FOSDEM 2014
Brussels 1 & 2 February
FOSDEM14.org
Donations

FOSDEM is free to attend. The event is organised by volunteers and funded entirely by sponsors, the sale of T-Shirts, and individual donations.

In order to keep the event free, we kindly ask you to buy a T-Shirt and/or to make a donation at one of the infodesks. Your donation supports FOSDEM 2014 and future editions.

Depending on the amount you donate, you will receive one or more of the following along with our gratitude:

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<th>€25</th>
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<td>O’Reilly pocket book</td>
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Small print: It is not possible to get a refund for any reason. Donations are not tax-deductible.
Infodesk

Welcome to the 14th edition of FOSDEM!

In this booklet, you will find useful information about scheduled talks, the location of the rooms, and other practicalities. If you have any questions, the volunteers at the infodesks will be happy to help you. The main infodesk is located in the K building. A secondary infodesk can be found in the H building. Staff and volunteers roaming around the campus in bright yellow and orange T-Shirts and hoodies are also happy to help you.

There is a handy map on the back of this booklet, pointing out the locations of all buildings, rooms, and the infodesks.

**In an emergency, you can phone the infodesk on +32 2 788 74 74**

Social conduct policy

The FOSDEM organisers were surprised to hear that harassment is a common problem at open source conferences around the world. While we have no evidence of anti-social behaviour ever having been a problem at FOSDEM, we would like to remind everyone that harassment of any kind will not be tolerated.

Please report any concerns to a FOSDEM staff member (yellow shirts), or contact our coordinator Wynke on +32 483 52 46 37.
General information

Network
Best-effort wireless network coverage is available everywhere on campus.

To encourage you to support IPv6 in your programs we will use IPv6-only on ESSID “FOSDEM” as much as possible. We will adapt network configuration based on user feedback. If you are having problems, please let infodesk know.

We may or may not offer two additional ESSIDs: “FOSDEM-dualstack” for IPv4 and IPv6 and “FOSDEM-v6” for IPv6 only (with DNS64).

Online schedule
The full conference schedule is available on our website: https://fosdem.org/schedule/.

There are third-party apps for just about every smartphone OS. Check your respective app store/market or see the list at https://fosdem.org/schedule/mobile/.

First aid
A Red Cross first aid team is present throughout the weekend. This team is located at the secondary infodesk in the H building.

Cloakroom
Do you want to get rid of heavy bags, or are you tired of carrying your coat or umbrella around with you? Store them free of charge at our staffed cloakroom during the event. Simply follow the signs in the K building.

Lost Property
Lost one of your precious belongings? Found something that looks like someone lost it? Please go to the infodesk in the K building for assistance.

Catering
There are three places on the campus where you can get food and/or drinks (see the map at the back for the exact locations):

- The cafeteria has comfortable seating and serves espresso, breakfast, sandwiches, and drinks throughout the event.

- The food court has catering vans offering hot food including burgers, hot dogs, fries, sandwiches, vegetarian wraps, and waffles.

- The bar under Janson has sandwiches and loads of beer. Please try to stay quiet while in there. People in Janson can hear you.

In the area surrounding the campus there are many other shops and restaurants where you can get food. See the surroundings map on page 120.

Public transport
The following STIB/MIVB routes call at “ULB”:

- Bus 71 De Brouckère – Delta
- Bus 72 ADEPS – Devèze-ULB
- Tram 25 Rogier – Boondael Gare
- Tram 94 Louise – Musée du Tram

See the back cover for a map.

Free shuttle buses
On Sunday afternoon, FOSDEM provides a free shuttle bus service from the conference venue to Brussels South (Midi) railway station which has a regular service to many popular destinations within Belgium and to surrounding countries.

Three buses will provide the service between 15:30 and 19:30. The journey takes approximately 20 minutes. Buses depart from Av. de l’Université.

Between 15:30 and 17:15, a bus is scheduled to depart every 15 minutes. Based on previous experience, we expect the buses to be busiest from 17:30 on. We will abandon our fixed schedule then with buses departing as soon as they are full to maximize throughput. The last departure will be at 19:30.

If you don’t want to queue, why not leave later? There are plenty of bars in the neighbourhood where you can pass the time!
Taxi
If you need a taxi, we suggest calling Taxi Verts on +32 2 349 49 49. The address of the venue is:

ULB Campus Solbosch
50, Av. Franklin D. Roosevelt
1050 Bruxelles
The location where taxis expect to pick you up is marked on the map on the back cover.

Cash points
There is a cash point on the campus, just past the main bar near the food stands, but experience shows that it runs out of cash quickly during FOSDEM. An alternative cash point can be found at 466, Chaussée de Boondael. To get there, leave the campus towards where the buses and trams stop, and continue straight ahead until the third roundabout and turn left there. You will find the cash point on the left side of the street.

Accessibility
We try to be as accommodating as possible to attendees with accessibility needs. All rooms except for AW1.121, AW1.125, UA*, and UD* should be reasonably accessible. Ask someone at the infodesk or call Mark (+32 486 961 726) for help or more information.

Garbage & glass
Please try to keep the campus clean! Throw your garbage into the bins. If you see a full bin, please let staff, volunteers, or infodesk know.
Glass bottles should be put in the cardboard boxes located near some bins or in the designated container near the lower level of the H building.
If you see people scavenging bottles, please report them to security, staff, volunteers, or infodesk immediately.

Keysigning
The keysigning will take place on Sunday at 14:00 in the corridor on the second level of the U building. Please bring the printed and verified list, a pen, and appropriate form of identification with you to FOSDEM.
Be on time!

Please complete your signing homework before Sunday, 8 June 2014, and upload new signatures on your keys to a well-connected keyserver.

Feedback
How are we doing? Are you enjoying this edition of FOSDEM? Is there anything we can do to make future events better? Please take a minute to fill in our feedback form on page 114.

Hacker rooms
Need a break? Want to spend some quiet time coding? Need to recharge yourself and/or your devices? There are two hacker rooms where you can sit back and do all that.
The two rooms are H.2111 in the upper H building and AW1.124 below the stairs in the AW building.

BoF rooms
These rooms are intended for ad-hoc discussions, meet-ups, or brainstorming sessions. They are not replacements for developer rooms and they are certainly not intended for talks. These rooms are deliberately not equipped with projectors. The rooms are small and cosy. There are seats for approximately thirty people.
The concept is simple: any project or community can reserve a timeslot (fifteen minutes to an hour) during which they have the room just to themselves.
Reservations are made on a first-come, first-served basis. Signup sheets are available at the infodesk in building H. Directions to the rooms can also be obtained there.

Cleanup
After FOSDEM is over, we will need to clean up, and quickly. We would greatly appreciate your help. This can be as simple as helping stands carry their equipment, grabbing a broom and starting to clean, or to help collecting all of FOSDEM’s gear. Simply talk to staff, volunteers, or infodesk.
Welcome to FOSDEM 2014
FOSDEM Staff
Sat. 10:30 – 10:55
FOSDEM welcome and opening talk.

How we found $10^6$ style and grammar errors in the English Wikipedia
...and how to fix them
Daniel Naber
Sat. 11:00 – 11:50
LanguageTool is an Open Source proofreading tool developed to detect errors that a common spell checker cannot find, including grammar and style issues. The talk shows how we run LanguageTool on Wikipedia texts, finding many errors (as well as a lot of false alarms). Errors are detected by searching for error patterns that can be specified in XML, making LanguageTool easily extensible.

Software Archaeology for Beginners
Code, Culture and Community
James Turnbull
Sat. 12:00 – 12:50
Most open source projects are rightly proud of their communities, long histories (both measured in time and version control), passionate debates and occasional trolling. Newcomers to these communities often face an uphill battle, though. Not just in understanding decision making processes and community standards, but in coming to terms with often complex, contradictory, and poorly documented code bases. This talk will introduce you to the concepts and tools you need to be an expert code, culture, and community archaeologist and quickly become productive and knowledgeable in an unknown or legacy code base.

NSA operation ORCHESTRA: Annual Status Report
Poul-Henning Kamp
Sun. 17:00 – 17:50
(TOP SECRET/COMINT) NSAs operation ORCHESTRA has been a resounding success again this year. This year’s status report will update decision makers and programme liaisons on the goals, achievements and means of ORCHESTRA.

Closing FOSDEM 2014
FOSDEM Staff
Sun. 17:50 – 18:00
Some closing words, and the legendary FOSDEM dance. Don’t miss it!
Main tracks Saturday

Mail page 6
Mathematics page 7
Tracing and debugging page 8
Dovecot’s way of scaling to millions of users

**Timo Sirainen**  
Sat. 15:00 – 15:50

Dovecot is an IMAP/POP3 server that can easily run in both tiny installations and in installations with tens of millions of users. This talk explains some methods and design decisions on how Dovecot nowadays does clustering, as well as some problems found on the way there: Proxying, NFS issues, dsync replication, caching, object storage.

Postfix open source mail server lessons learned and recent developments

**Wietse Venema**  
Sat. 16:00 – 16:50

In the 15 years since its initial release, the Postfix mail system has become a significant component of the email infrastructure. As the system became more feature-complete, the focus of development has moved towards making the system more extensible and more resilient in the face of changing threats. I will present lessons learned and recent developments, including some new features in this year’s release.

Mailpile

**Bjarni Rúnar Einarsson**  
Sat. 17:00 – 17:50

Mailpile is the new kid on the block in the world of F/LOSS e-mail clients. This talk introduces Mailpile from a F/LOSS hacker’s perspective, going briefly into the motivation of the project before delving into demos and technical implementation details.
An Introduction to Sage

**Arvind S Raj**  
Sat. 13:00 – 13:50

Sage is an open source mathematical software system that is built on many components, such as Python, sympy, numpy, gap and scipy, and also brings along the power of the Python programming language. This talk will introduce cover some capabilities of Sage and enable participants to use Sage for their computation needs.

Calc: GPU enabling a spreadsheet

**LibreOffice Calc – now available on your GPU**  
**Michael Meeks**  
Sat. 14:00 – 14:50

Traditionally, LibreOffice has had an appallingly slow and mis-architected spreadsheet core. Come and hear how we’ve re-designed it to take advantage of the major wins possible with both GPU and CPU parallelism, and extrapolate that to your application.
Tracing and debugging

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<td>Who ate my battery?</td>
<td>Jeremy Bennett, Kerstin Eder</td>
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**Linux tracing with LTTng**

*The love of development without printf()*

**David Goulet**

Sat. 13:00 – 13:50

In the past, a lot of effort has been invested in high performance kernel tracing tools, but now the focus of the tracing community seems to be shifting over to efficient user space application tracing. By providing joint kernel and user space tracing, developers now have deeper insights into their applications. Furthermore, system administrators can now put in place a new way to monitor and debug systems using a low intrusiveness tracing system, LTTng.

This presentation explains how LTTng can be used as a powerful development and debugging tool for user space applications taking advantage of this year’s exciting new features such as network streaming and snapshots. It demonstrates how open source developers and hackers can use LTTng kernel and user space tracers to create powerful logging systems and easier debugging, thus greatly improving development and maintainability of their project(s).

Finally, this talk concludes with the future work we will be doing on LTTng, and how the community can help with improving the project from feedback to very valuable contributions.

**Making the Linux Kernel better (without coding)**

**Wolfram Sang**

Sat. 14:00 – 14:50

In this presentation, I want to show little-known mechanisms to add hardware support to the kernel at runtime, i.e. without recompiling. After this presentation, the Linux kernel will have gained support for a previously unsupported USB device (without having to write any code).

**Your Application versus GDB**

**Tom Tromey**

Sat. 15:00 – 15:50

In recent years GDB has undergone a renaissance, adding Python scripting and other cool new features. This talk will show you how to customize GDB for your application and your debugging needs. We’ll go into depth about pretty printing, stack trace filtering, and writing new commands; and will also discuss writing GUIs and other tools inside GDB. Finally, we’ll cover other interesting and useful GDB projects.

**Who ate my battery?**

**Jeremy Bennett, Kerstin Eder**

Sat. 16:00 – 16:50

Despite a decade of innovative development, and despite improvements in battery technology, a modern smartphone needs recharging far more often than its turn-of-the-century predecessor. Yet the blame cannot be laid at the door of hardware engineers; the problem lies in the software. Fortunately free and open source technology is racing to the rescue. With this talk we aim to promote energy efficiency to a first class software design goal.
Main tracks
Sunday

Hardware page 10
IPv6 page 11
Memory and storage page 12
Miscellaneous page 13
Security page 14
OpTiMSoC
Build Your Own System-on-Chip!
Philipp Wagner  Sun. 10:00 – 10:50

This talk introduces OpTiMSoC, a set of open source building blocks to create your own System-on-Chip, which then runs on an FPGA or can be simulated on a PC. The system is formed by tiles like processors or memories connected by a Network-on-Chip, all written in Verilog and supported by a set of software required to run it out of the box. The talk shows how you can use OpTiMSoC to gain insight into a complex System-on-Chip, to evaluate the benefit of new hardware accelerators, or to compare different multicore hardware architectures.

ARM: Allwinner sunxi SoC’s and the community behind it
The most opensource (friendly) SoC!
Olliver Schinagl  Sun. 11:00 – 11:50

The Allwinner series of System on Chip (SoC)’s has a healthy community around this interesting little chip. This talk will bring interested listeners up to speed in how it all got started and where we, as a community, are today.

Power management: a system wide challenge
Peter De Schrijver  Sun. 12:00 – 12:50

In this presentation we will start from basic CMOS power consumption factors. We will use that as the basis to explain the various possibilities to balance power versus performance. We will then continue explaining how these techniques are implemented both in the SoC hardware and in the the operating system and application software. Android, maemo, OMAP and Tegra will be used to illustrate the techniques.
No more IPv4
Impact on applications and measuring IPv6 deployment
Eric Vyncke  Sun. 15:00 – 15:50

The IPv4 address exhaustion brings a broken Internet with the heavy use of NAT. While HTTP is now a major vehicle for any application, and while NAT is friendly with HTTP, there are still issues with large scale NAT as used by some ISPs (mainly mobile). This session explains the security and application issues of NAT, but also explains how an application can easily be extended to support the next generation IPv6, which does not require NAT.

Using RIPE Atlas API for measuring IPv6 Reachability
Vesna Manojlovic  Sun. 16:00 – 16:50

Cooperation and sharing are the keywords for this talk — sharing of data, of efforts, or results.

RIPE Atlas is a global network of probes that measure Internet connectivity and reachability. Out of 5000 active probes, more than 1000 support IPv6. Supported measurements are ping, traceroute6, DNS and SSL. There are API calls for starting your own measurements, and for downloading results of “built-in” measurements from all probes towards root nameservers. Code for analysing data is shared on GitHub.

Many analysis papers and articles were already published using RIPE Atlas data.

My goal is to encourage FOSDEM participants to contribute with their knowledge and their curiosity, by using the existing data and producing interesting research, and by sharing their code with others.
What’s New in OpenLDAP
Howard Chu  Sun. 14:00 – 14:50
Overview of recent developments in the OpenLDAP Project, features for OpenLDAP 2.5, and new work related to the Lightning Database LMDB.

Persistent Memory
Changing the Way We Store Data
Ric Wheeler  Sun. 15:00 – 15:50
Persistent memory parts have roughly the same capacity, speed and cost as current DRAM, but do not lose state when the power goes out. Some of these parts are on the market today, more will be coming out over the next few years. The Linux IO and File System stack is already challenged in handling existing SSD devices at hundreds of thousands of IO’s per second and these devices will be able to sustain an order of magnitude more IOP’s. This talk will give an overview of what is being proposed in standards bodies and the Linux based solutions being proposed that will help us take full advantage of these new parts.

Concurrent Programming Made Simple
The (r)evolution of Transactional Memory
Nuno Diegues, Torvald Riegel  Sun. 16:00 – 16:50
This talk will present Transactional Memory, a programming abstraction for managing concurrency, both in multi-threaded programs running on multi-core processors as well as in distributed cloud infra-structures.
## Miscellaneous

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<td>MirageOS: compiling functional library operating systems</td>
<td>Anil Madhavapeddy, Richard Mortier</td>
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### F-Droid
Free Software app distribution for Android  
**Daniel Martí**  
Sun. 10:00 – 10:50

F-Droid brings Free Software to your Android and helps you regain control over your device.

### HTML5 Video Part Deux
New Opportunities and New Challenges  
**Michael Dale**  
Sun. 11:00 – 11:50

This talk gives a close look at second wave HTML5 features around video delivery — specifically, mediaSource API / adaptive streaming, encrypted media extension and WebRTC. We look at open tools and techniques for transcending platform limitations and delivery these experiences across increasingly diverse set of devices and platforms. Real world usage examples are highlighted from experience with open tools we have built and integrated.

### The Wikipedia stack
An insider’s look at the free encyclopedia’s code that anyone can clone, branch & commit  
**Erik Moeller**  
Sun. 12:00 – 12:50

Let’s explore the fully open source technology stack of Wikipedia and Wikimedia’s other projects, and the many ways to get involved in making the sum of all knowledge available to every person on the planet.

### MirageOS: compiling functional library operating systems
**A. Madhavapeddy, R. Mortier**  
Sun. 13:00 – 13:50

Public compute clouds provide a flexible platform to host applications as a set of appliances, e.g., web servers or databases. Each appliance usually contains an OS kernel and userspace processes, within which applications access resources via APIs such as POSIX. The flexible architecture of the cloud comes at a cost: the addition of another layer in the already complex software stack. This reduces performance and increases the size of the trusted computing base.

Our Mirage operating system proposes a radically different way of building these appliances. Mirage supports the progressive specialisation of functional language (OCaml) application source code, and gradually replaces traditional OS components with type-safe libraries. This ultimately results in “unikernels”: sealed, fixed-purpose images that run directly on a hypervisor without an intervening guest OS such as Linux.
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<td>Jonathan Anderson</td>
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**USE OTR or how we learned to start worrying and love cryptography**

David Goulet  
Sun. 13:00 – 13:50

USE OTR (USable Encryption with OTR) is an organization with a simple goal: improving security, usability and encryption of IM software. This talk will outline our organization, the ecosystem of Off The Record Messaging (OTR) and how to start loving end-to-end encryption.

**Capsicum**

Practical capabilities for UNIX  
Jonathan Anderson  
Sun. 14:00 – 14:50

The Capsicum project adds new security primitives to FreeBSD and other UNIX-like operating systems, blending security models from capability systems with the practicality of real running code, today. This talk will describe what Capsicum is, how it works, and several exciting new developments in its deployment.
# Developer rooms Saturday

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Ada

Ada is a general-purpose language originally designed for safety- and mission-critical software engineering. It is used extensively in air traffic control, rail transportation, aerospace, nuclear, financial services and medical devices. It is also perfectly suited for open source development.

This developer room aims to present the possibilities offered by the Ada Language (object-oriented, multi-core, embedded programming) as well as some of the many exciting tools and projects using Ada.

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<td>José F. Ruiz</td>
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<td>Contract Based Programming in Ada 2012</td>
<td>Jacob Sparre Andersen</td>
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<td>Sat. 16:00 – 16:25</td>
<td>Formal Verification with Ada 2012: a Very Simple Case Study</td>
<td>Didier Willame</td>
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<td>Speedup and Quality Up with Ada Tasking</td>
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<td>Safer Web Servers with Ada and AWS</td>
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<td>Sat. 18:15 – 18:30</td>
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<td>Wrap Up &amp; Future Plans</td>
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Welcome
Dirk Craeynest
Sat. 11:00 – 11:05

Welcome to the Ada Developer Room at FOSDEM 2014, which is organized by Ada-Belgium in cooperation with Ada-Europe.

Ada-Belgium and Ada-Europe are non-profit organizations set up to promote the use of the Ada programming language and related technology, and to disseminate knowledge and experience into academia, research and industry in Belgium and Europe, resp. Ada-Europe has member-organizations, such as Ada-Belgium, in various countries.

Introduction to Ada for Beginning and Experienced Programmers
Jean-Pierre Rosen
Sat. 11:05 – 11:55

Overview of the main features of the Ada language, with special emphasis on those features that make it especially attractive for free software development.

Ada Task Pools: Multithreading Made Easy
Ludovic Brenta
Sat. 12:00 – 12:50

Ada is one of very few programming languages that support multi-threading as part of the language, as opposed to libraries.

Last year, we showed how Ada makes it easy to turn a single-threaded program into a multi-threaded program. We ended up with ten thousand threads working concurrently. I will briefly recap this first episode and then continue with the same program, introducing a task pool wherein a small number of threads (one per processor core) process thousands of small work units.

Informal Discussion & Lunch Break
Sat. 13:00 – 14:00

A one-hour slot has been reserved for much needed interaction and informal discussion among Ada DevRoom participants and anyone potentially interested in Ada.
SPARK 2014: Hybrid Verification using Proofs and Tests
José F. Ruiz Sat. 14:00 – 14:50
This presentation will talk about hybrid verification, an innovative approach to demonstrating the functional correctness of a program using a combination of automated proof and unit testing.

Contract Based Programming in Ada 2012
Jacob Sparre Andersen Sat. 15:00 – 15:50
A tutorial on how to use the Ada 2012 features for specifying detailed, checked contracts for types and subprograms — “classes, functions, and methods” if you aren’t an Ada programmer already.

Formal Verification with Ada 2012: a Very Simple Case Study
Didier Willame Sat. 16:00 – 16:25
After a quick reminder of the Hoare Logic and the approach for designing software by contracts, the tool suite developed by AdaCore for formal verifications is presented. To make the concepts easily understood, a little program simulating a sandpile is used.

Speedup & Quality Up with Ada Tasking
Solving polynomial systems faster and better on multicore computers with PHCpack
Jan Verschelde Sat. 16:30 – 16:55
Writing parallel versions for shared memory multi-core computers with Ada tasks requires minimal modifications of the original source code. For pleasingly parallel computations we experienced almost optimal speedups. If we can afford to spend the same amount of time as one core, then we can ask how much better (e.g.: how much more accurate) we can solve a problem with p cores. This leads to the notion to “quality up”. Similar to speedup factors, we can compute “quality up” factors.

In this talk we report on our coding efforts to write multi-core versions of the path trackers in PHCpack, a free and open source software package to solve polynomial systems. We started investigating the use of multithreading to compensate for the overhead of double double and quad double arithmetic.

Safer Web Servers with Ada and AWS
Jean-Pierre Rosen Sat. 17:00 – 17:50
AWS is a framework that allows web servers to be written entirely in Ada. This presentation shows the main principles of AWS, emphasizes how Ada features can be used to make servers more secure and immune to buffer overrun attacks.

Ada in Fedora Linux
Pavel Zhukov Sat. 18:00 – 18:15
This presentation explains and demonstrates how the Fedora Linux distribution can be used for developing in the Ada language. Available tools and frameworks will be demonstrated.

Ada in Debian Linux
Ludovic Brenta Sat. 18:15 – 18:30
A short update on the current state of Ada in Debian and the plans for the next stable release which is due early 2015.

Ada in *BSD
John Marino Sat. 18:30 – 18:45
A short overview of the Ada compilers and packages available on FreeBSD, NetBSD, and DragonFly.

Wrap Up & Future Plans
Sat. 18:45 – 19:00
Informal discussion on ideas and proposals for future events.
The BSD developer room is a forum for talks about all BSD operating systems – from FreeBSD, NetBSD, OpenBSD to Dragonfly and newer projects, such as EdgeBSD. The range of topics goes from internal hacker discussion to real-world examples and presentations about new and shiny features.

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The EdgeBSD Project
Introducing the EdgeBSD Project
Pierre Pronchery Sat. 13:00 – 14:00
This presentation will detail the reasons, objective, status and roadmap of the EdgeBSD project, which started from the NetBSD codebase earlier this year. It aims at broadening and experimenting around community development around NetBSD thanks to a tentatively more modern development workflow, based on Git.

The DeforaOS desktop environment
An alternative desktop for all ranges of devices
Pierre Pronchery Sat. 14:00 – 15:00
The DeforaOS desktop environment is one of three major components from the DeforaOS Operating System project. It is Open Source and meant to be portable, currently supporting Linux, *BSD, MacOS X, and possibly more. More than just an alternative desktop, it can be adapted for embedded use, be it with a stylus or with finger-based interaction. It has already been released and presented as a Debian-based smartphone (Openmoko) and a NetBSD-based tablet device for instance.

Porting FreeBSD on Xen on ARM
How to support your OS as Xen ARM guest
Julien Grall Sat. 15:00 – 15:45
The goal of this talk is to provide information about Xen on ARM project and encourage hackers to port their OSes as ARM guests.

What’s new in FreeBSD 10?
Paul Schenkeveld Sat. 16:00 – 17:00
The new FreeBSD 10.0 has been released just before FOSDEM. This new release adds many new features and enhancements to FreeBSD.

FreeBSD: toward ports v2
Trimming the biggest bonsai
Baptiste Daroussin Sat. 17:00 – 18:00
A summary of 3 years of heavy lifting of the ports tree, and what is coming next: cross compilation, sub packages, requires/provides and more.
Configuration Management 101
Sean OMeara  Sat. 11:00 – 12:00
Common threads run through modern configuration management systems.

