setup, but a number of details were left as exercises for the reader. There is support for automating the setup of a Let's Encrypt certificate, but your editor did not try that. Once the server configuration was properly tweaked, it was possible to connect to the newly established bridge with an ordinary Firefox browser.

Running a single connection to a Jitsi server is a great way to admire one's own image on the screen, but it lacks something from the full conference experience. Unfortunately, when the second user connected, both users were immediately disconnected with a helpful "something went wrong" error, and an even more helpful "error 143" message on the server side. Some searching revealed this useful post stating that the Debian package installs the server in a misconfigured manner; once the suggested change was made, everything worked as expected.

The user experience

The Jitsi client runs fine in a standard web browser, with no need to install any plugins. In the default setup, a new user connecting to the server will see a screen inviting them to create a new meeting; typing any string into the field provided creates a "room" with that name (or joins a room with that name if it already exists). The curious can see this screen in action on the demo site set up to allow anybody to run a free conference.

After one joins a conference, the behavior is much like the proprietary services out there. It is possible to see a tiled view with all participants, or just the person who is speaking at any given time. There are buttons to mute audio and/or video, a separate area for text chat, and a button to "raise your hand" for attention. One cute feature is the ability to blur the background of one's outgoing video, though the result is somewhat ethereal.



Video and audio quality both seem to be quite good, though video suffers somewhat when there is a low-bandwidth connection involved. Jitsi claims that all data is encrypted between clients and the video bridge, though it goes through the bridge itself in the clear.

There is a screen-sharing option that can transmit the contents of a single window or the screen as a whole — though the latter leads to amusing effects if the conference itself is on-screen. The web

Video conferencing with Jitsi

By **Jonathan Corbet**
March 24, 2020

Spring is coming to the northern hemisphere, and one's thoughts naturally tu
being locked up inside the house and not allowed to go anywhere. That has, i
to an increasing interest in alternative mechanisms for keeping up with famil
coworkers, especially video conferencing. There are a number of proprietary
conferencing services out there; your editor decided to look into what solutions exist in the free-software
turns out that there are a few; the first to be looked at is Jitsi.

Jitsi is, in fact a collection of components, written mostly in Java (and JavaScript) and released under the A
license. At the core is Jitsi Videobridge, which implements multi-participant video conferences, and Jitsi M
implements the client side. Various other components live under the hood and are likely to only come to o
attention if something goes wrong with them. There is also a Jitsi Desktop application, but that has been s
by the browser interface and is considered "legacy" at this point.

Getting it going

Brave folks can certainly install the whole thing from source; for the rest of us, pre-built packages are limi
Debian and Ubuntu distributions. Your editor installed that version on a Debian 10 machine sitting out the
cloud somewhere.

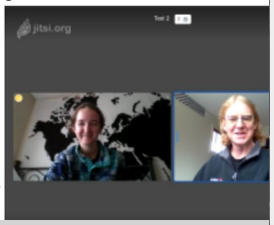
That installation did not go as easily as one might have liked. The (sparse) documentation suggests that th
packages will perform the needed web-server setup, but a number of details were left as exercises for the
There is support for automating the setup of a Let's Encrypt certificate, but your editor did not try that. O
server configuration was properly tweaked, it was possible to connect to the newly established bridge wit
ordinary Firefox browser.

Running a single connection to a Jitsi server is a great way to admire one's own image on the screen, but i
something from the full conference experience. Unfortunately, when the second user connected, both use
immediately disconnected with a helpful "something went wrong" error, and an even more helpful "error
message on the server side. Some searching revealed this useful post stating that the Debian package inst
server in a misconfigured manner; once the suggested change was made, everything worked as expected.

The user experience

The Jitsi client runs fine in a standard web browser, with no need to install any plugins. In the default setu
user connecting to the server will see a screen inviting them to create a new meeting; typing any string in
field provided creates a "room" with that name (or joins a room with that name if it already exists). The cu
see this screen in action on the demo site set up to allow anybody to run a free conference.

