LinuxCon Europe 2013

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Intro, Jim Zemlin

- Xen and KVM under the same roof after so many years
- best way to use Linux - is via collaborate development
- twitter has 100 public repos on github
- for every $1 spent on AWS, up to $4 not being spent on traditional IT
- 1B html5 capable browsers, 2M web developers writing apps
- gaming industry towards Linux and Open Source
- huge talent war for developers
- we need more lawyers who understand open source and collaboration.
- Linux Foundation: some sponsors here only to recruit
- Linux - code as poetry, better, faster, cheaper.

We won, what next?, Mark Hinkle, Citrix

- collaboration models are cool - being used in new & different domains.
- FOSS sharing model will be adopted by governments & helsthcareg
- Linux is running supercomputers, smartphones etc
- oss not a zero-sum game - companies add value on top of it.
- taking Linux and oss tols and finding ways to innovate in different categories.
- CERN LHC creates 30 petabytes of data a year
- Linux and OSS devs are setting the standard for the way tech will be developed
- Linux - platform for innovation
- let opensource culture be a lesson not just for software .... The future is open
- using oss to solve problems other domains: medicine, energy, etc
- the future is open and it's our responsibility to share what we know

Evolution Of The Twitter Stack, Chris Aniszczyk

- 500M tweets a day, 6k tweets a second, 145k tps in peak
- failure is an option
- "throwing machines on problem" isn't the best solution, twitter at LinuxCon
- Twitter is of course all running on Linux, why would you need anything else?
- Twitter find solution for their problem - JVM
- zipkin - gives you a visual representation where most of the time fulfill in request
- Mesos, Linux and cgroups - reshare cluster dinamically
- twitter have 2000+ employees, half of them are engineers
- Embrace open source, Incremental change, Data center as computer

Application Level Tracing and Debugging Tools

- gdb, valgrind - fine, but no overview and can change app behavior
- undo takes snapshots and you can run your program backwards
- strace, ltrace - solve some problems, but don't cope well with large applications
- LD_PRELOAD - powerful interface that can trace and control application
- yocto project uses LD_PRELOAD tool called PSeudo ('sudo') to fake root access
- glibc can have multiple version of same function
- multi machine jobs, suspend/resume, virtualization, one VM per app
- tracing problems - heterogeneous usecase, what to measure
- we all know about Design For Test - what about Design For Profiling ?!
- Big Data - monitoring everything and correlate
- difficult to get fine-grain coverage without harming performance
- cloud computing makes profiling even more complex
- LTTng - nice tracing solution for Linux

Architectural Changes in NetworkManager, Pavel Simerda

- NM is about changing configuration on-the-fly and making notification
- NM was redesigned for server: use cases, making desktop behavior more optimal
- interesting question: what should be done, when NetworkManager restarts?
- NM runtime configuration; ipv4/ipv6; DNS
- api and tools - a lot of abilities to configure your interfaces
- NM still have a lot of problems with ipv6, some kernel features still missing

Exploring The Dustier Corners of System Firmware, Matthew Garrett

- firmware - vendor "policy", sometimes it is the only one difference between devices
- OS and firmware do same task, but kernel never knows what firmware do
- acpi 5.0 would help a bit to "speak" with firmware
- Physical Device Location - colour, location, shape, size, etc (removable in Linux)
- firmware could help to log kernel crashes (pstore)
- WMI - easiest call firmware from Windows, commonly used for vendor extensions
- reading specs ACPI and UEFI - not the most efficient techniques
- follow http://lwn.net/Articles/367630/
- specs are rarely written with Linux in mind
- every vendor has his own method to speak with firmware
- and future could be "web api" calls to BMC
- UEFI have a lot of interesting things

Grand Unification of ACPI-based device Hot-Plug, Rafael J. Wysocki

- ACPI - rules for communication between platform firmware and the OS
- ACPI Machine Language (AML), ACPI Source Language (ASL), ACPI Namespace
- kernel speak with device directly (good) or via AML Interpreter (bad)
- ACPI Hot-Plug Notification Values - Bus Check, Device Check, Eject Request
- with ACPI hot-plug allows you to add/remove even CPU and Memory

Snapshots of Ram in oVirt

- system checkpoint - disk snapshot + memory snapshot
- oVirt could reuse memory snapshots
- libvirt have interesting feature - preview snapshots

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Next Generation Cloud Platforms, Mac Devine

- we are API generation developers...
- there are so many new challenges and opportunities for IT and for developers
- a cloud service is only as good as its API
- cloud first mentality is starting to prevail. Developed and deploy at cloud speed.
- CEOs now identify technology as the most important external force
- don't afraid of mistakes, afraid of not learning on them
- big data optimized to be easy and fast accessable from softlayer
- simplicity wins. The easier to consume, the more likely it'll be consumed

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LinuxCon Panel: What's the next generation cloud platform?