Use case: Configuration Management in an enterprise Linux Team
How I automated myself out of my job
Remi Bergsma  Sat. 12:00 – 12:25
How I automated myself out of my job.

ncf
abstracting CFEngine’s complexity to provide a structured and powerful framework
Jonathan Clarke  Sat. 12:30 – 12:55
After 4 years of “experience in the trenches” providing enterprise configuration management solutions based on CFEngine 3, it became clear that our customers wanted CFEngine’s speed, small footprint, and features but were having a hard time with the language and tooling, and needed an easier way.

Deploying Cloudstack with Chef
Michael Ducy  Sat. 13:00 – 13:25
Learn about how to use the OSS Automation Platform Chef to deploy the OSS Cloud Platform Cloudstack.

Introduction to Docker
Containerization is the new virtualization
James Turnbull  Sat. 14:00 – 14:25
Docker is an open source LXC-based container service that was released in March 2013. It makes it easy to create lightweight, portable, and self-sufficient containers. Containers which you can use to test applications, build, and run services or even to build your own platform-as-a-service. Learn why Docker matters, how to get started with it and see some cool examples of Docker in action.

A metadata ocean in Puppet and Chef
How to cope with metadata organisation
Marc Cluet  Sat. 14:30 – 14:55
How to handle metadata in puppet and chef, what are our observed best practices and how to maintain coherency.

SaltStack
Configuration Management Meets Remote Execution
Corey Quinn  Sat. 15:00 – 15:25
Saltstack is arguably one of the best of the “new breed” of configuration management solutions. In this talk, Corey takes the audience through a stand-up of a Salt environment and leads into some examples of how you can leverage the message bus to automate not just configuration management, but your entire infrastructure.

If time permits, and only at explicit request from the audience, Corey will perform the second half of his presentation by means of interpretive dance.

**Razor – Provision like a Boss**

David Lutterkort  
Sat. 15:30 – 15:55

Razor is a flexible open-source provisioning tool that makes it easy to control how machines are built based on rules and policies. It maintains an inventory of nodes and their hardware characteristics, gathered by booting each node into a discovery image. Discovery information, together with user-defined policies is used to make installation decisions.

**Foreman integration with Chef (and others)**

Marek Hulàn  
Sat. 16:30 – 16:55

In this talk I’d like to show a live demo covering status of Foreman and Chef integration and try to answer the question “where do we want to get”? Also I could sum up what’s needed to add similar support for config management tools of your will.

**Manageable Puppet Infrastructure**

Forging the pieces together

Ger Apeldoorn  
Sat. 17:00 – 17:25

This talk is not about a specific component or a small part of using Puppet, but about a complete workflow on a Puppet infrastructure design that is easy to collaborate on, well-structured, and safe to use.

**Service orchestration in the cloud with Juju**

Marco Ceppi  
Sat. 18:30 – 18:55

Building service orchestration with any language! Be it Bash, Python, Ruby, Chef, Node.js, Ansible, Salt, and most anything in between.
The Desktops developer room is a unique opportunity to show novel ideas and developments related to desktop computing to a wide technical audience.

We invite developers and systems administrators to present their talks about Free/Libre/Open-source Software on the topics of Desktop development, Desktop applications and interoperability amongst Desktop Environments. Topics accepted include, but are not limited to: Enlightenment, Gnome, KDE, Unity, XFCE/Razor, Windows, Mac OS X, general desktop matters, applications that enhance desktops and web (when related to desktop).

The developer room organisation is taken care of by a team that represents the major open source desktops: Gnome, KDE, Unity, Enlightenment, and LXDE. Other desktops as invited to join as well.

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Desks absolute

**Desktops DevRoom Opening**
Christophe Fergeau, Pau Garcia i Quiles, Philippe Caseiro, Jerome Leclanche, Didier Roche 10:55 – 11:00

Presentation of the Desktops DevRoom by its Organization Team & Technical Committee: Christophe Fergeau (Gnome), Pau Garcia i Quiles (KDE), Didier Roche (Unity), Philippe Caseiro (Englightenment) and Jérome Leclanche (LXDE)

**What’s cooking in GStreamer**
Tim-Philipp Müller, Sebastian Dröge (slomo) 11:00 – 11:30

This talk will take a look at what’s been happening in the GStreamer multimedia framework as of late and what shiny new features you can expect to land in the near future.

It is targeted at both application developers and anyone interested in multimedia on the Linux desktop and elsewhere.

**Enlightenment as Standalone Wayland Compositor**
Stefan Schmidt, Chris Michael 11:35 – 12:05

Porting a X window manager to the wayland protocol is huge task. This talk describes the journey we took to make it possible to run Enlightenment as a standalone wayland compositor.
Swimming with chum in shark infested waters
GNOME 3 outreach in the modern age.
Sriram Ramkrishna  Sat. 12:10 – 12:40
A talk on engaging the F/OSS community and the lessons learned in the many releases after GNOME 3. Discuss measures we took to engage community, the effect of social media in the modern age, and lessons for others who also release software.

Anatomy of kdbus
Lennart Poettering  Sat. 12:45 – 13:30
With kdbus we move the D-Bus IPC system into the Linux kernel to improve performance and functionality while keeping compatibility.

Porting legacy X11/GL applications to Wayland
OpenCPN and wxWidgets wrapped for Wayland
Manuel Bachmann  Sat. 13:35 – 14:05
Many state-of-the-art graphical applications and frameworks still use direct X11 and legacy GL API calls. As we need to move further and follow new evolutions of the UNIX display stack, especially on embedded platforms, we need to adapt or wrap our codebase to Wayland and GLES.

Qt Creator for desktop developers
Why you should not waste time coding in a text editor
Tobias Hunger  Sat. 14:10 – 14:40
Qt Creator is a full-featured IDE that can help you with your C++ (and C where that does not conflict with C++) coding — with and without Qt!
In this presentation I want to encourage all the texteditor-is-all-I-need developers out there to give integrated development environments a try.

LXQt: Introducing Intents
Jerome Leclanche  Sat. 14:45 – 15:15
Intents are a way for applications to declaratively describe their capabilities and let other applications invoke it. Sounds simple? It’s still not possible today.
LXQt is introducing intents. Inspired by Android’s intents, they solve several long-standing issues on the desktop. Best of all, they are being developed as an open spec, so that other DEs can use them.

Mir & Unity8 in the Converged World
Thomas Voß  Sat. 15:20 – 16:05
Mir and Unity8 are the cornerstones for enabling Ubuntu for a converged world. This talk dives into both technical and semantic issues that Mir and a shell (here: Unity8) are facing when considering different form factors and seamless transitions between different usage scenarios of a device. We present an overview of the open challenges, plans to tackle them and deep-dive into a selected range of issues.

Hawaii
Meet Hawaii, the Wayland QtQuick based desktop
Pier Luigi Fiorini  Sat. 16:10 – 16:40
Hawaii is a Wayland and QtQuick based desktop environment with few dependencies aiming at desktop and mobile convergence. It is primarily used by Maui, a Linux system with atomic upgrades and bundles. This talk introduces the project to those who don’t know it yet, presents the progress that have been made and future directions.

The KDE Frameworks are here
Adopt it!
Aleix Pol Gonzalez  Sat. 16:45 – 17:30
The KDE software has been built on Qt since its birth, but often we’ve needed to create libraries on top of Qt to solve our needs. This ended up being a huge project that was both hard to maintain and a huge dependency, especially on embedded platforms.

KDE Connect
Making devices know each other
Alex Fiestas  Sat. 17:35 – 17:55
KDE Connect tries to create a network of “KDE
Connect*-aware devices that will enable interaction among them by means of compatible services. This talk will explain why we created yet another universal service provider, what is the current status and where we want to go.

**Panel with the governing bodies of the GNOME Foundation and KDE eV**

Lydia Pintscher, Tobias Mueller  Sat. 18:00 – 18:50

The GNOME Foundation and the KDE e.V. are the governing bodies for the GNOME and KDE project, respectively. Their roles are to find funds to enable creative hackers to do a great job at creating awesome Free Software for everyone.

We want to shed light into the inner workings of the GNOME Foundation Board of Directors and the KDE eV Board, not only to give you information about how we work, but also to demystify the ivory tower we’re sitting in.
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**Reproducible Builds for Debian**  
Jérémy Bobbio (Lunar)  
Sat. 11:00 – 11:50  
How can we enable multiple parties to verify that a binary package has been produced untampered from a given source in a distribution like Debian?

**Is distribution-level package management obsolete?**  
Donnie Berkholz  
Sat. 12:00 – 12:50  
Recent trends in software development have raised questions as to whether package management in Linux distributions is still relevant. Whether it’s independent package managers in popular Web frameworks and languages (Node.js, Ruby, Python, etc) or bundling and containerization that’s become increasingly popular in DevOps culture, it appears that integrated approaches to package management are on the decline. Yet at the same time we’ve seen package managers in the Windows world such as NuGet grow more popular. This talk from a leader of the Gentoo Linux distribution will explore the reasoning and history behind this shift and whether it’s the right move for the FLOSS movement as a whole.

**Do you have to be brain damaged to care about desktop Linux?**  
A personal account of severe head trauma and distro development  
Jonathan Riddell  
Sat. 13:00 – 13:50  
A personal talk about what happened when a car crash left me in a coma for three days and the recovery that has happened in the two years since. The ups and downs of this is mixed with the ups and downs of developing a KDE Linux distro, Kubuntu.

**A Method for Distributing Applications Independent from the Distro**  
Langdon White  
Sat. 14:00 – 14:50  
For many years the Linux distro concept has been about “inclusion of applications” sometimes at the detriment to co-habitating applications and the stability of the core OS. Much discussion has been made over the years about JEOS, embedded Linux, custom distros, application building, etc, but not a lot of discussion about how applications could be delivered such that they were more readily able to co-habitate.

**CentOS: Planning for Variants and the Next Chapter**  
A Broader, Faster, Easier Route to Contributions in CentOS  
Karanbir Singh  
Sat. 15:00 – 15:50  
CentOS has cemented a reputation as the “community enterprise operating system” – one that provides a reliable rebuild, but is not known for innovation in its own right. With the news that Red Hat and CentOS are joining forces, this is going to change. Here’s how CentOS is planning to change, and how other distros can learn from our next phase.
Fedora.NEXT
Developing the Fedora Server, Workstation and Cloud
Stephen Gallagher Sat. 16:00 – 16:50
As you may or may not be aware, Fedora is transitioning from its classic “one-size-fits-all” approach to one where we intend to target three specific user types with individual products: Fedora Workstation, Fedora Server and Fedora Cloud. Gathering Fedora contributors at FOSDEM to work on the logistics around this change in direction would be a valuable opportunity.

Debian Contributors
A new, automatic, doocratic membership to change the face of Debian
Enrico Zini Sat. 17:00 – 17:50
There is a new hat in Debian, bearing the flattering title of “Debian Contributor”. Everyone who contributes to Debian is entitled to have it, and gets it automatically. It is a way to give due credit to all manners of contributions to the project. It is a way to make all the energy that is poured into Debian visible. I will show the reasons behind the idea, and how contributors.debian.org works. I will show how it may change the way we perceive Debian, and very much for the better.
### Embedded

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<td>Phil Coval (zr)</td>
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### SoCs + FPGAs
Why settle for only one if you can have them both?

**Steffen Trumtrar**  
**Sat. 12:00 – 12:30**

Xilinx and Altera both took the next step in integrating System on Chips (SoC) with Field Programmable Gate Arrays (FPGA): put them both on the same die and connect them with a high speed interface. This talk will describe the Altera Socfpga platform, its current support in the mainline Linux kernel, lessons learned in using the vendor supplied information and what this new kind of dual core CPU and FPGA alliance opens up for possibilities in low latency RT applications.

### ABF

**Aleksei Vokhmin, Aleksandr Khriukin**  
**Sat. 12:30 – 13:00**

ABF as a development framework with ARM-powered build nodes by the example of OpenMandriva 2013.0 / Cooker armv7hl

### Profiling sensor nodes with call graphs

**Daniel Willmann**  
**Sat. 13:00 – 14:00**

Due to resource constraints common in sensor nodes it is often complicated to profile the performance of an application. One solution is simulating the node and profiling the application in there. This talk presents a flexible infrastructure to generate a call graph and calculate the function runtime.

### MINIX 3 on ARM

**Kees Jongenburger**  
**Sat. 14:00 – 15:00**

In the past one and a half years the MINIX team has been working on a port of MINIX 3 to the ARM platform. We now have a port of MINIX 3 to the popular BeagleBone Black.

In this talk I will look back at MINIX 3 on ARM and explain how it became what it is. I will show a few nice features it has, including some stolen from NetBSD and some related to automatic recovery from otherwise fatal system errors.

The goal of the talk is to shine an other light at embedded development and share our experience in this area.

### Technical introduction to the deeper parts of SailfishOS, a Qt5-Wayland based mobile OS

**Carsten Munk**  
**Sat. 15:00 – 16:00**

In this talk, I’d like to walk through some of the more technical parts of SailfishOS (www.sailfishos.org). Recently, Jolla (www.jolla.com) has shipped a mobile device based on the typical GNU/Linux stack together with new technologies such as Qt5 and Wayland. Information is presented such as how factual contribution to the open source parts of SailfishOS is done, with pro-
jects such as Mer Core and Nemo Mobile in the picture plus a walk-through of some of the more exotic pieces such as the ability to leverage Android hardware adaptations for Wayland based systems, through libhybris.

**Contributing to the Tizen Project**

Tizen: Apps, core, platform, hardware, what? where? how? and when?

Phil Coval (rzr)  Sat. 16:00 – 16:30

General presentation of the Tizen project and how to interact with it at the application or core level or even for designing your own Tizen system.

**The xpcc microcontroller framework**

An efficient, object-oriented approach to embedded software development.

Niklas Hauser, Kevin Laeufer  Sat. 16:30 – 17:00

This talk introduces the xpcc framework for efficient object-oriented programming for micro-controllers.

**QtCreator BareMetal development**

See QtCreator, OpenOCD and qbs in action.

**Tim Sander**  Sat. 17:00 – 17:30

QtCreator gained the ability to talk with these really small ARM Boards with CortexM processor. This presentation will show how easy it is to get into development on these boards with a GCC toolchain, OpenOCD and QtCreator with BareMetal plugin.

**wolfSSL 2013 Technical and Community Update**

Chris Conlon  Sat. 17:30 – 18:00

wolfSSL, author of the open source CyaSSL embedded SSL library has made significant progress in 2013 towards bringing the community a more usable, feature-rich, and better supported library for use in an ever-growing range of embedded platforms and environments. This talk will provide an overview of technical progress in the last year and news on the current state of wolfSSL. Details on what’s new include the addition of new crypto ciphers and algorithms, better hardware cryptography support, more flexible abstraction layers, a JNI wrapper, new platform support, and better development tool integration.
### Event-driven networking library

**On top of Boost.Asio**  
**Pierre Talbot**  
Sat. 11:00 – 11:45  
This talk presents Neev, a simple high-level networking library in C++ based on Boost.Asio that allows to setup client-server applications in a few lines of code. This library was designed and then used to code an add-on server for the game Battle for Wesnoth during Google Summer of Code.

### Ethical questions of game developing

**Fabian Müller (fendrin)**  
Sat. 11:50 – 12:50  

### Building a cross platform media layer based on Doom 3

**Justin Squirek**  
Sat. 13:00 – 13:25  
A short talk on common programming APIs used by games as well as creating simple Doom 3 levels and menus - with examples from current programming projects AdaDoom3 and a Neotokyo tribute modification.

### Game and Simulation development with Qt

**Martin Scheffler**  
Sat. 13:30 – 14:15  

### Killer Engine for Remixoing Games

**Jesse Himmelstein**  
Sat. 14:20 – 15:20  
Game programming is so fragile that most new games get written from scratch, again and again. We’ve created a new game engine for pulling apart games into atoms and stitching them back together in novel ways. Our techniques are inspired by functional programming, reactive programming, and dataflow, but still use imperative blocks that many programmers are familiar with. The game engine is completely open source, as are the games written on it.

### MADE

**Rubén Héctor**  
Sat. 15:25 – 15:40  
MADE (Massive Artificial Drama Engine for non-player characters) is a procedural content generator (PGC), with stochastic generation and modelled as a generate-and-test algorithm (search based) that performs the optimizations of the process during the game development.

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It presents an environment where many characters interact to generate plots where complex behaviors can emerge. Currently, an article about MADE is being evaluated by the committee of the Evostar 2014 (European conference on the applications of evolutionary computation).

**Ero.coli – a synthetic biology game**  
Citizen Science: Popularisation & crowdsourcing  
**Raphael Goujet**  
Sat. 15:45 – 16:00

Ero.Col retracees the journey of a nano-robot in its quest of ensuring the balance and prosperity of their living world.

This project is a single-player 2D top-down adventure game where the hero, a tiny nano-robot, has to explore a living world, collect, and combine functional DNA fragments in order to engineer and control the abilities of his bacterium companion and face obstacles and dangers.

**The rise and fall of open source gaming projects**  
**Fabian Müller (fendrin)**  
Sat. 16:05 – 17:05

**Community based translations of games**  
**Why babelfish ain’t enough**  
**Nils Kneuper**  
Sat. 17:10 – 17:55

The battle for Wesnoth is in the rare position of being an open source game project featuring many different translations for its huge amount of content. Currently Wesnoth features 54 translations of which 15 translations of the stable series are more than 90.

**OpenPandora and a peek into the future**  
**OpenSource video game handheld**  
**Michael Mrozek**  
Sat. 18:00 – 19:00

Presenting the currently available OpenPandora handheld, which is a miniature PC with Gaming controls running Linux, to interested people. Additionally, there will be a sneak peek into the future, maybe already with some hardware to demonstrate.
Three Years Experience with a Tree-like Shader IR
Ian Romanick  Sat. 12:00 – 12:50
Three years ago a small team at Intel took on the task of rewriting the OpenGL Shading Language compiler in Mesa. One of the most fundamental design choices in any compiler is the intermediate representation (IR) used for programs. The IR is the internal data structure used for all program transformations including optimization and code generation. At the time the compiler was designed, a number of alternatives were investigated. In the end, a tree-like IR was selected. With hindsight being 20/20, this talk will present the tree-like IR that was chosen and the issues that have been found with that IR in the interim.

State of the X.org foundation
Merging with SPI, including Wayland and Mesa under the umbrella
Martin Peres  Sat. 13:00 – 13:50
The state of the FLOSS graphics stack is rapidly changing and so is the X.org foundation. We are currently working on merging with SPI to get rid of the bureaucracy that goes along with having the non-profit association status in the USA (501(c)(3)). Since we are changing our legal status, it is also grand-time for us to broaden our purpose beyond the X Windowing System. Projects like Mesa and Wayland have accepted to be placed under the X.org foundation umbrella, it is time for us to make it clear that the X.org foundation is not only about X anymore! This talk will also advise people to become members of the foundation in order to get a voice in this process.

Open-Source Miracast
Wifi-Display on linux
David Herrmann  Sat. 14:00 – 14:50
Miracast is the name of a WiFi-Alliance certification program for the WiFi-Display standard. It basically defines a “wireless HDMI-cable” so you can connect monitors via WiFi. Some Android vendors implement it, Microsoft ships it with Windows 8.1 and with OpenWFD we now also have the first Open-Source implementation available. This talk shows what Miracast is, how it works, and how you can use it on your favourite linux distribution already.

Making the X-server run without root rights
Hans de Goede  Sat. 15:00 – 15:50
Xorg (the X-server) is a big and complex beast. Currently it runs as root as it needs root privileges for various reasons. But with the latest systemd-logind all necessary infrastructure is in place to allow the server to run as a normal user and use systemd-logind to do input and graphics device management.
This talk looks at the work being done to leverage this new infrastructure to run Xorg without root rights.

DRI3000 and Compositing
Saving Power by Reducing Copies
Keith Packard  Sat. 16:00 – 16:50
The X Composite extension opened up a wealth of possibilities for enhancing the free software desktop, however it came with a cost in performance and power—extra memory used by applications and extra copies of that memory from application buffers to the screen. This presentation will describe and demonstrate enhancements to the Present extension which can eliminate most of these additional copies, and with suitable kernel and application changes, eliminate even more copies for non full-screen double buffered applications.

Movit: High-speed, high-quality video filters on the GPU
Steinar H. Gunderson Sat. 17:00 – 17:50

Movit (the “Modern Video Toolkit”) is a high-performance, high-quality, open-source library for video filters, running on the GPU. Come see what the future holds when open-source video editing steps into 2014!

Status of GPU offloading on Wayland
Axel Davy Sat. 18:00 – 18:50

This talk will be about the principles of GPU offloading, how it is handled with X DRI2, and how we decided to handle it on Wayland.
The High-Performance Computing (HPC) and Computational Science developer room provides an opportunity for open source software developers in the HPC community to present their work and discuss it with FOSDEM attendees.

We invite system administrators, user support team members and end users of HPC infrastructure to participate and present their open source software project(s).// Topics include tools relevant to the HPC community (large-scale system administration, scalable technologies, user support), scientific software projects, etc., that adhere to the 'open source' format in some way or another.


**Time** | **Title** | **Speaker(s)**
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Sat. 11:00 – 11:15 | HPC devroom welcome, introduction to HPC-UGent and VSC | Kenneth Hoste
Sat. 11:20 – 12:20 | Using OpenMP to Simply Parallelize CPU-Intensive C Code | Klaas van Gend
Sat. 12:25 – 12:45 | Kadeploy | Lucas Nussbaum
Sat. 12:50 – 13:10 | Quattor | Luis Fernando Muñoz Mejías
Sat. 13:40 – 14:00 | Reduce the Storage Consumption of Your Storage Clusters with RozoFS | Dimitri Pertin
Sat. 14:05 – 14:25 | RestFS: the Next Generation Cloud Storage | Fabrizio Manfredi
Sat. 14:30 – 14:50 | How To Save The Environment | Aaron Zauner
Sat. 15:20 – 15:40 | HPCBIOS: Getting Your Software, Users & Documentation in Sync | Fotis Georgatos
Sat. 15:45 – 16:05 | Automatic Testing of Installed Software | Xavier Besseron
Sat. 16:10 – 16:30 | Introduction to Scalasca | Alexandre Strube
Sat. 16:35 – 16:55 | HPC Node Performance and Power Simulation with Sniper | Trevor Carlson
Sat. 17:00 – 17:20 | Solving NP-complete Problems with Metaheuristics | Geofffrey De Smet
Sat. 17:25 – 17:45 | Scientific GPU Computing with Google’s Go Language | Arne Vansteenkiste
Sat. 17:50 – 18:10 | Open Microscopy Environment | Blazej Pindelski, Douglas Russell

**HPC devroom welcome, introduction to HPC-UGent and VSC**

**Kenneth Hoste** Sat. 11:00 – 11:15

A word of welcome, the devroom agenda, and other practical info followed by a brief introduction to HPC-UGent and the Flemish Supercomputer Centre (VSC).

**Using OpenMP to Simply Parallelize CPU-Intensive C Code**

**Klaas van Gend** Sat. 11:20 – 12:20

Compute-intensive applications usually benefit hugely from parallelization: running code on multiple CPU cores at the same time. One mechanism to implement such parallelism is to use OpenMP, an official open standard that allows for easy parallelization of existing C or C++ code. The latest OpenMP version (4.0, released summer 2013) also covers offloading to accelerators like GPUs and SIMD.

Klaas van Gend will introduce OpenMP, its applicability and usefulness and how to use OpenMP to speed up your code.

**Kadeploy**

From Scalable and Reliable Bare-metal Prov-
Kadeploy is a scalable, efficient, and reliable bare-metal provisioning solution for HPC clusters. In this talk, I will first present the design choices that enable system administrators to install a 300-nodes cluster in a couple of minutes. Then, I will present how Kadeploy is used in the context of the Grid’5000 testbed. Grid’5000 is a large-scale testbed for research on HPC, Cloud, Grid and P2P computing, where Kadeploy provides users with the ability to deploy their own software stacks, making it the ideal testbed to design, test and evaluate IaaS Cloud stacks.

Quattor Configuration and Fabric Management Done Right
Luis Fernando Muñoz Mejías  Sat. 12:50 – 13:10
Quattor is a systems administration toolkit allowing controlling the whole life cycle of large and very large computer fabrics. It aims to provide great flexibility (use as much or as little of it as you want), accuracy, and consistency (catching lots of configuration errors way before deployment) and scalability, with installations from tens to tens of thousands of systems.

In this talk we’ll describe the main characteristics of Quattor, its simple language and show how a simple service can be deployed.

An Overview of Aquilon
Aquilon is the third generation configuration data-store for Quattor (The first being CDB and the second being SCDB).

This talk will cover the architecture and motivation behind Aquilon, experience from a site migrating to it and some examples of the power it can give to SysAdmins.

Reduce the Storage Consumption of Your Storage Clusters with RozoFS
The Flexible Distributed File System, based on an Erasure Code
Dimitri Pertin  Sat. 13:40 – 14:00
Distributed storage systems like RozoFS provide the best solution to adapt the resources of your system to an evolving demand, but data protection entails a huge data consumption.

This topic would interest those who cares about the data consumption (which is directly linked with energy consumption and architecture cost) of their clusters.