After one joins a conference, the behavior is much like the proprietary services out there. It is possible to
view with all participants, or just the person who is speaking at any given time. There are buttons to mute
and/or video, a separate area for text chat, and a button to "raise your hand" for attention. One cute feature is the ability to blur the background of one's outgoing video, though the result is somewhat ethereal.



Video and audio quality both seem to be quite good, though video suffers somewhat when there is a low-bandwidth connection involved. Jitsi claims that all data is encrypted between clients and the video bridge, though it goes through the bridge itself in the clear.

There is a screen-sharing option that can transmit the contents of a single window or the screen as a whole — though the latter leads to amusing effects if the conference itself is on-screen. The web

News from the source

Content
Weekly Edition
Archives
Search
Kernel
Security
Distributions
Events calendar
Unread comments

LWN FAQ
Write for us

Edition
Return to the Front page

LWN.net
User: Password: Log in | Subscribe | Register

Video conferencing with BigBlueButton

By **Jonathan Corbet**
April 10, 2020

While social distancing often comes naturally to free-software developers, there are still times when we wish to talk to each other. In the absence of community conferences, the next-best alternative is often video conferencing. While video conferences tend to be held using centralized, proprietary systems, there are free alternatives as well. LWN recently looked at Jitsi but this effort did not stop there; next on the list is BigBlueButton, a system that is oriented toward the needs of online educators but is applicable beyond that use case.

BigBlueButton is not a new project; it has been under development since 2007. That history shows in a number of ways; for example, the actual conferencing component was originally implemented in Flash and has only recently been supplemented by an HTML5/WebRTC-based solution. The code is licensed under the Lesser GPL; the web site doesn't say which version, but comments in the code say version 3 or later. The code itself is a massive collection of Java, Scala, and JavaScript (at least) code — almost 1,800 directories worth.

Installing BigBlueButton

The heavyweight nature of BigBlueButton shows in the installation instructions, which go on at some length. There is also a script to do all of that work, along with a suggestion to use the time-honored "`wget|bash`" execution method. Your editor used the script, but only after eyeballing it (thus guaranteeing that it is secure) and making a change as described below.

The system's server requirements are quite specific; in particular, only the Ubuntu 16.04 release is supported. BigBlueButton wants at least 8GB of memory ("with swap enabled") and four CPUs. The installation script will refuse to run on any other distribution or if the system has less than 4GB of installed memory. Your editor capitulated on Ubuntu 16.04 but, being of a generally parsimonious nature, tweaked the script to make it accept the low-end 2GB virtual server used to test the system.

The Ubuntu 16.04 requirement is justified in the name of stability, and one can easily imagine that the developers wouldn't want to support this towering stack of software on multiple platforms. But that is an ancient distribution at this point, and it is losing support in one year; there is going to have to be a mass migration of BigBlueButton systems over the next twelve months.

The installation script takes about a half hour to get its job done. This work includes setting up a number of third-party repositories for needed components; the installation instructions correctly note that "the default version of ffmpeg in Ubuntu 16.04 is old", for example, so the script obtains a more current version from elsewhere. By the end of the process, not only was the software installed, but the script had helpfully obtained a TLS certificate for the server from Let's Encrypt. Those trying this at home should note that BigBlueButton can take several minutes to actually get started after being launched; they should not assume quickly that the installation has failed.

While BigBlueButton handles the conferencing tasks, it does not concern itself with front-end tasks like managing "rooms" or authenticating users. There is, instead, a reasonably well-documented API that is intended to be used by the front end. Given its roots in the educational community, it is not entirely surprising that applications like Moodle use this API to integrate with BigBlueButton. For those wanting to run a standalone system, there is a front end called Greenlight that can optionally be installed with the BigBlueButton installation script.

