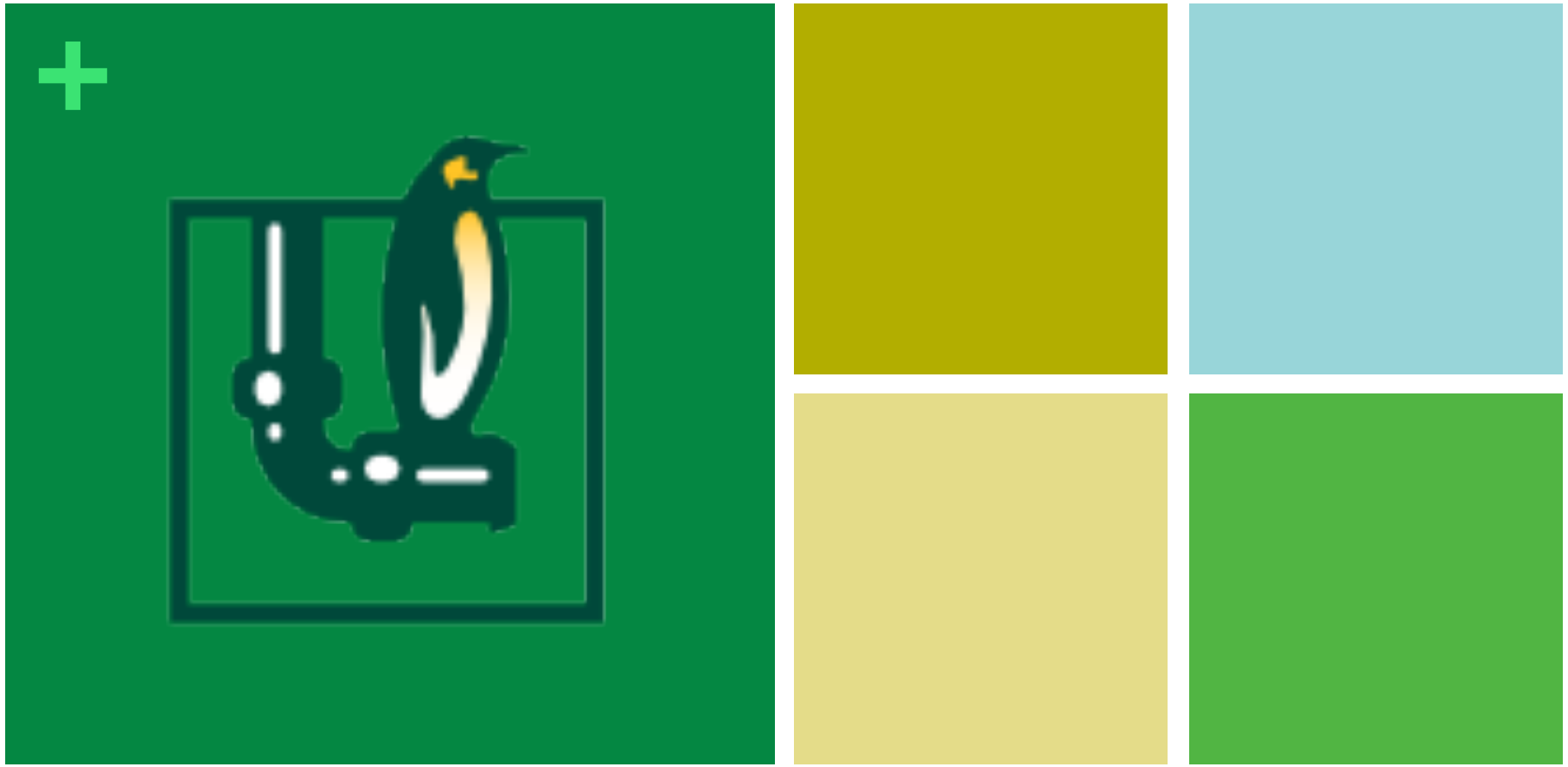

Linux Plumbers Conference 2012

Becky Bruce

Many thanks to the Linux Foundation

Angela Brown

Maresa Fowler

LPC 2012 Sponsors

LPC 2012 Committee

- Grant Likely (co-chair)
- Elena Zannoni (co-chair)
- Becky Bruce
- Matthew Locke
- Chris Mason
- Paul McKenney
- Nivedita Sihgnvi
- Jes Sorensen
- Ric Wheeler

Also, Volunteers:
Chris Johnston
Matt Waddel
Florent Thiery

Thanks to each of you for attending!