RestFS: the Next Generation Cloud Storage
Fabrizio Manfredi  Sat. 14:05 – 14:25
RestFS is an experimental project to develop an open-source distributed filesystem for large environments. It is designed to scale up from a single server to thousand of nodes and delivering a high-availability storage system with special features for high i/o performance and network optimisation for work better in WAN environment. The Project is on the beginning stage, with some technology previews released.

How To Save The Environment ..and get rid of virtualenv, rvm, pythonbrew, rbenv, pythonz (...)  
Aaron Zauner  Sat. 14:30 – 14:50
Although the “Modules” system has been around since the early 1990tles it has yet to find widespread adoption outside of the scientific computing and HPC community. Most FOSS developers rely on a wide range of tools to abstract and manage their Linux and UNIX environments for different scripting languages, compiler toolchains and applications. This problem has been long solved in the world of High Performance Computing where optimization of applications, toolchains and libraries is paramount. Environment Modules are a wonderful tool that will save time, help ease of development processes, reproducibility, and management of your development environment. This talk will give insight into how Modules work, which implementations are out there and how to use Modules instead of language bound tools as well as a comparison with common tools that the community uses to develop on Py-
thon and Ruby (for example) projects.

**EasyBuild: Building Software With Ease**
*Jens Timmerman*  
Sat. 14:55 – 15:15

EasyBuild is a software build and installation framework written in Python that allows you to install software in a structured, repeatable, and robust way. This talk will present the problem with building with scientific software, introduce EasyBuild, and discuss the main features of the tool.

**HPCBIOS: Getting Your Software, Users & Documentation in Sync**
*Fotis Georgatos*  
Sat. 15:20 – 15:40

HPCBIOS is concerned with the ability of users to handle tasks across computational platforms (HPC, Grids, Clouds) uniformly and painlessly, as much as technically feasible.

The aim of this work is to present ongoing efforts and concepts tried in centers located in the EU & US, trying to streamline the user experience in scientific computing, as well as, probe the interest of the community for current needs and future work.

**Automatic Testing of Installed Software**
*Xavier Besseron*  
Sat. 15:45 – 16:05

Automatic Testing of Installed Software is a testing framework to validate the various flavors of software installed on an HPC site. It is composed of a set of unit tests, a runtime and a result-gathering dashboard. These tests are user-oriented as they assess the basic features that a general user expect to work on an HPC platform.

Currently, it only focuses on generic MPI functionality as it is one complex and critical component of an HPC platform, but it will be extended to compilers, libraries and performance validation and regression in the future.

**Introduction to Scalasca**

A Performance Analysis Toolset for Parallel Programs
*Alexandre Strube*  
Sat. 16:10 – 16:30

Scalasca is a comprehensive open source performance analysis toolset for parallel programs, built with the aim of helping developers to identify opportunities for optimization. It covers all steps of performance analysis, from code instrumentation, measurement, and analysis to the visualization of the results.

**HPC Node Performance and Power Simulation with Sniper**
*Trevor Carlson*  
Sat. 16:35 – 16:55

Sniper is a performance modeling simulator. The goal of Sniper is to provide software developers with an easy way to analyze their applications. We provide both performance and energy/power analysis, as well as advanced visualization support.

**Solving NP-complete Problems with Metaheuristics**
*Geoffrey De Smet*  
Sat. 17:00 – 17:20

Some scientific research problems inherently suffer from an NP-complete problem. This session will explain several meta-heuristic algorithms which can handle such problems in reasonable time.

This session will also do lightning introduction of OptaPlanner, an open source Apache licensed Java library, which implements those algorithms.

**Scientific GPU Computing with Google’s Go Language**
*Arne Vansteenkiste*  
Sat. 17:25 – 17:45

We show general purpose GPU computing using Google’s Go language together with minimal use of Nvidia CUDA. This unusual match can perform very reliable, high-performance scientific computation using surprisingly brief and clear code.
The Open Microscopy Environment (OME) is an open-source software framework for addressing informatics challenges in biological imaging and analysis: proprietary file formats, lack of storage, and analysis facilities and standards for sharing image data and results. The Java-based OMERO client-server platform and its model-based architecture is applicable to a range of imaging domains, including light and electron microscopy, high-content screening, and recently into applications using non-image data from clinical and genomic studies.
The State of OpenJDK

Mark Reinhold  Sat. 11:00 – 11:25

A review of the past year in the life of the OpenJDK Community, with a particular focus on the nearly-finished JDK 8 release, the upcoming JDK 9 release, and a look ahead to planned process and infrastructure improvements.

OpenJDK on AArch64 Update

Andrew Haley, Andrew Dinn  Sat. 11:30 – 11:55

Red Hat’s project of porting OpenJDK to run on ARM’s new 64-bit architecture began about 18 months ago. This talk will describe the work we have performed over the last year, explaining how we went about implementing the client and server JIT compilers. In particular, we will give details and examples of how we have tuned the server compiler to generate code that has been optimized to make use of the AArch64 instruction set.

Shenandoah

an ultra-low pause-time GC for OpenJDK

Roman Kennke  Sat. 12:00 – 12:25

Current garbage collectors for OpenJDK all need to stop the application periodically to perform garbage collection tasks. This is a scalability bottleneck because those pause times are dependend on heap size. Shenandoah is a new garbage collector for OpenJDK, currently developed by Red Hat, that aims to reduce GC pause times to a minimum by implementing marking and object evacuation to run concurrently with application threads, and utilizing parallel garbage collection threads.

The OpenJDK PowerPC/AIX port endgame

Volker Simonis, Goetz Lindenmaier  Sat. 12:30 – 12:55

The PowerPC/AIX porting project currently driven by IBM and SAP is a good example how the OpenJDK fosters the cooperation of different players in the Java ecosystem in an open environment. At last years’ FOSDEM, we presented our JCK-certified JDK7 port. This year, we will showcase our JDK8 port. But more importantly, we will describe the lengthy process of integrating the port into the main OpenJDK repository, thus making it a first class citizen in the OpenJDK environment.

What a Long Strange Trip It’s Been

The Past, Present and Future of Java

Steve O’Grady  Sat. 14:00 – 14:25

The evolution of Android’s runtime

Ian Rogers  Sat. 14:30 – 14:55

Adding support for OpenJDK 8 to JamVM

Sven Goethel, Xerxes Rānby  Sat. 15:00 – 15:25

The Java Native Runtime

Charles Nutter  Sat. 16:00 – 16:25

JDK 7 Updates: Lessons Learned

Dalibor Topić  Sat. 17:00 – 17:25

Thermostat 1.0, two years of awesomeness and beyond

Mario Torre  Sat. 17:30 – 17:55

OpenJDK Governing Board Q&A Panel Session

Mark Reinhold, Andrew Haley, Georges Saab, Doug Lea  Sat. 18:00 – 19:00

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What a Long Strange Trip It’s Been

The Past, Present and Future of Java

Steve O’Grady  Sat. 14:00 – 14:25
From its early beginnings in 1991 as the runtime for interactive television set top boxes to its fundamental role in everything from big data to cloud today, Java’s rise has had more than its share of twists and turns. In this session, we'll quantitatively explore the decline of some Java projects against the rise of others. Understanding what Java was, is, and might become will help Java advocates from all areas to better communicate the strengths and future of the platform moving forward.

The evolution of Android’s runtime

Ian Rogers  Sat. 14:30 – 14:55

Android is a popular open source Linux based operating system that has been activated on over 1 billion mobile devices. This talk will describe the evolution of Android’s runtime from Dalvik to ART, a new runtime introduced as a developer preview in the 4.4 release.

Adding support for OpenJDK 8 to JamVM

Robert Lougher  Sat. 15:00 – 15:25

OpenJDK 8 has required substantial changes to the VM to support the new features in the language. This talk will provide an overview of the modifications required to JamVM to support them. This includes JSR292 (invokedynamic), JSR308 (type annotations), JSR335 (lambda expressions) and JSR901 (method parameter reflection). As of now, JamVM fully supports OpenJDK 8.

Ji Gong

Proposal for High Availability JVM Technology on All Platforms

Sven Gothel, Xerxes Rånby  Sat. 15:30 – 15:55

Ji Gong project focuses on empowering JVM technology and guaranteeing its availability. Ji Gong discusses deployment of a minimal and efficient JVM on all platforms including web browsers on mobile devices. Ji Gong repurpose and utilizes existing work, e.g. IcedTea-web, OpenJDK 8 and FOSS JVM implementations such as JamVM. We will showcase deployment of SCC signed applications using JogAmp APIs running on top of Ji Gong within a browser on embedded devices and desktop.

The Java Native Runtime

Charles Nutter  Sat. 16:00 – 16:25

Write once run anywhere is both a blessing and a curse. For years, the WORA promise has ensured a consistent, compile-free experience for JVM users. Unfortunately, sometimes pure-Java libraries just can’t do what developers need done. Sometimes, you just have to go full native. The Java Native Runtime is a core library and suite of support libraries for binding and calling out to native code. I’ll show how JNR is designed, compare code and performance with alternative approaches, and talk about why the JDK needs a standard FFI (foreign function interface) in Java 9.

From Webrev to Betterrev

Facilitating Contributions to OpenJDK

Daniel Bryant, Mani Sarkar  Sat. 16:30 – 16:55

With the rise of GitHub and the recent move of the Eclipse foundation to a social coding model, more and more people are wondering why participation in OpenJDK isn’t keeping up with the times. A small group of people from the London Java Community (LJC) and Adopt OpenJDK are trying to solve this problem by building Betterrev, a platform that will reduce barriers to entry for participation in OpenJDK: our intent is that all attendees will be excited by the potential benefits that the social-coding philosophy could bring to OpenJDK.

JDK 7 Updates: Lessons Learned

Dalibor Topić  Sat. 17:00 – 17:25

The JDK 7 Updates Project in the OpenJDK Community has been around for more then two years, breaking a new ground in how JDK updates are made and trying out a few new things in the process. This session will go into lessons learned from producing updates to the JDK as part of an Open Source project.

Thermostat 1.0, two years of awesomeness and beyond

Mario Torre  Sat. 17:30 – 17:55

Thermostat is an awesome platform with the focus on Java Virtual Machines monitoring. This short present-
ation will discuss what has been done in the past two years until the release of Thermostat 1.0 and its current features and will disclose some spoilers on the future of Thermostat.

OpenJDK Governing Board Q&A Panel Session
Mark Reinhold, Andrew Haley, Georges Saab, Doug Lea
Sat. 18:00 – 19:00

An open Q&A session with members of the OpenJDK Governing Board.
Welcome to the Legal and Policy Issues DevRoom

Third Year of This DevRoom Includes an Excellent Panel of Speakers

Tom Marble, Bradley M. Kuhn, Karen Sandler, Richard Fontana

Sat. 11:00 – 11:05

Now in its third year, the FOSDEM Legal and Policy Issues DevRoom covers topics of licensing, legal, governance issues, and more as it relates to Open Source and Free Software projects.

Trolls Aren’t the Only Threat Under the Bridge

What should we do about anti-competitive software patent suits?

Deb Nicholson

Sat. 11:05 – 11:55

Many small and medium free software projects are staffed by volunteers that don’t have any money to tempt a patent aggression entity. There’s been plenty of talk about patent trolls, but money isn’t the only motive for a patent suit. Even if non-practicing entities are eventually curtailed, ill-intentioned practicing entities may not be affected. The free software community will still have to worry about anti-competitive suits, nuisance suits and suits designed to spread fear, uncertainty and doubt about the adoption of free software. So, what can we as free software builders, promoters and users do to protect the code we care about?

Open Source Compliance at Twitter

Lessons from the Twitter Open Source Office

Chris Aniszczyk

Sat. 12:00 – 12:50

In 2011, Twitter embarked on creating an open source office. Since there’s no real book out there when it comes to starting an open source office, we have a lot of interesting/hilarious lessons and stories to tell about the experience.

Legal and Technical Issues of Safety Critical Devices

Karen Sandler, John Sullivan, Jeremiah C. Foster, Amanda Brock

Sat. 13:00 – 13:50

Safety Critical Devices.

Fiduciary License Agreement

Lessons Learned

Matija Šuklje

Sat. 15:00 – 15:25

The first version of the Fiduciary License Agreement was published by the FSFE in 2007 in order to offer something that was missing at that time — a well balanced
copyright assignment for the FS community.

Since then different FS projects have made use of it. Some to assign copyright to FSFE and others to assign it to different entities in order to take care of paperwork and copyright issues for the FS project.

In this presentation we will look at the lessons learnt in the diverse history of the FLA and look ahead what is in line for the next version of the FLA.

**Patents, Free Software & Standards (Oh My!)**

**Tom Callaway**

Sat. 15:30 – 15:55

h264, MPEG LA and patents.

**JavaScript**

If you love it, set it free

**John Sullivan**

Sat. 16:00 – 16:50

On the Free Software implications of JavaScript.

**The road ahead for network freedom**

**Christopher Webber**

Sat. 17:00 – 17:50

Christopher Allan Webber of GNU MediaGoblin discusses the past, present, and future of free network services.

**Open Source Governance best practices roundtable**

Query panelists for their best ideas on Open Source Governance

**Stefano Zacchioli, Karen Sandler, Christopher Webber, Eileen Evans, Tom Callaway, Chris Aniszczyk**

Sat. 18:00 – 18:50

Five of our speakers from the Legal and Policy Issues devroom have agreed to participate in a governance best practices roundtable. These practices may touch on contribution policy, review boards, policy manuals, licensing tools, trademark guidelines, etc.

Questions will be asked of the panelists to start the roundtable and the audience will also be encouraged to participate in order to have more interaction with the panelists. Karen Sandler will be the moderator.
**Webmaker and MozEdu – Mozilla in the education and the code**

**A new way to learn code**

*Ashickur Rahman, Eduardo Urcullú*  
**Sat. 11:00 – 11:30**

This is a project that already has been in operation for a few months, born about a year ago from Mozilla Hispano, primarily about teaching young children and schools about the dangers out there on the Internet, how to avoid them, privacy in social networks, and others. Webmaker is a preamble (prior to beginning need to know these things). Success Stories of our events in Paraguay (the pioneers) and other countries, with rooms full of people who want to learn.

**Developing Webapps for Firefox OS**

**The Efficient & Simplistic Approach**

*Robert Kaiser, Sayak Sarkar*  
**Sat. 11:30 – 12:00**

This session will mostly concentrate on tips for designing and developing apps for the web as a platform while using the latest development tools and resources for Firefox OS in an efficient way.

**State of Firefox for Android**

*Chris Lord, Gian-Carlo Pascutto*  
**Sat. 12:00 – 12:30**

We’ll provide an overview of what happened with Firefox for Android in the past year. What features did we add, what performance improvements did we achieve, what usability improvements we made, and what entertaining stories we can tell from that experience? Also, where did we fail and where are we still aiming to improve?

**State of Firefox OS**

*Fabien Cazenave*  
**Sat. 12:30 – 13:00**

What we did in 2013, the cool dev tools we got for X-mas, the great stuff we’re planning for 2014, and how to get a free tablet.

**Mozilla Persona: an easy way to sign into websites**

*Srikar Ananthula*  
**Sat. 13:00 – 13:30**

What is Persona? How does it work? What are benefits of Persona? Let’s see it through a demo!
Designing for Participation and Web Literacy
William Duyck (FuzzyFox) Sat. 13:30 – 14:00
Mozilla has 4 pillars of activity, to build, empower, teach, and shape the web. One of the ways we can help others join with these activities is to design our systems and processes with participation in mind, but why stop there? We also try to teach, and its a waste to teach someone a proces, and not tie it into a broader understanding.

Google Summer of code and Mozilla
Gervase Markham, Florian Quèze Sat. 14:00 – 14:30
Mozilla has been participating to Google Summer of Code every year since the program started in 2005. Let’s review how this program has benefited to the Mozilla community. We will show a few very successful projects, and explain opportunities for students and mentors.

JavaScript for the skeptics
A contemporary retrospective on Advanced & Applied JavaScript
Soumya Deb Sat. 14:30 – 15:00
Starting with pdf.js, spiraling around shumway & zipfile.js, we’ll explore what JS is already capable of, even though it never seemed practical. Then we’ll go on to explain the WebAPIs to bring the “native” right in the browser (with a tinge of FxOS - so that it’s not up in the air, it’s already there - in fact it’s so-last-FOSDEM actually). Finally, we will talk about the (near) future, and how broadway.js, asm.js (Emscripten, LLVM) et al. are going the change the web - for good!

Servo: building a parallel web browser
Josh Matthews Sat. 15:00 – 15:30
Servo is a brand new browser engine being written by Mozilla Research, Samsung, and members of the Mozilla community. It’s built in Rust, a new programming language created by Mozilla, and designed to take full advantage of modern hardware and security practices. Come learn about what sets Servo apart from the competition, and how you can contribute!

Web Audio API
How to properly make noise on the Web
Paul Adenot Sat. 15:30 – 16:00
Now that &lt;audio&gt; starts to get traction on the Web, let’s talk about the new API authors can use to make noise in their web pages. We will briefly cover the API, and then show what is possible to achieve with it (and what is, at the moment, hard or impossible) and how it fits in the Web platform. We finish with possible plans for future of the API.

Extending Firefox Developer Tools
Jeff Griffiths Sat. 16:00 – 16:30
The Firefox Developer Tools team has been working hard over the last two years to provide web developers with useful, performant developer tools in Firefox. These tools are now excellent and are receiving a lot of attention from web developers. We have always thought that in addition to being useful and performant they also need to be extensible so that add-on hackers and web developers can create their own customized tools and provide better support for specific web frameworks and technologies.

Utilizing GPUs to accelerate 2D content
Bas Schouten Sat. 16:30 – 17:00
Over the last 15 years, GPUs have gone from being a piece of hardware found almost exclusively on the machines of gamers to being present in almost every single desktop and laptop computer. This hardware presents opportunities to greatly improve power usage and performance for graphics applications. Over the last 5 years GPU utilization in the desktop application world for accelerating 2D graphics has slowly moved forward, however their intended use for video games also presents us with a number of limitations.

Testing for a Better Web
James Graham Sat. 17:00 – 17:30
Poor interoperability between browsers is one of the
main frustrations faced when trying to develop for the web platform. Solving this is essential for safeguarding the future of the open web, and requires a comprehensive web platform testsuite that is run by all browser vendors. The challenge of creating this test suite is being coordinated by the W3C under the “Test The Web Forward” banner. In this talk, I will present the current state of the test suite, how Mozilla are using these tests in their automated testing infrastructure, and explain how to get involved with improving the web by contributing to the testing effort.

Women and Technology

Priyanka Nag
Sat. 17:30 – 18:00

Most of us are aware of the shocking statistic of ‘Men vs Women’ ratio in the Open Source world. The tough job right now is to find the reason for this shocking difference and figure out ways to get more women involved in Open Source. Being a woman in the Open source world, I have analyzed a few reasons for this scenario. This lightning talk will let me share my views with others and in turn will help me get a more global view point.

Observe online tracking with Lightbeam

Antoine Duparay
Sat. 18:00 – 18:30

Using the new Lightbeam add-on for Firefox, we will monitor web-tracking and discover solutions to protect ourselves.

State of Thunderbird

Ludovic Hirlimann
Sat. 18:30 – 19:00

What happened to the Thunderbird Project since the last version completely done by Mozilla staff. How things are going and what the plans are for the next version.
The MySQL & Friends developer room gives the opportunity to the open source MySQL community to present and discuss innovative development, share experiences and best practices in administering or deploying MySQL servers. Proxies, Clusters, new features, new engines and performances will be covered by the speakers.

This is the best place in Europe for the Community and professionals to meet.

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**Welcome in the MySQL & Friends Devroom 2014**  
Frédéric Descamps  
Sat. 11:00 – 11:05  
Open and welcome session

**Getting started with MySQL Performance Schema**  
Dimitri Kravtchuk  
Sat. 11:05 – 11:35  
Getting started with MySQL Performance Schema - a short overview of features available by default with zero efforts from user and zero config as well.

**mysqlv8udfs – Writing MySQL UDFs in Javascript**  
Roland Bouman  
Sat. 11:35 – 12:05  
MySQL offers two paths for users who want to add custom functions: SQL stored routines (SRs) and user-defined functions (UDFs).

SRs are simple to create, safe to execute, and offer features such as SQL queries. Their downside is poor performance, clunky syntax, and no support for aggregate functions. UDFs are harder to create and can be unsafe. However, performance is about as fast as it ever gets. UDFs do support aggregate functions.

**Galera Cluster IRL**  
Migrate an infrastructure to Galera Cluster  
Art van Scheppingen  
Sat. 12:05 – 12:35  
Galera Cluster is a synchronous multi-master cluster for MySQL which allows you to synchronously replicate your data to every node in the cluster. Galera Cluster makes the life of a DBA easier with features like automatic node joining, electing donor nodes, and automatic node removal once a node has failed. There is no need to dis-
tistinguish master and slave relations in your application as all nodes in the cluster are writable. Consider all nodes in the cluster as one big MySQL database server. The session will include design choices, lessons learned, and the pitfalls we at Spil Games fell into.

15 Tips to improve your Galera Cluster
Frédéric Descamps    Sat. 12:35 – 13:05
15 tips to boost your Galera Cluster.

Advanced Fulltext Search with Sphinx
Adrian Nuta           Sat. 13:05 – 13:35
Sphinx is one of the best open-source alternative to replace MySQLs full text indices. This is not only because of its superior speed and smaller resource usage, but also because it provides extended features for full text searching, which are not available on MySQL FTS indices.

MariaDB Connect Storage Engine
Serge Frezefond      Sat. 13:35 – 14:05
The MariaDB CONNECT Storage Engine allows access to various file formats (CSV, XML, Excel, etc). It give access to any ODBC data sources (Oracle, DB2, SQLServer, etc). Also, it allows access to remote MySQL tables. A CONNECT table itself can be a set of remote MySQL tables. This opens the door to interesting distributed architectures that can help to address big data. We will show practical examples of how the MariaDB CONNECT Storage Engine can help you get benefits from your existing data sources.

Incompatible changes proposed in MySQL 5.7
Morgan Tocker        Sat. 14:05 – 14:35
For MySQL 5.7, one of the engineering goals is to continue to clean up and simplify code, and improve the architecture of the MySQL Server.
As part of this spring cleaning process, some features in MySQL 5.7 had a change in behaviour; for example the EXPLAIN PARTITIONS and EXPLAIN EXTENDED syntax will be enabled by default. Other features will be deprecated and may be removed; for example the InnoDB Monitor tables.
This session aims to describe the motivations behind each of these changes proposed, and how they will affect those that administrate MySQL servers.

Inside MySQL 5.7 Replication Features
Luis Soares           Sat. 14:35 – 15:05
The new replication features in MySQL 5.7 help users to further reduce downtime, thus increasing data and service availability. Moreover, they consolidate MySQL as a perfect fit for distributed environments such as elastic clouds.

Handling failover with MySQL 5.6 and Global Transaction IDs
Stephane Combaudon    Sat. 15:05 – 15:35
Global Transaction IDs (GTIDs) are a new feature of MySQL 5.6 that can ease failover. Discover the benefits and challenges of GTIDs.

Spider Storage Engine
The sharding plugin for MySQL/MariaDB
Stéphane Varoqui, Colin Charles Sat. 15:35 – 16:05
Spider is a storage engine for database sharding for MySQL/MariaDB. Spider is already bundled in MariaDB 10.0. I will introduce Spider and new topics.

Sharding and Scale-out using MySQL Fabric
Lars Thalmann          Sat. 16:05 – 16:35
MySQL Fabric is an open-source solution released by the MySQL Engineering team at Oracle. It makes management of MySQL server farms easy and available for both applications with small and large number of servers.

Troubleshooting performance problems in MySQL
Maciej Dobrzanski      Sat. 16:35 – 17:05
It is a typical day at work when suddenly someone notices that the application loads slow. They immediately switch to complaining about database performance and demand that you find the problem and fix it. But how to verify the problem is really with the database? What are the common symptoms and where to look for them? And how to isolate the culprit?

The session will discuss the practical approach to troubleshooting performance problems in MySQL: where to start the investigation, what information to look at and how to interpret it. I will also be talking about useful tools and preparing the environment for effective troubleshooting.

ProxySQL: High Availability and High Performance Proxy for MySQL
René Cannaò Sat. 17:05 – 17:35

There are excellent Enterprise software which are able to scale out and boost performances of a cluster, but none open source. ProxySQL is a new proxy (currently under development) that aims to become the first open source proxy in the MySQL ecosystem able to provide HA and high performance with no changes in the application, using several built-in features and integration with clustering software.

Practical sysbench
Benchmarking mysql and IO subsystems
Peter Boros Sat. 17:35 – 18:05

This session will be about benchmarking MySQL and disk IO subsystems with sysbench and interpreting the results. In our consulting company, I helped a reasonable number of customers with sysbench so I know the common caveats most people run into. This talk will cover benchmarking IO subsystems with fileio tests, as well as benchmarking MySQL.

OSM data in MySQL
All the world in a few large tables
Hartmut Holzgraefe Sat. 18:05 – 18:35

So far the main workhorse database for OpenStreeMap data was PostgreSQL/PostGIS. With the GIS improvements in latest MySQL and MariaDB releases, especially having true spatial relationship functions instead of just max bounding rectangle (MBR) based ones, have become viable alternatives though. This talk is going to present the most important improvements, a MySQL backend for the osm2pgsql importer tool, and some sample applications including performance comparisons.