Greenlight, as it turns out, is a Ruby-on-Rails application, adding nicely to the menagerie of languages running on the server. And, while the installation script loads BigBlueButton directly onto the server, Greenlight gets installed as a Docker container. That makes management a bit interesting; after some digging, it turned out that the way to create an initial administrative account on the server is a command like this:

```
docker exec greenlight-v2 bundle exec rake \
       user:create["root","bbb-admin@lwn.net","password","admin"]
```

Running this command promptly threw the server into an existential out-of-memory crisis, making it clear that the project was serious when it said 4GB is necessary — even before a single video conference is established. Once this

News from the source

Content
Weekly Edition
Archives
Search
Kernel
Security
Distributions
Events calendar
Unread comments

LWN FAQ
Write for us

Edition
Return to the Front page

Decision: BigBlueButton

The worries begin

> “We recommend no single sessions exceed one hundred (100) users”
> https://docs.bigbluebutton.org/support/faq.html

Dealing with scalability issues

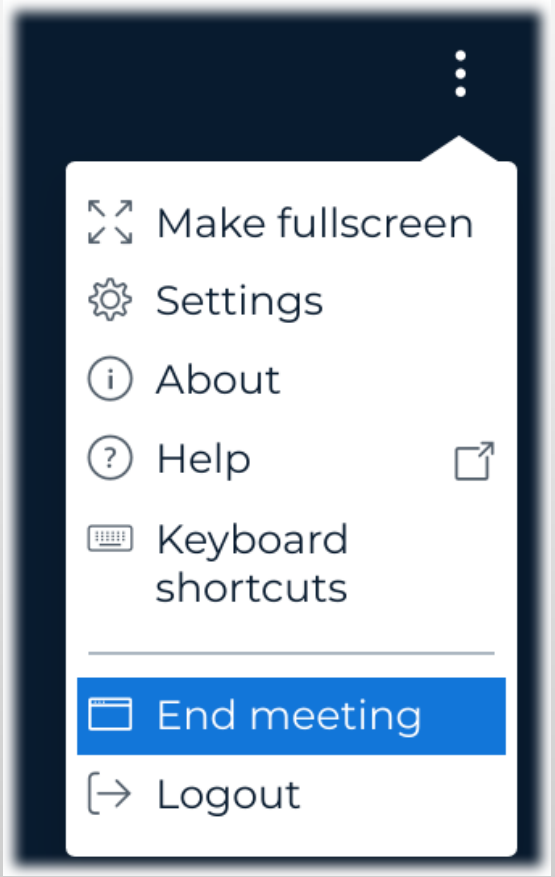
Talk to consultants (useless)
Two “town hall” events
Host the OSPM conference

Dealing with scalability issues

Talk to consultants (useless)
Two “town hall” tests
Host the OSPM conference

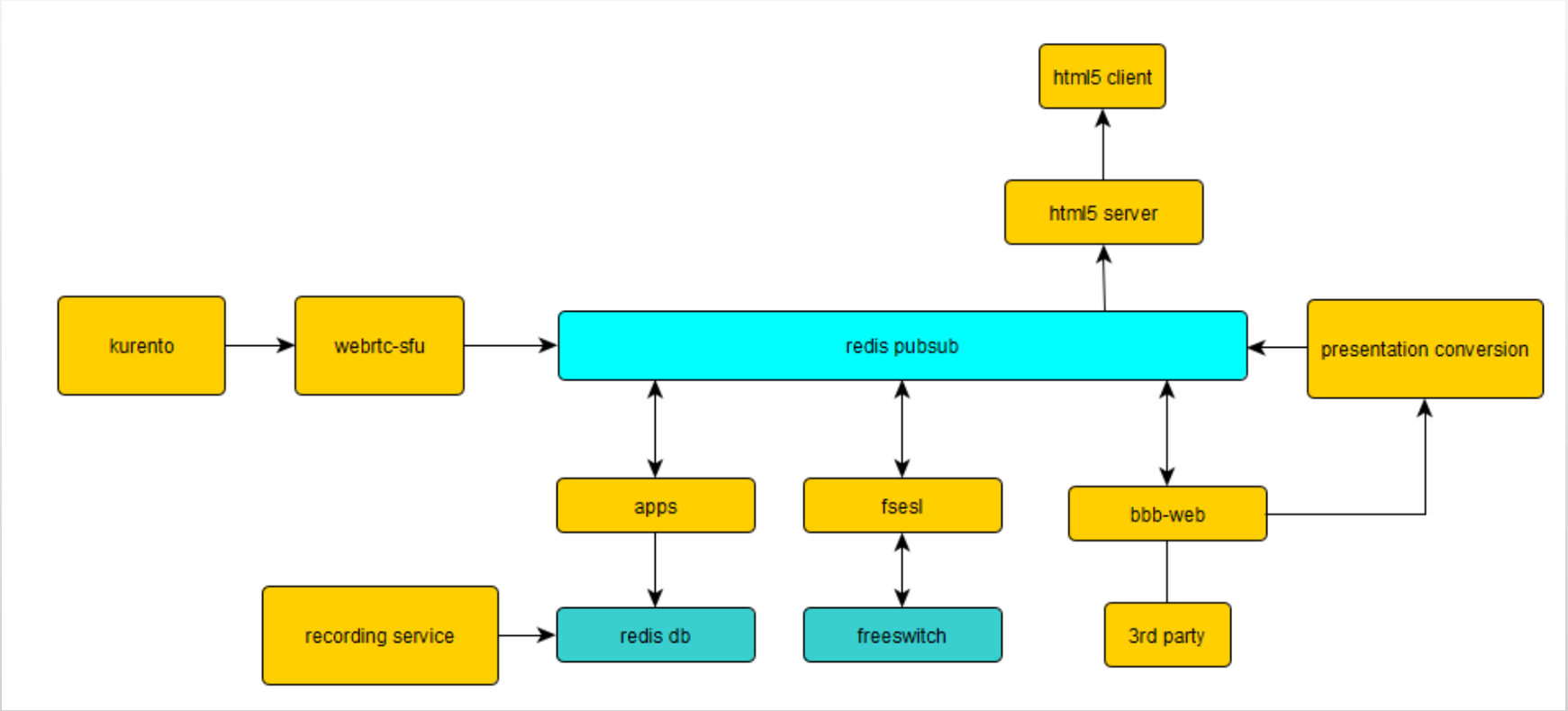
Eliminate plenary events
Add the YouTube streams
Encourage listen-only mode
Use massive servers