Please send feedback to contact@lists.linuxplumbersconf.org

If you're interested in strategic planning for LPC, sign up for lpc-future@lists.linuxplumbersconf.org

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PM Constraints
Thanking the Participants

- Intel
- Nvidea
- Linaro
- TI
- Qualcomm

PM Constraints Goals

- Capture use cases and requirements
  - Collating these will happen for publishing next week.
- Arrange follow up work
  - We'll review of design and summary documents on a interested party bases before posting them to linux-pm or elsewhere.
  - Email mark.gross@intel.com if you want to be CC'ed.

PM Constraints High Level Directions

- Generalized constraints enabling for all devices and buses (not exposed to user mode, not portable yet in common code)
- Want use case based performance QoS to be portable across CPU's
- Platform / board specific implementations interpreting use case QoS is desired.
- Want cpu-HZ constraint defined.
- Don't want thermal constraint.

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File & Storage Microconf

- System Storage Manager
- Libstoragemgmt
- Anaconda & Snapper
- Local FS State of the Union
- IO Hinting Discussion
- Weird NFS Tricks and Future topics

File & Storage Management Work

- Libstoragemgmt
  - Provides a library to do common block level operations on storage arrays
  - Full time developers and storage vendor participation
  - http://sourceforge.net/apps/trac/libstoragemgmt
- System Storage Manager
  - Btrfs like “ease of use” for xfs, ext4 on top of LVM
  - http://sourceforge.net/p/storagemanager/home/Home/

File & Storage Resources/Questions

- Resources
  - Linux Weekly News: http://lwn.net/
  - Mailing lists like linux-scsi, linux-ide, linux-fsdevel, etc
- Storage & file system focused events
  - LSF workshop
  - Linux Foundation events
  - Linux Plumbers
- IRC
  - irc.freenode.net
  - irc.oftc.net

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Networking Microconf Topics

- fq_codel
- Byte queue limits
- Data direct I/O
- Ethernet AVB
- TCP Transmit Loss Probe
- TCP congestion manager
- TCP multipath
- mq_prio queuing discipline
- Interfaces to HW QoS
- open-vswitch optimizations

Networking Points of Significance

- Solutions to BufferBloat are getting in kernel!
- Possibility of fq_codel being default queuing discipline
- TCP loss, path improvements (wireless,mobile included)
- Standard kernel APIs to control NIC features like rate limiting are needed
- Virtualization is pervasive in most of stack
- Active polling on sockets could be very significant feature

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Scheduler Microconf Summary

- How to keep CPU quiescent ?
- Sharing information with other frameworks
  - One place for CPU statistics : scheduler
  - Enhanced statistics made available to other frameworks (e.g. cpufreq/cpuidle)
  - Return a "preferred" CPU to other frameworks (e.g. timer/ workqueue)
- Remove last blocking use case for timer migration
- Tasks placement for asymmetric system
  - Goals is to quiesce CPU; different solutions (hotplug, scheduler)
  - Experimental results looks good; Need to clean patches for RFC
- Deadline scheduler and power consumption

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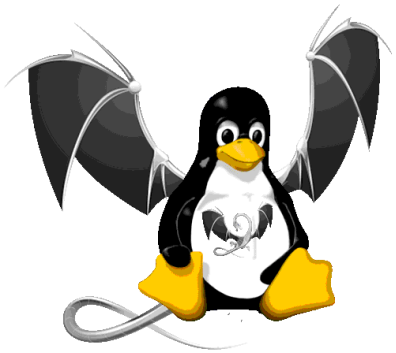
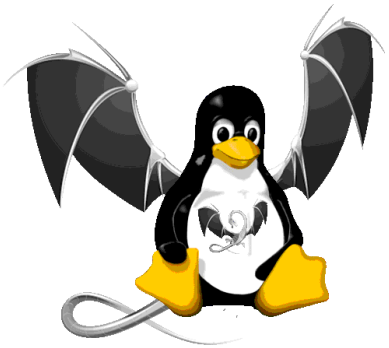
LLVM uConference