MaxScale, the Pluggable Router
Massimiliano Pinto, Vilho Raatikka Sat. 18:35 – 19:05

Flexible database clusters impose challenges in terms of load balancing, load splitting, write conflict avoidance, and service availability to name a few. MaxScale is a highly modular proxy with a pluggable API, which assists in offloading tasks away from both clients and the back-end servers. In its simplest form it acts as a non-blocking zero-copy load balancer for read-only connections, while in the other extreme it examines packets and parses queries, which are then processed according to the dynamically changeable rules exposed by plugged-in modules.
Welcome
Italo Vignoli  Sat. 11:00 – 11:05
Welcome and introduction to the open document editors devroom.

WebODF: office in the browser
Jos van den Oever  Sat. 11:05 – 11:20
WebODF is an office suite for both local and cloud use. It works anywhere there is a browser or a browser widget. With WebODF you can edit office documents, share them, or publish them. WebODF is compatible with LibreOffice, Microsoft Office, OpenOffice and others, but can also be used stand-alone. It requires no special server software; it can be easily integrated with any web software.

LibreOffice plumbing on iOS and Android
Tor Lillqvist  Sat. 11:20 – 11:35
In this presentation, I will present a summary of the peculiarities of LibreOffice internals on iOS and Android, and tell about some recent advances like running as 64-
bit ARM64 code on the newest iOS devices.

Changes to ‘fields’ in Writer for Apache OpenOffice 4.1
in-place editing of Input Fields and annotations on text ranges
Oliver-Rainer Wittmann Sat. 11:45 – 12:00
Presentation on the two changes in Writer for Apache OpenOffice 4.1 regarding ‘fields’ from the developers point of view. The in-place editing of Input Fields is the one PoV, the other is the enhancement of comments/annotations to apply them on arbitrary text ranges.

Writer internals: How are the pages rendered
Jan Holesovsky Sat. 12:00 – 12:15
Witer internals: How are the pages rendered?

Real-time compatible ODF change-tracking
OASIS ODF Standardization
Svante Schubert Sat. 12:30 – 12:45
The OASIS Advanced Document Collaboration subcommittee is working on an update of OpenDocument change-tracking (CT). The update will not only enhance the existing CT feature set to the current state of the art, e.g. tracking style changes, but also lay the foundation for the standardization of real-time collaboration (RTC) by making CT compatible to RTC.

OX Documents
OpenDocument Editor
Svante Schubert Sat. 12:45 – 12:55
OX Documents is a browser based ODF editor using the upcoming OASIS ODF change operations as principle design.

Once Upon a Primitive Slideshow
and other news from LibreOffice graphics
Thorsten Behrens Sat. 12:55 – 13:10
Once Upon a Primitive Slideshow, and other news from LibreOffice graphics.

Simplifying reuse with metadata support in ODF and plugin APIs
Peter Liljenberg Sat. 13:10 – 13:25
Reusing images shared with Creative Commons licenses would be much easier if we could use tools that keep track of the attribution and license metadata for the images. This talk shows how this can be done today with a set of plugins to Firefox and LibreOffice/OpenOffice, and what could be done better with improved support in the plugin APIs.

Time based charting for Libreoffice
Markus Mohrhard Sat. 13:25 – 13:40
A short overview of the new time based charting feature in Libreoffice.

Automated import and export testing of file import and export
Markus Mohrhard Sat. 13:50 – 14:00
A short presentation of the tests the Libreoffice team uses to test import and export filters.

Improving the XHTML export filter
And mentoring students through patches and licenses
Andrea Pescetti Sat. 14:00 – 14:15
The XHTML Export filter in OpenOffice has traditionally been quite limited. In an ongoing project, students are being mentored to integrate work by Habib Louafi based on an older version of OpenOffice into the current trunk. This work adds substantial new features such as: support for fonts, better layout, better support for images, and support for shapes. We will see the technical progress, but also the process with students working in different phases and having to work around licensing issues and dependency issues.

InteropGrabBag in LibreOffice Writer
What it is, how to use it and what uses it already.
Miklos Vajna  
LibreOffice Writer’s ODF filter was always capable of remembering attributes of elements which it does not understand, so after a load and save, such attributes were not lost. But what about the rest of the file formats? InteropGrabBag is a new API we have been creating over the past few months that lets foreign filters store their unhandled attributes, so such information is not lost during such a round trip. Come and see where we are, what still needs to be done, and how you can help.

librevenge is suite  
What is new in the world of import filters and what is coming soon  
Fridrich Strba  
Sat. 14:30 – 14:45

What is new in the file-format coverage within LibreOffice? Focusing on new improved APIs which will land in LibreOffice 4.3, encouraging details about the growth of filter-writing community.

genLang, a new workflow for translation.  
Apache OpenOffice  
Jan Iversen  
Sat. 15:00 – 15:15

Workflow from developer creates a text string, until a released product with n languages.

How to squeeze a language tag into a Locale  
What you need to know about BCP 47 language tags in your ODF editor.  
Eike Rathke  
Sat. 15:15 – 15:30

ODF 1.2, additionally to the fo:language and fo:country attributes, introduced fo:script and rfc-language-tag attributes to allow for the full range of BCP 47 language tags. This talk will give a brief overview what it means to applications and how LibreOffice implemented it and the consequences it may have for extension developers.

Quality Assurance  
The important work, who no one wants to pay for  
Raphael Bircher  
Sat. 15:30 – 15:45

The important work which no one wants to pay for.

Create Sidebar Extensions for OpenOffice  
Andre Fischer  
Sat. 15:55 – 16:05

An introduction of how to create new panels for the OpenOffice sidebar.

How to use the new ui format to do Accessibility right  
Notes for developers to get accessibility right in dialogs for LibreOffice when using the new ui format  
Caolàn McNamara  
Sat. 16:05 – 16:20

Notes for developers to get accessibility right in dialogs for LibreOffice when using the new UI format. How to convert existing accessibility relations in old code into the new XML descriptions. How to set mnemonics and why it is important. How to tweak containers to enhance accessibility.

re-using and re-targetting LibreOffice  
liblibreoffice and other ways of re-using us  
Michael Meeks  
Sat. 16:20 – 16:35

Come and hear how you can re-use LibreOffice’s powerful functionality in a variety of settings: for document indexing, headless on a server, file format shifting, charting, and more.

OpenOffice and Eclipse  
Andre Fischer  
Sat. 16:50 – 17:05

Use Eclipse and CDT to improve OpenOffice development.

Central configuration management of large LibreOffice deployments  
... demonstration of new tools and new options  
Andras Timar  
Sat. 17:05 – 17:20

In large organizations there is a need for central configuration management of desktops, including LibreOffice deployments. The new Windows registry configuration
backend allows integration of LibreOffice into Windows Server environments. LibreOffice can be configured with Group Policy Objects. Under Linux, configuration packages can be managed with Remote Root, which is an easy to use, new open source central management solution for Linux (or other package based) systems. This talk will show how these tools work.

**Debugging BoF**
Community Outreach for Open Document Developers
*Phillip Muldoon*  
Sat. 17:20 – 17:35
Workshop for questions related to GDB usage and strategies, and outreach from the GDB community to developers in the field of open document design and implementation.

**Exploring OpenOffice History using GIT Grafts**
Abandon hope all ye who enter here
*Herbert Duerr*  
Sat. 17:35 – 17:50
OpenOffice has a huge and old code base. When working with it one all too often stumbles over parts where knowledge of some code’s unmangled commit comments, the motivation behind a change, the caveats surrounding it, references to issue numbers, its relationship with other source files, or its relationship with other issues would be very useful. Some of this knowledge is still available but many pieces were almost lost in each major change of the repository. Using GIT grafts allows to revive that old history as well as possible in only one revision control system: Git.

**LO++14**
How to make use of 21st century C++ in LibreOffice development
*Stephan Bergmann*  
Sat. 17:50 – 18:05
Advances in C++ have gathered momentum with C++11 and forthcoming C++14, and compiler writers busy to keep up. However, for reasons of cross-platform, cross-compiler, aging baselines, etc., the LibreOffice code base is still mostly stuck with C++98. We will discuss how to overcome blockers in adoption of modern C++ features and in what ways LibreOffice would benefit from them.

**Liberated Build System: Mission Accomplished**
What’s next?
*Bjoern Michaelsen*  
Sat. 18:20 – 18:35
Many hands helped migrating LibreOffice to the purely GNU make based gbuild build system.

**Digital signing of releases**
Apache OpenOffice
*Jan Iversen*  
Sat. 18:35 – 18:45
Digital signatures for OpenOffice releases.

**Wrap Up**
*Italo Vignoli*  
Sat. 18:55 – 19:00
Wrap Up
Perl is an open source programming language with over 26 years of development. Perl is used all over the world for virtually all purposes, ranging from small sysadmin jobs and rapid prototyping to large scale development projects. Our motto is “There is more than one way to do it” and Perl offers all the flexibility to get the job done.

The Perl-community is tremendously active with over 250 Perl user groups (so-called “Perl Mongers”) worldwide. Most Perl Monger groups have regular, monthly, meetings. The Amsterdam Perl Mongers meet every 1st Tuesday for dinner and technical presentations. The Niederrhein Perl Mongers meet on the 3rd Tuesday, the Brussels Perl Mongers on the 2nd Tuesday.

Visit our booth or our devroom to learn about the present state and the future developments of the language and how people are using Perl today.

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<td>A/B testing: what your mother never told you</td>
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<td>Jonathan Worthington</td>
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</table>

Welcome to the Perl devroom
Claudio Ramirez, Wendy Van Dijk Sat. 11:00 – 11:15
Welcome!

Convos, a modern IRC client for your browser
Marcus Ramberg Sat. 11:15 – 11:55
Convos is a modern IRC client for your browser, built in the Mojolicious framework using HTML5 Web Technologies like Web Sockets, Desktop Notifications, Media Queries, and Push State. It’s always on, storing your messages in a Redis backend even when you are not connected. In my presentation, I will go through some of our technology choices and challenges in building a fully asynchronous Node.js-like application in Perl.

Asynchronous programming: Futures
Paul ‘LeoNerd’ Evans Sat. 12:00 – 12:40
A Future object represents an operation that is currently in progress, or has recently completed. It can be used in a variety of ways to manage the flow of control and data, through an asynchronous program. It is intended that library functions which perform asynchronous operations would use future objects to represent outstanding operations, and allow their calling programs to control or wait for these operations to complete.

Perl Community Essentials
How to get the most out of the Perl community?
Salve J Nilsen Sat. 12:45 – 13:25
How can one get the most out of the Perl community? Good question! I’m so glad you asked.

In this presentation, Salve J. Nilsen attempts to give a concise and information-rich overview of what the Perl community can offer, what to expect, and how to get the most out of it. The intended audience is everyone who wants to be more useful and effective with Perl, and isn’t already familiar with the community.

Writing novels using Perl

Juan Juliàn Merelo  Sat. 13:30 – 14:10

Do you need Perl to write a novel? Indeed you don’t and many, if not most, novelists write them without using it, and I’m positive about this. However, Perl can help you through the process of writing a novel and that’s what I’ve done with the open source “Manuel the Magnificent Mechanical Man”, which you can either buy in Amazon or download as a CPAN module. I’ll talk about how I organized the workflow for writing the novel using Perl, Git, GitHub, and the modules and Perl features which helped me through the process.

A/B testing: what your mother never told you

Curtis ‘Ovid’ Poe  Sat. 14:15 – 14:55

People keep hearing about A/B testing, but not a lot of people understand it. Rather than focusing on what your software does, it helps you focus on what your customers do. This talk will introduce some basic concepts of A/B testing, explain some common mistakes people make, and (if I’m lucky), will introduce the first open-source A/B testing module for Perl (I’ve already written it, but it needs to be renamed and have a better interface).

Perl and the Web – A Love Story

Sawyer X  Sat. 15:00 – 15:40

In the beginning of the great kingdom of the Internet, there was one ruler: Perl. With time, fallen from grace, the beautiful princess language lost its place on the throne, giving way to Ruby, Python, and to the dismay and horror of everyone in the kingdom, PHP.

But all is not lost. While underground, Perl has schemed a plot to overthrow the competitors. That plan is Plack/PSGI.

Interested in knowing more? Attend the talk, if you dare!

Perl 5 and Unicode
A Thorough Introduction

David Lowe  Sat. 15:45 – 16:25

This talk will start at the basics that any programmer in any language will need to know, moving on to Perl’s approach to Unicode and its gotchas. To keep things interesting there will be a short puzzle to figure out every few slides. Some of them will be testing if you’ve been paying attention to the previous slides, and some of them will be trick questions which will be explained subsequently. See if you can get a perfect score!

Nearly Everything you do is Optimization

Stop. – Really, Stop

Matthew ‘diakopter’ Wilson  Sat. 16:30 – 16:50

Which of your daily programming or system analysis and design activities aren’t attempts to find and choose the best way to do something - an activity in which computers and automation are, in the long run, far superior? Learn to do those things instead of doing the things machines can do better than you.

Stop Building Bridges to Nowhere: Build Bridges to MoarVM instead

Matthew ‘diakopter’ Wilson  Sat. 16:50 – 17:10

How many ways to interoperate? Build bindings to libraries in-process. Build bindings as RPC wrappers. Build bindings as web service wrappers. Build bindings as cross-VM sharing. OR build bindings to a VM which has bindings to all the others.

Net::LDAP

Basic concepts of LDAP, the Net::LDAP module and some real life examples

Clément Oudot  Sat. 17:15 – 17:55
Net::LDAP is a great LDAP client API, managing standard LDAP operations (add, search, bind, modify, ...), and extended operations and controls (VLV, password policy, change password, etc.). It also includes an LDIF API which is very useful when managing mass import/export between directories. This talk will present basic concepts of LDAP, the Net::LDAP module, and some real life examples.

Perl 6: what can you do today?
State of the Butterfly
Jonathan Worthington Sat. 18:00 – 19:00

In this session, we’ll answer “how far along is Perl 6” by exploring the things you can do with Perl 6 today. Along the way we’ll discover a powerful way to parse, composable concurrent programming, a rich and extensible object system, and much more.
Managing Postgres in a devops environment
Gabriele Bartolini, Marco Nenciarini  Sat. 11:00 – 11:50
Communication and collaboration between developers and systems administrators represent a key aspect of the “devops” cultural movement that has been growing in popularity over the last few years. Database administrators, most of the times, find themselves in between developers and sysadmins and their role is strategic. This talk will address some of the main concepts of “devops” as well as outline the reasons why Postgres can be considered the perfect companion in the database area.

Real-Life PostgreSQL JSON
Christophe Pettus  Sat. 12:00 – 12:50
PostgreSQL has added some wonderful new JSON features in 9.2 and 9.3. They look fascinating, exciting, and should have all kinds of great applications...

Like what?
We’ll talk about some real-life use-cases that actual companies are deploying, and what the trade-offs, performance issues, and challenges they’ve faced are.

A look at the Elephants trunk – PostgreSQL 9.4
Magnus Hagander  Sat. 13:00 – 13:50
PostgreSQL 9.3 was released in September 2013, but the development of 9.4 is close to reaching beta. This talk will take a look at some of the things that are available in what will eventually become PostgreSQL 9.4.

Postgres Performance for Humans
Craig Kerstiens  Sat. 14:00 – 14:50
To many developers the database is a black box. You expect to be able to put data into your database, have it stay there, and get it out when you query it... hopefully in a performant manner. When its not performant enough the two options are usually add some indices or throw some hardware at it. We’ll walk through a bit of a clearer guide of how you can understand how database is doing from a 30,000 foot perspective as well as analyze specific problematic queries and how to tune them. In particular we’ll cover Postgres Caching, Postgres Indexing, Explain Plans, extensions, and more.

Postgres for Application Developers
Will Leinweber  Sat. 15:00 – 15:50
In recent years, Postgres has gone beyond a traditional database and has become more of a data platform. While keeping its roots as a robust RDMS, it has added flexible, friendly document storage, and more.

We’ll take a tour of features which make Postgres a compelling choice for your next project, including Embedded JavaScript and JSON, other Extensions and Datatypes, Window Functions and accessing non-postgres data like Redis, Mysql, and even Mongo.
Identifying Hotspots in the PostgreSQL Build Process

Shane McIntosh  Sat. 16:00 – 16:50

Software developers rely on a fast and correct build system to compile their source code changes and produce modified deliverables for testing and deployment. The scale and complexity of the PostgreSQL build process makes build performance an important topic to discuss and address.

In this talk, we will introduce a new build performance analysis technique which identifies “build hotspots”, i.e., files that are slow to rebuild (by analyzing a build dependency graph), yet change often (by analyzing version control history). We will discuss the identified hotspots in the 9.2.4 release of PostgreSQL.

Announcements, Annual Report and Election Results

Magnus Hagander  Sat. 17:00 – 17:30

PostgreSQL Europe’s Annual report will be presented along with other announcements, and the results of the 2014 board elections revealed.
Smalltalk

Smalltalk environments offer a very high development productivity, unmatched by their successors. Come do some pair programming with us and experience yourself the advantages of a real OO environment.

This year, we show two new smalltalk(like) environments, developments in two existing ones, and applications of smalltalk in, among others, TDD with animations and robot control.

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**TDD with BabyMock2**

**Attila Magyar**  
Sat. 11:00 – 11:30

A new mocking framework for Pharo. It provides an animation of the interaction between the tested objects.

**How to get a JIT Compiler for Free**

**Implementing Smalltalk with RPython and Truffle/Graal**

**Stefan Marr**  
Sat. 11:30 – 12:00

SOM (Simple Object Machine) Smalltalk has Truffle-based and RPython (PyPy) based implementations. It shows modern ways of language implementations with the goal of achieving high performance.

**Pharo3: Status**

**Marcus Denker**  
Sat. 12:00 – 12:30

Pharo 2 was released in March 2013. Not even a year later, we are close to the release of Pharo3. With over 1200 issues fixed and many deep changes, it is the release with most changes yet.

This talk will give an overview of the changes and improvements done and present some examples of what can be done with Pharo3.

**Annual Squeak Shoutout**

**Craig Latta**  
Sat. 13:00 – 13:30

Progress made in squeak the past year and a look at the development of spur, the new VM.

**Pharo4: Plans and Dreams**

**Marcus Denker**  
Sat. 13:30 – 14:00

Pharo3 is close to being released. But development is not standing still: Soon the development of Pharo4 will start. As with Pharo3, the plan is to integrate changes for 10 months with a 2 month bug fix period and a release within one year.

This talk will give an overview of what people are working on for Pharo4. Topics will be - Bootstrap from Source - Minimal and virtual images - towards one image file - better model for saving changes - VM level work (e.g. type feedback optimisation)

**Objective-Smalltalk**

**Marcel Weiher**  
Sat. 14:00 – 14:30

Objective-Smalltalk is a re-imagining of Objective-C for the 21st century. Like Objective-C, it blends features from Smalltalk and C, but instead of adding some Small-
talk features to C, it adds ideas from Objective-C to Smalltalk.

It is intended as a full-stack language capable of complementing or replacing Objective-C for iOS and Mac OS X programming as well as replacing most scripting language use in those environments. It is not Smalltalk-80 compatible.

**Visualizing Delphi with Moose**

**Stephan Eggermont** Sat. 14:30 – 15:00

Moose provides the tools allowing the analysis, visualization and refactoring of Delphi source code.

**Gravel**

**Wouter Gazendam** Sat. 15:00 – 15:30

Gravel is a modern Smalltalk implementation for the JVM. It’s aim is to provide an interactive development environment in the Smalltalk philosophy as well as a stable and fast runtime platform. Gravel aims to be fully ANSI Smalltalk compatible.

(Family circumstances might force the speaker to cancel at the last moment. The time slot would then be used for “Show us your projects” instead.)

**PhaROS**

Towards live environments in robotics

**Santiago Bragagnolo** Sat. 15:30 – 16:00

ROS is an open software integration framework for robots that is becoming more mature day by day.

**A Spoonful of Raspberry Pi**

**Craig Latta** Sat. 16:00 – 16:30

Spoon on the Raspberry Pi.

**Getting started with Smalltalk**

**Stephan Eggermont** Sat. 16:30 – 19:00

Learn how to use a smalltalk system.
Virtualisation and IaaS

This devroom will present and foster collaboration between open source, openly-developed projects in the areas of virtualisation and IaaS type clouds (ranging from low level to data center, up to cloud management platforms and cloud resource orchestration).

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Unified Cloud Storage with Synnefo + Ganeti + Archipelago + Ceph

Vangelis Koukis

Sat. 11:00 – 11:40

This talk presents Synnefo’s evolution since FOSDEM ’13, focusing on its integration with Ganeti, Archipelago, and Ceph to deliver a unified, scalable storage substrate for IaaS clouds.

Dual-Android on Nexus 10 using XEN

Srinivas Kalaga

Sat. 11:40 – 12:20

Samsung will present the challenges of creating a dual-Android platform on the Nexus 10 (Cortex A15 based) using Xen on ARM. Samsung has been endeavoring to run Xen on ARM based mobile devices using paravirtualization for CortexA9 devices earlier and now with virtualization extensions on cortexA15 devices.

Autoscaling best practices

How did we survive the peak

Marc Cluet

Sat. 12:20 – 13:00

This talk will cover the basics of autoscaling, different types of auto-scaling, and how you can use your metrics to take good auto-scaling decisions. Targeted to entry level to mid level auto-scaling users.

Network Function Virtualization and Network Service Insertion and Chaining

OpenStack for NFV and SDN

Balaji Padnala

Sat. 13:00 – 13:40

Network Function Virtualization and Network Service Insertion and Chaining has several advantages like reducing the CAPEX and OPEX along with ease of use for Network Services deployment. In this session we describe how these dynamic network service requirements can be handled using KVM, libvirt and Openstack. They can understand how virtualization can be used for designing systems for data centre environment. Basic knowledge of virtualization would be helpful while attending the session.

oVirt and OpenStack Storage (present and future)

Federico Simoncelli

Sat. 13:40 – 14:20

This session will cover the current status of integration between oVirt and the OpenStack image repository (Glance), analyzing the motivations, the low level implementation (including Keystone authentication), and
ideas for the future. This presentation will include also an ample part dedicated to the future work and ideas to introduce the integration with Cinder (the OpenStack volume manager).

New Developments and Advanced Features in the Libvirt Management API
Daniel Berrange  
Sat. 14:20 – 15:00
Topics to be covered in the talk include capabilities for mutual exclusion / locking of guest disk images, fine grained access control against individual operations, users and objects in the API, the sVirt mandatory access control framework, auditing and structured logging via the systemd journal and integration with systemd and cgroups for resource management.

Why, Where, What and How to contribute to OpenStack
Thierry Carrez  
Sat. 15:00 – 15:40
This talk should appeal to curious developers interested in learning about OpenStack development and why contributing to it is a smart, interesting, and simple move. Although familiarity with open source development is assumed, no previous knowledge of OpenStack itself is necessary.

Foreman Project
Ohad Levy  
Sat. 15:40 – 16:20
Foreman is a complete lifecycle management tool for virtual, cloud, and physical servers. Through deep integration with configuration management, infrastructure services, and PXE and Image-based unattended installations, Foreman manages every stage of the lifecycle of your servers. Foreman provides comprehensive, auditable interaction facilities including a web frontend and robust, RESTful API.

OSv, a New Operating System Designed for the Cloud
Pekka Enberg  
Sat. 16:20 – 17:00
OSv is a new open source operating system for the cloud. It is designed to run a single application per virtual machine and its tuned for applications running under the Java virtual machine.

In this talk, we will introduce OSv, showcase its architecture, and explain performance and application management improvements. We will also talk about OSv specific improvements to the JVM that improve application performance in virtualized environments.

Operating system developers, as well as application developers who deploy to the cloud, may enjoy the talk. No special expertise is required.

High Performance Network Function Virtualization with ClickOS
Joao Martins  
Sat. 17:00 – 17:40
Middleboxes are both crucial to today’s networks and ubiquitous, but embed knowledge of today’s protocols and applications to the detriment of those of tomorrow, making the network harder to evolve. While virtualization technologies like Xen have been around for a long time, it is only in recent years that they have started to be targeted as viable systems for implementing middlebox processing (e.g., firewalls, NATs).

oVirt applying Nova scheduler concepts for data center virtualization
Gilad Chaplik  
Sat. 17:40 – 18:20
For several years now, the oVirt project has been leveraging KVM and relevant technologies (ksm, etc) in data center virtualizations. Being a mature and feature reach, oVirt takes another step forward with introducing a Pluggable Scheduling API. This presentation will review recent oVirt improvements in the areas of VM scheduling. The first part will discuss the architecture of the new scheduler. In the second part we will show samples of VM scheduling plug-ins, and integrate it to a live setup.

Jailhouse, a Partitioning Hypervisor for Linux
Jan Kiszka  
Sat. 18:20 – 19:00
This talk will introduce the architecture of Jailhouse, describe typical use cases, demonstrate the development progress on a target system and sketch the project road map.
Wikis are essential tools for online collaboration, open knowledge and free software. They are everywhere: from the mainstream Wikipedia to a myriad of public, academic and corporate knowledge bases and personal sites. And most of them are open source software.