Footguns


Make fullscreen
Settings
About
Help
Keyboard shortcuts
End meeting
Logout

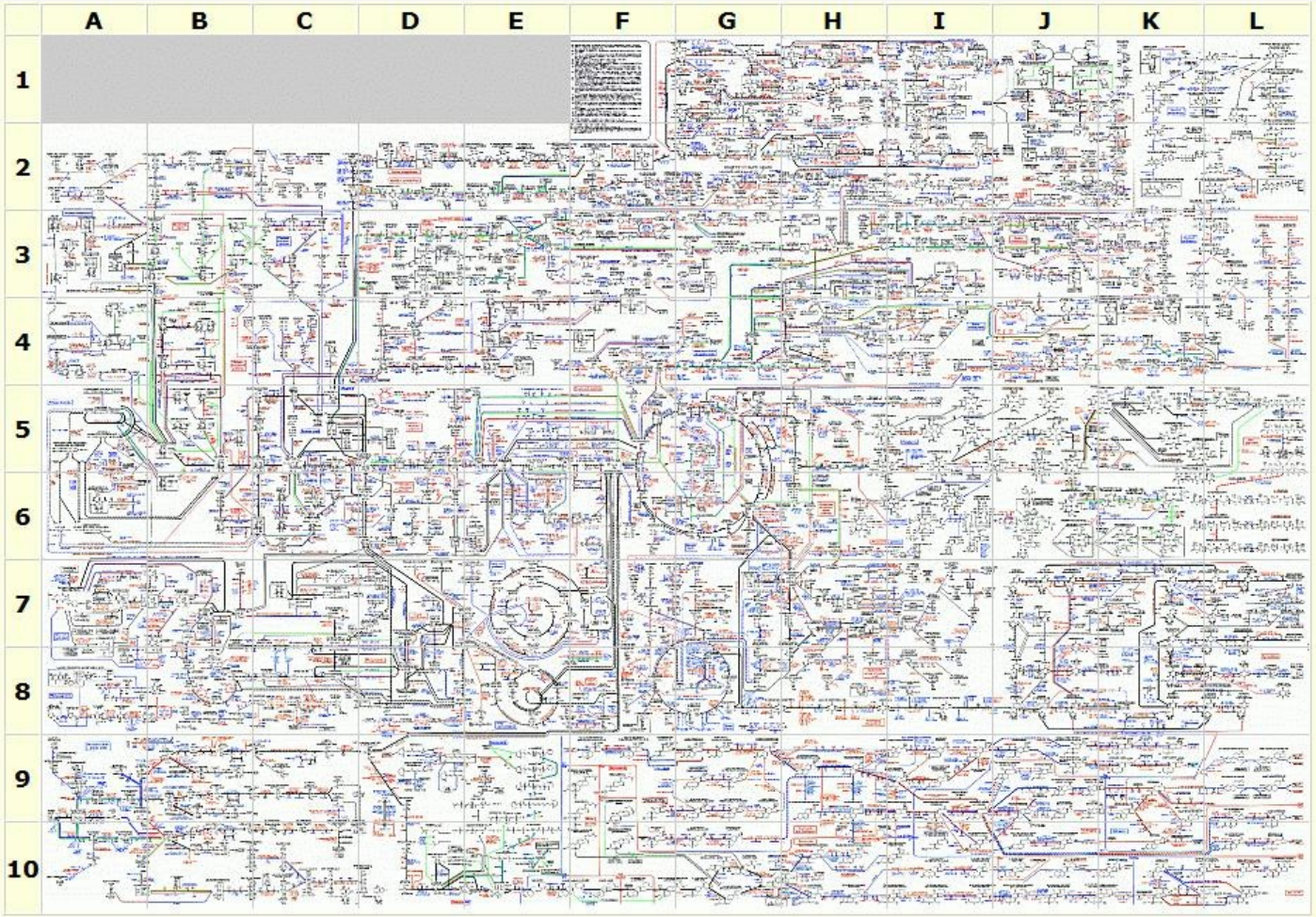

LWN

Complexity


html5 client
html5 server
kurento
webrtc-sfu
redis pubsub
presentation conversion
apps
fsesl
bbb-web
recording service
redis db
freeswitch
3rd party


LWN

Complexity



The front end

The default front-end is Greenlight

- Not a great conference experience

So...

- Write our own, how hard can it be?

- Private staff room
- Timetable
- LPC 2020 hackrooms
- Chat area
- Main LPC site
- Anti-harrassment policy
- Contact
- Log out

Welcome Jonathan Corbet!

This is the entry portal for the Linux Plumbers Conference 2020 meeting rooms. Look below for the list of what is happening currently.

The timetable below is focused on current (or near-future) sessions. Times are given in both UTC and our best guess as to your local time (which appears to be offset from UTC by -360 minutes). Click on the "join" button that will appear for any sessions that are currently ongoing.

The full schedule is always available on the main Linux Plumbers Conference site.

Thank you for participating in LPC 2020; please do not hesitate to contact us at contact@linuxplumbersconf.org should you have any difficulties, questions, or comments.