- Linux developers are interested in learning more about Clang/LLVM for kernel development
- Clang/LLVM is a single toolchain/framework which provides the features of otherwise separate tools (compiler, static analyzer, etc)
- Clang is very capable, but there still needs to be some work-arounds and patches to compile the Linux kernel
- Currently still need to use the gcc assembler and linker with Clang for the kernel



LLVM uConference

- The Clang/LLVM project is interested in making changes to support the LLVMLinux effort
- There are undocumented gcc options used in the kernel. The gcc project wants bug reports to fix their documentation.
- The gcc project also wants bug reports around vectorization issues that are found as vectorization work in being done on LLVM
- The LTP project wants new tests upstreamed to them too
- The biggest problem found with the LLVMLinux project was that it didn't have T-shirts available
- http://llvm.linuxfoundation.org



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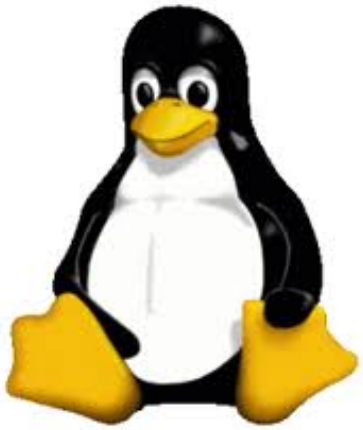
Android Challenges

- How can Android and standard Linux coexist
- How can Android benefit from standard Linux and vice versa
  - Kernel
  - Userland components
  - Apps



Android Graphics: Kernel

- Android adopted dmabuf for >= 3.4; compatibility layer for ion exists
  - dmabuf backed ion is the way to go
  - Nice to have dma-fence strictly ordered
  - Ion/dmabuf primitives need to be the same
- DRM display is likely to be useful for Android
- DRM display needs better documentation; might be an option for Android
  - DRM lacks a nuclear page flip
- hwcomposer could be useful for wayland: for prepare
  - If hwcomposer uses DRM: wayland can run on android kernel
- Is there a common ground for DRM GL and Android?
  - Very vendor specific! A black box
  - Wayland can use the vendor GL stacks with EGL wrapping stuff
  - Challenge: how can wayland use Android components? almost there
- hwcomposer could be used for prepare o wayland side
- Use KMS in hwcomposer

Render Android Apps on Wayland

- **Challenge:**
  - standard Linux community would benefit from getting this right
  - Running GNU/Linux and Android in parallel is solved for using separate framebuffers
  - How can we have an Android app draw to Wayland surface
- **Approaches:**
  - **Option 1:** surfaceflinger Proxy speaking wayland
    - Problem: needs porting for every Android release
  - **Option 2:** render the app as-is to separate framebuffer
  - **Problem: running multiple apps breaks Android API contracts, lifecycle/etc**
    - Solution: maybe run multiple android serice layers? Binder namespaces or something...?!?!?!
  - **Wanted: properly integrate with the windowmanager**
    - Requires to understand and map the Android window manager protocol to Wayland
    - **Seems it's Very Hard!**

Lighting Talks/Open Floor

Closing Party Logistics

- Tonight's party will be at El Vitral in the Gaslamp Quarter; you can easily walk elsewhere afterwards.
- Buses leaving from the front of the hotel at 6:00 and 6:30; last bus back to the hotel will leave El Vitral at 10:45.
- We have several vegetarian food options that should be clearly marked; ask a committee member or wait staff if you have questions
- Corn tortillas at El Vitral are gluten free; talk to your server if you have questions
- Issues or questions? Find a committee member

LPC 2013
New Orleans