Wikis developer room is a place to showcase and discuss: new features, especially exploring areas beyond plain text editing; compatibility and integration with other tools and services; lessons learned from deployments, surveys, research...; and cross-project collaboration.

We want to focus on sessions for a technical audience including savvy editors.

Coordination: Quim Gil (MediaWiki), Vincent Massol (XWiki) and Jean-Marc Libs (Tiki).

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**A comparison between MediaWiki, TWiki and XWiki communities**

Using metrics to measure communities

**Alvaro del Castillo San Felix**

Sat. 11:00 – 11:25

Presentation about the communities around. The report will be based in gathering community metrics from the three projects. Code and Issues contributors will be covered and analyzed with total global metrics and the evolution in time of those metrics.

Using information in development repositories of MediaWiki, TWiki, and XWiki, this talk will explore how the communities are evolving. Different techniques will be used to show different aspects of the evolution, from analysis of commits or tickets to comparison of released source code.

**show.tiki.org project: improve bug reporting and solving**

The new Tiki infrastructure for improving bug reporting and solving

**Jean-Marc Libs**

Sat. 11:30 – 11:55

Tiki Wiki CMS Groupware (Tiki for short) is the Free and Open Source Web Application with the most built-
in features. It also has a very open developer community policy which supports “the wiki way of writing software”. This emphasizes some common challenges, especially in terms of debugging and bug reporting.

This talk is about the infrastructure at show.tiki.org which we have set up for bug reporters to showcase the bugs on a running Tiki instance.

Covered for basic language support components – A Dashboard view
Harsh Kothari, Sucheta Ghoshal Sat. 12:00 – 12:25
Language Coverage Matrix Dashboard, a product supported by the Language Engineering Team, aims to provide an overview of all the resources that are available for Wikipedia and its sister projects. The talk will cover the basic introduction to this product, followed by the detailed description of its architecture, roadmap, and future plans.

Crowdsourced translation using Mediawiki
Siebrand Mazeland Sat. 12:30 – 12:55
The MediaWiki Translate was first introduced in 2007. Initially it was only used on translatewiki.net for software localisation. Later it was also enabled on KDE’s userbase wiki for translating their documentation. These days, the Translate extension is also used on Wikimedia wikis where the equivalent of more than one thousand A4 pages of pages of structured documentations is being translated each month. The next step is a feature for the mass translation of Wikipedia pages into any language combination to combine machine translation and content generation to allow every single human to freely share in the sum of all knowledge.

Counting (on) views — Page views on Wikipedia
Christian Aistleitner Sat. 13:00 – 13:25
While total number of page views still serves as simple, purely traffic-based metric to compare sites, it is an often misused metric around wikis. Management, analysts, and wiki communities have different understandings about which requests (should) qualify as page views. We exhibit the key differences, expose the resulting challenges and finally discuss possible solutions in a Wikipedia context.

wikiLingo – a unified approach to wysiwyg... programming?!?!
what you see is programming
Torsten Fabricius Sat. 13:30 – 13:55
wikiLingo is a programming environment that is wysiwyg first. It is parsed JIT and creates a sort of DOM that is traversable and modifiable. wikiLingo comes with wiki markup, but it is so much more than that. It is a cross CMS platform for a living whiteboard.

XWiki Rendering: A content rendering engine
Vincent Massol Sat. 14:00 – 14:25
Presents http://rendering.xwiki.org/ a generic engine for transforming content in a given syntax (mediawiki, confluence, JSPWiki, Markdown, HTML, XWiki Syntax, etc) into an output format (PDF, HTML, XML, etc), applying optional transformations.

This framework is generic and can be used outside of XWiki easily into your own Java applications.

VisualEditor
Wikipedia’s new editing system for wikis and for the web
Roan Kattouw Sat. 14:30 – 14:55
Wikipedia is supposed to be “the free encyclopedia that anyone can edit”. However, from our research we know that’s not really true. The wikitext markup used on most Wikipedia articles has gotten so complex that most people can’t figure out how to make changes. To address this problem, the Wikimedia Foundation and Wikia are developing VisualEditor, a new, WYSIWYG-like editor for wiki pages. VisualEditor is already available on Wikipedia, but in this presentation I will show you how you can install VisualEditor on your own wiki and customize it to your needs.
Panel (topic to be defined)  
Sat. 15:00 – 15:55
Cross-wiki collaboration topic and speakers to be decided at the wikis-devroom mailing list.

Developing the XWiki software  
Marius Florea  
Sat. 16:00 – 16:25
Explains how the XWiki software is developed on all aspects: Governance; Build process; Release process; Communication tools; Code quality; xwiki.org vs xwiki.com; And more...

Force Multiplication  
Victory through external tool writing  
Marc A. Pelletier  
Sat. 16:30 – 16:55
Fostering an environment where user-developers are enabled and encouraged to automate and interface with our wikis with their code has allowed their productivity and impact to be greatly increased, has stimulated development work on the core code itself, and has allowed the establishment of a vibrant ecosystem of open source development around our projects.

In this presentation, I show what measures we took to stimulate that ecosystem and what lessons we learned about the impact it has on vitality of the developer community of our projects.

Wikidata  
What we learned in its first 2 years and what is in store for the future  
Lydia Pintscher, Jeroen De Dauw  
Sat. 17:00 – 17:25
Wikidata is a new Wikimedia project that builds a free and open knowledgebase of structured data for Wikipedia and the world. We want to take a look back and talk about what we learned while building the project and take a look at what is coming in the future.

Repository-based wikis  
Mercurial, git or bazaar for storing wiki pages  
Radomir Dopieralski  
Sat. 17:30 – 17:40
Hatta Wiki is one of the many small wiki engines that use a version control system repository for storage of their pages. I want to talk about the benefits and drawbacks of using a repository instead of a database, and about different approaches to doing that.

Useful and Necessary Mediawiki Gadgets  
Harsh Kothari  
Sat. 17:40 – 17:50
Gadgets are very useful and a time saver. In this talk, I will show some of very useful and necessary gadgets that may be less known. Gadgets make editing and reading task very easy. I will show few gadgets that really make great impact on reading as well as editing stuff.

5 Unexpected usages of wikis  
Vincent Massol  
Sat. 17:50 – 18:00
Wikis have been evolving dramatically in the past few years and they are no longer the first generation wikis we used to know like Wikipedia. This session will be an eye opener showing all the capabilities of the next generation wikis. Examples will be mostly from XWiki open source project usages in the wild (http://xwiki.org).

A web development runtime platform based on the wiki paradigm  
Vincent Massol  
Sat. 18:00 – 18:25
When developing a web application, the traditional way is to develop the application from scratch using a general purpose language such as PHP, Grails, Play, Java/JSP, etc.

This presentation will show that a next generation wiki (examples based on XWiki: http://xwiki.org) can be used as a web development platform to develop applications on top of it, providing a strong infrastructure scaffolding to building web applications.

Addressing the long tail of applications  
Vincent Massol  
Sat. 18:30 – 18:55
We’ll demonstrate how a next generation wiki platform allows to do just that by using the XWiki open source project as an example.
Automotive Development devroom
Quick introduction to the automotive devroom at FOSDEM
Jeremiah C. Foster  
Sun. 09:00 – 09:20

A quick overview of the state of Open Source Automotive software.

Media wrangling in the car with GENIVI requirements
Collecting all your music in one place
Jeremiah C. Foster  
Sun. 09:25 – 10:00

Having all your media available in the car is the Holy Grail for carmakers. Unifying playlists, quick access to Internet radio, AM/FM, and traffic information is a complex task. This talk will discuss the currently available ways to index media in the car providing one of the pieces of the complex puzzle.

Research on an Open-Source Software Platform for Autonomous Driving Systems
Open Source platform for autonomous driving
Lukas Bulwahn  
Sun. 10:00 – 10:40

The next larger step in automotive development will be towards autonomously driving cars. Autonomous driving is a highly complex and safety-related function in future vehicles, and current software platforms are not adequate for this function. We present our ongoing research on an open-source software platform for autonomous driving software systems.

Building automotive HTML 5 UIs with Franca
Franca is proposed as an official project of the Eclipse Foundation
Klaus Birken  
Sun. 10:45 – 11:35

Franca is an open source framework for definition and transformation of software interfaces. It is especially useful for integrating software components e.g. in the context of the GENIVI Automotive/Infotainment platform.

Xen on ARM
Virtualization for the Automotive industry
Stefano Stabellini  
Sun. 11:45 – 12:25

During the last few months of 2011 the Xen Community started an effort to port Xen to ARMv7 with virtualization extensions, using the Cortex A15 processor as reference platform. The new Xen port is exploiting this set of hardware cap-
abilities to run guest VMs in the most efficient way possible while keeping the ARM specific changes to the hypervisor and the Linux kernel to a minimum. Developing the new port we took the chance to remove legacy concepts like PV or HVM guests and only support a single kind of guests that is comparable to “PVH” in the Xen X86 world.

Linux 3.7 was the first kernel release to run Xen on ARM as Dom0 and DomU. Xen 4.3, out in July 2013, is the first hypervisor release to support ARMv7 with virtualization extensions and ARMv8.

This talk will explain why ARM virtualization is set to be increasingly relevant for the automotive industry in the coming years. We will go on to describe how Xen exploits the strengths of the hardware to meet the requirements of the industry. We will illustrate the early design choices and we will evaluate whether they were proven successful or a failure.

**The Connected Car and FOSS**

How does the modern connected car use and interact with FOSS?

**Mikael Söderberg**  
Sun. 12:30 – 13:10

How do modern connected cars use and interact with FOSS? How can an industry adopt the best practices from Open Source and Free Software? It’s more than just using Linux and incorporating environments like Android, you have to engage communities. How do you as a developer engage?

This talk will describe how you can engage with various initiatives in the industry. We’ll also describe the landscape of various collaboration projects and alliances to help negotiate a rapidly changing ecosystem.

**In-vehicle DLNA with Rygel and dLeyna**

**Jussi Kukkonen**  
Sun. 13:15 – 13:40

In-vehicle media systems are going to be increasingly connected with other devices and media sources, that much seems certain. This could just mean integrating services like Spotify into the system or it could mean delegating actual media handling to personal devices and using the vehicle media system as just a dumb output device... but it could also mean car entertainment systems that use DLNA to interoperate with other media devices to give users all the media they want on whatever device they want.

**Managing the Car Cloud connection**

**ConnMan, systemd, and the Internet**

**Daniel Wagner**  
Sun. 13:45 – 14:30

Modern vehicle infotainment systems depend on Internet connections, but there are different use cases and expectations from the driver. We’ll dive into the topic of managing internet connections in the car.

**Fuel Stop Advisor: the GENIVI LBS APIs into action**

**Current status of the Fuel Stop Advisor project**

**Philippe Colliot**  
Sun. 14:35 – 15:10

Fuel Stop Advisor (FSA) is software based on GENIVI APIs that gives a predictive evaluation of the tank distance on the route ahead and, if needed, propose to reroute to an available and reachable refill station. The navigation engine of the FSA is powered by Navit.

**Tizen 3 Application Framework**

**A multi User App Framework for IVI**

**Dominic Foll**  
Sun. 15:15 – 15:55

Embedded system such as those used in Automotive, TV, or phones did not need to offer multi user support until recently. With the increasing of personalisation and security requirement, offering single user model, in particular for Automotive, is not any more acceptable. Tizen 3 new Application Framework, which is currently under development at Tizen.org, introduces a new model which aims at solving those issues. This talk explains how.

**Tizen IVI “from scratch”: customizing, building and testing**

**Setting up your own build system to mirror Tizen IVI and automate tests for your own requirements.**

**Stéphane Desneux**  
Sun. 16:00 – 16:30

Currently, Tizen images are built with infrastructure on tizen.org. But if someone wants to customize the distro...
for their own requirements (specific device, pre-installed applications...), a way to do this is to setup a private build infrastructure.

**NFC and the Vehicle**

Testing the linux NFC stack

**Timo Müller**  
Sun. 16:35 – 17:05

The use cases for NFC in modern vehicles are growing with the number of NFC-enabled smartphones. Establishing a Wi-Fi or Bluetooth connection or opening the car by simply touching it with your smartphone are just two examples.
## Distributions

### Time | Title | Speaker(s)
--- | --- | ---
Sun. 10:00 – 10:55 | AppStream & Listaller | Matthias Klumpp
Sun. 11:00 – 11:50 | Cross Distro Automation | Michael Ducy
Sun. 12:00 – 12:50 | Growing a GNU with Guix | Ludovic Courtès
Sun. 14:00 – 14:50 | See Your Project Pulse in Real-Time with Fedmsg | Nicolas Dandrimont, Pierre-Yves Chibon
Sun. 15:00 – 15:50 | Non-Coders Wanted | Deb Nicholson
Sun. 16:00 – 16:50 | UEFI is not your enemy | Leif Lindholm
Sun. 17:00 – 17:50 | What Ubuntu Does to Help Users | Philip Ballew

### AppStream & Listaller
The next step in application management and deployment on Linux

**Matthias Klumpp**

Sun. 10:00 – 10:55

AppStream provides a solution for application-centric software management using existing package managers, while Listaller extends the package manager with the ability to install 3rd-party applications in a secure way, without introducing additional UI. This talk explains the basic concepts of both projects and the motivation behind them, as well as the obstacles in cross-distro collaboration which we hit while developing these tools.

### Cross Distro Automation

**Michael Ducy**

Sun. 11:00 – 11:50

Automation is eating the world. No longer can you run systems without any level of automation. But how do you build that automation so that it will work in a mixed distro environment? This talk will cover how to build cross distro automation using Chef.

### Growing a GNU with Guix

A Foundation for the GNU System

**Ludovic Courtès**

Sun. 12:00 – 12:50

Guix is GNU’s package manager and distribution. It seeks to empower users in several ways: by being a dependable system foundation, by providing the tools to formally correlate a binary package and the “recipes” and source code that led to it, by allowing users to customize the distribution, and by lowering the barrier to entry in distribution development.

This talk will describe the features and foundations of GNU Guix as a package manager. It will report on the current status of building a stand-alone GNU distribution, and outline design goals that set it apart from existing distros.

### See Your Project Pulse in Real-Time with Fedmsg

**Nicolas Dandrimont, Pierre-Yves Chibon**

Sun. 14:00 – 14:50

Fedmsg, the federated message bus, is a distributed system allowing bits of a project’s infrastructure to publish events. This lightweight framework provides a central place to watch the life of a project, and allows anyone to listen in and trigger actions when an event is received.

### Non-Coders Wanted

How to Get and Keep Non-technical Volunteers

**Deb Nicholson**

Sun. 15:00 – 15:50

Many distributions sorely need writers for documentation, press releases and blogging or experts on outreach, fundraising and volunteer management or a friendly pack of translators, but aren’t sure how to get them. In this talk, I’ll discuss how to set parameters for non-coding tasks so that everyone is happy. With some basic benchmarks for scheduling, accountability and volunteer empowerment, you’ll be able to retain and ex-
cite your new non-coding volunteers.

**UEFI is not your enemy**  
**Leif Lindholm**  
Sun. 16:00 – 16:50

This talk gives an overview of UEFI and the components and organisations surrounding it - intending to clarify certain topics that may have been muddled by association.

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**What Ubuntu Does to Help Users**  
And What other Distros Can Learn from Ubuntu  
**Philip Ballew**  
Sun. 17:00 – 17:50

I will be presenting a practical guide that shows an overview of the ways that Ubuntu offers support to their users and relate this to how other developers and distributions can help out their users.
The mbed platform
Development platform for embedded devices
Bogdan Marinescu Sun. 10:00 – 10:30
The mbed platform is a framework for developing embedded applications with ARM MCUs. It consists of a SDK (software development kit) and a HDK (hardware development kit) which work together to provide a complete software and hardware solution and reference platform for developing a broad range of embedded applications.

mbed Open SDK & Open HDK
meet the mbed open platform
Emilio Monti Sun. 10:30 – 11:00
Meet the mbed open platform for developing ARM-based embedded devices. A clean and concise presentation about how to start developing today your new embedded device on the mbed platform only using the Free GNU GCC Toolchain and the open mbed SDK (Apache v2).

Memory Tuning Android for Low-RAM devices
Tuning Android to run on Low-RAM devices
Chris Kühl, Iago López Sun. 11:00 – 12:00
Running Android on low-RAM systems can present unique challenges. Tuning Android for these systems requires a knowledge of general Linux memory management and the memory tuning mechanisms specific to Android. This presentation will explore the tools and knobs available at all levels of the system to optimize and configure Android for devices at, or below, the recommended available RAM.

Booting Linux Made Easy: A Barebox Update
Robert Schwebel Sun. 12:00 – 13:00
The talk starts with a short introduction of the Barebox bootloader. Recently, barebox gained several new features: one of the most prominent is multi image support with full initialization from the open firmware device tree. Using this method, it is now possible to generate bootloader binaries for a whole family of devices, just by writing an open firmware device tree. Porting Linux to new hardware has never been so easy.

Lumicall – an open alternative to Viber
Free and open communications from mobile devices
Daniel Pocock Sun. 13:00 – 13:30
Lumicall is a fork of the original Sipdroid SIP phone for Android. As far as forks go, it is one of the more innovative ones, loading up the original project with cool features like encryption (TLS, SRTP, and ZRTP), ICE for NAT traversal and ENUM dialing.
Android Sensors 101
What you can do with sensors and how you can integrate them with Android
Atilla Filiz
Sun. 13:30 – 14:00
This presentation is about a general information on sensors, how to “fuse” data from multiple sensors for more accurate information, how Android handles the available sensors, and also a practical tutorial on how to introduce new sensors to Android so they can be seamlessly accessed by applications.

Underwater Acoustics to Opkg via The Yocto Project
Paul Barker
Sun. 14:00 – 15:00
Underwater noise produced by human activities in the ocean is a serious problem for marine mammals and fish. To produce the data needed to address this problem, an underwater noise monitoring device (the UDAQ) and a software toolkit for noise analysis (named TUNA) has been developed. Both of these components act as open platforms for the further development of noise monitoring and analysis methods. An initial prototype of the UDAQ platform has been produced using a Beagleboard xM single board computer along with an appropriate analog-to-digital converter, preamplifier, battery pack and pressure housing.

What if we could change programming languages?
How mbeddr works and how you can use it
Kolja Dummann
Sun. 15:00 – 15:30
I would like to give brief overview about the mbeddr project. Which is a open source extensible C implementation. I would like to show the existing extensions which are built for embedded systems and how we were able to enrich C with stuff like state machines and components. I will also show how language extensions can help to work with hardware feature at an Arduino example.

Integrity protection solutions for embedded systems
Dmitry Kasatkin
Sun. 15:30 – 16:00
Runtime system integrity is protected by access control mechanisms. The Linux kernel provides Discretionary Access Control (DAC) and several Mandatory Access Control modules, such as SELinux, SMACK, Tomoyo, AppArmor. All of these assume trustworthiness of the access control related data. Integrity protection is required to ensure that offline modification of such data will not remain undetected. This presentation will summarize the different methods of achieving integrity protection at different layers, compare them and will show how to use them to build integrity protected embedded system.

Metadata tracker
Metadata indexing and RDF SPARQL endpoint for mobile and embedded
Philip Van Hoof
Sun. 16:00 – 17:00
A presentation about the current state of the project and technologies where the software is being used (Jolla Phone, N9, N900, GNOME and infotainment systems in cars). Encountered pitfalls and lessons learned.
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<td>Measuring application energy consumption with instrumented hardware (workshop)</td>
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<td>EACOF: The Energy-Aware COMputing Framework</td>
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**Energy scavenging, battery life and should we build more power stations**

Why energy-efficiency of hardware and software matters

**Jeremy Bennett**  
Sun. 09:00 – 09:30

This introductory talk will set the context for the day. It will take a look at how energy efficiency is the major challenge for systems developers, and will then provide an overview of a number of open source projects that demonstrate how the energy efficiency of the entire system can be significantly improved.

**Measuring energy consumption in embedded systems**

**Simon Hollis**  
Sun. 09:30 – 10:15

In this talk, I will introduce the need for energy measurements for embedded devices and show how they may be performed accurately and for very low cost using a combination of off-the shelf parts and a wide range of target embedded systems.

I will cover the basic physics of energy measurement and go on to display designs for energy measurement kits, including the power sensing boards recently developed as part of the MAGEEC research project.

**An approach for energy consumption analysis of programs using LLVM**

**Kerstin Eder, Kyriakos Georgiou, Neville Grech**  
Sun. 10:15 – 10:45

Energy models can be constructed by characterizing the energy consumed by executing each instruction in a processor’s instruction set. This can be used to determine how much energy is required to execute a sequence of assembly instructions.

However, statically analyzing low level program structures is hard, and the gap between the high-level program structure and the low-level energy models needs to be bridged. We have developed a tool for performing a static analysis on the intermediate compiler representations of a program. Specifically, we target LLVM IR, a representation used by most modern compilers including Clang.

**spEEDO: Energy Efficiency through Debug suppOrt**

**David Greaves**  
Sun. 10:45 – 11:45

The spEEDO project aims to augment existing debug APIs (such as GNU’s RSP and ARM’s Coresight) with a power component for reporting and tracing energy use...
in multicore systems-on-chip. Energy is logged per IP block and per application thread and reports are made available to the operating system, to applications programs and over the debug interface. The aim is facilitate optimizations for energy-efficiency at all stages of software and silicon development.

Open Energy Measurement Hardware
James Pallister
Sun. 11:45 – 12:15
I will discuss how to measure energy consumption and show off the University of Bristol-designed energy monitor. This board can sample energy use with up to 6 million samples per second and the designs are open. This will allow fine-grained measurements of energy consumption, and power profiling of applications to find the energy hot-spots of a program.

Open Low Power Devices
meet the mbed open platform
Emilio Monti
Sun. 12:15 – 12:30
mbed is an open platform for developing ARM-based low power embedded systems (with a focus on IoT devices).
This talk will provide an overview about: why you might want to base your next low power device on the mbed platform; how to start developing only using the Free GNU GCC Toolchain and the open mbed SDK (Apache v2); and the measuring of the energy consumption of an mbed.

Measuring application energy consumption with instrumented hardware (workshop)
Andrew Back, Jeremy Bennett, Kerstin Eder, Simon Hollis, James Pallister, Simon Cook
Sun. 12:30 – 15:30
Bring along your applications and have their energy consumption measured on a pre-instrumented Arduino, Raspberry Pi or BeagleBone. Alternatively, bring along your own design on a breadboard and we’ll hook up a PowerSense shield to measure the energy usage.

MAGEEC
MAchine Guided Energy Efficient Compilation
Simon Cook
Sun. 15:30 – 16:15
MAGEEC, a collaboration between the open source software house, Embecosm, and Bristol University’s microcomputer group, aims to use machine learning to improve the energy efficiency of compiled code. This entirely open source project is funded by the UK government through the Technology Strategy Board, and aims to provide working systems based on LLVM and GCC by the end of 2014.

EACOF: The Energy-Aware COmputing Framework
Hayden Field, Kerstin Eder, James Pedlingham
Sun. 16:15 – 16:45
This talk will cover a new open source framework, EACOF, that provides energy transparency to enable energy-aware software development.
Go

Go is an open source programming language with a thriving community.

Join us in our devroom to learn about the future of the language and how people are using Go today.

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**Go Devroom Welcome**
Andrew Gerrand Sun. 09:45 – 10:00
Your host adg will kick off the Go Devroom with some opening remarks.

**Iris Decentralized Messaging**
Peer-to-peer based messaging for back-end service decentralization
Péter Szilágyi Sun. 10:05 – 10:35
To cope with an ever increasing number of internet connected devices, large scale computer clusters are becoming an everyday requirement for any web-service provider; and with the prevalence of compute clouds, these can be obtained effortlessly at a scale that was previously unimaginable. However, the distribution models available have not caught up with the advancements of clouds yet, and as such, distributed programs running on top of these platforms require significant efforts to take full advantage of their hosts’ capabilities.

**Camlistore**
your personal storage system for life
Brad Fitzpatrick Sun. 10:40 – 11:40
Camlistore (camlistore.org) is your personal storage system for life, putting you in control, and designed to last. It’s open source, under nearly 4 years of active development, and extremely flexible. Come see why we built it, what it does, and hear about its design.

**Interfaces: a new leaf for an old book**
Matthew Cottingham Sun. 11:45 – 12:15
This talk is about how we can use interfaces in Go to write testable code that can be easily modified, or “grows with grace”.

**Scaling with go: Youtube’s Vitess**
Sugu Sougoumarane Sun. 13:00 – 14:00
In this talk YouTube Engineer Sugu Sougoumarane describes how they built Vitess in Go to help scale YouTube.

**Write your own Go compiler**
More adventures with go.tools/ssa
Elliott Stoneham Sun. 14:05 – 14:35
I’ll be explaining the potential I see for Go as a very portable language and reviewing the Go tools that make that such an exciting possibility.

**Looking toward Go 1.3**
What’s coming in the next major release of Go
Andrew Gerrand Sun. 14:40 – 15:10
Go team member Andrew Gerrand will take a look at what’s coming in the next major release of Go.
Porting Go to New Platforms
Lessons learned from the Solaris port
Aram Hävärnanu
Sun. 15:15 – 16:15
Go is easy to port, but through this talk I hope to make it even easier.