- all about APIs: quality, management.
- the internet of things is a Pandora's box
- how to adapt to diff geos, create predictability and scalability.

Samsung R&D Innovation with Open Source Development, Yannick Pellet

- samsung is #7 contributor in Linux kernel development
- consumer — collaborator — contributor — leadership and innovation
- in past 5 yrs Samsung: consumer — big contributor
- not only combine open source and commercial products, but also do education

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Linux Kernel Developer Panel

- no separate scheduler per arch, even for arm
- all the work that enterprise systems did has helped embedded
- kernel developers put private emails directly to /dev/null, write to maillists
- how to get started? Ask specific questions. Always ask on the list.
- if you submit code, be around to maintain it
- device-tree is still flame topic in arm world
- on security: if you report a problem we'll fix it ASAP
- there will always be fixes. Linux changes because the world changes.
- how do you get better? Reading code is a really good way to learn.

systemd nspawn, Lennart Poettering

- systemd-nspawn was written originally for testing purpose
- most distros have "one line" command to bootstrap os image
- and nspawn could run it "next line"
- systemd-nspawn demo goes successfully, but one small bug onhided
- machinectl - management interface to nspawn and other cgroups virtualizations
- there are still few bugs in linux kernel. systemd, fedora...

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Linus Torvalds (and Dirk Hohndel)

- Linus is happy that few latest linux kernel releases hadn't big problems
- the most important thing in maintainer, not tech skills, but responsibility
- good thing about technology — when you do something wrong you can fix it
- I use Open Source because it's fun and it works!
- I do Linux because I want to see it work on a desktop.
- the core kernel is solid. The new and exciting ideas are on the periphery.
- Linus Torvalds: If it gets boring or I can't cope, I'll retire.
- there's no end plan. What works is what survives.
- 10 Best Quotes from Linus Torvalds' Keynote http://bit.ly/18JYuqJ

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Living in a Surveillance State, Mikko Hypponen

- wholesale blanket surveillance, on everyone.
- some surveillance is ok
- today, data is cheap, we can keep everything
- people are more honest with their search engine
- the Internet has become a colony of the United States.
- countries could fight with US services together - doing Open Source
- to fight these problems, use open source. Let's work together

Multi-layered Web Security, Konstantin Ryabitsev

- why multiple layers - we are all made out of meat, fail gracefully
- encryption is easy to get wrong
- personal questions are backdoors to your system
- captchas help again bots (a bit), but expiring token help better
- templating system are just bad, keep an eye
- SELinux is first and foremost a labeling system
- ModSecurity - Web Application Firewall - analysis of http traffic
- but ModSecurity is not a silver bullet, and it even more complex than SELinux...
- most "vulnerability scanners" will only check well known software and bugs
- security trade-off in terms of: effort, money, usability
- be prepared when things fail

Qt Project 2 Years Later, Thiago Macieira

- Qt has long line to openness, from QPL till GPLv3
- Qt openness motivation: desire to really be an open project
- Qt goals: one workflow for everyone, regardless of employer
- Qt project principles: Fair, Transparent, Inclusive, Meritocratic
- qt3d and qtwayland will be merged to qt some day
- Qt - 450 commits/week
- 75% of qt contributions comes from digia now
- loss after nokia changes was quite big - about 25%
- face-to-face meeting really helps broke the ice

OSv, Glauber Costa, Avi Kivity

- app — app server — jvm — OS — hypervisor — OS — hardware
- jvm, operation system, hypervizor - do same job, wtf?!
- people don't update OS in VM now
- no hardware, no users, no apps — most features not used
- OSv mission - be the best OS powering virtual machines in the cloud
- OSv runs application in kernel space! and api not changed for the app
- Be the best OS powering virtual machine in the cloud
- hypervizor OS has nice feature - you don't need to write so much drivers
- memcached runs 40% better on OSv than native - I want check it myself!
- credibility — open source these days
- OSv runs on kvm, xen hvm (still work in progress), vmware - planned
- virtio-app - bypass I/O stack completely - consume data from virtio rings
- virtualization 2.0 - stateless servers
- OSv could run your C apps*

Containers and the Cloud, James Bottomley

- virtualization was so much hyped in 2005
- the enterprise charged down the Hypervisor alley
- the Hosting market turned to Containers
- concontainers - its all about density
- containers vs hypervisors - you know everything about it
- may be someday containers tools will be merged

GlusterFS Workshop

- distributed storage system - see also: ceph, xtreamfs, fhgfs, glusterfs
- user space, global namespace, stackable, everything is file
- glusterfs clients - fuse, NFSv3 and Libgfapi for kvm, samba
- no metadata server, multi-protocol access, replication, self-healing
- is the simplest distribution fs in terms of setting env
- mainly for non-structured data - media, shared storage, big data, objects
- glusterfs could be nicely integrated to openstack
- distributed block storage for VM
- paradigm changes block — object, central — distributed, server — storage

Thank You. Questions

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