	Android MC	BOFs Session	Containers and Checkpoint/Restore MC	GNU Tools Track	LPC Refereed Track	Networking and BPF Summit — Sponsored by Facebook	Real-time MC
(now)			Overlayfs new features Amir Goldstein Join session		Configuring a kernel for safety critical applications Dr Elana Copperman Join session		
(now)	ION/DMABUF-Heaps Transition & DMABUF cache handling John Stultz Join session			The Light-Weight JIT Compiler Project Vladimir Makarov Join session		Break	
(now)							Handling stable releases once RT is merged Mark Brown Join session
09:39 [15:39 UTC]			Checkpoint-restoring containers with Docker inside Alexander Mikhalitsyn, Pavel Tikhomirov				
09:44 [15:44 UTC]	Partial Cache Flushing w/ DMA-BUFs Hridya Valsaraju	Break (15 minutes)			Break (15 minutes)		
09:54 [15:54 UTC]				Break (5 minutes)			
09:59 [15:59 UTC]	Update on libcamera in AOSP Laurent Pinchart	LLVM BOF Nick Desaulniers, Behan Webster Join session	Break	Project Ranger Update Andrew MacLeod, Aldy Hernandez	Core Scheduling: Taming Hyper-Threads to be secure Vineeth Remanan Pillai, Julien Desfossez, Joel Fernandes	Evaluation of tail call costs in eBPF Clément Joly Join session	Continuous Integration for mainline Real-Time Linux Mr Bastian Germann
10:09 [16:09 UTC]			Fast checkpointing with criu-image-streamer Nicolas Viennot				
10:14 [16:14 UTC]	State of Android on Mainline Kernels Sumit Semwal, Satya Tangirala			Break (5 minutes)			
10:24 [16:24 UTC]							The usage of PREEMPT_RT in safety-critical systems: what do we need to do? Mr Lukas Bulwahn
10:29 [16:29 UTC]	Incremental Filesystem Paul Lawrence		Isolated dynamic user namespaces Stéphane Graber, Christian Brauner	Tutorial: GNU poke, what is new in 2020 Jose E. Marchesi			
10:44 [16:44 UTC]	Android Upstreaming TODOs (dm-user) David Anderson, Paul Lawrence, Palmer Dabbelt	Break (15 minutes)			Break (15 minutes)	xen-netfront and virtio_net XDP offloading Mr Denis Kirjanov	
10:49 [16:49 UTC]			Break				Break
10:59 [16:59 UTC]	BREAK						
11:09 [17:09 UTC]			pidfd & capabilities Christian Brauner		Data-race detection in the Linux kernel Marco Elver		Identifying Sources of OS

- Private staff room
- Timetable
- LPC 2020 hackrooms
- Chat area
- Main LPC site
- Anti-harrassment policy
- Contact
- Log out

Welcome Jonathan Cor

This is the entry portal for the Linux
meeting rooms. Look below for the

The timetable below is focused on
Times are given in both UTC and ou
(which appears to be offset from UT
"join" button that will appear for an
ongoing.

The full schedule is always available
Conference site.

Thank you for participating in LPC
contact us at contact@linuxplumb
difficulties, questions, or comments

	Android MC	BOFs Session	Con Checkpo
(now)			Overlayfs
(now)	ION/DMABUF-Heaps Transition & DMABUF cache handling		Amir Gol
(now)	John Stultz		Join
09:39 [15:39 UTC]	Join session		Checkpoi container inside
09:44 [15:44 UTC]	Partial Cache Flushing w/ DMA-BUFs	Break (15 minutes)	Alexande Pavel Tikh
09:54 [15:54 UTC]	Hridya Valsaraju		
09:59 [15:59 UTC]	Update on libcamera in AOSP	LLVM BOF	Break
10:09 [16:09 UTC]	Laurent Pinchart	Nick Desaulniers, Behan Webster	Fast chec criu-imag
10:14 [16:14 UTC]	State of Android on Mainline Kernels	Join session	Nicolas V
10:24 [16:24 UTC]	Sumit Semwal, Satya Tangirala		
10:29 [16:29 UTC]	Incremental Filesystem		Isolated c namespa
	Paul Lawrence		Stéphane Christian
10:44 [16:44 UTC]	Android Upstreaming TODOs (dm-user)	Break (15 minutes)	
10:49 [16:49 UTC]	David Anderson, Paul Lawrence, Palmer Dabbelt		Break
10:59 [16:59 UTC]	BREAK		pidfd & c
11:09 [17:09 UTC]			Christian

- Server/room status
- Private staff room
- Timetable
- LPC 2020 hackrooms
- Chat area
- Main LPC site
- Anti-harrassment policy
- Contact
- Log out

Server and room status

Server status

Server	status	Rooms	People
bbb0.2020.linuxplumbersconf.org	UP	2	84
bbb2.2020.linuxplumbersconf.org	UP	1	85
bbb3.2020.linuxplumbersconf.org	UP	1	51
bbb4.2020.linuxplumbersconf.org	UP	1	95
bbb5.2020.linuxplumbersconf.org	UP	1	68
bbb6.2020.linuxplumbersconf.org	UP	2	79
TOTAL		8	462