Go Lightning Talks
Andrew Gerrand
Sun. 16:20 – 17:20
Go Lightning Talks. Come over to the Go Devroom to sign up!
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<td>From 0 to a complex webapp in 30 minutes</td>
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<td>The Power of Graphs to Analyze Biological Data</td>
<td>Davy Suvee</td>
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<td>LevelGraph – a graph store for node.js and the browser!</td>
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Welcome to Graph Devroom 2014
Welcome to Graph Devroom 2014

Sun. 09:00 – 09:05

Welcome talk...

Graphbuilder
Where’d you get that big old graph?
Nathan Segerlind Sun. 09:05 – 09:45
This talk will discuss the basics, the challenges, and the possibilities of graph construction.

From 0 to a complex webapp in 30 minutes
Let’s create a complex, graph-based webapp, live, within 30 min, with input from the audience only
Axel Morgner Sun. 09:45 – 10:15
With the help of the audience, I’ll try to create a complex webapp within 30 minutes. Complex in the sense of: Custom use case (unprepared, told by audience), custom JSON/REST backend, beautiful HTML5/CSS3 template, dynamic data, user interaction, Twitter/FB connect). Everything we need is the Open Source frame-

Fast and Memory Efficient Road Routing with GraphHopper
Solving spatial problems with Graphs and OpenStreetMap
Peter Karich Sun. 10:15 – 10:45
GraphHopper is a fast Open Source road routing engine written in Java running on the server as well as on Android. It uses OpenStreetMap as data source and implements road routing via Dijkstra algorithm and variations. In this talk I’ll describe the challenges faced while implementing fast and memory efficient graph algorithms and storage solutions.

The LDBC Social Graph Data Generator
Graph Query Benchmarking to the next level
Peter Boncz Sun. 10:45 – 11:15
The Linked Data Benchmark Council (LDBC) is an initiative to develop industry-grade database benchmarks. This talk focuses on the activities of its Social Network Benchmark (SNB) task force of LDBC, which developed an advanced graph generator during past year which...
creates a huge social graph with realistic correlations between structure and data. The datasets it generates will be tested by three different workloads (interactive, BI, graph analytics), that I will shortly outline.

**Giraph: two years later**
The new Giraph APIs for Python, Rexster and Gora.

**Armando Miraglia**
Sun. 11:15 – 11:45

Since its initial incubation, Giraph has turned into a different beast. It is now a solid, full-featured tool used in production at many companies that need to analyse massive graphs. The success of a data analysis tool relies on the usability if its programming API and its ability to play well with the ecosystem of data stores.

**The Power of Graphs to Analyze Biological Data**

**Davy Suvee**
Sun. 11:45 – 12:15

This talk will illustrate the power and flexibility of Graph Databases to help in the overall analysis of biological data sets. Davy will show how to build a visual exploration environment that helps researchers at identifying clusters within various biological data sets, including gene expression and mutation prevalence data. Additionally, he will demo BRAIN (Bio Relations and Intelligence Network), a powerful data exploration platform that combines various scientific data sources (including Pubmed, Swissprot and Drugbank). It uses a graph database under the cover to both store and enable powerful querying capabilities that provide key insights and deductions.

**Bio4j: bigger, faster, leaner**

**Pablo Pareja**
Sun. 12:15 – 12:45

Bio4j is a high-performance cloud-enabled graph-based bioinformatics data platform. It integrates most data available in UniProt KB (SwissProt + Trembl), Gene Ontology (GO), UniRef (50, 90, 100), RefSeq, NCBI taxonomy, and Expasy Enzyme DBs. Data is organized in a way semantically equivalent to what it represents in the graph structure, and thanks to this, queries which would even be impossible to perform with a standard Relational DB can just take a couple of seconds with Bio4j.

**Bio4j + Statika**
Managing module dependencies on the type level

**Pablo Pareja**
Sun. 12:45 – 13:00

Bio4j bioinformatics graph database is modular and customizable, allowing you to import just the data you are interested in. There exist, though, dependencies among these resources that must be taken into account and that’s where Statika enters the picture; a set of Scala libraries which allows you to declare dependencies between components of any modular system and track their correctness using Scala type system. Thanks to this, it’s possible now to deploy only selected components of the integrated data sets, with Amazon Web Services deployments on hardware specifically configured for them.

**Semantic Graphs Are For Everyone**

**Stardog RDF Database**

**Hector Perez-Urbina**
Sun. 13:00 – 14:00

Stardog is an RDF database for querying, searching, and reasoning about semantic graphs.

**LevelGraph – a graph store for node.js and the browser!**

**elf Pavlik**
Sun. 14:00 – 14:30

https://github.com/mcollina/levelgraph
I would like to publish similar interactive walk through for LevelGraph ASAP: http://nodeschool.io/#levelmeup and we could use it during hands on workshop!

Currently it supports RDF through two extensions LevelGraph-N3 and LevelGraph-JSON-LD. We also plan work on LevelGraph-SPARQL

**Natural Language Processing with Neo4J**

**Kenny Bastani**
Sun. 14:30 – 15:15

Recent natural language processing advancements have propelled search engine and information retrieval innov-
ations into the public spotlight. People want to be able to interact with their devices in a natural way. In this talk I will be introducing you to natural language search using a Neo4j graph database. I will show you how to interact with an abstract graph data structure using natural language and how this approach is key to future innovations in the way we interact with our devices.

**Graphgists – live graph documentation on steroids.**

**Peter Neubauer**  
Sun. 15:15 – 16:00

In this talk, Peter will describe the implementation and working of http://gist.neo4j.org. It is based on AS-Clidoc, Opal.js, Heroku and Neo4j and rendered all client side. Also, Peter will show some of the examples community members have been contributing - everything from Chess play graphs to product configurations.

**Graph Search**

**Max De Marzi**  
Sun. 16:00 – 16:30

Facebook Graph Search has given the Graph Database community a simpler way to explain what it is we do and why it matters. Max will show you how easy it is to build your own Graph Search... and for the truly lazy, a second way to perform graph search with just mouse clicks using the connectedness of the data and a little metadata magic to build a multi-term search bar.

**Visualize your Graph Database**

**Michael Hackstein**  
Sun. 16:30 – 17:00

If you are using a graph database you might want to get a visual representation of your data. In this talk I will present a visualization tool build on top of the Open Source Database ArangoDB. This tool allows a user to explore the graph by visually traversing through it. I will also present some challenges of graph visualization and my solutions for them.
Testing Kernel GFX Drivers
How to get drm/i915 off the number 1 spot on the kernel regression list ...

Daniel Vetter  
Sun. 10:00 – 10:50

Three years ago, the Intel kernel gfx driver infamously occupied the top spot on the regression list. This sordid state has massively improved thanks to a big effort over the past few years.

This talk will detail what we’ve all done to achieve this. Process improvements, improvements in the driver, test-suite infrastructure and new testing techniques developed to exercise specific features will all be covered. And of course a unsparing look at what didn’t work out, what still needs to be improved, and the plans for the near future won’t be missing, either.

Intel BayTrail graphics overview
Discussion of the Intel BayTrail platform and architecture

Jesse Barnes  
Sun. 11:00 – 11:20

Discussion of Intel BayTrail SoC architecture from a graphics perspective, including overview of render engine, display engine, memory architecture characteristics, and current status in Linux. Hopefully the presenter will have some sample platforms for people to play with after the talk.

Nouveau – On-going work, demos and research

Martin Peres  
Sun. 12:00 – 12:50

Nouveau is an open-source driver for NVIDIA GPUs developed through reverse engineering by the community. This talk will discuss the achievements of the driver, what happened these last 2 years, what we are working on and what may change in the future. Special emphasis will be put on power management as it is the most-lacking feature in our driver. Some demos and Q&A will close the talk.

Grate
Liberating the Tegra GPU

Erik Faye-Lund  
Sun. 13:00 – 13:50

The Grate project works on liberating NVIDIA’s Tegra GPU user-space components by reverse-engineering the proprietary drivers. This talk will discuss where we are and what the future might bring.

An Introduction to the Video4Linux Framework
How to write a video capture driver

Hans Verkuil  
Sun. 14:00 – 14:50

During the past five years a lot of work went into the video4linux subsystem of the kernel, in particular with respect to the frameworks that help the driver developers. This talk gives an overview of the kernel frameworks that help video4linux driver developers create good drivers.

The Lima driver
An update on the command stream/driver side
of the open source driver for ARM Mali GPUs.

Luc Verhaegen
Sun. 15:00 – 15:50
This talk provides an update on the lima driver progress of the past year. It will cover the work done on providing a Mesa driver for the Mali M family (M200/M400), and it will describe the current status of the reverse engineering work on the Mali T-series GPUs.

lima driver: Opening up the Mali instruction set
Connor Abbott
Sun. 16:00 – 16:50
This talk will describe the Instruction Set Architecture of the Mali 200/400 Geometry Processor and Pixel Processor, efforts to write an open-source compiler backend, and preliminary information about the new T6xx instruction set.

Sunxi KMS driver
A new display driver for allwinner SoCs
Luc Verhaegen
Sun. 17:00 – 17:20
This short talk covers the Allwinner SoCs display engines and the development of a (work in progress) KMS driver for this hardware.
The Internet of Things devroom will cover topics such as: machine-to-machine communication on small embedded devices, distributed applications for autonomous/self-controlled devices, discovery and infrastructure, and interoperability. Most talks will consist of a demo followed by explanations and discussion. There is a two-hour slot in the afternoon for participant-driven talks and further demos.

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Welcome to IoT Devroom
Welcome to participants and explanation of the day
Pieter Hintjens Sun. 09:45 – 10:00
Welcome to participants and explanation of the devroom format.

Flow-based programming for heterogeneous systems
with NoFlo and MicroFlo
Jon Nordby Sun. 10:00 – 10:25
Heterogeneous systems as found in the Internet of Things are made up of many devices of different types working together. Each device class is typically developed with separate tools using different paradigms. We propose that using NoFlo and MicroFlo one can develop heterogeneous systems consisting of microcontrollers, servers, and mobile devices using flow-based programming (FBP) as an unifying programming model.

OpenIoT
The Open Source Project for the Internet of Things
John Soldatos Sun. 10:30 – 10:55
The aim of this talk is to introduce OpenIoT, a FOSS project for developing/integrating Internet-of-Things (IoT) applications and services. OpenIoT is developing a platform and a range of tools for developing and deploying non-trivial IoT solutions. The introduction of the project will be made in the form of a lecture/presentation/lighening talk, yet it will also include practical examples and demonstrations of IoT applications based on the OpenIoT platform. Furthermore, a short programming tutorial could be provided. The aim of the presentation will be to attract interested developers/contributors to the project, thereby boosting OpenIoT’s community building efforts.

Current State of IEEE 802.15.4/6LoWPAN Stack inside the Linux Kernel
Alexander Aring Sun. 11:00 – 11:25
At the moment the most common solution to bring Linux embedded devices into the Internet of Things world requires a gateway or border router device. These devices use a separate IEEE 802.15.4/6LoWPAN Stack from
ContikiOS, TinyOS, etc.

The somewhat misnamed linux-zigbee project aims to implement the IEEE 802.15.4/6LoWPAN functionality (but not ZigBee) inside the Linux kernel so that you can bring a Linux machine into the Internet of Things world easily. The required hardware is an IEEE 802.15.4 radio frequency module which is typically connected via SPI or USB. On top of the 6LoWPAN stack you can run any IPv6 userspace software.

**Federating Access to IoT using OAuth**

**Paul Fremantle**
Sun. 11:30 – 11:55

The Internet of Things (IoT) is being used for lots of personal data, but what little authentication and authorization is mainly being done using traditional centralized role-based approaches. This talk shows how we can use Federated identity and access management approaches such as OAuth2 with MQTT and CoAP to support IoT.

**XMPP in the world of IoT**

**An open standard for interoperable IoT**

**Joachim Lindborg**
Sun. 12:00 – 12:25

Talk on how XMPP fit into the world of IoT. The big advantages, technologies, possibilities, and differences.

**LTE in your Linux-based system**

**Aleksander Morgado**
Sun. 12:30 – 12:55

Wireless connections have improved a lot lately and the data-rates and latencies that are now achievable with LTE make mobile broadband connections a key ingredient in every M2M recipe. But LTE mobile broadband connections in Linux-based systems are no longer setup using the good old AT+PPP pair. LTE-capable modems now use ECM-like network interfaces and even new control protocols, like QMI or MBIM.

**The Fluksometer as an IoT hub**

**Bart Van Der Meerssche**
Sun. 13:00 – 13:25

The Fluksometer is an open hardware/software platform that facilitates the visualisation and monitoring of ‘utility’ streams like water, gas, and electricity. The recently released v2B of the hardware comes with a Jeenode-compatible 868MHz radio interface. As such, the Fluksometer can now take on the role of an IoT hub which greatly expands the possible range of domestic applications it can enable. This talk would like to describe and demonstrate the new hardware as well as software components we are currently building that will turn this concept into reality.

**PicoTCP**

the reference TCP/IP stack for IoT

**Maxime Vincent**

PicoTCP: the reference TCP/IP stack for IoT

PicoTCP is a fully featured TCP/IP stack designed for embedded devices and released under the terms of GNU GPL. Our purpose is to propose it as the reference TCP/IP stack for IoT, especially due to its high portability and modularity.

This talk will explain the architecture of the stack, the way we have been developing it and the many features we support. Moreover, we will briefly show how easy it is to port the stack to a complete new architecture in no time.

**OpenTRV: resource-constrained computing: less is more**

**Saving energy while saving energy**

**Damon Hart-Davis**
Sun. 14:00 – 14:25

A talk about work so far on OpenTRV.

OpenTRV sets out to make it easy to save lots of energy by not heating rooms that you’re not in, and by no longer trying to use a single thermostat to get your whole house comfortable.

OpenTRV also allows a simple schedule to be set (no complex displays though!) and tries to anticipate when you’ll need heating to improve comfort while boosting efficiency.

**Participant driven discussion**

Sun. 14:30 – 16:30

A space for participant-driven discussions, unconference style.
The JavaScript developer room gives the opportunity to the open-source JavaScript community to present both its front-end and back-end expertise. The selected speakers will discuss, among other things, Angular.js, d3.js, npm and even robotics.

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<td>Steven Beeckman, Laurent Eschenauer, Andrew Nesbitt</td>
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Javascript Room Welcome
Steven Beeckman  Sun. 09:30 – 10:00
The organizing team will welcome you and kick off the first ever Fosdem Javascript Devroom!

Beyond the To-do List
Advanced Javascript Architecture with AMD, Modules, and Backbone
Jan van Thoor  Sun. 10:00 – 10:40
There are thousands of examples, using a myriad of JavaScript frameworks, of how to code a To-Do list. However, when looking for examples of more complex architectures, it is easy to despair.... Based on experience gathered as a Web Developer at trivago, here is one approach to structuring complex JavaScript applications using AMD, modules, and Backbone.

Building front-end JavaScript apps that scale
Phil Leggetter  Sun. 10:45 – 11:25
Developing large apps is difficult. Ensuring that the code is consistent, well structured, tested, and that the architecture encourages maintainability is essential. When it comes to building large server-focused apps the solutions to this problem have been tried and tested. But, how do we achieve this when it comes to HTML5 single page apps?

In this talk you’ll learn about the main concepts we have applied, how we have applied them - and how you can too - to achieve what might sound like the impossible.

Cute – a smaller Angular
Tim Ruffles  Sun. 11:30 – 12:10
AngularJS is vodoo, big vodoo. How much of Angular’s goodness could be fitted into a library the size of Backbone (10x smaller)? Cute is a attempt to do just that.

Evolutionary algorithms
In the browser and in the server and multi-threaded and everywhere
Juan Julián Merelo  Sun. 12:15 – 12:55
In this talk, we will present the state of the art and history of volunteer and, in particular, browser-based computing, will make a general introduction to evolutionary computation, and then show how this type of algorithms can be adapted to run on ephemeral, distributed, asynchronous, and heterogeneous nodes. We will present
our NodEO and jsEO evolutionary algorithm libraries and the result of some experiments using this platform. Finally, we will generalize and show a general methodology for doing scientific computing using JavaScript.

**Using a hypermedia API with Angular.js**

Pieter Herroelen  
Sun. 13:00 – 13:25

A big part of REST is the idea of Hypermedia As The Engine Of Application State. Using HATEOAS brings the qualities of the web such as the robustness and scalability to your system.

In this presentation you will see how we have built a hypermedia-driven client using Angular.js. The media type we have used is HAL.

**Javascript for enterprise**

Sandro Munda  
Sun. 13:30 – 14:10

Developing in enterprise is different to develop alone at home for fun. You need to have a mature stack with a tool chain that covers debugging, unit testing, software architecture, design patterns, etc. Nowadays, the Javascript community is mature enough to propose a stack that matches all aspects of the enterprise world perfectly.

**Hidden gems in npm**

New features and hidden gems to make you more productive  
Robert Kowalski  
Sun. 14:15 – 14:55

Node has one of the best package managers around: npm. With more than 50k packages the npm registry has an average growth of 116 packages/day and every month a lot of features are added to npm itself. In my talk I will show some brand new features and hidden gems to make you a more productive npm user.

**Javascript & Robotics**

Implementing autonomous flight of a quadcopter in NodeJS.  
Laurent Eschenauer  
Sun. 15:00 – 15:40

Will you have an autonomous flying robot taking your pictures and filming you during your next holidays?

**JavaScript in the Real World**

Andrew Nesbitt  
Sun. 15:45 – 16:25

Anything that can be written in JavaScript will eventually be written in JavaScript. First client side web apps, then server side programs, and now you can control hardware, embedded devices and even flying robots with JavaScript.

We’ll look at how you can get started writing JavaScript for Arduino and Raspberry Pi to read sensors and control servos and build your own JavaScript powered robots.

**Javascript Devroom Wrap-up**

Feedback on the day and discussion about next year  
Steven Beeckman, Laurent Eschenauer, Andrew Nesbitt  
Sun. 16:30 – 17:00

We just had the first ever Javascript Devroom at FOSDEM and want to get some feedback on the day, and an open discussion on future editions.
Introduction to LLVM dev-room
Sylvestre Ledru, Tobias Grosser  Sun. 09:00 – 09:05

The LLVM Project is a collection of modular and reusable compiler and toolchain technologies. Despite its name, LLVM has little to do with traditional virtual machines, though it does provide helpful libraries that can be used to build them. The name “LLVM” itself is not an acronym; it is the full name of the project.

Clang: Re-inventing the Compiler
Alp Toker  Sun. 09:05 – 09:55

The LLVM clang C++ compiler has exceeded all expectations the last year, gaining unprecedented new features that let you explore, rewrite, and rediscover your source code.

This is a talk about the human story of a compiler: What can we achieve going beyond compilation? Why are we compelled to invent a better wheel? How can we make everyday life better for coders, and could the compiler itself become an instrument for wider social change?

Auto-Vectorization in LLVM
Past, Present and Future
Renato Golin  Sun. 10:00 – 10:25

Auto-Vectorization has come a long way since the early vector-processing CPUs, and compilers generally take a long time to implement it, prioritizing other more generic features instead. But with all recent high-end chips containing some form of SIMD operations, auto-vectorization became a necessary feature on any modern compiler. LLVM was perhaps the last of the big compilers to have a decent vectorization engine, but it has grown considerably for the last year, and the investment on SIMD code generation will not diminish. This presentation outlines the past implementations, what we currently have available and peeks into the engineering pipeline to see what else we are working on.

The Avatar project – improving embedded security with S2E, KLEE and Qemu
LLVM-powered dynamic security analysis of embedded firmwares
Luca Bruno  Sun. 10:30 – 10:55

Avatar is a research framework that enables complex dynamic analysis of embedded devices by orchestrating the execution of an emulator together with real hardware. It is built on top of S2E/Qemu, KLEE and LLVM.
and its main goal is to enable advanced security analysis of pristine ARM source-less firmware, eg. through dynamic tracing or symbolic execution.

This talk will show key features of S2E in enabling runtime binary analysis (using Qemu virtualization and KLEE/LLVM symbolic execution) and how Avatar uses it to orchestrate analysis and execution at the emulator<device edge.

The LLVMLinux project
The Linux Kernel on Dragon Wings
Jan-Simon Möller
Sun. 11:00 – 11:55
Jan-Simon Möller will introduce the audience to the LLVMLinux project which goal it is to compile the Linux Kernel with the compiler tools provided by the LLVM project (clang). He will talk about the steps needed to compile the Kernel itself, the issues found during this endeavour and the status of upstreaming patches to the Kernel and the LLVM project.

How to contribute to LLVM
Sylvestre Ledru
Sun. 12:00 – 12:25
When starting to contribute to LLVM knowing the technical steps and especially the community habits can make the first (and upcoming) contribution a lot easier and the contribution process will become a more positive experience. This talk will discuss technical points such as your first patch for LLVM, how to get +w permissions, the various workflows, but also more soft skills such as ‘how can I find a reviewer for my patch’, ‘should I review patches myself’, or ‘what is this the right strategy to add a larger feature to LLVM’?

Two uses cases for the clang C++ parser:
Online Code Browser and Qt moc Replacement.
Olivier Goffart
Sun. 12:30 – 12:55
In this talk we will see how one can use the clang libraries to build two practical tools. The first tool is an online C/C++ online code browser that uses clang to parse the AST in order to provide information about each token and build a cross reference database. [http://code.woboq.org] The second tool is a replacement for Qt’s moc (meta-object compiler) which is used by Qt to provide introspection and enable signals and slots and the QML language, both as a stand alone executable or as a clang plugin. [https://github.com/woboq/moc-ng] The talk goes over implementation details and challenges encountered while developing.

Statically compiling Ruby with LLVM
... or how RubyMotion works internally
Laurent Sansonetti
Sun. 13:00 – 13:55
RubyMotion is a commercial implementation of the Ruby language for iOS and OS X development. RubyMotion makes intensive use of LLVM in order to statically compile Ruby. In this session we will focus on how RubyMotion uses LLVM also a bit of history with the MacRuby project (which uses LLVM as a JIT).

LDC – the LLVM-based D compiler
Using LLVM as backend for a D compiler
Kai Nacke
Sun. 14:00 – 14:55
D is a language with C-like syntax and static typing. It pragmatically combines efficiency, control, and modeling power, with safety and programmer productivity. LDC is a fully open source, portable D compiler which uses LLVM as backend. In my talk, I will introduce the overall architecture of LDC first. I will then use the mapping of the front end AST to LLVM IR to show the required LLVM features. Experiences with LLVM in general, porting to other LLVM backends and integrating features like the AddressSanitizer are highlighted. At last, areas of improvement for LLVM are shown from the perspective of a D compiler (ABI, vararg, exception handling).

Case study/tutorial on using LLVM in REPL systems
David Tweed
Sun. 15:00 – 15:55
LLVM is a modular system of compiler components with backends for most popular architectures. It is primarily designed as a compiler construction framework, but also provides facilities for Just-In-Time (JIT) compilation
of code. Although a lot of interest has focused on the implementation of LLVM-based compilers for ‘compiled ahead-of-time’ (AOT) languages (eg, clang for C), one of the most exciting uses is to generate code on-the-fly, taking advantage of situation-specific knowledge to perform better on the particular computation at hand.

An approach for energy consumption analysis of programs using LLVM
Neville Grech
Sun. 16:00 – 16:25

Energy models can be constructed by characterizing the energy consumed by executing each instruction in a processor’s instruction set. This can be used to determine how much energy is required to execute a sequence of assembly instructions.

High Level Loop Optimizations in LLVM
A tutorial on how to use Polly/isl/ppcg
Tobias Grosser
Sun. 16:30 – 16:55

For several important program classes (image processing, scientific computing, ...) High Level Loop Optimizations are essential to reach top performance. With Polly, we present a high-level loop optimization framework for LLVM, which provides a flexible infrastructure to develop and describe such high-level loop optimizations.
**IP risks for OSS developers**  
How to protect yourself against IP infringements by other developers in an open source project?  
**Yung Shin Van Der Sype, Soo Mee Provoost**  
Sun. 09:00 – 09:25

Open source software developers, just like any other developers, have to be aware of the legal liability they can incur.

**Sisyphus is Happy**  
Fighting for Software Legal Compliance  
**Alexios Zavras**  
Sun. 09:30 – 09:55

Nowadays software is usually a combination of own-written code and FOSS; in some cases it also contains parts licensed under non-FOSS licenses. FOSS licenses stipulate different obligations and, in order to be legally compliant, one has to abide by the obligations of every license.

This talk will present lessons learned while building a corporate compliance system that is sensitive to the needs of developers while still pleasing the lawyers.

**Licensing and Packaging FOSS with SPDX**  
Learning to combine and distribute software with open source licenses  
**Nuno Brito**  
Sun. 10:00 – 10:50

As developers of open source and free software, we share our code freely, we make a positive change on this world. However, too often great pieces of open source software are declined for integration inside amazing projects. Aren’t they good enough? From a technical perspective, yes. But when you don’t express clearly which licenses and third-party resources were used (images, libraries, code) then these “unknown libraries” become too much a risk to bear.

Are we doing the right things in regards to licensing? Come and join our talk to find out.

**Considering the Future of Copyleft**  
How Will The Next Generation Perceive GPL?  
**Bradley M. Kuhn**  
Sun. 11:00 – 11:50

Copyleft licenses, particularly the GPL and LGPL, are widely used throughout the Free Software community. Over the last few years, recent debates have led many to various conclusions about the popularity of copyleft. This talk will discuss where copyleft stands today, how it interacts with the modern Free Software world, and how copyleft advocates may need to adapt to the future of Free Software licensing.

**Legal issues from a radical community angle**  
**Stefano Zacchirol**  
Sun. 12:00 – 12:50

Throughout its 20-year history, Debian had to face a
number of legal issues, in all fields of the so (improperly) called “Intellectual Property”. From trademarks to patents, from copyright to export control and embargoes, Debian didn’t miss a single pesky issue. In this talk we review some of the most relevant legal issues that Debian has faced in recent years and how the project has responded to them. Doing so is a chance not only to share legal best practices with other Free Software communities, but also to highlight the policy annoyances that widespread legal systems imposes on radical Free Software communities such as Debian.

Taking license compatibility semi-seriously
Richard Fontana  
Sun. 14:00 – 15:00
This talk critiques what passes for orthodox license compatibility doctrine and suggests ways of adjusting how we interpret licenses (and therefore how we think about compatibility) to reconcile formalist notions of incompatibility with actual behavior by FLOSS community developers.

Why Licenses Requiring Use of Trademarks are Non-Free
Pamela Chestek  
Sun. 15:00 – 15:50
Why “badgeware” or other licenses that require use of a trademark are non-free licenses under both the Four Freedoms and the Open Source Definition.

Licensing Models and Building an Open Source Community
Eileen Evans  
Sun. 16:00 – 16:25
Do you need a copyleft license to build a community? Answering this ten years ago, the answer may have been yes, primarily driven by the contractual obligation to contribute back to the project. However, looking at the question now, open source has grown such that a vibrant, active community may be built with a permissive licensing model. Come hear some thoughts about how licensing models affect building an open source community and how their use has evolved over time.

EU research funding – Horizon 2020 and Free Software
Marc Hoffmann  
Sun. 16:30 – 16:55
This talk introduces EU research funding for Free Software.
Microkernels and component-based operating systems are pervasive parts of our computing landscape. They are currently used in situations where security and reliability are of utmost importance or where resources are scarce. The microkernel developer room brings the heads behind several projects together and offers a chance to get up to speed with developments in different groups.

Organization of the microkernel developer room is done in turns by groups in the microkernel community. This year’s developer room is organized by the OS group of TU Dresden (http://os.inf.tu-dresden.de/).

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Welcoming and Introduction
Julian Stecklina
Sun. 09:00 – 09:05
A short introduction of the hosts of the devroom and some warm words.

Rump Kernels, Just Components
Antti Kantee
Sun. 09:05 – 09:50
The talk will concentrate more on anecdotes from the “drivers first” development approach. Technical details for how rump kernels work will be provided as links.

Genode as general-purpose OS – progress report and demonstration
Norman Feske
Sun. 09:55 – 10:40
The Genode OS project started 2006 as tool kit for building microkernel-based special-purpose operating systems. Over the course of the past years, it has grown to a state where it becomes feasible to be used as general-purpose OS for daily computing needs. This talk will present the many challenges that we faced on our way during the past year.

HelenOS annual update
Jakub Jermář
Sun. 10:45 – 11:30
In this presentation, I will briefly talk about the developments that have taken place within the HelenOS project since the last FOSDEM. Codewise, I will mention both the new interesting features already merged into the HelenOS mainline repository and a selection of not yet merged ones. This includes features from a variety of areas such as networking, file systems, platforms, audio, testing, and others. In addition, I would like to utter a word or two about our participation in the Summer of Code in Space program during 2013.

The microkernel OS Escape
Nils Asmussen
Sun. 11:35 – 12:20
In the talk I’ll give an overview about Escape and explain the most important concepts. Especially, I’ll present the virtual file system that the kernel provides and that is among others used for getting access to drivers.
State of the Union: What’s new in the L4Re Microkernel System

Adam Lackorzynski  Sun. 13:00 – 13:45
In this talk we will present which changes and extensions to the L4Re microkernel system were required to actually ship L4Re in a commercial product. The talk will be a mix of an experience report and an overview of major features of the L4Re system.

Secure applications on top of L4

Sartakov A. Vasily  Sun. 13:50 – 14:20
L4ReAp: L4Re additional packages, is a collection of “real-life” packages and solutions optimized for working in L4 environment. Main area of usage is high performance and secure networking. In this presentation we outline security enhancements of L4Reap such as stack protection. In addition, new use-cases will be discussed.

GNU/Hurd DDE userland device drivers

Samuel Thibault  Sun. 14:25 – 14:55
We will explain how userland drivers are implement in GNU/Hurd thanks to the DDE layer, and what kernel support is needed for that. We will also show the flexibility this brings for the user.

Virtualization Dungeon on ARM

Hands on experience talk about virtualization experiments

Stefan Kalkowski  Sun. 15:00 – 15:30
The talk introduces ARM’s security extensions called TrustZone, and how they are used to run a guest OS on top of Genode’s native ARM kernel. It is a hands on experience talk covering pitfalls and blind alleys on the road to success.

Read-Copy-Update for HelenOS

Martin Dýcký  Sun. 15:40 – 16:25
This talk briefly introduces the RCU mechanism and the usual trade-offs that specific RCU implementations need to make. Furthermore, the talk also presents two novel RCU algorithms designed for a microkernel environment and implemented in HelenOS.

Rethinking Resource Control
Making use of hardware-OS-Compiler interactions

Michael Engel  Sun. 16:30 – 17:00
While resource allocation is deemed a domain of the OS, many resource allocation and scheduling decisions actually are performed by the CPU or by a compiler strategy or by a combination of OS, compiler and CPU microarchitecture. In this talk, we provide a basis for discussion how systems can benefit from a closer interaction of these tree HW/SW components, especially in the context of micro- and exokernel systems.
NoSQL encompasses a wide variety of different database technologies and were developed in response to a rise in the volume of data stored about users, objects and products, the frequency in which this data is accessed, and performance and processing needs. Relational databases, on the other hand, were not designed to cope with the scale and agility challenges that face modern applications, nor were they built to take advantage of the cheap storage and processing power available today. NoSQL database types include document databases, graph stores, key-value stores, and wide-column stores.

This devroom is a good place to learn more about NoSQL and meet community members from various database companies.

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**Elasticsearch 1.0**

Exploring the new features

**Honza Kràl**  
Sun. 10:00 – 10:50

Elasticsearch has reached 1.0 with many new exciting features including backup & restore, aggregations, and many other smaller changes. I’d like to introduce what’s new on real life examples and show what they can be used for.

**How you can benefit from using Redis**

**Javier Ramírez**  
Sun. 10:50 – 11:40

All the cool cats are using Redis and with reason: It’s fast, it’s robust, it’s easy, and it’s web scale. Redis is powering sites like twitter, instagram or pinterest, but you can also benefit from the power of redis even in a more modest project.

**Schema Design with MongoDB**

**Christian Kvalheim**  
Sun. 11:45 – 12:35

MongoDB’s basic unit of storage is a document. Documents can represent rich, schema-free data structures, meaning that we have several viable alternatives to the normalized, relational model. In this talk, we’ll discuss the tradeoff of various data modeling strategies in MongoDB using a library as a sample application. You will learn how to work with documents, evolve your schema, and common schema design patterns.

**Managing data for interactive applications with Couchbase**

Building scalable applications on top of a distributed JSON store

**Terry Dhariwal**  
Sun. 13:35 – 14:25

Couchbase is a highly scalable distributed database which acts both as a JSON document store and a K/V store. Uniquely, it has an integrated Memcached-compatible caching layer for blistering fast read/write operations. It’s an open source, Apache-licensed project.

**Headless with Cassandra**

The nytfabrik project at the New York Times

**Michael Laing**  
Sun. 14:30 – 15:20
Cassandra provides the global persistence layer for the New York Times nytfabrik project.

nytfabrik (in production January 2014) is reliable, low latency messaging middleware connecting internal clients at the New York Times (breaking news, user generated content, etc) with millions of external clients around the world. The primary technologies employed are: RabbitMQ (AMQP), Cassandra, and websockets/sockjs. Components developed by the New York Times will be made open source beginning in 2014.

This presentation will focus on the use of Cassandra as the high performance distributed data store supporting the nytfabrik.

**SQL to NoSQL, what you need to know**
Ensuring success in a NoSQL world.
**Christian Hergert**
Sun. 15:25 – 16:15

This talk will cover what you need to know for success when developing against MongoDB. Schema design, indexing performance, scalability concerns, and data sharding will be covered.

**OpenShift & MongoDB**
MongoDB under the hood & in the gears
@OpenShift
**Diane Mueller**
Sun. 16:20 – 16:30

OpenShift lightning talk: OpenShift Origin is the Red Hat-sponsored Open Source Platform-as-a-Service. Under the hood, OpenShift itself utilizes a fast and reliable MongoDB cluster. With OpenShift, you can easily deploy and run applications backed by MongoDB using your favorite servers and frameworks. In this lightning talk, we’ll quickly talk about MongoDB from both sides of this cloud-based application.

**YARN, the Apache Hadoop Platform for Streaming, Realtime and Batch Processing**
Bring your Hadoop Cluster to the next Level
**Eric Charles**
Sun. 16:30 – 17:00

As part of Hadoop 2.0, YARN takes the resource management capabilities that were in MapReduce and packages them so they can be used by new engines. This also streamlines MapReduce to do what it does best: process data. With YARN, you can now run multiple applications in Hadoop, all sharing a common resource management. Many organizations are already building applications on YARN in order to bring them in to Hadoop.

A developer room is also organized to apply the presented technologies.
Python

Python is a widely used general-purpose, high-level programming language. Its design philosophy emphasizes code readability, and its syntax allows programmers to express concepts in fewer lines of code than would be possible in other languages. The language provides constructs intended to make clear programs possible on both a small and large scale.

This developer room is a good occasion to discover the Python ecosystem and meet the community around this language.

A Python drink is planned Saturday 1st February, for more details see http://doodle.com/mn3yck6n3xxidsim.

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Logic Programming in Python

Pierre Carbonnelle  
Sun. 09:00 – 09:30

So far, the Python community has shown little interest in Logic Programming.

Yet, it is one of the three main programming paradigms, together with imperative and functional programming. Thanks to pyDatalog, a Python package which embeds Logic Programming within Python, Python programmers can now solve complex problems through highly readable and declarative programs. This talk will introduce you to Logic Programming through examples written in Python + pyDatalog.

Introduction to py.test fixtures

Floris Bruynooghe  
Sun. 09:30 – 10:00

py.test is a powerful and Pythonic unit testing tool which can scale from a few quick no-boilerplate tests to running huge unit and integration test suites.

OpenPyXL

Eric Gazoni  
Sun. 10:00 – 10:30

Presenting how to easily use Excel as a container for typed tabular data in Python, performance hints, and a progress status of the library after 3 years of development.

Introducing the Eve REST API Framework

Nicola Iarocci  
Sun. 10:30 – 11:00

You have data stored somewhere and you want to ex-
pose it to your users through a RESTful Web API. How?

**Stack switching for fun and profit**

**Saúl Ibarra Corretgé**  
Sun. 11:00 – 11:30

Greenlet is a pretty well-known way for implementing cooperative micro-threads in Python, but how does it actually work? How is it similar and different from Stackless? We’ll take a peek at how PyPy implemented it using a small library called ‘stacklet’ and how the python-fibers project takes advantage of it to build a similar project.

**SQLAlchemy Drill**

**Erik Janssens**  
Sun. 11:30 – 12:00

If you have been looking to use SQLAlchemy in one of your projects, but found the documentation a bit overwhelming then this talk is for you.

**Some recipes with Alembic**

**Claude Huchet**  
Sun. 12:00 – 12:30

The SysGrove® project is mainly based on PyQt4 and SQLAlchemy. Application development and enhancement is ongoing and as a matter of fact, the database scheme is changing quite often with many migrations per day.

**Post-mortem Debugging and Web Development**

**Alessandro Molina**  
Sun. 12:30 – 13:00

Developers tend to ignore that users can be more creative than them. Use their debugging skills for your own benefit: post-mortem debugging is one of the most important features your web framework can provide.

This talk will cover some of the simplest practices and available tools for debugging on production environments and to immediately improve quality of your web applications.

**The next generation Python Software Foundation (PSF)**

**Marc-André Lemburg**  
Sun. 14:00 – 14:30

The PSF was founded in 2001 with a closed membership model in mind. The original idea being that all contributors to Python would become members and to have the PSF provide a platform to defend Python’s copyright. Since then, the PSF has changed its focus from a purely legal entity to one that supports the international Python community by providing guidance, and financial and organizational help. At the last PSF Membership Meeting the members decided it was time to acknowledge this change in focus and to open up PSF membership to the whole Python community. This talk will explain the reasons, the new model, and the road map to get it implemented.

**How PyPy makes your code run fast**

**Romain Guillebert**  
Sun. 14:30 – 15:00

PyPy is an implementation of Python which is both fast and faithful to the Python syntax, PyPy’s Just-In-Time (JIT) compiler is the key to that compromise. This talk will explain how PyPy’s JIT can gather data at runtime to produce efficient machine code.

**Using All These Cores: Transactional Memory under the hood (PyPy)**

**Armin Rigo**  
Sun. 15:00 – 15:30

A picture of how the future of multi-threaded programming might looks like, for high-level languages like Python.

**A deep dive into PEP3156, the new asyncio module**

**Saúl Ibarra Corretgé**  
Sun. 15:30 – 16:00

Last year I talked about how PEP-3156 and Tulip (the canonical implementation) would change the async i/o landscape in Python. A year later it became real, merged into stdlib, and will be part of Python 3.4. We’ll dive deep into the internals of this new module and learn how those coroutines, tasks, and future work together.

**Concurrent programming with Python and my little experiment**

**Benoit Chesneau**  
Sun. 16:00 – 16:30
Concurrent programming in Python may be hard. A lot of solutions exists though. Most of them are based on an eventloop. In this talk I will present what I discovered and tested along the time with code examples, from asyncore to asyncio, passing by gevent, eventlet, twisted, and some new alternatives like evergreen or gruvi. I will also present my little experiment in porting the Go concurrency model in Python named “offset”, how it progressed in 1 year and how it became a fully usable library at the time of this talk.

Integrating Python and C using CFFI
Floris Bruynooghe
Sun. 16:30 – 17:00
One of Python’s early and lasting strengths has been how easy it is to call into or wrap existing C libraries using extension modules. However, there are still many subtle details to take care off and it is all too easy to leak references or memory.

Web Scraping 101 in python
M.Yasoob Ullah
Sun. 17:00 – 17:30
This talk is about web scraping in Python, why web scraping is useful, and what Python libraries are available to help you.

Generators, or how to step to the infinite and beyond
Andrea Crotti
Sun. 17:30 – 18:00
After defining what an iterator is, we will show some interesting use cases and explain how they work in depth.
The Software Defined Radio developer room has talks from various SDR projects.

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**Intro to the SDR devroom**

**Philip Balister, Martin Braun, Sylvain Munaut**  
Sun. 09:45 – 10:00

This year is the first year that FOSDEM will have a developer room dedicated to Software Defined Radio. Here, we will present a quick overview of SDR projects out there and those attending FOSDEM and then start off the day.

**Working with GNU Radio**

**Tom Rondeau**  
Sun. 10:00 – 10:45

Although GNU Radio is now over ten years old, the project has recently seen an incredible amount of growth in features. The capabilities we have been adding to the project are focused on improving current signal handling techniques, extending the GNU Radio project’s ability to handle newer and developing digital wireless signals, and focusing more on the embedded systems world.

**Building Link-Layer Protocols in a Lego-like Fashion**

**Andre Puschmann**  
Sun. 10:45 – 11:30

Most of the flexibility that has been brought to the development of software defined radios resides in components that can be associated with the physical layer of the radio. This talk tries to shed some light on how SDRs can also benefit from flexibility in higher protocol layers such as link-layer protocols.

**osmocom: Overview of our SDR projects**

rtl-sdr, gr-osmosdr, osmo-tetra, osmo-gmr, gr-fosphor and more!  
**Sylvain Munaut**  
Sun. 11:30 – 12:15

Osmocom stands for Open-Source MOBILE COMMunication. It’s an umbrella project for several sub-projects that focus on implementing various telecom standard. A growing part of these are using SDR and theses are the the ones that will be presented in this talk.

**Tutorial: OFDM Packet Transceivers**

Intro on how to write an OFDM-based PHY/MAC/App  
**Martin Braun**  
Sun. 12:15 – 13:15

GNU Radio is a powerful tool for signal processing of any kind. It is very much suited for setting up any kind of communication link. In this tutorial, we will discuss how to set up a PHY that can be attached to an application and MAC layer in order to experiment with arbitrarily configured wireless networks.
Towards an Open Source IEEE 802.11p Stack
An SDR-based Transceiver in GNURadio
Bastian Bloessl  
Sun. 13:15 – 13:45

I will discuss new ideas and application domains of our Open Source IEEE 802.11a/g/p OFDM transceiver for GNU Radio. The transceiver is implemented completely in software without the need for changing the firmware of the FPGA.

GNU Radio as a general purpose DSP environment
application to software defined radio and low-cost physics experiments
Jean-Michel Friedt  
Sun. 13:45 – 14:15

Software defined radio has exhibited tremendous growth in the last years thanks to the wide availability of significant computational power available in embedded and personal computers and ubiquity of radiofrequency interfaces. One Open Source environment suitable for grasping the basics of digital signal processing, in particular applied to radiofrequency signals, is GNURadio. While software is freely available and shared through the internet, hardware remains dependent on the availability of suitable boards from hardware vendors. In order to justify the time investment in learning to use this signal processing environment, we discuss the development of custom processing blocks and adding custom sources.

Wireless Networks In-the-Loop
gr-winelo – A GNU Radio Network Emulator
Nico Otterbach, Gerald Baier  
Sun. 14:15 – 14:45

This talk introduces gr-winelo, an in-the-loop simulation framework for communication networks which are based on the GNU Radio software radio toolkit.

libLTE
An Open Source LTE Library
Ismael Gomez  
Sun. 14:45 – 15:15

libLTE is a free and open source LTE library for SDR mobile terminals and base stations. The library does not rely on any external dependencies or frameworks.

GNU Radio Hardware Acceleration on Xilinx Zynq
Moritz Fischer  
Sun. 15:15 – 15:35

Although some of the currently available SDRs come with means of adding FPGA based acceleration to boost performance, almost nobody is making use of them. One of several reasons for that is, that the learning curve is quite steep for a beginner.

This talk will briefly describe a way to add hardware acceleration to Zynq based SDRs, that has already been successfully used in Jonathon Pendulum’s GSoC project. I’ll give an overview of where we are at the moment, what the development experience right now is like, what parts are still missing, and what I’m planning on adding.

SDR devroom closing session
Sun. 15:45 – 17:00

We’ll wrap up the day with summaries, hacking, and discussion of ideas for the next year.
Welcome to the Testing/Automation Devroom

Sun. 09:50 – 10:00
A quick introduction to the devroom.

Preventing craziness: a deep dive into OpenStack testing automation
Thierry Carrez
Sun. 10:00 – 10:50
OpenStack is a large infrastructure software stack openly developed by hundreds of developers across the world, producing hundreds of changes per day. How do we stay sane, make sure this complex software stack works, and produce releases every 6 months like clockwork?

ANSTE – Advanced Network Service Testing Environment
Testing Network Services in Multimachine Scenarios
Julio J. García Martín
Sun. 11:00 – 11:20
ANSTE is an open source tool designed to reproduce complex scenarios and simplify the execution of tests in several machines.

cwrap – The libc wrapper project
Testing your full software stack
Andreas Schneider
Sun. 11:30 – 12:20
Testing network applications correctly is hard. This talk will show how to create a fully isolated network environment for client and server testing on a single host, complete with synthetic account information, hostname resolution, and privilege separation.

Standalone applications testing and automation
Vadim Rutkovsky
Sun. 12:30 – 13:20
We are a group of engineers from Red Hat’s Desktop QE team and we would like to discuss stand-alone application testing on Linux. During this workshop we’d like to show existing workflows of application testing, discuss testing tools, and overall influence of quality engineers on open source software development process.

Unicorns
Testing Documentation
Florian Gilcher
Sun. 13:30 – 13:50
Ever struggled with outdated documentation which was possibly wrong to begin with? You test your components, you test the integration between services, but what about everything that you write about your software? There are approaches to testing documentation, but they are either cumbersome or too simple to be used at a larger scope. Having struggled with building an
approach to improve the quality of the technical documentation for Padrino.

**Automation in the Foreman Infrastructure**
A user success story
_Greg Sutcliffe_  
Sun. 14:00 – 14:50
A look at how Foreman uses automation internally to handle testing and release management.

**Using Gatling and Jenkins to Perform-ance Test Puppet**
Puppet Gatling
_Brian Cain_  
Sun. 15:00 – 15:50
Puppet Gatling is a Jenkins-CI plugin that post-processes Gatling simulation data to generate useful reports for load-testing Puppet. With this tool, users are able to discover a clear difference in performance between various versions of Puppet. Puppet Gatling is built upon open source tools such as the Gatling Jenkins plugin, Puppet, Cobbler, and Apache’s Maven development tool.

**Pride and Prejudice: Testing in the PHP World**
_Sebastian Bergmann_  
Sun. 16:00 – 16:50
Join Sebastian Bergmann, the creator of PHPUnit, as he shares his experience on how PHPUnit is used in different communities and projects, and what has been learnt along the way.

**Jenkins developers/users birds of a feather**
Sun. 17:00 – 17:30
Ad-hoc meeting of Jenkins developers and users in attendance at FOSDEM.
Valgrind Support in the Eclipse IDE
An Overview of the Eclipse Valgrind plugin provided by the Linux Tools Project
Roland Grunberg Sun. 10:00 – 10:25
For developers, it can often be a bit of a learning curve to learn the proper use of a new tool. For certain development tools the entry barrier can be quite high and can often discourage users. The Linux Tools Project aims to improve the state of C/C++ development on the Eclipse IDE by integrating popular tools, such as Valgrind.
This talk is aimed at people of varying experience with the Valgrind tool who have never used it within the Eclipse IDE.

Testing of valgrind RPMs in RHEL
Miroslav Franc Sun. 10:30 – 10:55
Valgrind is a tool which can be used for testing but also needs to be tested itself as any other piece of software. This talk will focus on testing done before releasing a new Valgrind RPM in Red Hat Enterprise Linux.

SimuVEX
Using VEX in Symbolic Analysis
Yan Shoshitaishvili Sun. 11:00 – 11:50
VEX, as part of Valgrind, is well-established in the world of dynamic analysis. However, there are certain questions that are best answered by symbolic analyses. In this talk I will describe the ideas behind symbolic analysis, detail challenges frequently faced when attempting to implement it, and introduce the work ongoing at UC Santa Barbara to use VEX to address these challenges, and implement a large-scale symbolic analysis system.

Helgrind: a constraint-based data race detector
Julian Seward Sun. 13:00 – 13:50
This talk will present the basic algorithm, the metadata compression scheme, and the scheme for collecting both stacks of a race. I'd also like to talk about the relationship between this and “traditional” h-b implementations since both schemes have advantages and disadvantages.

Porting Valgrind on Solaris
Ivo Raisr, Petr Pavlu Sun. 14:00 – 14:25
This talk describes a port of Valgrind to the Solaris operating system. It presents an introduction to the project, a current status of the project, porting difficulties stemming from differences between Linux and Solaris, testing of the port, and plans for the future. A brief introduction to the history of Solaris is included as well.

GDB, so where are we now?
Status of GDB’s ongoing target and run control projects
Pedro Alves Sun. 15:00 – 15:25
This talk will focus on testing done before releasing a new Valgrind RPM in Red Hat Enterprise Linux.
In this talk, I will present an overview of the current state of several GDB projects of interest to Valgrind developers looking at GDB/Valgrind integration, including the current state of GDBserver in GDB, where we are on local vs remote feature parity, all-stop vs non-stop modes, multi-process and multi-target projects, reverse debugging, and possibly others.

Combining the power of Valgrind and GDB
Philippe Waroquiers
Sun. 15:30 – 15:55
This talk will describe basic and more advanced functionalities provided by the combination of GDB and Valgrind.

BoF: Valgrind and GDB integration
Crazy and fun ways to make the Valgrind/GDB combo more powerful
Tom Tromey
Sun. 16:00 – 16:25

Given the current state of Valgrind and GDB how can we make things even better and smoother? Put some Valgrind and GDB hackers in the same room and let them discuss the technical details needed on each side. Come and help us brainstorm some crazy and fun ways to make the Valgrind/GDB combo even cooler and more powerful.