Room status

Room	Server	Type	Status	People	Listen	Video	Moderators	
Hackroom 1	bbb0.2020.linuxplumbersconf.org	hack	CLOSED					Start room
Hackroom 2	bbb2.2020.linuxplumbersconf.org	hack	CLOSED					Start room
Hackroom 3	bbb3.2020.linuxplumbersconf.org	hack	CLOSED					Start room
Hackroom 4	bbb4.2020.linuxplumbersconf.org	hack	CLOSED					Start room
Hackroom 5	bbb5.2020.linuxplumbersconf.org	hack	CLOSED					Start room
Staff room	bbb0.2020.linuxplumbersconf.org	private	RUNNING	1	1	0	Elena Zannoni	Join room
BOF1/Virtual-Room	bbb6.2020.linuxplumbersconf.org	session	RUNNING	22	10	0	Dhaval Giani, Lina Iyer, Steven Rostedt	Join room
GNU Tools track/Virtual-Room	bbb0.2020.linuxplumbersconf.org	session	RUNNING	83	40	5	Boqun Feng, David Edelsohn, Elena Zannoni, Frank Ch. Eigler, Jeremy Bennett, Jose E. Marchesi, Nick Desaulniers, Sarah Cook, Simon Marchi, Ulrich Weigand, YouTube Live	Join room
Microconference1/Virtual-Room	bbb4.2020.linuxplumbersconf.org	session	RUNNING	95	62	1	Amit Kucheria, Anna Schumaker, Guy Lunardi, Julia Lawall, Kate Stewart, Kevin Hilman, Rafael Wysocki, Sasha Levin, Shuah Khan, YouTube Live	Join room
Microconference2/Virtual-Room	bbb5.2020.linuxplumbersconf.org	session	RUNNING	68	35	2	Alex Williamson, Bjorn Helgaas, Danielle Costantino, Jörg Rödel, Lorenzo Pieralisi, YouTube Live	Join room
Microconference3/Virtual-Room	bbb6.2020.linuxplumbersconf.org	session	RUNNING	57	35	2	Christopher Friedt, Daniel Kiper, Drew Fustini, Karim Yaghmour, Laura Abbott, Palmer Dabbelt, Palmer Dabbelt, YouTube Live, atish patra	Join room
Networking and BPF Summit/Virtual-Room	bbb2.2020.linuxplumbersconf.org	session	RUNNING	85	69	0	Daniel Borkmann, David Miller, Luis Goncalves, Stephen Hemminger, YouTube Live	Join room
Refereed Track/Virtual-Room	bbb3.2020.linuxplumbersconf.org	session	RUNNING	51	39	0	Alexandre Chartre, Arnd Bergmann, Christian Brauner, Grant Likely, Jonathan Corbet, Mike Rapoport, Theodore Ts'o, YouTube Live	Join room