BoF: Ideas, new features and directions for Valgrind
Open discussion about small (or big) ideas to improve or change Valgrind.
Mark Wielaard
Sun. 16:30 – 17:45
Valgrind developers and users are encouraged to participate either by submitting ideas/suggestions or by joining the discussion. And of course by kindly (or bitterly:) complain about bugs you find important that are still Not YET solved for that many years!?@!!!
Virtualisation and IaaS

This devroom will present and foster collaboration between open source, openly-developed projects in the areas of virtualisation and IaaS type clouds (ranging from low level to data center, up to cloud management platforms and cloud resource orchestration).

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<tr>
<th>Time</th>
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<td>Renzo Davoli</td>
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<td>Virtualization in Android based and embedded systems</td>
<td>Dario Faggioli</td>
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<td>Getting cross-platform: bringing virtualization management to the PPC world</td>
<td>Omer Frenkel</td>
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<td>Adventures with CloudStack and OpenDaylight</td>
<td>Hugo Trippaers</td>
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<td>How we ported FreeBSD to PVH</td>
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<td>Bring your virtualized networking stack to the next level</td>
<td>Mike Kolesnik</td>
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**News from the VirtualSquare World**

**Renzo Davoli** Sun. 09:00 – 09:40

VirtualSquare community has created a number of tools for virtuality: VDE, View-OS, PureLibC, LWIPv6, etc. An entire new generation of our tools is being designed. This seminar will provide a preview on new developments and new features.

**Virtualization in Android based and embedded systems**

**Dario Faggioli** Sun. 09:40 – 10:20

Embedded systems are becoming powerful enough that virtualization is now both possible and interesting. Xen, as a very tiny microkernel based hypervisor looks like a very good fit for the embedded environment, not to mention that it has been ported to ARM with the number of supported boards in constant increase.

**Getting cross-platform: bringing virtualization management to the PPC world**

**Omer Frenkel** Sun. 10:20 – 11:00

This talk will cover: a short intro to ovirt; a bit about the code contribution effort by eldorado.org research center that made this happen; design consideration of multi arch support - objectives and constraints; basic flow for provisioning PPC enabled clusters; and some code, config files etc to demonstrate what ties it up altogether.

Target audience: Whoever is interested in data-center virtualization in general, ovirt-engine specifically, and PPC support.

**Ganeti: the New&Arcane**

**Guido Trotter** Sun. 11:00 – 11:40

The best known secrets that can help your deployment

**Expanding oVirt’s horizons**

**Mike Kolesnik** Sun. 11:40 – 12:20

How to extends and modify oVirt even further

As the prominent open-source data center virtualization
solution, oVirt has many features that help you virtualize data center and cloud offerings. Sometimes a feature might be needed to extend oVirt’s capabilities, but even though oVirt is open source, you might want to provide a quick and dirty solution.

Mike Kolesnik from Red Hat will show you how you can extend oVirt’s capabilities with ease throughout the oVirt stack - UI, engine and host.

Developers are welcome to join us in this session to learn how you can leverage oVirt to suit your virtualization needs.

**oVirt Hosted Engine: The Egg That Hosts its Parent Chicken**

**Doron Fediuck**  
**Sun. 12:20 – 13:00**

For several years now, oVirt has managed Virtual Machines. Then came the question: can you run oVirt inside a VM, which in turn will be managed by the hosted oVirt? In this session we’ll look at the intricacies of an egg hosting it’s parent chicken. We’ll cover the various aspects starting with installation, going through standard operations, and ending with high-availability for the hosted engine. Participants will be able to get insights of this unique setup, which will save them a physical server (or even two) while allowing standard flows to run the same way they did in the past years.

**Adventures with CloudStack and OpenDaylight**

**Hugo Trippaers**  
**Sun. 13:00 – 13:40**

I’ve been involved with CloudStack as a project management committee member and I have been focusing mainly on the software defined networking implementations. When the OpenDaylight project started to become more popular integration between OpenDaylight and CloudStack was soon something on my wish list. This talk is about my journey to get support of OpenDaylight into the CloudStack project. This talk is partially about the technical implementation is getting the code bases to work together, but also on how ideas on implementation needs to be aligned between project for any interoperation to become a success.

The intended audience for this talk is developers who are interested in software defined networking or who are interested in hearing about some of the cross project hurdles one might have to cross when doing an integration.

**Tunnels as a Connectivity and Segregation Solution for Virtualized Networks**

**Assaf Muller**  
**Sun. 13:40 – 14:20**

Join me for an architectural, developer oriented overview of (GRE and VXLAN) tunnels in OpenStack Networking.

**Media redirection for Spice remote computing solution**

**Project Melange: optimizing media stream processing for media players and VoIP clients in virtual desktop infrastructures**

**Fedor Lyakhov**  
**Sun. 14:20 – 15:00**

Outline:
Common media processing use cases; Red Hat Spice overview; Description of media stream processing problem in VDI; Media redirection concept description; Media redirection prototype description and demo; Feature evolution plan.

Discussion topics:
Architecture & design considerations (Apache Thrift vs D-Bus); New Spice APIs for virtual channels and overlay rendering; Fault-tolerance practices (crash, disconnect).

**How we ported FreeBSD to PVH**

**A description of PVH and how to port an OS to it**

**Roger Pau Monné**  
**Sun. 15:00 – 15:40**

Xen has recently gained a new guest type called PVH and it can run as both DomU and Dom0. This talk will focus on the architecture of PVH and the interface exposed to guest OSes in order to run under this mode.

Also, examples will be provided about how we ported FreeBSD to run under this new virtualization mode.
You have a Cloud, now What?
Sebastien Goasguen
Sun. 15:40 – 16:20
You have a Cloud, now what? In the last few years we have seen many presentations focused on how to build IaaS clouds. However very few, if any, actually tackle the issue of how to use a Cloud once you are done building it. In this presentation will look at key open source software that form the cloud ecosystem and are used to make use of a working cloud. Specifically we will review software like apache libcloud, jclouds, delatcloud, hadoop. We will also review the state of configuration management systems and their support for IaaS cloud software. We will go beyond talking about Cloud APIs and focus on API wrappers and how they are used to automate provisioning of virtual infrastructure within IaaS deployments.

Bring your virtualized networking stack to the next level
oVirt & OpenStack Neutron integration
Mike Kolesnik
Sun. 16:20 – 17:00
As the prominent open-source data center virtualization solution, oVirt relies on a powerful and easy approach to configuring a data center’s network. By leveraging the advanced network capabilities offered by OpenStack Networking, oVirt’s maintainers aim to bring this field even further, allowing data center administrators to use advanced networking capabilities while maintaining the simplicity of oVirt’s network management approach.
Developers & Users are welcome to join us in this session, and to discover how oVirt currently leverages OpenStack Networking, and see the road-map to future network virtualization in the Data Center, all using open source enterprise-grade software.
Wine is an LGPL implementation of the Windows API for Unix systems. It allows users to run Windows programs on Linux and Mac systems, and software developers to easily port Win32 applications to Unix systems.

This developer room is a good place to learn more about the Wine ecosystem and to meet the core developers. There are plenty of ways to contribute to Wine, and we’re a merry bunch. Come join us and learn why Alexandre is the most friendly of the pit vipers!

Social planning for Wine is usually at the last minute on the wineconf mailing list (http://www.winehq.org/mailman/listinfo/wineconf).

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<td>The User Experience</td>
<td>Rosanne DiMesio</td>
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<td>The Amazing Wine Test Framework</td>
<td>Jeremy White, François Gouget</td>
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<td>Performance of Wine and Common Graphics Drivers</td>
<td>Stefan Dösinger</td>
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<td>Sun. 15:00 – 15:30</td>
<td>Direct3D Q&amp;A</td>
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<td>Sun. 15:30 – 16:10</td>
<td>Win-builds and Mingw-w64: Package manager and modern toolchains for Windows</td>
<td>Adrien Nader</td>
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**State of Wine**

Alexandre Julliard  
Sun. 09:00 – 09:30

This talk will present a quick summary of the current state of Wine and of the plans for the upcoming 1.8 release.

**Pipelight – Netflix and more via Wine**

Michael Müller, Sebastian Lackner  
Sun. 09:30 – 10:30

This talk will discuss how Pipelight combines Wine with native Linux code to run Windows NPAPI plugins such as Silverlight, Flash, and Unity3D in Linux browsers.

**The User Experience**

Rosanne DiMesio  
Sun. 10:30 – 11:30

Report and discussion of issues that impact Wine users.

**The Amazing Wine Test Framework**

Jeremy White, François Gouget  
Sun. 11:30 – 12:00

This event will briefly describe the amazing Wine unit test framework, along with the full Windows Test Bot. It will amaze you so much that you will joyfully leap up to answer our resounding cry for help. This is a particularly good opportunity for Windows developers to help the Wine project.

**Wine BOF**

Wine Birds of a Feather sessions  
Sun. 12:00 – 13:00

Wine Birds of a Feather gathering.

**Wine on Android**

Alexandre Julliard  
Sun. 13:00 – 14:00

This talk will present the goals and the current status of the Android version of Wine, and explain some of the technical challenges involved in running Windows applications on Android devices.

**Performance of Wine and Common Graphics Drivers**

Stefan Dösinger  
Sun. 14:00 – 15:00

Last year I gave a presentation about the 3D performance of Wine and various GPU drivers. This talk will
review the changes made to Wine and Mesa and their performance improvements.

**Direct3D Q&A**

**Henri Verbeet**

Sun. 15:00 – 15:30

Ask wined3d developers questions, and they’ll try to answer them.

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**Win-builds and Mingw-w64: Package manager and modern toolchains for Windows**

Setup your development environment in less than 5 minutes

**Adrien Nader**

Sun. 15:30 – 16:10

Building for Windows is not the pain it used to be. This talk is an introduction to the history, philosophy, and current status of the two FOSS projects mingw-w64 and win-builds which, when combined, offer a package manager and up-to-date toolchains and packages for Windows.
Lightning talks

Lightning talks are short and focused talks on a wide variety of Open Source topics.

The goal is to showcase projects which do not fit into a specific main track or developer room. Speakers get exactly fifteen minutes to present their project or any aspect of it, including questions.

All lightning talks are scheduled in a large auditorium seating approximately 300 people.

Lightning talks, Saturday

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<td>How to Build a Tizen Device at Home?</td>
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<td>Armstrong — Music with the Arduino — No shields required!</td>
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<td>Do It Yourself OSHW Linux Computer</td>
<td>Tsvetan Usunov</td>
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<td>Sat. 14:40 – 14:55</td>
<td>Open Source Backup: from Bacula to Bareos — Forking to develop new features and reanimate the community</td>
<td>Philipp Storz</td>
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<td>The Linux kernel on dragon wings — Compiling the Kernel with LLVM/clang</td>
<td>Jan-Simon Möller</td>
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<td>Software engineering tools based on syscall instrumentation</td>
<td>Cédric Vincent</td>
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<td>Listaller — A simple and secure way to distribute 3rd-party applications</td>
<td>Matthias Klumpp</td>
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<td>Sat. 16:00 – 16:15</td>
<td>An overview of Sozi — SVG-based zooming presentation software</td>
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<td>MATE Desktop — The continuation of GNOME 2</td>
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<td>Discover DoudouLinux live!</td>
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<td>Sat. 17:00 – 17:15</td>
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<td>Jitsi Videobridge and WebRTC — The life of a rich communications client in Webland</td>
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<td>VMUX: P2P plugin-free videocalls in your browser — WebRTC powered videocalls</td>
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<td>Distributed VoIP Platforms — OpenSIPS at the core of a distributed and fully redundant VoIP platform</td>
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<td>Upipe video pipelines for multimedia transcoders, streamers and players — Flexible data flow framework</td>
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<td>Social and Real-time Web Applications using Meteor — Developing Real-time Web Apps in JavaScript on Linux</td>
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<td>python-netsnmpagent – Writing net-snmp AgentX subagents in Python — Implementing custom MIBs made easy</td>
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<td>BibOS Admin – a web-based, easy to use admin system for Ubuntu — Because Landscape is too expensive</td>
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<td>Blare: policy-based intrusion detection systems — Blare can track information flows in the linux kernel, android and the JVM</td>
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<td>Identifying Hotspots in Software Build Processes</td>
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<td>Introducing the Meson build system — The fastest build system in the world</td>
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<td>Introduction to LAVA — Automation and validation for Linux on ARM</td>
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<td>Security model using Smack for embedded systems — Small but secure</td>
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<td>Web and mobile testing made awesome — with open source</td>
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<td>Advanced disk image management with libguestfs — libguestfs, virt-builder, virt-sparsify and more</td>
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<td>Ceph — a fully open source distributed object store, network block device, and file system designed for reliability, performance, and scalability from terabytes to exabytes</td>
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<tr>
<td>Sun. 16:40 – 16:55</td>
<td>The SAML protocol — Single Sign On in the cloud</td>
<td>Clément Oudot</td>
</tr>
<tr>
<td>Sun. 17:00 – 17:15</td>
<td>Putting the PaaS in OpenStack — update on cross community collaboration: OpenStack, OpenShift, Heat, Nova, Docker, Solum — oh my!</td>
<td>Diane Mueller</td>
</tr>
<tr>
<td>Sun. 17:20 – 17:35</td>
<td>Your Complete Open Source Cloud — Mixing oVirt, OpenStack, OpenShift and Gluster for a full private cloud</td>
<td>Dave Neary</td>
</tr>
</tbody>
</table>
**Certification**

Please note that in order to take part in these exams you need to have registered beforehand!

**BSDCG Team**

Saturday – UA2.220 (Guillissen)

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sat. 12:00 – 14:00</td>
<td>BSDCG Exam Session</td>
<td>BSDCG Team</td>
</tr>
</tbody>
</table>

**LPI Team**

Saturday – UA2.220 (Guillissen)

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sat. 14:00 – 15:45</td>
<td>LPI Exam Session 1</td>
<td>LPI Team</td>
</tr>
<tr>
<td>Sat. 16:00 – 17:45</td>
<td>LPI Exam Session 2</td>
<td>LPI Team</td>
</tr>
</tbody>
</table>

Sunday – UA2.220 (Guillissen)

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
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</thead>
<tbody>
<tr>
<td>Sun. 10:30 – 12:15</td>
<td>LPI Exam Session 3</td>
<td>LPI Team</td>
</tr>
<tr>
<td>Sun. 13:00 – 14:45</td>
<td>LPI Exam Session 4</td>
<td>LPI Team</td>
</tr>
<tr>
<td>Sun. 15:00 – 16:45</td>
<td>LPI Exam Session 5</td>
<td>LPI Team</td>
</tr>
</tbody>
</table>
Stands

Projects will have stands throughout the hallways. Visit your favourite project’s stand, see a demo, buy merchandise, get goodies, and more. Then go visit the other stands and learn new things.

<table>
<thead>
<tr>
<th>Building AW</th>
<th>Building K level 1</th>
<th>Building K level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSD</td>
<td>CAcert &amp; secure-u</td>
<td>Apache OpenOffice</td>
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<tr>
<td>CoreBoot &amp; Flashrom</td>
<td>CentOS</td>
<td>Bareos</td>
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<td>MAGEEC</td>
<td>Debian</td>
<td>CONFINE</td>
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<td>mbed</td>
<td>Enlightenment</td>
<td>DoudouLinux</td>
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<tr>
<td>OLInuXino &amp; Hackable Devices</td>
<td>Fedora Project</td>
<td>Eclipse</td>
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<td>OpenEmbedded</td>
<td>FSFE</td>
<td>ElasticSearch</td>
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<td>OpenPandora</td>
<td>GNOME</td>
<td>JBoss</td>
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<tr>
<td>PostgreSQL</td>
<td>Google Summer of Code</td>
<td>Jenkins</td>
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<td>Wikimedia</td>
<td>KDE</td>
<td>Jitsi</td>
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<td>Libre Graphics Magazine</td>
<td>Kolab, MyKolab &amp; Roundcube</td>
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<td></td>
<td>Mageia</td>
<td>LibreOffice</td>
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<td></td>
<td>Mozilla</td>
<td>MySQL community</td>
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<td></td>
<td>OpenMandriva</td>
<td>Perl community</td>
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<td></td>
<td>OpenShift Origin</td>
<td>Puppet</td>
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<td>OpenStack</td>
<td>Python</td>
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<td>OpenStreetMap</td>
<td>XMPP</td>
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<td>openSUSE</td>
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<td>OSGeo</td>
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<td>oVirt</td>
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<td>Xen.org</td>
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</tbody>
</table>

Announcement corner

This is the place to be for all sorts of announcements, including adverts and leaflets of software releases, community projects, and so on. Adverts may not be placed anywhere else on campus! Handing out flyers is likewise not allowed.

In the “job corner” section, information on employment or contracting opportunities can be found.

The corner is at the end of the main corridor in the H building, near the lower entrance.

Some common sense rules apply. Everything must be related to Open Source software. If in doubt, ask a member of staff.
Sponsors

Cornerstone sponsor

Red Hat is the world’s leading provider of open source software solutions, using a community-powered approach to reliable and high-performing cloud, Linux, middleware, storage and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As the connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT. Learn more at http://www.redhat.com/

Red Hat supports FOSDEM financially.

Main sponsors

Cisco enables people to make powerful connections—whether in business, education, philanthropy, or creativity. Cisco hardware, software, and service offerings are used to create the Internet solutions that make networks possible—providing easy access to information anywhere, at any time.

Cisco provides FOSDEM’s wireless network and supports its operation.

Colt is the information delivery platform, enabling its customers to deliver, share, process and store their vital business information. An established leader in delivering integrated computing and network services to major organisations, midsized businesses and wholesale customers, Colt operates a 22-country, 43,000km network that includes metropolitan area networks in 39 major European cities with direct fibre connections into 18,000 buildings and 20 carrier neutral Colt data centres.

In 2010, the Colt Data Centre Services business was launched to deliver innovative high quality data centre solutions at a Colt or customer site.

In addition to its direct sales capability, Colt has four indirect channels to market; Agent, Franchise, Distributor and Wholesale which includes Carriers, Service Providers, VARs and Voice Resellers.

Information about Colt and its services can be found at http://www.colt.net/

Colt sponsors Internet connectivity at FOSDEM.

ElasticSearch is on a mission to make massive amounts of data usable for everyone, everywhere by delivering the world’s most advanced search and analytics engine available. With a laser focus on achieving the best user experience imaginable, the ElasticSearch ELK stack—comprised of ElasticSearch, Logstash, and Kibana—has become one of the most popular and rapidly growing open source solutions in the market. To learn more, visit http://elasticsearch.com/

ElasticSearch supports FOSDEM financially.

Google’s innovative search technologies connect millions of people around the world with information every day. Founded in 1998 by Stanford Ph.D. students Larry Page and Sergey Brin, Google today is a top web property in all major global markets. Google’s targeted advertising program, which is the largest and fastest growing in the industry, provides businesses of all sizes with measurable results, while enhancing the overall web experience for users. Google is headquartered in Silicon Valley with offices throughout North America, Europe, and Asia.

Google supports FOSDEM financially.

HP, as the world’s largest IT company, focuses on simplifying technology experiences for all its customers—from individual consumers to large enterprises. HP helps businesses focus on innovation instead of IT operations by offering robust solutions based on HP inventions, open source software, and industry-standard hardware in a converged infrastructure.

HP supports FOSDEM financially.
With over 110 million registered players, **InnoGames** is one of the worldwide leading developers and publishers of online games. Currently, 300 people from 22 nations are working in the Hamburg-based headquarters. Here community management, development and system administration work seamlessly together. This, combined with close contact to our players, creates a strong foundation that promotes the continued improvement of our games.

All of InnoGames’ online games are free to play without restrictions or time limits. Players have the option to purchase premium accounts or items that offer additional advantages in the games. InnoGames strives to make sure that all players, regardless of standard or premium account, have the opportunity to experience optimal gaming gratification. If you would like to join the team, please find more information on [http://corporate.innogames.com/en/home.html](http://corporate.innogames.com/en/home.html).

InnoGames supports FOSDEM financially.

**The Linux Professional Institute** (LPI) is an internationally recognised, vendor-independent organisation advocating and assisting the professional use of Linux, Open Source and Free Software, through the certification of Linux professionals. Established as a non-profit organisation in 1999, LPI is community based and supported. LPI’s certification program is delivered worldwide in multiple languages at over 7,000 testing locations and is supported by an affiliate network spanning five continents. Since the programs inception, LPI has delivered over 300,000 exams and 100,000+ LPIC certifications around the world.

LPI offers exams with an almost 50% rebate to FOSDEM visitors and donates €10 per exam taken during the event.

**The Oracle Technology Network** is the world’s largest community of application developers, database admins, system admins/developers, and architects using industry-standard technologies like Linux, MySQL, Java, and PHP in combination with Oracle products. Oracle supports FOSDEM financially.

**O’Reilly** are the premier information source for leading-edge computer technologies and communicate the knowledge of experts through our books, conferences, and web sites. Their books, known for their animals on the covers, occupy a treasured place on the shelves of the developers building the next generation of software. Their conferences and summits bring innovators together to shape the revolutionary ideas that spark new industries. From the Internet to the web, Linux, Open Source, and now peer-to-peer networking, O’Reilly puts technologies on the map.

O’Reilly supports FOSDEM financially.

**Qualcomm**, a heritage of innovation...

Launched in 1985, a small company focused on “QUALity COMMunications” evolved into one of the telecommunications industry’s greatest success stories. In 1989, Qualcomm demonstrated CDMA, a technology that changed wireless communications forever.

Qualcomm’s support of the Eudora email program was an early demonstration of its commitment to open source software. In addition advances in CDMA and complementary technologies earned Qualcomm distinction as the world leader in 3G and 4G mobile broadband. Its ever-growing investment in R&D continues to drive the industry with new mobile breakthroughs.

Today, Qualcomm innovation is redefining mobility and empowering people to transform the way they live, learn, work and play.

Qualcomm supports FOSDEM financially.

**Samsung** Electronics Co., Ltd. is a global leader in technology, opening new possibilities for people everywhere. Through relentless innovation and discovery, we are transforming the worlds of televisions, smartphones, personal computers, printers, cameras, home appliances, LTE systems, medical devices, semiconductors and LED solutions. We employ 270,000 people across 79 countries with annual sales of US$187.8 billion. To discover more, please visit [http://www.samsung.com/](http://www.samsung.com/).

Samsung supports FOSDEM financially.
A special thanks to...!

The Université Libre de Bruxelles is a French-speaking university in Brussels, Belgium. It has about 20,000 students. ULB has hosted FOSDEM (and OSDEM before it) since the beginning of time.

Cercle Informatique, ULB is a group of ULB students who help the FOSDEM team liaise with the university administration.

The FOSDEM Team spends a lot of free time throughout the year organising this great event. Without them there would be no FOSDEM.

Last but not least:
Thank you to all the volunteers who help where needed during the event!
Help us make FOSDEM better

Tell us what you think!

Tear off this page and drop it in the feedback box at the Infodesk on your way out. Alternatively, send email to feedback@fosdem.org if you prefer to keep your booklet intact.

Ideas, suggestions, comments, motivating words, criticism, . . . :
Maps

AW building  page 116
H building  page 117
K building  page 118
U building  page 119
Building AW upper level

Developer rooms

Saturday
AW.1.121 BSD
AW.1.125 Games

Sunday
AW.1.121 Internet of Things
AW.1.125 Software-defined Radio

Building AW lower level

Stands
BSD
Coreboot & Flashrom
MAGEEC
mbed
OlinuXino & Hackable Devices
OpenEmbedded
OpenPandora
PostgreSQL
Wikimedia

Developer rooms

Saturday
AW.1.120 Wikis
AW.1.124 Hacker room
AW.1.126 HPC

Sunday
AW.1.120 Wine
AW.1.124 Hacker room
AW.1.126 Energy-efficient
Building K level 1

Main tracks
Saturday
Mail
Mathematics

Stands
CAcert & secure-u
CentOS
Debian
Enlightenment
Fedora Project
FSFE
GNOME
Google Summer of Code
KDE
Libre Graphics Magazine

Sunday
Hardware
IPv6
Security

Building K level 2

Stands
Apache OpenOffice
Bareos
CONFINE
DoudouLinux
Eclipse
ElasticSearch
JBoss
Jenkins
Jitsi
Kolab, MyKolab, Roundcube
LibreOffice
MySQL community
Perl community
Puppet
Python
XMPP

Building K levels 3 & 4

Developer rooms
Saturday
K.3.201 Perl
K.3.401 PostgreSQL
K.4.201 Java
K.4.401 Smalltalk
K.4.601 Ada

Sunday
K.3.201 Python
K.3.401 JavaScript
K.4.201 Valgrind
K.4.401 LLVM
K.4.601 Go
Building U aisle D level 2

Developer rooms

Saturday
UD2.120 Virtualisation and IaaS

Sunday
UD2.120 Virtualisation and IaaS

UD2.218A Mozilla

UD2.218A Testing and automation

Building U aisle A level 2*

Developer rooms & exams

Saturday
UA2.114 MySQL

Sunday
UA2.114 NoSQL

UA2.220 Certification exams

Note: you must have registered with LPI/BSDCG to write exams.

* Unfortunately we were unable to secure sufficiently accurate maps of aisle A of building U. Signage to the relevant rooms is provided.

Building U aisle B level 2

Developer rooms

Saturday
UB2.252 Embedded

Sunday
UB2.252 Embedded