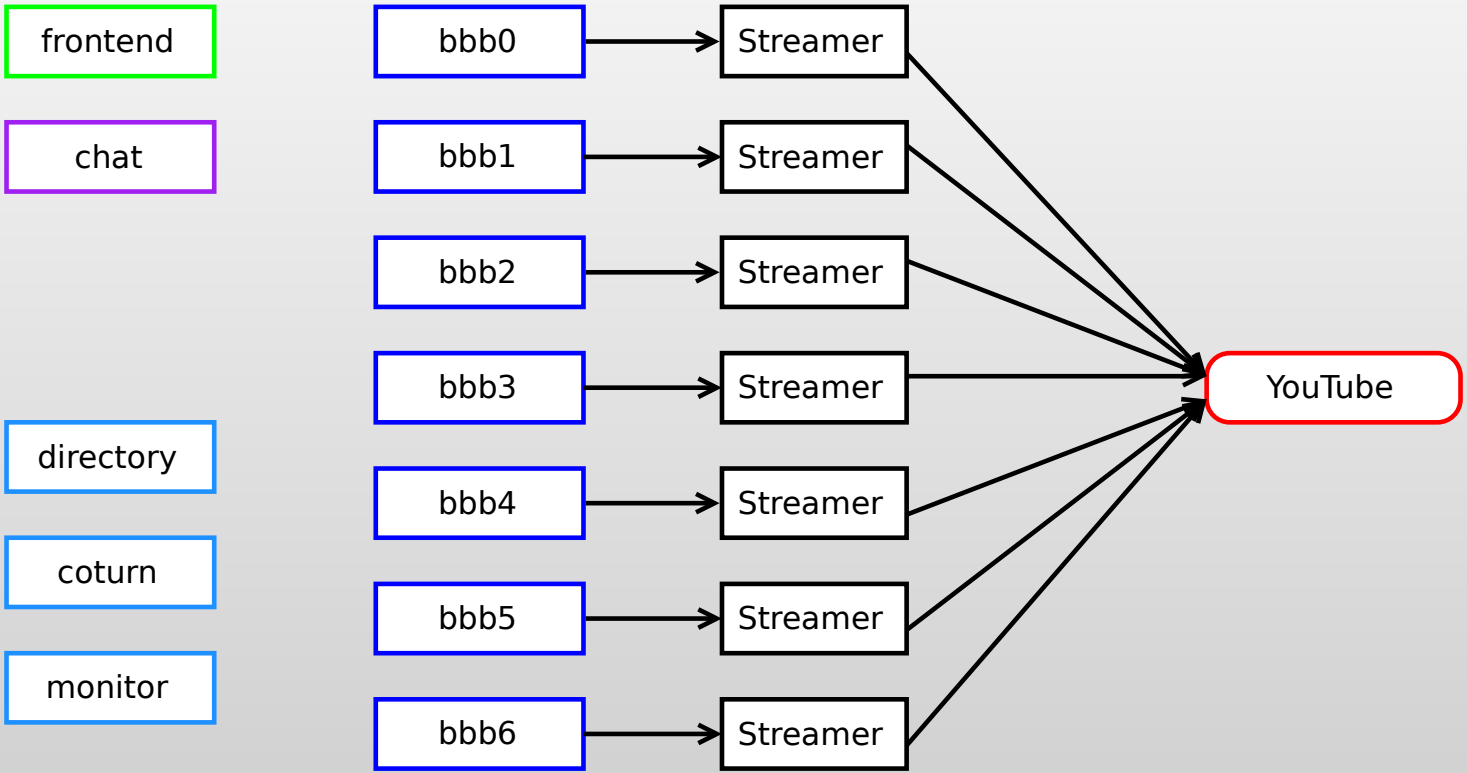
Version 0.01 released today

git://git.lwn.net/lpcfe.git

Are we creating yet another damn video call?

Preserving the LPC experience

Room protocols for discussions
Hackrooms
The RocketChat system


frontend
chat
directory
coturn
monitor
bbb0
bbb1
bbb2
bbb3
bbb4
bbb5
bbb6
Streamer
Streamer
Streamer
Streamer
Streamer
Streamer
Streamer
YouTube


LWN

Other questions

When do the sessions run?

- How long?
- Time zones?

Conclusions:

- Half days
- Optimize for Americas / Europe

Other questions

How many people do we let in?

- Ended up ~950!

Do we charge for entry?

Yes, $50

- Help ensure that registrants are serious

If we had to do this again

Gain some deep-down BBB expertise

If we had to do this again

Gain some deep-down BBB expertise
Worry less about number of attendees

If we had to do this again

Gain some deep-down BBB expertise
Worry less about number of attendees
Find a way to spread the schedule pain

If we had to do this again

Gain some deep-down BBB expertise
Worry less about number of attendees
Find a way to spread the schedule pain
Don’t go nuts with the server sizing

If we had to do this again

Gain some deep-down BBB expertise
Worry less about number of attendees
Find a way to spread the schedule pain
Don’t go nuts with the server sizing
Better integrate BBB and chat

If we had to do this again

Gain some deep-down BBB expertise
Worry less about number of attendees
Find a way to spread the schedule pain
Don’t go nuts with the server sizing
Better integrate BBB and chat
Stick with free-software solutions!

What else?

Thanks to the committee

Laura Abbott
Elena Zannoni
Kate Stewart
James Bottomley
Christian Brauner
Jonathan Corbet
Guy Lunardi
Paul McKenney
Ted Ts’o
Steve Rostedt
David Woodhouse

Eternal LPC?

We have this infrastructure and know-how

Set up a monthly LPC day

- Microconfs for groups that need one